

ANEXO 26

ANÁLISIS DE ESTADO ESTABLE



de

Flujos de Potencia

- Caso 1: REGMHTCB8**
- Caso 2: REGMHTGDC8**
- Caso 3: REGMHTTLA8**

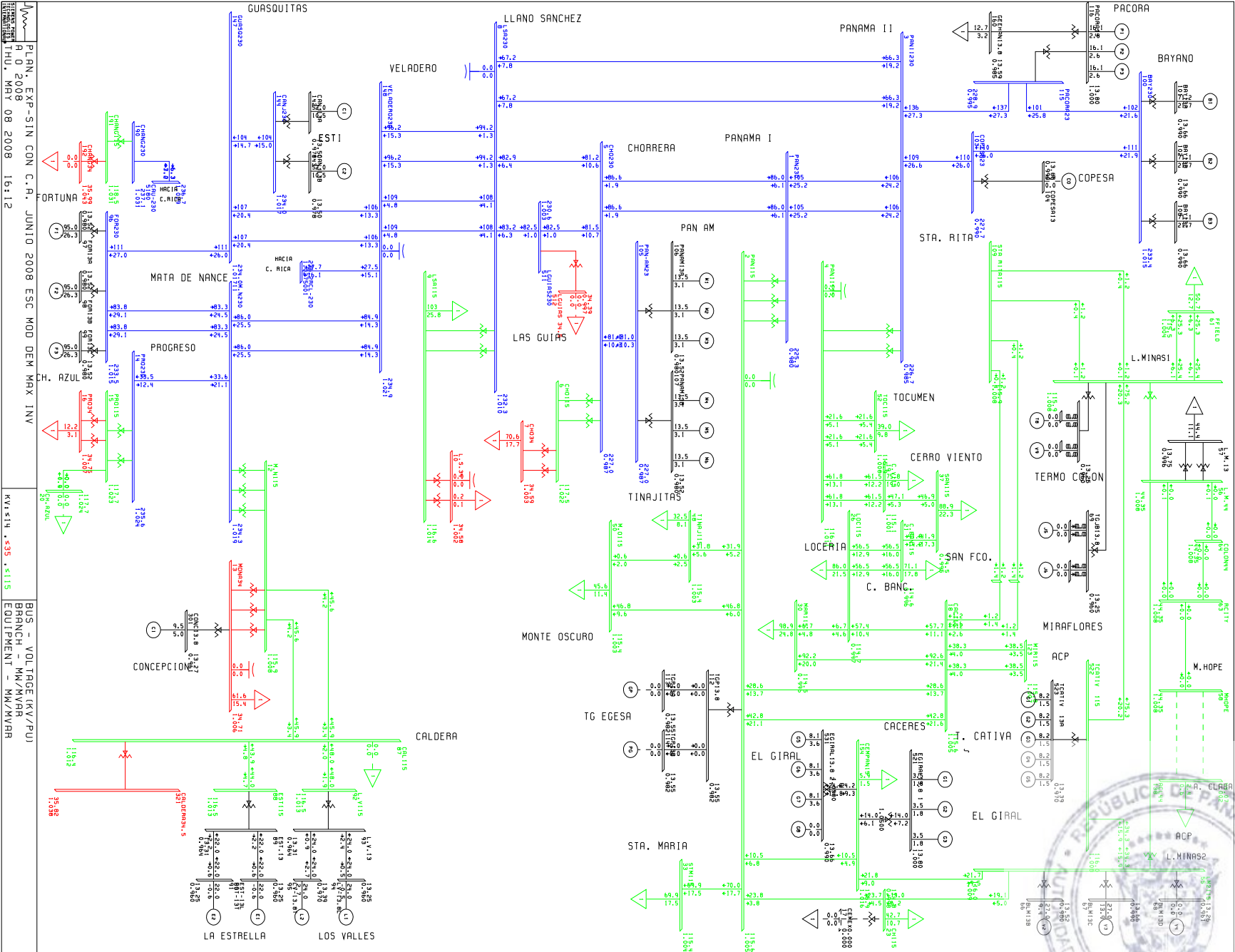


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2008 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**

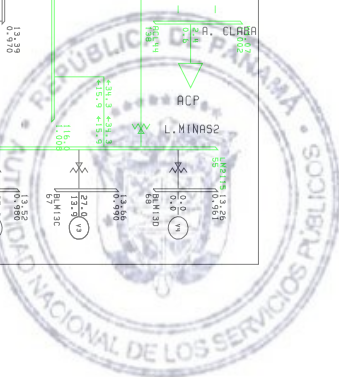


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PLRN - EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX INV
 P 0 2008
 THU, MAY 08 2008 16:12

KV=14.55, 115
 BUS - VOLTRGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 05 2008 14:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0098	232.25	11	M.N230	230.00	6	1.0187	234.31				
14	PRO230	230.00	6	1.0243	235.59	96	FOR230	230.00	6	1.0152	233.49				
100	BAY230	230.00	6	1.0146	233.36	144	CANJ230	230.00	6	1.0174	233.99				
147	GUASQ230	230.00	6	1.0174	234.00	148	VELADERO230	230.00	6	1.0214	234.92				
190	CHANG230	230.00	6	1.0308	237.08	511	LGUIAS230	230.00	6	1.0028	230.65				
6000	FRONTER	230.00	6	1.0252	235.80										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9795	225.29	3	PANII230	230.00	6	0.9855	226.66				
5	CHO230	230.00	6	0.9869	226.99	103	COPESA23	230.00	6	0.9901	227.73				
105	PAN-AM23	230.00	6	0.9870	227.01	115	PACORA23	230.00	6	0.9951	228.88				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0054	115.63	4	PANII115	115.00	6	1.0108	116.24				
6	CHO115	115.00	6	1.0218	117.51	9	LSA115	115.00	6	1.0142	116.63				
12	M.N115	115.00	6	1.0078	115.89	15	PRO115	115.00	6	1.0231	117.66				
18	CAC115	115.00	6	1.0049	115.57	19	C.V115	115.00	6	1.0011	115.12				
20	CH.AZUL	115.00	6	1.0238	117.74	33	STM115	115.00	6	1.0036	115.42				
48	TINAJ115	115.00	6	1.0031	115.36	50	M.O115	115.00	6	1.0032	115.37				
52	TOC115	115.00	6	1.0081	115.93	54	LM115	115.00	6	1.0079	115.91				
55	LM2115	115.00	6	1.0086	115.99	61	FFIELD	115.00	9	1.0043	115.49				
87	CAL115	115.00	6	1.0124	116.43	88	EST115	115.00	6	1.0133	116.53				
92	L.V115	115.00	6	1.0130	116.49	109	STA RITA115	115.00	6	1.0078	115.89				
110	PTMD115A	115.00	6	1.0070	115.80	111	PTMD115B	115.00	6	1.0070	115.80				
123	MIR115	115.00	7	1.0071	115.82	154	CEMPAN15	115.00	6	1.0163	116.88				
191	CHANG115	115.00	6	1.0308	118.54	522	TCATIVÁ 115	115.00	6	1.0084	115.96				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21	C.BAN115	115.00	6	0.9962	114.57	23	CH115	115.00	6	0.9983	114.80				
26	LOC115	115.00	6	0.9972	114.68	30	MAR115	115.00	6	0.9960	114.54				
37	SAN115	115.00	6	0.9953	114.46										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 05 2008 14:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	27.0	9.4	17.0	0.0	0.9800	29.2	0.9442	47.0	1	6					



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67	BLM13C	13.800	V3	27.0	13.9	17.0	0.0	0.9900	30.7	0.8885	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.6	12.0	-5.0	0.9600	22.9	0.9996	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.6	12.0	-5.0	0.9600	22.9	0.9996	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.5	12.0	-5.0	0.9600	25.0	0.9997	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.7	12.0	-5.0	0.9700	24.9	0.9936	27.0	1	6
97	FOR13A	13.800	F1	95.0	-26.3	50.0	-50.0	0.9800	100.6	0.9637	111.0	1	6
98	FOR13B	13.800	F2	95.0	-26.3	50.0	-50.0	0.9800	100.6	0.9637	111.0	1	6
99	FOR13C	13.800	F3	95.0	-26.3	50.0	-50.0	0.9800	100.6	0.9637	111.0	1	6
101	BAY13A	13.800	B1	71.2	21.7	50.0	-25.0	0.9900	75.2	0.9563	96.0	1	6
102	BAY13B	13.800	B2	71.1	21.7	50.0	-25.0	0.9900	75.1	0.9563	96.0	1	6
106	PANAM13A	13.800	M1	13.5	3.1	9.0	0.0	0.9800	14.1	0.9747	20.7	1	6
106	PANAM13A	13.800	M2	13.5	3.1	9.0	0.0	0.9800	14.1	0.9747	20.7	1	6
106	PANAM13A	13.800	M3	13.5	3.1	9.0	0.0	0.9800	14.1	0.9747	20.7	1	6
107	PANAM13B	13.800	M4	13.5	3.1	9.0	0.0	0.9800	14.1	0.9747	20.7	1	6
107	PANAM13B	13.800	M5	13.5	3.1	9.0	0.0	0.9800	14.1	0.9747	20.7	1	6
107	PANAM13B	13.800	M6	13.5	3.1	9.0	0.0	0.9800	14.1	0.9747	20.7	1	6
108	BAY13C	13.800	B3	71.1	21.7	50.0	-25.0	0.9900	75.1	0.9563	100.0	1	6
116	PACORA13	13.800	P1	16.1	2.6	8.8	0.0	1.0000	16.3	0.9873	21.7	1	6
116	PACORA13	13.800	P2	16.1	2.6	8.8	0.0	1.0000	16.3	0.9873	21.7	1	6
116	PACORA13	13.800	P3	16.1	2.6	8.8	0.0	1.0000	16.3	0.9873	21.7	1	6
142	CANJ13A	13.800	C1	52.0	10.5	29.0	-29.0	0.9783	54.2	0.9803	69.0	1	6
143	CANJ13B	13.800	C2	52.0	10.5	29.0	-29.0	0.9783	54.2	0.9803	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9614	11.2	0.8849	13.5	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.8	2.8	1.3	1.0000	3.9	0.8884	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.8	2.8	1.3	1.0000	3.9	0.8884	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.8	2.8	1.3	1.0000	3.9	0.8884	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.8	2.8	1.3	1.0000	3.9	0.8884	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.5	6.6	-6.6	0.9700	8.6	0.9846	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.5	6.6	-6.6	0.9700	8.6	0.9846	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.5	6.6	-6.6	0.9700	8.6	0.9846	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.5	6.6	-6.6	0.9700	8.6	0.9846	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.5	6.6	-6.6	0.9700	8.6	0.9846	10.9	1	6
531	EGIRAL13.8	213.800	G5	8.1	3.6	6.4	3.0	0.9900	8.9	0.9131	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.1	3.6	6.4	3.0	0.9900	8.9	0.9131	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.1	3.6	6.4	3.0	0.9900	8.9	0.9131	10.9	1	6
SUBSYSTEM TOTALS				966.4	88.1	588.7	-326.6				1274.4		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 05 2008 14:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 Año 2008

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.3	3.8	11.0	0.0	1.0000	18.7	0.9794	29.4			2	7	
134	MAD6A	6.9000	G1	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9996	13.0			2	7	
135	MAD6B	6.9000	G2	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9996	13.0			2	7	
136	MAD6C	6.9000	G3	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9996	13.0			2	7	
140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9977	4.1			2	7	



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140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9977	4.1	2	7
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9977	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9756	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9756	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9756	6.2	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0170	18.1	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0261	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0261	17.9	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	22.1	77.5	-12.5				168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:19
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2008 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	250.9	569.4	-236.4	0.0	469.7	30.0	357.6	
6	966.4	922.1	0.0	0.0	0.0	18.3	26.0	25.0
PANAMA	88.1	231.1	-60.7	0.0	459.6	52.2	325.1	
7	116.0	37.5	0.0	0.0	0.0	76.7	1.9	50.0
ACANAL	22.1	9.4	0.0	0.0	0.0	-8.0	20.7	
9	0.0	95.1	0.0	0.0	0.0	-95.2	0.1	-75.0
COLON	0.0	23.8	0.0	0.0	1.1	-28.0	5.3	
TOTALS	6231.1	6106.2	0.0	0.0	0.0	0.0	124.9	0.0
	579.9	1880.6	-908.5	0.0	2009.2	0.0	1617.0	



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**PLAN DE EXPANSIÓN DEL SIN CON CENTROAMÉRICA 2008
AÑO 2008 ESCENARIO MODERADO DE DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0190	234.36	11	M.N230	230.00	6	1.0234	235.39				
14	PRO230	230.00	6	1.0288	236.63	96	FOR230	230.00	6	1.0197	234.53				
100	BAY230	230.00	6	1.0200	234.59	144	CANJ230	230.00	6	1.0238	235.47				
147	GUASQ230	230.00	6	1.0238	235.46	148	VELAD230	230.00	6	1.0300	236.90				
190	CHANG230	230.00	6	1.0337	237.75	511	LGUIAS230	230.00	6	1.0103	232.37				
6000	FRONTER	230.00	6	1.0297	236.83										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9806	225.54	3	PANII230	230.00	6	0.9881	227.27				
5	CHO230	230.00	6	0.9903	227.78	103	COPESA23	230.00	6	0.9933	228.46				
105	PAN-AM23	230.00	6	0.9904	227.79	115	PACORA23	230.00	6	0.9985	229.65				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0115	116.33	4	PANII115	115.00	6	1.0140	116.62				
6	CHO115	115.00	6	1.0254	117.92	9	LSA115	115.00	6	1.0237	117.73				
12	M.N115	115.00	6	1.0125	116.44	15	PRO115	115.00	6	1.0276	118.18				
18	CAC115	115.00	6	1.0112	116.29	19	C.V115	115.00	6	1.0052	115.60				
20	CH.AZUL	115.00	6	1.0284	118.26	21	C.BAN115	115.00	6	1.0020	115.23				
23	CH115	115.00	6	1.0089	116.02	26	LOC115	115.00	6	1.0031	115.35				
30	MAR115	115.00	6	1.0020	115.23	33	STM115	115.00	6	1.0097	116.12				
37	SAN115	115.00	6	1.0010	115.12	48	TINAJ115	115.00	6	1.0092	116.06				
50	M.O115	115.00	6	1.0094	116.08	52	TOC115	115.00	6	1.0114	116.31				
54	LM115	115.00	6	1.0261	118.01	55	LM2115	115.00	6	1.0262	118.01				
61	FFIELD	115.00	9	1.0226	117.60	87	CAL115	115.00	6	1.0140	116.61				
88	EST115	115.00	6	1.0143	116.64	92	L.V115	115.00	6	1.0141	116.63				
109	STA RITA115	115.00	6	1.0243	117.79	110	PTMD115A	115.00	6	1.0196	117.25				
111	PTMD115B	115.00	6	1.0196	117.25	123	MIR115	115.00	7	1.0140	116.61				
154	CEMPAN15	115.00	6	1.0211	117.43	191	CHANG115	115.00	6	1.0337	118.87				
522	TCATVÁ 115	115.00	6	1.0262	118.01										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	



Handwritten signature or initials.

66	BLM13B	13.800	V2	34.0	11.5	17.0	0.0	1.0000	35.9	0.9472	47.0	1	6
67	BLM13C	13.800	V3	34.0	11.5	17.0	0.0	1.0000	35.9	0.9472	47.0	1	6
68	BLM13D	13.800	V4	34.0	12.0	30.0	0.0	1.0000	36.0	0.9432	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.9	20.0	0.0	1.0000	32.0	0.9690	39.4	1	6
71	TGJB13B	13.800	J6	31.0	7.9	20.0	0.0	1.0000	32.0	0.9690	39.4	1	6
72	BLMCCA	13.800	T8	31.0	8.9	20.0	0.0	1.0000	32.2	0.9615	50.0	1	6
73	BLMCCB	13.800	V9	47.0	9.2	40.0	0.0	1.0000	47.9	0.9814	71.0	1	6
90	EST-13L	13.800	E1	17.0	-1.4	12.0	-5.0	0.9600	17.8	0.9968	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.2	12.0	-5.0	0.9600	19.8	0.9980	27.0	1	6
97	FOR13A	13.800	F1	92.0	-30.7	50.0	-50.0	0.9800	99.0	0.9486	111.0	1	6
98	FOR13B	13.800	F2	92.0	-30.7	50.0	-50.0	0.9800	99.0	0.9486	111.0	1	6
99	FOR13C	13.800	F3	92.0	-30.7	50.0	-50.0	0.9800	99.0	0.9486	111.0	1	6
101	BAY13A	13.800	B1	60.9	24.8	50.0	-25.0	1.0000	65.7	0.9260	96.0	1	6
102	BAY13B	13.800	B2	60.9	24.8	50.0	-25.0	1.0000	65.7	0.9260	96.0	1	6
106	PANAM13A	13.800	M1	15.2	2.8	9.0	0.0	0.9800	15.8	0.9835	20.7	1	6
106	PANAM13A	13.800	M2	15.2	2.8	9.0	0.0	0.9800	15.8	0.9835	20.7	1	6
106	PANAM13A	13.800	M3	15.2	2.8	9.0	0.0	0.9800	15.8	0.9835	20.7	1	6
107	PANAM13B	13.800	M4	15.2	2.8	9.0	0.0	0.9800	15.8	0.9835	20.7	1	6
107	PANAM13B	13.800	M5	15.2	2.8	9.0	0.0	0.9800	15.8	0.9835	20.7	1	6
107	PANAM13B	13.800	M6	15.2	2.8	9.0	0.0	0.9800	15.8	0.9835	20.7	1	6
108	BAY13C	13.800	B3	60.9	24.8	50.0	-25.0	1.0000	65.7	0.9260	100.0	1	6
116	PACORA13	13.800	P1	17.0	2.0	8.8	0.0	1.0000	17.1	0.9928	21.7	1	6
116	PACORA13	13.800	P2	17.0	2.0	8.8	0.0	1.0000	17.1	0.9928	21.7	1	6
116	PACORA13	13.800	P3	17.0	2.0	8.8	0.0	1.0000	17.1	0.9928	21.7	1	6
142	CANJ13A	13.800	C1	40.0	5.7	29.0	-29.0	0.9783	41.3	0.9899	69.0	1	6
143	CANJ13B	13.800	C2	40.0	5.7	29.0	-29.0	0.9783	41.3	0.9899	69.0	1	6
301	CONC13.8	13.800	C1	4.2	0.0	0.0	0.0	0.9571	4.4	1.0000	13.5	1	6
SUBSYSTEM TOTALS				963.0	83.1	626.5	-293.0				1360.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
126	MIR13A	12.000	G1	8.6	0.0	5.0	0.0	1.0725	8.0	1.0000	13.5			2	7		
127	MIR13B	12.000	G2	5.4	0.0	5.0	0.0	1.0729	5.0	1.0000	13.5			2	7		
128	MIR13C	12.000	G3	20.0	0.7	11.0	0.0	1.0000	20.0	0.9994	29.4			2	7		
129	MIR13D	13.800	G4	31.0	0.0	15.0	0.0	1.0000	31.0	1.0000	44.1			2	7		
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0281	17.8	0.9281	23.0			2	7		
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0372	17.7	0.9281	23.0			2	7		
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0372	17.7	0.9281	23.0			2	7		
SUBSYSTEM TOTALS				116.0	21.2	69.5	20.5				169.7						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008

AREA TOTALS
 IN MW/MVAR

X-- AREA	--X GENERATION	FROM TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	243.7	569.4	-236.9	0.0	470.4	24.5	357.2	
6	963.0	926.7	0.0	0.0	0.0	18.1	18.2	25.0
PANAMA	83.1	232.3	0.0	0.0	465.4	54.8	261.4	
7	116.0	37.7	0.0	0.0	0.0	77.4	0.9	50.0
ACANAL	21.2	9.4	0.0	0.0	0.0	-4.7	16.4	
9	0.0	95.6	0.0	0.0	0.0	-95.7	0.1	-75.0
COLON	0.0	24.0	0.0	0.0	1.1	-28.2	5.3	
TOTALS	6227.7	6111.5	0.0	0.0	0.0	0.0	116.2	0.0
	566.5	1882.0	-848.4	0.0	2015.8	0.0	1548.8	



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**PLAN DE EXPANSIÓN DEL SIN CON CENTROAMÉRICA 2008
AÑO 2008 ESCENARIO MODERADO DE DEMANDA MÍNIMA VERANO**

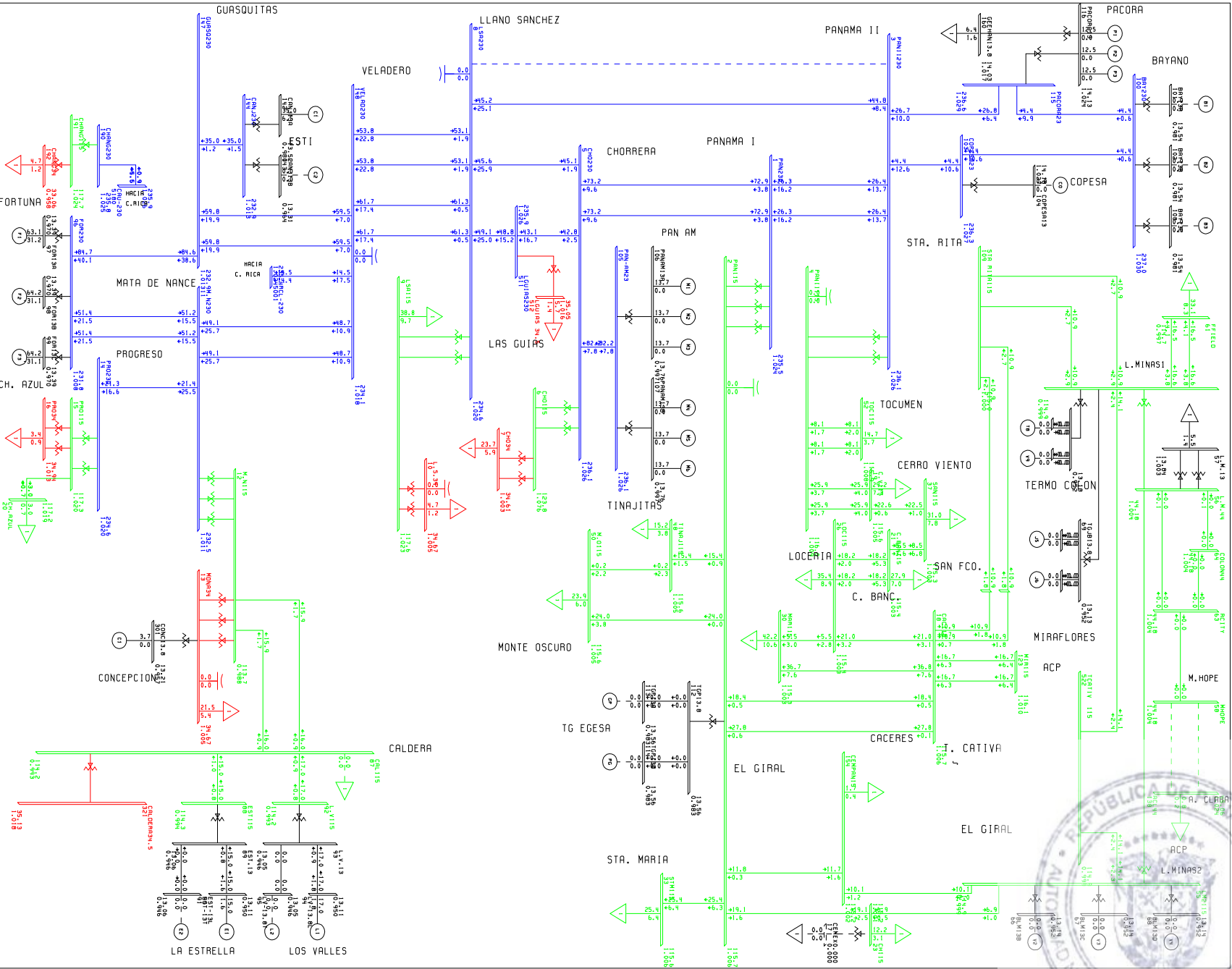


de

PLAN EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MIN VERRANO
 R 0 2008
 THU, MAY 08 2008 16:15

KV:14 *35 *115

BUS - VOLTAGE (KV/FU)
 BRANCH - MW/MVA
 EQUIPMENT - MW/MVA



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:34
 PLAN EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VERANO
 AÑO 2008

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	1.0239	235.49	3		PANII230		230.00	6	1.0264	236.06
5		CHO230		230.00	6	1.0264	236.08	8		LSA230		230.00	6	1.0201	234.62
11		M.N230		230.00	6	1.0108	232.48	14		PRO230		230.00	6	1.0198	234.55
96		FOR230		230.00	6	1.0079	231.82	100		BAY230		230.00	6	1.0305	237.01
103		COPESA23		230.00	6	1.0275	236.32	105		PAN-AM23		230.00	6	1.0264	236.08
115		PACORA23		230.00	6	1.0287	236.59	144		CANJ230		230.00	6	1.0126	232.89
147		GUASQ230		230.00	6	1.0125	232.88	148		VELAD230		230.00	6	1.0178	234.10
190		CHANG230		230.00	6	1.0253	235.83	511		LGUIAS230		230.00	6	1.0255	235.87
515		PANPOWER230		230.00	6	1.0296	236.80	6000		FRONTER		230.00	6	1.0210	234.84

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
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• NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:34
 PLAN EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VERANO
 AÑO 2008

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0062	115.71	4		PANII115		115.00	6	1.0086	115.99
6		CHO115		115.00	6	1.0762	123.76	9		LSA115		115.00	6	1.0228	117.63
15		PRO115		115.00	6	1.0197	117.26	18		CAC115		115.00	6	1.0061	115.70
19		C.V115		115.00	6	1.0051	115.58	20		CH.AZUL		115.00	6	1.0190	117.19
21		C.BAN115		115.00	6	1.0032	115.37	23		CH115		115.00	6	1.0014	115.16
26		LOC115		115.00	6	1.0035	115.40	30		MAR115		115.00	6	1.0026	115.30
33		STM115		115.00	6	1.0055	115.63	37		SAN115		115.00	6	1.0030	115.34
48		TINAJ115		115.00	6	1.0053	115.61	50		M.O115		115.00	6	1.0053	115.61
52		TOC115		115.00	6	1.0076	115.88	109		STA RITA115		115.00	6	1.0004	115.05
110		PTMD115A		115.00	6	1.0030	115.34	111		PTMD115B		115.00	6	1.0030	115.34
123		MIR115		115.00	7	1.0098	116.13	154		CEMPAN15		115.00	6	1.0016	115.19
191		CHANG115		115.00	6	1.0237	117.72								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
12		M.N115		115.00	6	0.9885	113.67	54		LM115		115.00	6	0.9993	114.92
55		LM2115		115.00	6	0.9995	114.94	61		FFIELD		115.00	9	0.9970	114.65
87		CAL115		115.00	6	0.9927	114.16	88		EST115		115.00	6	0.9935	114.25
92		L.V115		115.00	6	0.9930	114.20	522		TCATIVÁ	115	115.00	6	0.9994	114.93



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:34
 PLAN EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VERANO
 AÑO 2008

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
90	EST-13L	13.800	E1	15.0	1.6	12.0	-5.0	0.9500	15.9	0.9947	27.0			1	6	
94	LV-13.8L	13.800	L1	17.0	1.8	12.0	-5.0	0.9500	18.0	0.9944	27.0			1	6	
97	FOR13A	13.800	F1	63.1	-31.2	50.0	-50.0	0.9700	72.5	0.8963	111.0			1	6	SYST
98	FOR13B	13.800	F2	64.2	-31.1	50.0	-50.0	0.9700	73.5	0.8999	111.0			1	6	
99	FOR13C	13.800	F3	64.2	-31.1	50.0	-50.0	0.9700	73.5	0.8999	111.0			1	6	
106	PANAM13A	13.800	M1	13.7	0.0	9.0	0.0	0.9969	13.7	1.0000	20.7			1	6	
106	PANAM13A	13.800	M2	13.7	0.0	9.0	0.0	0.9969	13.7	1.0000	20.7			1	6	
106	PANAM13A	13.800	M3	13.7	0.0	9.0	0.0	0.9969	13.7	1.0000	20.7			1	6	
107	PANAM13B	13.800	M4	13.7	0.0	9.0	0.0	0.9969	13.7	1.0000	20.7			1	6	
107	PANAM13B	13.800	M5	13.7	0.0	9.0	0.0	0.9969	13.7	1.0000	20.7			1	6	
107	PANAM13B	13.800	M6	13.7	0.0	9.0	0.0	0.9969	13.7	1.0000	20.7			1	6	
116	PACORA13	13.800	P1	12.5	0.0	8.8	0.0	1.0239	12.2	1.0000	21.7			1	6	
116	PACORA13	13.800	P2	12.5	0.0	8.8	0.0	1.0239	12.2	1.0000	21.7			1	6	
116	PACORA13	13.800	P3	12.5	0.0	8.8	0.0	1.0239	12.2	1.0000	21.7			1	6	
142	CANJ13A	13.800	C1	35.0	6.5	29.0	-29.0	0.9800	36.3	0.9831	69.0			1	6	
301	CONC13.8	13.800	C1	3.7	0.0	0.0	0.0	0.9570	3.8	1.0000	13.5			1	6	
302	PASOANCH13.8	13.800	P1	3.1	0.0	0.0	0.0	0.9570	3.2	1.0000	6.2			1	6	
SUBSYSTEM TOTALS				384.9	-83.5	283.5	-189.0				664.9					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:34
 PLAN EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VERANO
 AÑO 2008

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
170	MIR13G	13.800	M1	12.4	6.8	11.2	6.8	1.0418	13.6	0.8762	23.0			2	7	
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0505	17.4	0.9281	23.0			2	7	
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0505	17.4	0.9281	23.0			2	7	
SUBSYSTEM TOTALS				46.4	20.5	33.5	20.5				69.1					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, MAY 06 2008 14:34
 PLAN EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VERANO AREA TOTALS
 AÑO 2008 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.6	1324.8	0.0	0.0	0.0	0.5	19.3	0.0
C.RICA	256.3	569.4	-237.4	0.0	469.1	36.7	356.7	
6	384.9	372.6	0.0	0.0	0.0	4.7	7.6	25.0
PANAMA	-83.5	93.4	185.2	0.0	468.0	5.7	100.2	
7	46.4	12.9	0.0	0.0	0.0	33.4	0.1	50.0
ACANAL	20.5	3.2	0.0	0.0	0.0	12.6	4.6	
9	0.0	38.6	0.0	0.0	0.0	-38.7	0.0	-75.0
COLON	0.0	9.7	0.0	0.0	1.1	-8.9	0.3	
TOTALS	5580.2	5475.7	0.0	0.0	0.0	0.0	104.6	0.0
	412.1	1722.6	-663.7	0.0	2017.0	0.0	1370.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2008 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO



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Contingencia 1: Contingencia Panamá II-Llano Sánchez



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 14:23
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA PANAMA II- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0154	233.54	11	M.N230	230.00	6	1.0208	234.79				
14	PRO230	230.00	6	1.0262	236.02	96	FOR230	230.00	6	1.0169	233.88				
100	BAY230	230.00	6	1.0295	236.78	103	COPESA23	230.00	6	1.0004	230.09				
115	PACORA23	230.00	6	1.0079	231.81	144	CANJ230	230.00	6	1.0195	234.49				
147	GUASQ230	230.00	6	1.0196	234.50	148	VELADERO230	230.00	6	1.0249	235.73				
190	CHANG230	230.00	6	1.0319	237.33	511	LGUIAS230	230.00	6	1.0101	232.32				
6000	FRONTIER	230.00	6	1.0270	236.22										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9886	227.37	3	PANII230	230.00	6	0.9949	228.82				
5	CHO230	230.00	6	0.9983	229.62	105	PAN-AM23	230.00	6	0.9985	229.66				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 14:23
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA PANAMA II- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0126	116.45	4	PANII115	115.00	6	1.0106	116.22				
6	CHO115	115.00	6	1.0341	118.92	9	LSA115	115.00	6	1.0201	117.31				
12	M.N115	115.00	6	1.0093	116.07	15	PRO115	115.00	6	1.0250	117.87				
18	CAC115	115.00	6	1.0120	116.37	19	C.V115	115.00	6	1.0030	115.34				
20	CH.AZUL	115.00	6	1.0257	117.96	21	C.BAN115	115.00	6	1.0025	115.29				
23	CH115	115.00	6	1.0041	115.47	26	LOC115	115.00	6	1.0037	115.42				
30	MAR115	115.00	6	1.0027	115.32	33	STM115	115.00	6	1.0108	116.24				
37	SAN115	115.00	6	1.0012	115.14	48	TINAJ115	115.00	6	1.0103	116.18				
50	M.O115	115.00	6	1.0104	116.20	52	TOC115	115.00	6	1.0080	115.92				
54	LM115	115.00	6	1.0117	116.35	55	LM2115	115.00	6	1.0124	116.43				
61	FFIELD	115.00	9	1.0081	115.93	87	CAL115	115.00	6	1.0135	116.55				
88	EST115	115.00	6	1.0142	116.64	92	L.V115	115.00	6	1.0140	116.61				
109	STA RITA115	115.00	6	1.0120	116.38	110	PTMD115A	115.00	6	1.0124	116.43				
111	PTMD115B	115.00	6	1.0124	116.43	123	MIR115	115.00	7	1.0138	116.59				
154	CEMPAN15	115.00	6	1.0202	117.32	191	CHANG115	115.00	6	1.0319	118.67				
522	TCATIVÁ	115.00	6	1.0122	116.40										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 14:22
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA PANAMA II- LLANO SÁNCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	



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66	BLM13B	13.800	V2	26.0	7.8	17.0	0.0	0.9800	27.7	0.9582	47.0	1	6
67	BLM13C	13.800	V3	26.0	12.3	17.0	0.0	0.9900	29.0	0.9043	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.9	12.0	-5.0	0.9600	22.9	0.9992	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.9	12.0	-5.0	0.9600	22.9	0.9992	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.8	12.0	-5.0	0.9600	25.0	0.9994	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.4	12.0	-5.0	0.9700	24.9	0.9948	27.0	1	6
97	FOR13A	13.800	F1	95.0	-27.9	50.0	-50.0	0.9800	101.0	0.9596	111.0	1	6
98	FOR13B	13.800	F2	95.0	-27.9	50.0	-50.0	0.9800	101.0	0.9596	111.0	1	6
99	FOR13C	13.800	F3	95.0	-27.9	50.0	-50.0	0.9800	101.0	0.9596	111.0	1	6
101	BAY13A	13.800	B1	72.1	26.7	50.0	-25.0	1.0100	76.1	0.9377	96.0	1	6
102	BAY13B	13.800	B2	72.8	26.8	50.0	-25.0	1.0100	76.8	0.9385	96.0	1	6
106	PANAM13A	13.800	M1	13.5	8.2	9.0	0.0	1.0250	15.4	0.8553	20.7	1	6
106	PANAM13A	13.800	M2	13.5	8.2	9.0	0.0	1.0250	15.4	0.8553	20.7	1	6
106	PANAM13A	13.800	M3	13.5	8.2	9.0	0.0	1.0250	15.4	0.8553	20.7	1	6
107	PANAM13B	13.800	M4	13.5	8.2	9.0	0.0	1.0250	15.4	0.8553	20.7	1	6
107	PANAM13B	13.800	M5	13.5	8.2	9.0	0.0	1.0250	15.4	0.8553	20.7	1	6
107	PANAM13B	13.800	M6	13.5	8.2	9.0	0.0	1.0250	15.4	0.8553	20.7	1	6
108	BAY13C	13.800	B3	72.8	26.8	50.0	-25.0	1.0100	76.8	0.9385	100.0	1	6
116	PACORA13	13.800	P1	16.1	7.7	8.8	0.0	1.0400	17.2	0.9024	21.7	1	6
116	PACORA13	13.800	P2	16.1	7.7	8.8	0.0	1.0400	17.2	0.9024	21.7	1	6
116	PACORA13	13.800	P3	16.1	7.7	8.8	0.0	1.0400	17.2	0.9024	21.7	1	6
142	CANJ13A	13.800	C1	52.0	10.1	29.0	-29.0	0.9783	54.2	0.9816	69.0	1	6
143	CANJ13B	13.800	C2	52.0	10.1	29.0	-29.0	0.9783	54.2	0.9816	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9629	11.1	0.8849	13.5	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.6	2.8	1.3	1.0000	3.9	0.9080	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.6	2.8	1.3	1.0000	3.9	0.9080	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.6	2.8	1.3	1.0000	3.9	0.9080	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.6	2.8	1.3	1.0000	3.9	0.9080	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.0	6.6	-6.6	0.9700	8.5	0.9924	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.0	6.6	-6.6	0.9700	8.5	0.9924	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.0	6.6	-6.6	0.9700	8.5	0.9924	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.0	6.6	-6.6	0.9700	8.5	0.9924	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.0	6.6	-6.6	0.9700	8.5	0.9924	10.9	1	6
531	EGIRAL13.8	213.800	G5	8.1	3.0	6.4	3.0	0.9900	8.7	0.9358	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.1	3.0	6.4	3.0	0.9900	8.7	0.9358	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.1	3.0	6.4	3.0	0.9900	8.7	0.9358	10.9	1	6
SUBSYSTEM TOTALS				968.6	134.6	588.7	-326.6				1274.4		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 14:22
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA PANAMA II- LLANO SÁNCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.3	2.7	11.0	0.0	1.0000	18.5	0.9891	29.4			2	7	7
134	MAD6A	6.9000	G1	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	7
135	MAD6B	6.9000	G2	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	7
136	MAD6C	6.9000	G3	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	7
140	GAT6A	6.9000	G1	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9950	4.1			2	7	7
140	GAT6A	6.9000	G2	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9950	4.1			2	7	7



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140 GAT6A	6.9000	G3	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9950	4.1	2	7
141 GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9721	5.6	2	7
141 GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9721	6.2	2	7
141 GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9721	6.2	2	7
170 MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0209	18.0	0.9289	23.0	2	7
171 MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0300	17.9	0.9289	23.0	2	7
171 MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0300	17.9	0.9289	23.0	2	7
SUBSYSTEM TOTALS			116.0	20.0	77.5	-12.5				168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 14:23
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2008 CONTINGENCIA PANAMA II- LLANO SÁNCHEZ IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	248.0	569.4	-236.7	0.0	470.0	27.9	357.4	
6	968.6	922.1	0.0	0.0	0.0	18.3	28.2	25.0
PANAMA	134.6	231.1	-61.5	0.0	428.7	56.4	337.4	
7	116.0	37.5	0.0	0.0	0.0	76.7	1.9	50.0
ACANAL	20.0	9.4	0.0	0.0	0.0	-10.0	20.6	
9	0.0	95.1	0.0	0.0	0.0	-95.2	0.1	-75.0
COLON	0.0	23.8	0.0	0.0	1.1	-28.0	5.3	
TOTALS	6233.3	6106.2	0.0	0.0	0.0	0.0	127.1	0.0
	621.3	1880.6	-909.7	0.0	1978.7	0.0	1629.0	



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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2008 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas - Veladero

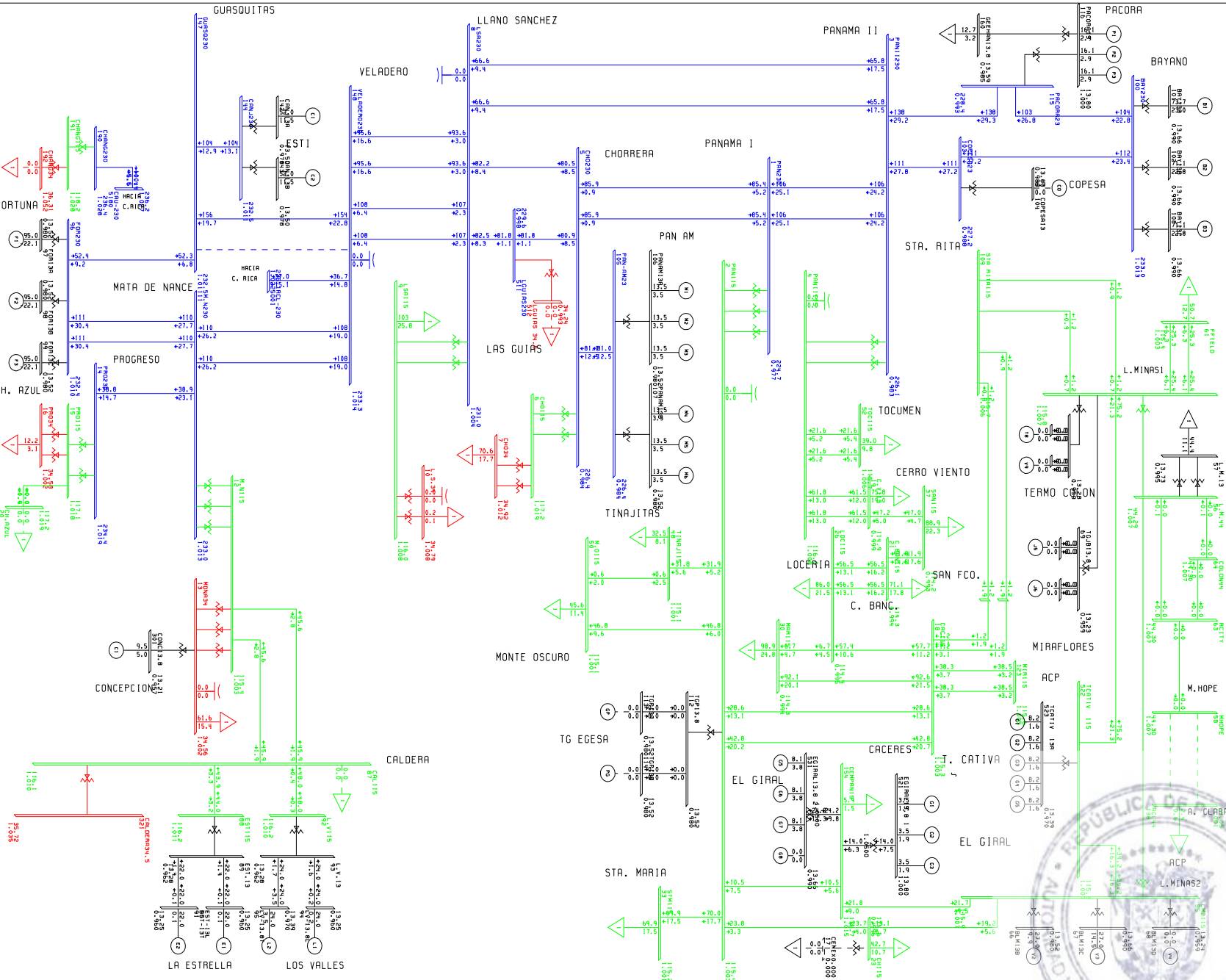


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PLUN - EXP-SIN CON C.A. JUNIO 2008 ESC. MOD. DEM. MAX. INV.
 A 0 2008 CONTINGENCIA GUASQUITAS-VELADERO
 F.11, MAY 09 2008 15:02

KV=114, *355, *1115

BUS - VOLTRGE (KV/PUI)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3	PANII230	230.00	6	1.0037	230.86	5	CHO230	230.00	6	1.0062	231.43				
8	LSA230	230.00	6	1.0199	234.57	11	M.N230	230.00	6	1.0187	234.30				
14	PRO230	230.00	6	1.0244	235.62	96	FOR230	230.00	6	1.0148	233.40				
100	BAY230	230.00	6	1.0341	237.84	103	COPESA23	230.00	6	1.0086	231.98				
105	PAN-AM23	230.00	6	1.0064	231.46	115	PACORA23	230.00	6	1.0138	233.18				
144	CANJ230	230.00	6	1.0159	233.67	147	GUASQ230	230.00	6	1.0160	233.67				
148	VELADERO230	230.00	6	1.0244	235.61	190	CHANG230	230.00	6	1.0304	237.00				
511	LGUIAS230	230.00	6	1.0169	233.88	6000	FRONTER	230.00	6	1.0254	235.83				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9979	229.52										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0113	116.30	4	PANII115	115.00	6	1.0171	116.96				
6	CHO115	115.00	6	1.0426	119.90	9	LSA115	115.00	6	1.0248	117.86				
12	M.N115	115.00	6	1.0077	115.89	15	PRO115	115.00	6	1.0232	117.67				
18	CAC115	115.00	6	1.0108	116.24	19	C.V115	115.00	6	1.0073	115.84				
20	CH.AZUL	115.00	6	1.0240	117.76	21	C.BAN115	115.00	6	1.0022	115.26				
23	CH115	115.00	6	1.0031	115.36	26	LOC115	115.00	6	1.0032	115.37				
30	MAR115	115.00	6	1.0019	115.22	33	STM115	115.00	6	1.0095	116.10				
37	SAN115	115.00	6	1.0014	115.16	48	TINAJ115	115.00	6	1.0090	116.04				
50	M.O115	115.00	6	1.0091	116.05	52	TOC115	115.00	6	1.0144	116.66				
54	LM115	115.00	6	1.0111	116.28	55	LM2115	115.00	6	1.0118	116.36				
61	FFIELD	115.00	9	1.0075	115.86	87	CAL115	115.00	6	1.0124	116.43				
88	EST115	115.00	6	1.0133	116.53	92	L.V115	115.00	6	1.0130	116.49				
109	STA RITA115	115.00	6	1.0113	116.30	110	PTMD115A	115.00	6	1.0116	116.33				
111	PTMD115B	115.00	6	1.0116	116.33	123	MIR115	115.00	7	1.0127	116.46				
154	CEMPAN15	115.00	6	1.0195	117.25	191	CHANG115	115.00	6	1.0304	118.50				
522	TCATIVÁ	115.00	6	1.0116	116.33										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:



Handwritten signature or initials.

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	27.0	8.1	17.0	0.0	0.9800	28.8	0.9581	47.0			1	6		
67		BLM13C		13.800	V3	27.0	12.6	17.0	0.0	0.9900	30.1	0.9064	47.0			1	6		
90		EST-13L		13.800	E1	22.0	-0.6	12.0	-5.0	0.9600	22.9	0.9996	27.0			1	6		
91		EST-13T		13.800	E2	22.0	-0.6	12.0	-5.0	0.9600	22.9	0.9996	27.0			1	6		
94		LV-13.8L		13.800	L1	24.0	-0.5	12.0	-5.0	0.9600	25.0	0.9998	27.0			1	6		
95		LV-13.8T		13.800	L2	24.0	2.7	12.0	-5.0	0.9700	24.9	0.9936	27.0			1	6		
97		FOR13A		13.800	F1	95.0	-26.0	50.0	-50.0	0.9800	100.5	0.9645	111.0			1	6		
98		FOR13B		13.800	F2	95.0	-26.0	50.0	-50.0	0.9800	100.5	0.9645	111.0			1	6		
99		FOR13C		13.800	F3	95.0	-26.0	50.0	-50.0	0.9800	100.5	0.9645	111.0			1	6		
101		BAY13A		13.800	B1	73.2	23.3	50.0	-25.0	1.0100	76.0	0.9527	96.0			1	6	SYST	
102		BAY13B		13.800	B2	71.1	23.1	50.0	-25.0	1.0100	74.1	0.9509	96.0			1	6		
106		PANAM13A		13.800	M1	13.5	6.3	9.0	0.0	1.0200	14.6	0.9070	20.7			1	6		
106		PANAM13A		13.800	M2	13.5	6.3	9.0	0.0	1.0200	14.6	0.9070	20.7			1	6		
106		PANAM13A		13.800	M3	13.5	6.3	9.0	0.0	1.0200	14.6	0.9070	20.7			1	6		
107		PANAM13B		13.800	M4	13.5	6.3	9.0	0.0	1.0200	14.6	0.9070	20.7			1	6		
107		PANAM13B		13.800	M5	13.5	6.3	9.0	0.0	1.0200	14.6	0.9070	20.7			1	6		
107		PANAM13B		13.800	M6	13.5	6.3	9.0	0.0	1.0200	14.6	0.9070	20.7			1	6		
108		BAY13C		13.800	B3	71.1	23.1	50.0	-25.0	1.0100	74.1	0.9509	100.0			1	6		
116		PACORA13		13.800	P1	16.1	2.8	8.8	0.0	1.0200	16.0	0.9850	21.7			1	6		
116		PACORA13		13.800	P2	16.1	2.8	8.8	0.0	1.0200	16.0	0.9850	21.7			1	6		
116		PACORA13		13.800	P3	16.1	2.8	8.8	0.0	1.0200	16.0	0.9850	21.7			1	6		
142		CANJ13A		13.800	C1	52.0	10.7	29.0	-29.0	0.9783	54.3	0.9795	69.0			1	6		
143		CANJ13B		13.800	C2	52.0	10.7	29.0	-29.0	0.9783	54.3	0.9795	69.0			1	6		
301		CONC13.8		13.800	C1	9.5	5.0	5.0	-5.0	0.9613	11.2	0.8849	13.5			1	6		
521		EGIRAL13.8	113.800	G1	3.5	1.6	2.8	1.3	1.0000		3.9	0.9049	4.8			1	6		
521		EGIRAL13.8	113.800	G2	3.5	1.6	2.8	1.3	1.0000		3.9	0.9049	4.8			1	6		
521		EGIRAL13.8	113.800	G3	3.5	1.6	2.8	1.3	1.0000		3.9	0.9049	4.8			1	6		
521		EGIRAL13.8	113.800	G4	3.5	1.6	2.8	1.3	1.0000		3.9	0.9049	4.8			1	6		
523		TCATIVÁ 13A	13.800	G1	8.2	1.1	6.6	-6.6	0.9700		8.5	0.9913	10.9			1	6		
523		TCATIVÁ 13A	13.800	G2	8.2	1.1	6.6	-6.6	0.9700		8.5	0.9913	10.9			1	6		
523		TCATIVÁ 13A	13.800	G3	8.2	1.1	6.6	-6.6	0.9700		8.5	0.9913	10.9			1	6		
523		TCATIVÁ 13A	13.800	G4	8.2	1.1	6.6	-6.6	0.9700		8.5	0.9913	10.9			1	6		
523		TCATIVÁ 13A	13.800	G5	8.2	1.1	6.6	-6.6	0.9700		8.5	0.9913	10.9			1	6		
531		EGIRAL13.8	213.800	G5	8.1	3.1	6.4	3.0	0.9900		8.7	0.9322	10.9			1	6		
531		EGIRAL13.8	213.800	G6	8.1	3.1	6.4	3.0	0.9900		8.7	0.9322	10.9			1	6		
531		EGIRAL13.8	213.800	G7	8.1	3.1	6.4	3.0	0.9900		8.7	0.9322	10.9			1	6		
SUBSYSTEM TOTALS						968.4	107.2	588.7	-326.6				1274.4						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	18.3	2.9	11.0	0.0	1.0000	18.5	0.9876	29.4			2	7	
134		MAD6A		6.9000	G1	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	
135		MAD6B		6.9000	G2	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0			2	7	
136		MAD6C		6.9000	G3	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0			2	7	
140		GAT6A		6.9000	G1	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9955	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9955	4.1			2	7	



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140	GAT6A	6.9000	G3	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9955	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9727	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9727	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9727	6.2	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0203	18.0	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0294	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0294	17.9	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	20.3	77.5	-12.5				168.0		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2008 CONTINGENCIA GUASQUITAS-VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	250.7	569.4	-236.7	0.0	469.7	29.8	357.8	
6	968.4	922.1	0.0	0.0	0.0	18.4	28.0	25.0
PANAMA	107.2	231.1	-61.4	0.0	450.7	54.1	334.0	
7	116.0	37.5	0.0	0.0	0.0	76.7	1.9	50.0
ACANAL	20.3	9.4	0.0	0.0	0.0	-9.6	20.6	
9	0.0	95.1	0.0	0.0	0.0	-95.2	0.1	-75.0
COLON	0.0	23.8	0.0	0.0	1.1	-28.0	5.3	
TOTALS	6233.1	6106.2	0.0	0.0	0.0	0.0	126.9	0.0
	596.9	1880.6	-909.5	0.0	2000.3	0.0	1626.2	

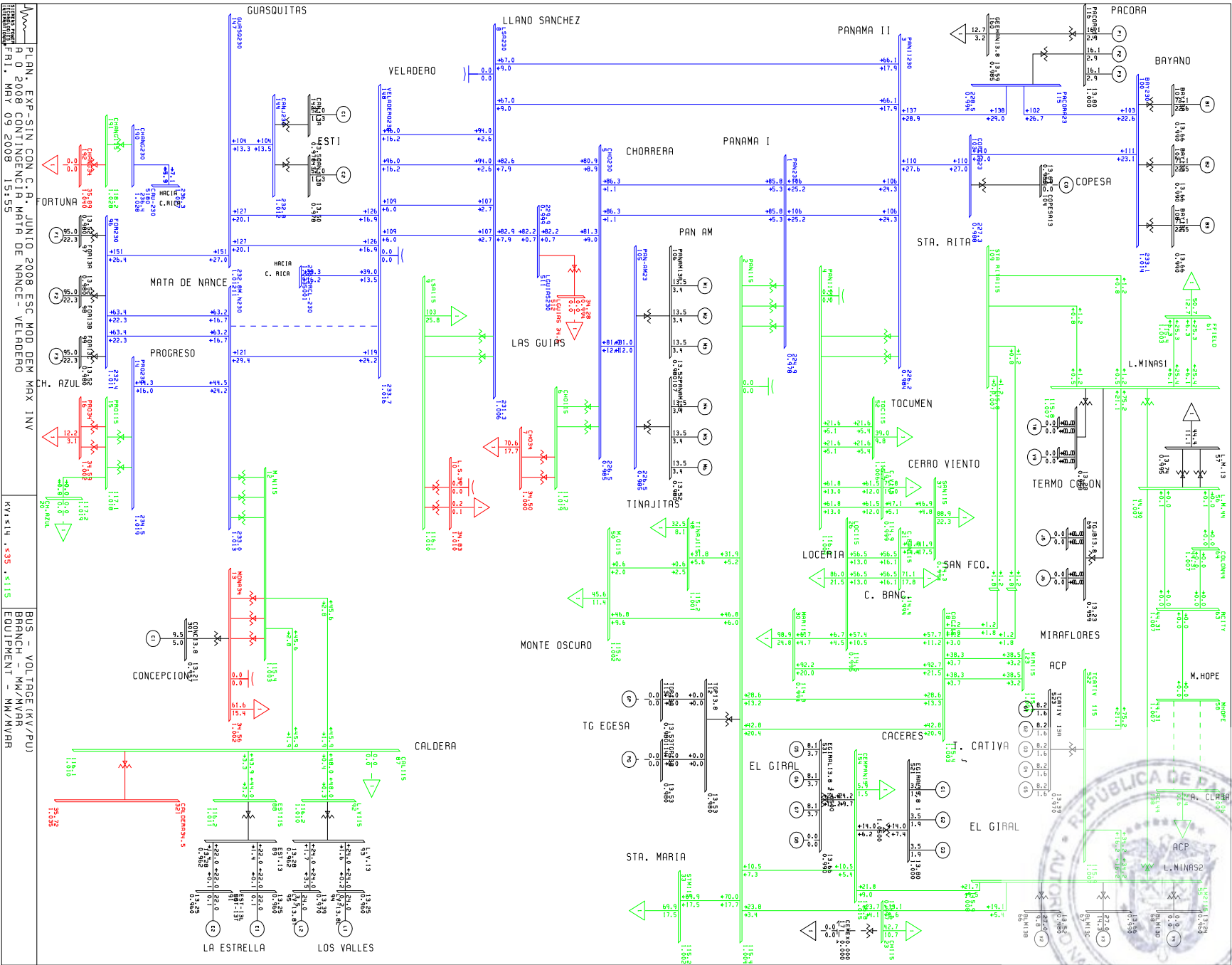


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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2008 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nanca - Veladero



de



PLAN - EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX INV
 A O 2008 CONTINENCIA MATA DE NANCE - VELADERO
 FRI, MAY 09 2008 15:55

BUS - VOLTRGE (KV/PV)
 BRANCH - MW/MVAR
 EQUIPMENT - MM/MVAR

KVA 114 .535 .5115



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3	PANII230	230.00	6	1.0049	231.13	5	CHO230	230.00	6	1.0069	231.59				
8	LSA230	230.00	6	1.0214	234.92	11	M.N230	230.00	6	1.0182	234.18				
14	PRO230	230.00	6	1.0242	235.57	96	FOR230	230.00	6	1.0151	233.48				
100	BAY230	230.00	6	1.0347	237.99	103	COPESA23	230.00	6	1.0097	232.23				
105	PAN-AM23	230.00	6	1.0070	231.62	115	PACORA23	230.00	6	1.0148	233.40				
144	CANJ230	230.00	6	1.0182	234.19	147	GUASQ230	230.00	6	1.0183	234.20				
148	VELADERO230	230.00	6	1.0263	236.05	190	CHANG230	230.00	6	1.0308	237.07				
511	LGUIAS230	230.00	6	1.0180	234.14	6000	FRONTER	230.00	6	1.0252	235.81				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9984	229.64										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0106	116.22	4	PANII115	115.00	6	1.0087	116.00				
6	CHO115	115.00	6	1.0434	119.99	9	LSA115	115.00	6	1.0264	118.04				
12	M.N115	115.00	6	1.0073	115.84	15	PRO115	115.00	6	1.0230	117.65				
18	CAC115	115.00	6	1.0100	116.15	19	C.V115	115.00	6	1.0010	115.12				
20	CH.AZUL	115.00	6	1.0238	117.73	21	C.BAN115	115.00	6	1.0005	115.06				
23	CH115	115.00	6	1.0025	115.29	26	LOC115	115.00	6	1.0017	115.20				
30	MAR115	115.00	6	1.0008	115.09	33	STM115	115.00	6	1.0088	116.01				
48	TINAJ115	115.00	6	1.0083	115.96	50	M.O115	115.00	6	1.0084	115.97				
52	TOC115	115.00	6	1.0060	115.69	54	LM115	115.00	6	1.0107	116.23				
55	LM2115	115.00	6	1.0114	116.31	61	FFIELD	115.00	9	1.0071	115.82				
87	CAL115	115.00	6	1.0121	116.39	88	EST115	115.00	6	1.0130	116.50				
92	L.V115	115.00	6	1.0127	116.46	109	STA RITA115	115.00	6	1.0109	116.25				
110	PTMD115A	115.00	6	1.0110	116.26	111	PTMD115B	115.00	6	1.0110	116.26				
123	MIR115	115.00	7	1.0120	116.38	154	CEMPAN15	115.00	6	1.0191	117.20				
191	CHANG115	115.00	6	1.0308	118.54	522	TCATIVÁ	115 115.00	6	1.0112	116.28				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
37	SAN115	115.00	6	0.9992	114.91										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	27.0	8.2	17.0	0.0	0.9800	28.8	0.9564	47.0	1	6
67	BLM13C	13.800	V3	27.0	12.8	17.0	0.0	0.9900	30.2	0.9042	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.5	12.0	-5.0	0.9600	22.9	0.9997	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.5	12.0	-5.0	0.9600	22.9	0.9997	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.5	12.0	-5.0	0.9600	25.0	0.9998	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.8	12.0	-5.0	0.9700	24.9	0.9932	27.0	1	6
97	FOR13A	13.800	F1	95.0	-26.3	50.0	-50.0	0.9800	100.6	0.9638	111.0	1	6
98	FOR13B	13.800	F2	95.0	-26.3	50.0	-50.0	0.9800	100.6	0.9638	111.0	1	6
99	FOR13C	13.800	F3	95.0	-26.3	50.0	-50.0	0.9800	100.6	0.9638	111.0	1	6
101	BAY13A	13.800	B1	71.6	22.7	50.0	-25.0	1.0100	74.4	0.9533	96.0	1	6
102	BAY13B	13.800	B2	71.1	22.6	50.0	-25.0	1.0100	73.9	0.9529	96.0	1	6
106	PANAM13A	13.800	M1	13.5	6.2	9.0	0.0	1.0200	14.6	0.9095	20.7	1	6
106	PANAM13A	13.800	M2	13.5	6.2	9.0	0.0	1.0200	14.6	0.9095	20.7	1	6
106	PANAM13A	13.800	M3	13.5	6.2	9.0	0.0	1.0200	14.6	0.9095	20.7	1	6
107	PANAM13B	13.800	M4	13.5	6.2	9.0	0.0	1.0200	14.6	0.9095	20.7	1	6
107	PANAM13B	13.800	M5	13.5	6.2	9.0	0.0	1.0200	14.6	0.9095	20.7	1	6
107	PANAM13B	13.800	M6	13.5	6.2	9.0	0.0	1.0200	14.6	0.9095	20.7	1	6
108	BAY13C	13.800	B3	71.1	22.6	50.0	-25.0	1.0100	73.9	0.9529	100.0	1	6
116	PACORA13	13.800	P1	16.1	2.6	8.8	0.0	1.0200	16.0	0.9868	21.7	1	6
116	PACORA13	13.800	P2	16.1	2.6	8.8	0.0	1.0200	16.0	0.9868	21.7	1	6
116	PACORA13	13.800	P3	16.1	2.6	8.8	0.0	1.0200	16.0	0.9868	21.7	1	6
142	CANJ13A	13.800	C1	52.0	10.3	29.0	-29.0	0.9783	54.2	0.9808	69.0	1	6
143	CANJ13B	13.800	C2	52.0	10.3	29.0	-29.0	0.9783	54.2	0.9808	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9609	11.2	0.8849	13.5	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.7	2.8	1.3	1.0000	3.9	0.9028	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.7	2.8	1.3	1.0000	3.9	0.9028	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.7	2.8	1.3	1.0000	3.9	0.9028	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.7	2.8	1.3	1.0000	3.9	0.9028	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.1	6.6	-6.6	0.9700	8.5	0.9906	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.1	6.6	-6.6	0.9700	8.5	0.9906	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.1	6.6	-6.6	0.9700	8.5	0.9906	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.1	6.6	-6.6	0.9700	8.5	0.9906	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.1	6.6	-6.6	0.9700	8.5	0.9906	10.9	1	6
531	EGIRAL13.8	213.800	G5	8.1	3.2	6.4	3.0	0.9900	8.8	0.9299	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.1	3.2	6.4	3.0	0.9900	8.8	0.9299	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.1	3.2	6.4	3.0	0.9900	8.8	0.9299	10.9	1	6
SUBSYSTEM TOTALS				966.9	103.9	588.7	-326.6				1274.4		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2008 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.3	3.0	11.0	0.0	1.0000	18.5	0.9867	29.4			2	7	
134	MAD6A	6.9000	G1	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0			2	7	
135	MAD6B	6.9000	G2	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0			2	7	
136	MAD6C	6.9000	G3	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0			2	7	
140	GAT6A	6.9000	G1	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9958	4.1			2	7	
140	GAT6A	6.9000	G2	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9958	4.1			2	7	
140	GAT6A	6.9000	G3	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9958	4.1			2	7	
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9731	5.6			2	7	



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141 GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9731	6.2	2	7
141 GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9731	6.2	2	7
170 MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0199	18.1	0.9289	23.0	2	7
171 MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0290	17.9	0.9289	23.0	2	7
171 MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0290	17.9	0.9289	23.0	2	7
SUBSYSTEM TOTALS			116.0	20.6	77.5	-12.5				168.0		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 09 2008 15:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2008 CONTINGENCIA MATA DE NANCE- VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	250.3	569.4	-236.6	0.0	469.8	29.7	357.5	
6	966.9	922.1	0.0	0.0	0.0	18.3	26.5	25.0
PANAMA	103.9	231.1	-61.3	0.0	450.1	54.0	330.2	
7	116.0	37.5	0.0	0.0	0.0	76.7	1.9	50.0
ACANAL	20.6	9.4	0.0	0.0	0.0	-9.4	20.6	
9	0.0	95.1	0.0	0.0	0.0	-95.2	0.1	-75.0
COLON	0.0	23.8	0.0	0.0	1.1	-28.0	5.3	
TOTALS	6231.5	6106.2	0.0	0.0	0.0	0.0	125.4	0.0
	593.5	1880.6	-909.3	0.0	1999.8	0.0	1622.1	

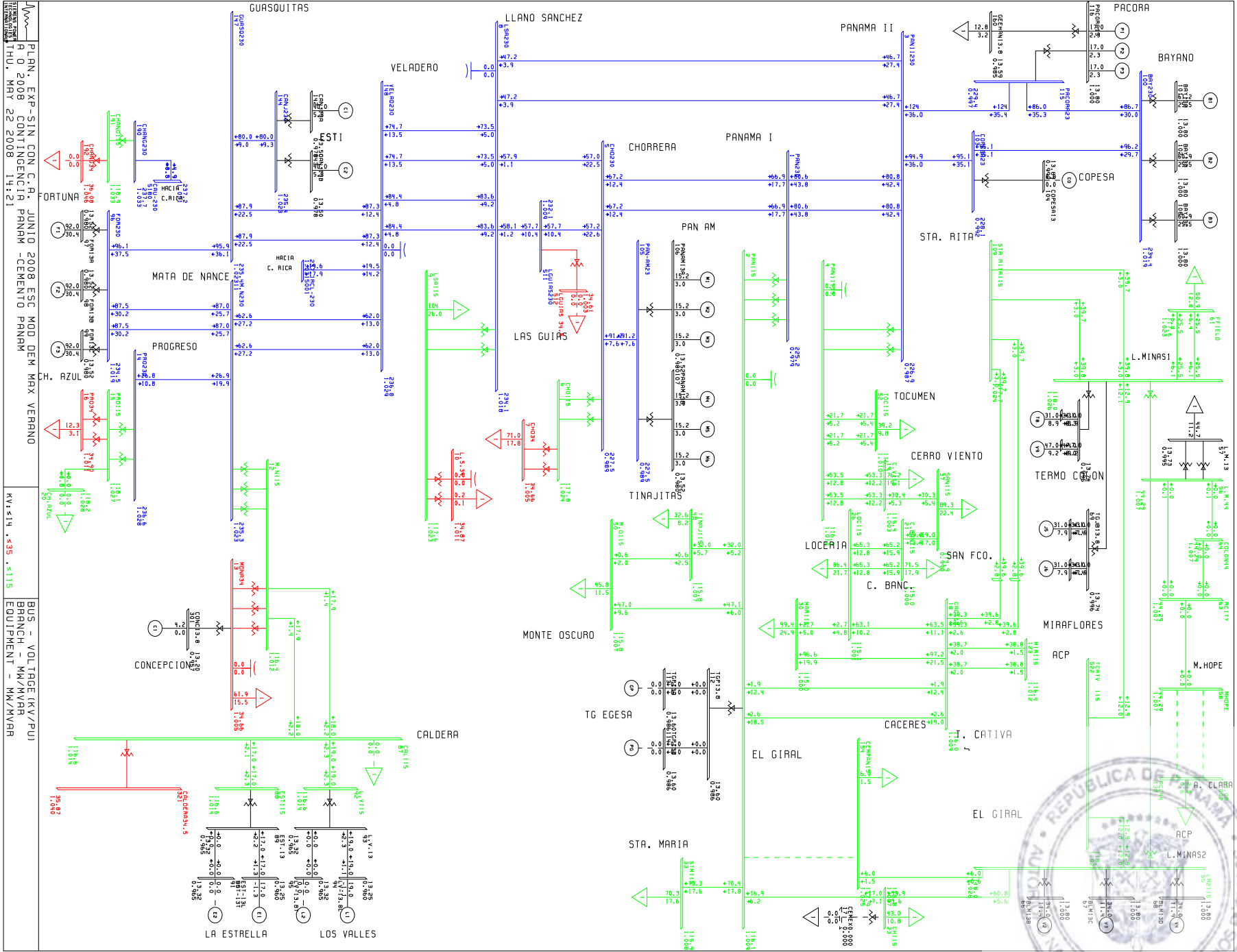


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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2008 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá – Cemento Panamá



de



PLN. EXP. SIN CON. C. R. JUNIO 2008 ESC. MOD. DEM. MAX. VERANO
 D. 2008 CONTINGENCIA PANAM - CEMENTO PANAM
 HU. MAT. 22.2008 14121

KV+14. +35. +115
 BUS - VOLTAGE (KV/PUI)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR

LA ESTRELLA
 LOS VALLES
 CONCEPCION
 MATA DE NANCE
 PROGRESO
 H. AZUL
 PORTUNO
 CORTUNA

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 13:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0180	234.13	11		M.N230		230.00	6	1.0231	235.30
14		PRO230		230.00	6	1.0285	236.55	96		FOR230		230.00	6	1.0194	234.46
100		BAY230		230.00	6	1.0191	234.39	144		CANJ230		230.00	6	1.0234	235.38
147		GUASQ230		230.00	6	1.0234	235.37	148		VELAD230		230.00	6	1.0294	236.76
190		CHANG230		230.00	6	1.0335	237.70	511		LGUIAS230		230.00	6	1.0091	232.10
6000		FRONTER		230.00	6	1.0293	236.75								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9790	225.16	3		PANII230		230.00	6	0.9866	226.93
5		CHO230		230.00	6	0.9890	227.46	103		COPESA23		230.00	6	0.9919	228.13
105		PAN-AM23		230.00	6	0.9890	227.48	115		PACORA23		230.00	6	0.9972	229.36

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 13:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0094	116.08	4		PANII115		115.00	6	1.0123	116.41
6		CHO115		115.00	6	1.0239	117.75	9		LSA115		115.00	6	1.0227	117.61
12		M.N115		115.00	6	1.0122	116.40	15		PRO115		115.00	6	1.0273	118.14
18		CAC115		115.00	6	1.0090	116.04	19		C.V115		115.00	6	1.0033	115.38
20		CH.AZUL		115.00	6	1.0280	118.22	23		CH115		115.00	6	1.0074	115.85
26		LOC115		115.00	6	1.0009	115.11	33		STM115		115.00	6	1.0076	115.87
48		TINAJ115		115.00	6	1.0070	115.81	50		M.O115		115.00	6	1.0072	115.82
52		TOC115		115.00	6	1.0096	116.10	54		LM115		115.00	6	1.0262	118.01
55		LM2115		115.00	6	1.0264	118.04	61		FFIELD		115.00	9	1.0226	117.60
87		CAL115		115.00	6	1.0138	116.58	88		EST115		115.00	6	1.0140	116.61
92		L.V115		115.00	6	1.0139	116.60	109		STA RITA115		115.00	6	1.0239	117.74
110		PTMD115A		115.00	6	1.0185	117.13	111		PTMD115B		115.00	6	1.0185	117.13
123		MIR115		115.00	7	1.0120	116.38	154		CEMPAN15		115.00	6	1.0251	117.89
191		CHANG115		115.00	6	1.0335	118.85	522		TCATVÁ 115		115.00	6	1.0263	118.02

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21		C.BAN115		115.00	6	0.9999	114.99	30		MAR115		115.00	6	0.9999	114.99
37		SAN115		115.00	6	0.9989	114.87								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 13:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	34.0	11.4	17.0	0.0	1.0000	35.9	0.9480	47.0	1	6
67	BLM13C	13.800	V3	34.0	11.4	17.0	0.0	1.0000	35.9	0.9480	47.0	1	6
68	BLM13D	13.800	V4	34.0	11.9	30.0	0.0	1.0000	36.0	0.9440	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.9	20.0	0.0	1.0000	32.0	0.9690	39.4	1	6
71	TGJB13B	13.800	J6	31.0	7.9	20.0	0.0	1.0000	32.0	0.9690	39.4	1	6
72	BLMCCA	13.800	T8	31.0	8.9	20.0	0.0	1.0000	32.2	0.9616	50.0	1	6
73	BLMCCB	13.800	V9	47.0	9.2	40.0	0.0	1.0000	47.9	0.9814	71.0	1	6
90	EST-13L	13.800	E1	17.0	-1.3	12.0	-5.0	0.9600	17.8	0.9971	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.1	12.0	-5.0	0.9600	19.8	0.9982	27.0	1	6
97	FOR13A	13.800	F1	92.0	-30.4	50.0	-50.0	0.9800	98.9	0.9495	111.0	1	6
98	FOR13B	13.800	F2	92.0	-30.4	50.0	-50.0	0.9800	98.9	0.9495	111.0	1	6
99	FOR13C	13.800	F3	92.0	-30.4	50.0	-50.0	0.9800	98.9	0.9495	111.0	1	6
101	BAY13A	13.800	B1	61.2	25.5	50.0	-25.0	1.0000	66.3	0.9231	96.0	1	6
102	BAY13B	13.800	B2	60.9	25.5	50.0	-25.0	1.0000	66.0	0.9225	96.0	1	6
106	PANAM13A	13.800	M1	15.2	3.0	9.0	0.0	0.9800	15.8	0.9812	20.7	1	6
106	PANAM13A	13.800	M2	15.2	3.0	9.0	0.0	0.9800	15.8	0.9812	20.7	1	6
106	PANAM13A	13.800	M3	15.2	3.0	9.0	0.0	0.9800	15.8	0.9812	20.7	1	6
107	PANAM13B	13.800	M4	15.2	3.0	9.0	0.0	0.9800	15.8	0.9812	20.7	1	6
107	PANAM13B	13.800	M5	15.2	3.0	9.0	0.0	0.9800	15.8	0.9812	20.7	1	6
107	PANAM13B	13.800	M6	15.2	3.0	9.0	0.0	0.9800	15.8	0.9812	20.7	1	6
108	BAY13C	13.800	B3	60.9	25.5	50.0	-25.0	1.0000	66.0	0.9225	100.0	1	6
116	PACORA13	13.800	P1	17.0	2.3	8.8	0.0	1.0000	17.2	0.9912	21.7	1	6
116	PACORA13	13.800	P2	17.0	2.3	8.8	0.0	1.0000	17.2	0.9912	21.7	1	6
116	PACORA13	13.800	P3	17.0	2.3	8.8	0.0	1.0000	17.2	0.9912	21.7	1	6
142	CANJ13A	13.800	C1	40.0	5.8	29.0	-29.0	0.9783	41.3	0.9897	69.0	1	6
143	CANJ13B	13.800	C2	40.0	5.8	29.0	-29.0	0.9783	41.3	0.9897	69.0	1	6
301	CONC13.8	13.800	C1	4.2	0.0	0.0	0.0	0.9567	4.4	1.0000	13.5	1	6
SUBSYSTEM TOTALS				963.4	87.7	626.5	-293.0				1360.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 13:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126	MIR13A	12.000	G1	8.6	0.0	5.0	0.0	1.0714	8.0	1.0000	13.5					2	7	
127	MIR13B	12.000	G2	5.4	0.0	5.0	0.0	1.0718	5.0	1.0000	13.5					2	7	
128	MIR13C	12.000	G3	20.0	1.0	11.0	0.0	1.0000	20.0	0.9988	29.4					2	7	
129	MIR13D	13.800	G4	31.0	0.4	15.0	0.0	1.0000	31.0	0.9999	44.1					2	7	
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0270	17.8	0.9281	23.0					2	7	
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0361	17.7	0.9281	23.0					2	7	
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0361	17.7	0.9281	23.0					2	7	
SUBSYSTEM TOTALS				116.0	21.9	69.5	20.5				169.7							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 13:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA TOTALS										
IN MW/MVAR										
X--	AREA	--X	GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C. RICA	244.2	569.4	-236.9	0.0	470.4	24.9	357.2	
6	963.4	926.7	0.0	0.0	0.0	18.1	18.6	25.0
PANAMA	87.7	232.3	0.0	0.0	462.4	53.7	264.2	
7	116.0	37.7	0.0	0.0	0.0	77.4	0.9	50.0
ACANAL	21.9	9.4	0.0	0.0	0.0	-4.0	16.5	
9	0.0	95.6	0.0	0.0	0.0	-95.7	0.1	-75.0
COLON	0.0	24.0	0.0	0.0	1.1	-28.2	5.3	
TOTALS	6228.0	6111.5	0.0	0.0	0.0	0.0	116.5	0.0
	572.4	1882.0	-848.4	0.0	2012.8	0.0	1551.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2008 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 5: Contingencia Las Minas 2 - Chilibre**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0167	233.84	11		M.N230		230.00	6	1.0226	235.19
14		PRO230		230.00	6	1.0281	236.45	96		FOR230		230.00	6	1.0190	234.37
100		BAY230		230.00	6	1.0180	234.14	144		CANJ230		230.00	6	1.0229	235.26
147		GUASQ230		230.00	6	1.0229	235.26	148		VELAD230		230.00	6	1.0286	236.58
190		CHANG230		230.00	6	1.0333	237.65	511		LGUIAS230		230.00	6	1.0077	231.76
6000		FRONTER		230.00	6	1.0289	236.65								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9769	224.68	3		PANII230		230.00	6	0.9847	226.49
5		CHO230		230.00	6	0.9872	227.06	103		COPESA23		230.00	6	0.9901	227.72
105		PAN-AM23		230.00	6	0.9873	227.08	115		PACORA23		230.00	6	0.9956	229.00

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0066	115.76	4		PANII115		115.00	6	1.0101	116.16
6		CHO115		115.00	6	1.0221	117.54	9		LSA115		115.00	6	1.0214	117.46
12		M.N115		115.00	6	1.0118	116.36	15		PRO115		115.00	6	1.0268	118.09
18		CAC115		115.00	6	1.0063	115.73	19		C.V115		115.00	6	1.0010	115.11
20		CH.AZUL		115.00	6	1.0276	118.17	33		STM115		115.00	6	1.0048	115.55
48		TINAJ115		115.00	6	1.0043	115.49	50		M.O115		115.00	6	1.0044	115.51
52		TOC115		115.00	6	1.0074	115.85	54		LM115		115.00	6	1.0269	118.10
55		LM2115		115.00	6	1.0273	118.14	61		FFIELD		115.00	9	1.0234	117.69
87		CAL115		115.00	6	1.0135	116.55	88		EST115		115.00	6	1.0137	116.58
92		L.V115		115.00	6	1.0136	116.56	109		STA RITA115		115.00	6	1.0241	117.77
110		PTMD115A		115.00	6	1.0174	117.01	111		PTMD115B		115.00	6	1.0174	117.01
123		MIR115		115.00	7	1.0094	116.08	154		CEMPAN15		115.00	6	1.0200	117.30
191		CHANG115		115.00	6	1.0333	118.82	522		TCATVÁ 115		115.00	6	1.0271	118.12

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21		C.BAN115		115.00	6	0.9972	114.68	23		CH115		115.00	6	0.9911	113.98
26		LOC115		115.00	6	0.9982	114.80	30		MAR115		115.00	6	0.9972	114.67
37		SAN115		115.00	6	0.9962	114.57								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	34.0	11.0	17.0	0.0	1.0000	35.7	0.9513	47.0	1	6
67	BLM13C	13.800	V3	34.0	11.0	17.0	0.0	1.0000	35.7	0.9513	47.0	1	6
68	BLM13D	13.800	V4	34.0	11.5	30.0	0.0	1.0000	35.9	0.9476	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.7	20.0	0.0	1.0000	31.9	0.9704	39.4	1	6
71	TGJB13B	13.800	J6	31.0	7.7	20.0	0.0	1.0000	31.9	0.9704	39.4	1	6
72	BLMCCA	13.800	T8	31.0	8.7	20.0	0.0	1.0000	32.2	0.9631	50.0	1	6
73	BLMCCB	13.800	V9	47.0	9.0	40.0	0.0	1.0000	47.9	0.9822	71.0	1	6
90	EST-13L	13.800	E1	17.0	-1.2	12.0	-5.0	0.9600	17.8	0.9975	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.0	12.0	-5.0	0.9600	19.8	0.9985	27.0	1	6
97	FOR13A	13.800	F1	92.0	-30.1	50.0	-50.0	0.9800	98.8	0.9505	111.0	1	6
98	FOR13B	13.800	F2	92.0	-30.1	50.0	-50.0	0.9800	98.8	0.9505	111.0	1	6
99	FOR13C	13.800	F3	92.0	-30.1	50.0	-50.0	0.9800	98.8	0.9505	111.0	1	6
101	BAY13A	13.800	B1	62.1	26.4	50.0	-25.0	1.0000	67.5	0.9203	96.0	1	6
102	BAY13B	13.800	B2	60.9	26.3	50.0	-25.0	1.0000	66.3	0.9180	96.0	1	6
106	PANAM13A	13.800	M1	15.2	3.2	9.0	0.0	0.9800	15.9	0.9782	20.7	1	6
106	PANAM13A	13.800	M2	15.2	3.2	9.0	0.0	0.9800	15.9	0.9782	20.7	1	6
106	PANAM13A	13.800	M3	15.2	3.2	9.0	0.0	0.9800	15.9	0.9782	20.7	1	6
107	PANAM13B	13.800	M4	15.2	3.2	9.0	0.0	0.9800	15.9	0.9782	20.7	1	6
107	PANAM13B	13.800	M5	15.2	3.2	9.0	0.0	0.9800	15.9	0.9782	20.7	1	6
107	PANAM13B	13.800	M6	15.2	3.2	9.0	0.0	0.9800	15.9	0.9782	20.7	1	6
108	BAY13C	13.800	B3	60.9	26.3	50.0	-25.0	1.0000	66.3	0.9180	100.0	1	6
116	PACORA13	13.800	P1	17.0	2.6	8.8	0.0	1.0000	17.2	0.9889	21.7	1	6
116	PACORA13	13.800	P2	17.0	2.6	8.8	0.0	1.0000	17.2	0.9889	21.7	1	6
116	PACORA13	13.800	P3	17.0	2.6	8.8	0.0	1.0000	17.2	0.9889	21.7	1	6
142	CANJ13A	13.800	C1	40.0	5.9	29.0	-29.0	0.9783	41.3	0.9894	69.0	1	6
143	CANJ13B	13.800	C2	40.0	5.9	29.0	-29.0	0.9783	41.3	0.9894	69.0	1	6
301	CONC13.8	13.800	C1	4.2	0.0	0.0	0.0	0.9563	4.4	1.0000	13.5	1	6
SUBSYSTEM TOTALS				964.2	91.9	626.5	-293.0				1360.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
126	MIR13A	12.000	G1	8.6	0.0	5.0	0.0	1.0699	8.0	1.0000	13.5			2	7		
127	MIR13B	12.000	G2	5.4	0.0	5.0	0.0	1.0703	5.1	1.0000	13.5			2	7		
128	MIR13C	12.000	G3	20.0	1.3	11.0	0.0	1.0000	20.0	0.9977	29.4			2	7		
129	MIR13D	13.800	G4	31.0	1.0	15.0	0.0	1.0000	31.0	0.9995	44.1			2	7		
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0257	17.9	0.9281	23.0			2	7		
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0348	17.7	0.9281	23.0			2	7		
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0348	17.7	0.9281	23.0			2	7		
SUBSYSTEM TOTALS				116.0	22.8	69.5	20.5				169.7						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA TOTALS
 IN MW/MVAR

X-- AREA	--X GENERATION	FROM TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C. RICA	244.8	569.4	-236.8	0.0	470.3	25.4	357.2	
6	964.2	926.7	0.0	0.0	0.0	18.1	19.4	25.0
PANAMA	91.9	232.3	0.0	0.0	461.9	52.3	269.2	
7	116.0	37.7	0.0	0.0	0.0	77.4	1.0	50.0
ACANAL	22.8	9.4	0.0	0.0	0.0	-3.2	16.5	
9	0.0	95.6	0.0	0.0	0.0	-95.7	0.1	-75.0
COLON	0.0	24.0	0.0	0.0	1.1	-28.1	5.3	
TOTALS	6228.9	6111.5	0.0	0.0	0.0	0.0	117.4	0.0
	578.1	1882.0	-848.3	0.0	2012.2	0.0	1556.7	

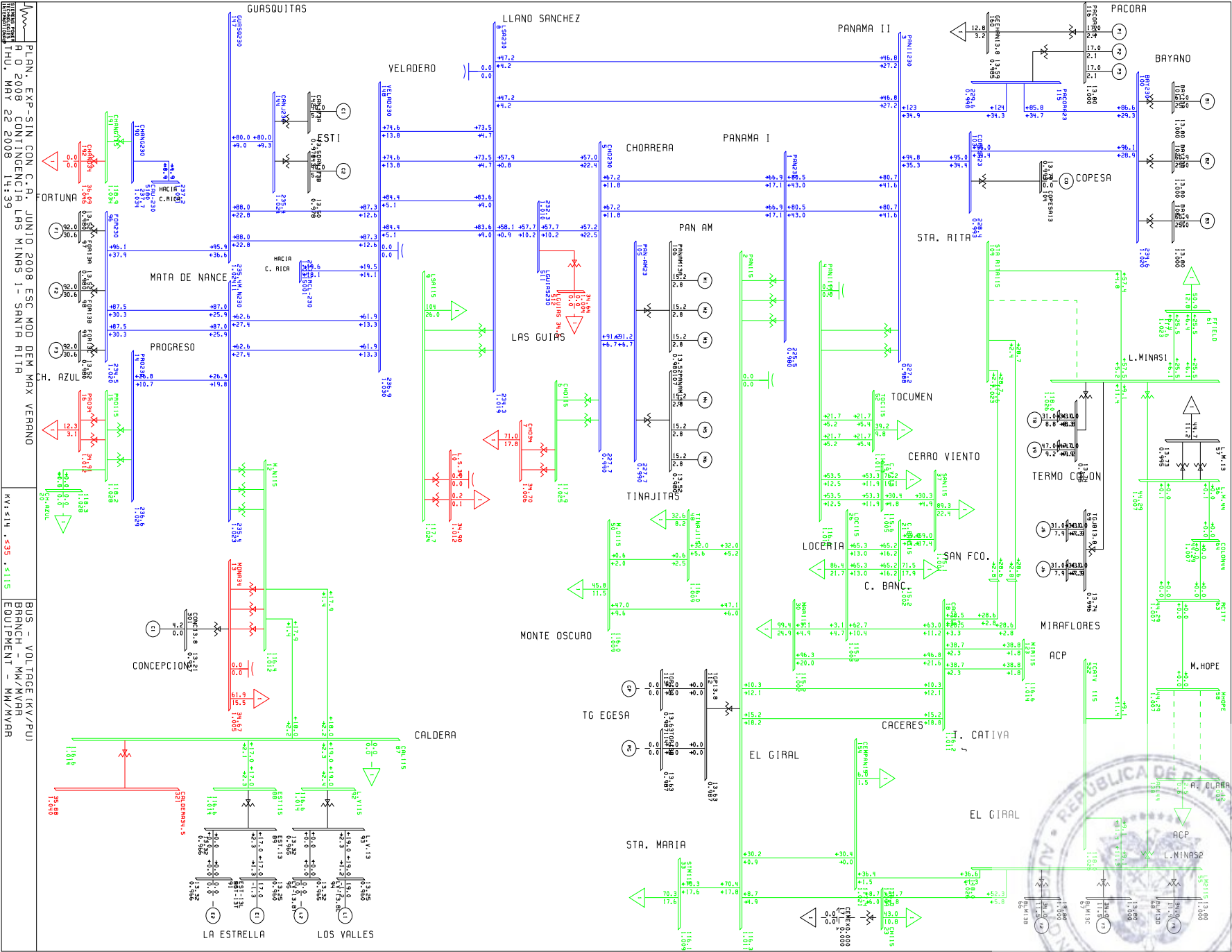


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2008 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 6: Contingencia Las Minas 1 – Santa Rita**



de



PLRN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERRANO
 R 0 2008 CONTINGENCIA LAS MINAS 1 - SHINIA RITA
 THU, MAY 22 2008 14:39

KV: 414 . * 35 . * 115

BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR

LA ESTRELLA
 LOS VALLES



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0188	234.31	11	M.N230	230.00	6	1.0234	235.37				
14	PRO230	230.00	6	1.0288	236.62	96	FOR230	230.00	6	1.0196	234.51				
100	BAY230	230.00	6	1.0198	234.55	144	CANJ230	230.00	6	1.0237	235.45				
147	GUASQ230	230.00	6	1.0237	235.45	148	VELAD230	230.00	6	1.0299	236.87				
190	CHANG230	230.00	6	1.0337	237.74	511	LGUIAS230	230.00	6	1.0101	232.31				
6000	FRONTER	230.00	6	1.0296	236.81										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9803	225.46	3	PANII230	230.00	6	0.9878	227.20				
5	CHO230	230.00	6	0.9901	227.71	103	COPESA23	230.00	6	0.9930	228.39				
105	PAN-AM23	230.00	6	0.9901	227.73	115	PACORA23	230.00	6	0.9982	229.59				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0111	116.28	4	PANII115	115.00	6	1.0137	116.57				
6	CHO115	115.00	6	1.0251	117.89	9	LSA115	115.00	6	1.0235	117.71				
12	M.N115	115.00	6	1.0125	116.43	15	PRO115	115.00	6	1.0275	118.17				
18	CAC115	115.00	6	1.0107	116.23	19	C.V115	115.00	6	1.0048	115.56				
20	CH.AZUL	115.00	6	1.0283	118.25	21	C.BAN115	115.00	6	1.0016	115.18				
23	CH115	115.00	6	1.0086	115.99	26	LOC115	115.00	6	1.0026	115.30				
30	MAR115	115.00	6	1.0016	115.18	33	STM115	115.00	6	1.0093	116.07				
37	SAN115	115.00	6	1.0006	115.07	48	TINAJ115	115.00	6	1.0088	116.01				
50	M.O115	115.00	6	1.0089	116.02	52	TOC115	115.00	6	1.0110	116.26				
54	LM115	115.00	6	1.0263	118.02	55	LM2115	115.00	6	1.0263	118.02				
61	FFIELD	115.00	9	1.0227	117.61	87	CAL115	115.00	6	1.0140	116.61				
88	EST115	115.00	6	1.0142	116.64	92	L.V115	115.00	6	1.0141	116.62				
109	STA RITA115	115.00	6	1.0228	117.62	110	PTMD115A	115.00	6	1.0186	117.13				
111	PTMD115B	115.00	6	1.0186	117.13	123	MIR115	115.00	7	1.0136	116.56				
154	CEMPAN15	115.00	6	1.0210	117.41	191	CHANG115	115.00	6	1.0337	118.87				
522	TCATVÁ 115	115.00	6	1.0263	118.02										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:37
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	34.0	11.5	17.0	0.0	1.0000	35.9	0.9475	47.0	1	6					



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67	BLM13C	13.800	V3	34.0	11.5	17.0	0.0	1.0000	35.9	0.9475	47.0	1	6	
68	BLM13D	13.800	V4	34.0	11.9	30.0	0.0	1.0000	36.0	0.9436	47.0	1	6	
70	TGJB13A	13.800	J5	31.0	7.9	20.0	0.0	1.0000	32.0	0.9692	39.4	1	6	
71	TGJB13B	13.800	J6	31.0	7.9	20.0	0.0	1.0000	32.0	0.9692	39.4	1	6	
72	BLMCCA	13.800	T8	31.0	8.8	20.0	0.0	1.0000	32.2	0.9618	50.0	1	6	
73	BLMCCB	13.800	V9	47.0	9.2	40.0	0.0	1.0000	47.9	0.9815	71.0	1	6	
90	EST-13L	13.800	E1	17.0	-1.3	12.0	-5.0	0.9600	17.8	0.9969	27.0	1	6	
94	LV-13.8L	13.800	L1	19.0	-1.2	12.0	-5.0	0.9600	19.8	0.9981	27.0	1	6	
97	FOR13A	13.800	F1	92.0	-30.6	50.0	-50.0	0.9800	98.9	0.9488	111.0	1	6	
98	FOR13B	13.800	F2	92.0	-30.6	50.0	-50.0	0.9800	98.9	0.9488	111.0	1	6	
99	FOR13C	13.800	F3	92.0	-30.6	50.0	-50.0	0.9800	98.9	0.9488	111.0	1	6	
101	BAY13A	13.800	B1	61.0	25.0	50.0	-25.0	1.0000	65.9	0.9254	96.0	1	6	SYST
102	BAY13B	13.800	B2	60.9	25.0	50.0	-25.0	1.0000	65.8	0.9253	96.0	1	6	
106	PANAM13A	13.800	M1	15.2	2.8	9.0	0.0	0.9800	15.8	0.9830	20.7	1	6	
106	PANAM13A	13.800	M2	15.2	2.8	9.0	0.0	0.9800	15.8	0.9830	20.7	1	6	
106	PANAM13A	13.800	M3	15.2	2.8	9.0	0.0	0.9800	15.8	0.9830	20.7	1	6	
107	PANAM13B	13.800	M4	15.2	2.8	9.0	0.0	0.9800	15.8	0.9830	20.7	1	6	
107	PANAM13B	13.800	M5	15.2	2.8	9.0	0.0	0.9800	15.8	0.9830	20.7	1	6	
107	PANAM13B	13.800	M6	15.2	2.8	9.0	0.0	0.9800	15.8	0.9830	20.7	1	6	
108	BAY13C	13.800	B3	60.9	25.0	50.0	-25.0	1.0000	65.8	0.9253	100.0	1	6	
116	PACORA13	13.800	P1	17.0	2.1	8.8	0.0	1.0000	17.1	0.9925	21.7	1	6	
116	PACORA13	13.800	P2	17.0	2.1	8.8	0.0	1.0000	17.1	0.9925	21.7	1	6	
116	PACORA13	13.800	P3	17.0	2.1	8.8	0.0	1.0000	17.1	0.9925	21.7	1	6	
142	CANJ13A	13.800	C1	40.0	5.7	29.0	-29.0	0.9783	41.3	0.9898	69.0	1	6	
143	CANJ13B	13.800	C2	40.0	5.7	29.0	-29.0	0.9783	41.3	0.9898	69.0	1	6	
301	CONC13.8	13.800	C1	4.2	0.0	0.0	0.0	0.9570	4.4	1.0000	13.5	1	6	
SUBSYSTEM TOTALS				963.1	83.9	626.5	-293.0				1360.5			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:37
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126		MIR13A		12.000	G1	8.6	0.0	5.0	0.0	1.0723	8.0	1.0000	13.5			2	7	
127		MIR13B		12.000	G2	5.4	0.0	5.0	0.0	1.0727	5.0	1.0000	13.5			2	7	
128		MIR13C		12.000	G3	20.0	0.8	11.0	0.0	1.0000	20.0	0.9993	29.4			2	7	
129		MIR13D		13.800	G4	31.0	0.1	15.0	0.0	1.0000	31.0	1.0000	44.1			2	7	
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0279	17.8	0.9281	23.0			2	7	
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0369	17.7	0.9281	23.0			2	7	
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0369	17.7	0.9281	23.0			2	7	
SUBSYSTEM TOTALS						116.0	21.3	69.5	20.5				169.7					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:39
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2008 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA TOTALS
IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	243.8	569.4	-236.9	0.0	470.4	24.6	357.2	
6	963.1	926.7	0.0	0.0	0.0	18.1	18.3	25.0
PANAMA	83.9	232.3	0.0	0.0	464.9	54.6	261.9	
7	116.0	37.7	0.0	0.0	0.0	77.4	0.9	50.0
ACANAL	21.3	9.4	0.0	0.0	0.0	-4.6	16.4	
9	0.0	95.6	0.0	0.0	0.0	-95.7	0.1	-75.0
COLON	0.0	24.0	0.0	0.0	1.1	-28.2	5.3	
TOTALS	6227.8	6111.5	0.0	0.0	0.0	0.0	116.3	0.0
	567.6	1882.0	-848.4	0.0	2015.3	0.0	1549.3	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 8:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0157	233.62	11	M.N230	230.00	6	1.0196	234.52				
14	PRO230	230.00	6	1.0251	235.78	85	PTP230	230.00	6	1.0175	234.03				
96	FOR230	230.00	6	1.0150	233.46	100	BAY230	230.00	6	1.0197	234.53				
115	PACORA23	230.00	6	1.0026	230.61	144	CANJ230	230.00	6	1.0180	234.14				
147	GUASQ230	230.00	6	1.0181	234.16	148	VELAD230	230.00	6	1.0245	235.65				
190	CHANG230	230.00	6	1.0241	235.54	511	LGUIAS230	230.00	6	1.0081	231.86				
6000	FRONTIER	230.00	6	1.0261	235.99										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9881	227.27	3	PANII230	230.00	6	0.9939	228.60				
5	CHO230	230.00	6	0.9979	229.51	103	COPESA23	230.00	6	0.9981	229.55				
105	PAN-AM23	230.00	6	0.9980	229.54										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 8:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0118	116.36	4	PANII115	115.00	6	1.0090	116.03				
6	CHO115	115.00	6	1.0361	119.15	9	LSA115	115.00	6	1.0204	117.34				
12	M.N115	115.00	6	1.0088	116.01	15	PRO115	115.00	6	1.0237	117.73				
18	CAC115	115.00	6	1.0113	116.30	19	C.V115	115.00	6	1.0010	115.11				
20	CH.AZUL	115.00	6	1.0245	117.82	21	C.BAN115	115.00	6	1.0009	115.10				
23	CH115	115.00	6	1.0059	115.67	26	LOC115	115.00	6	1.0022	115.25				
30	MAR115	115.00	6	1.0013	115.15	33	STM115	115.00	6	1.0099	116.14				
48	TINAJ115	115.00	6	1.0093	116.07	50	M.O115	115.00	6	1.0095	116.09				
52	TOC115	115.00	6	1.0061	115.70	54	LM115	115.00	6	1.0196	117.25				
55	LM2115	115.00	6	1.0195	117.25	61	FFIELD	115.00	9	1.0157	116.81				
87	CAL115	115.00	6	1.0131	116.51	88	EST115	115.00	6	1.0139	116.60				
92	L.V115	115.00	6	1.0137	116.57	109	STA RITA115	115.00	6	1.0235	117.70				
110	PTMD115A	115.00	6	1.0192	117.20	111	PTMD115B	115.00	6	1.0192	117.20				
123	MIR115	115.00	7	1.0131	116.51	154	CEMPAN15	115.00	6	1.0253	117.91				
191	CHANG115	115.00	6	1.0196	117.25	522	TCATIVÁ 115	115.00	6	1.0197	117.26				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
37	SAN115	115.00	6	0.9994	114.94										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 8:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	35.0	5.4	17.0	0.0	0.9800	36.1	0.9883	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.8	12.0	-5.0	0.9600	22.9	0.9994	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.8	12.0	-5.0	0.9600	22.9	0.9994	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.7	12.0	-5.0	0.9600	25.0	0.9995	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.5	12.0	-5.0	0.9700	24.9	0.9944	27.0	1	6
97	FOR13A	13.800	F1	97.0	-26.0	50.0	-50.0	0.9800	102.5	0.9659	111.0	1	6
98	FOR13B	13.800	F2	97.0	-26.0	50.0	-50.0	0.9800	102.5	0.9659	111.0	1	6
99	FOR13C	13.800	F3	97.0	-26.0	50.0	-50.0	0.9800	102.5	0.9659	111.0	1	6
101	BAY13A	13.800	B1	70.0	17.9	50.0	-25.0	0.9900	73.0	0.9689	96.0	1	6
102	BAY13B	13.800	B2	70.4	17.9	50.0	-25.0	0.9900	73.4	0.9691	96.0	1	6
106	PANAM13A	13.800	M1	13.5	6.0	9.0	0.0	1.0100	14.6	0.9149	20.7	1	6
106	PANAM13A	13.800	M2	13.5	6.0	9.0	0.0	1.0100	14.6	0.9149	20.7	1	6
106	PANAM13A	13.800	M3	13.5	6.0	9.0	0.0	1.0100	14.6	0.9149	20.7	1	6
107	PANAM13B	13.800	M4	13.5	6.0	9.0	0.0	1.0100	14.6	0.9149	20.7	1	6
107	PANAM13B	13.800	M5	13.5	6.0	9.0	0.0	1.0100	14.6	0.9149	20.7	1	6
107	PANAM13B	13.800	M6	13.5	6.0	9.0	0.0	1.0100	14.6	0.9149	20.7	1	6
108	BAY13C	13.800	B3	70.4	17.9	50.0	-25.0	0.9900	73.4	0.9691	100.0	1	6
116	PACORA13	13.800	P1	14.0	3.0	8.8	0.0	1.0100	14.2	0.9777	21.7	1	6
116	PACORA13	13.800	P2	14.0	3.0	8.8	0.0	1.0100	14.2	0.9777	21.7	1	6
116	PACORA13	13.800	P3	14.0	3.0	8.8	0.0	1.0100	14.2	0.9777	21.7	1	6
142	CANJ13A	13.800	C1	55.0	11.5	29.0	-29.0	0.9783	57.4	0.9789	69.0	1	6
143	CANJ13B	13.800	C2	55.0	11.5	29.0	-29.0	0.9783	57.4	0.9789	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9633	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9615	5.0	0.9110	6.2	1	6
521	EGIRA 13.8	113.800	G1	3.5	1.4	2.8	1.3	1.0000	3.8	0.9323	4.8	1	6
521	EGIRA 13.8	113.800	G2	3.5	1.4	2.8	1.3	1.0000	3.8	0.9323	4.8	1	6
521	EGIRA 13.8	113.800	G3	3.5	1.4	2.8	1.3	1.0000	3.8	0.9323	4.8	1	6
521	EGIRA 13.8	113.800	G4	3.5	1.4	2.8	1.3	1.0000	3.8	0.9323	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	13.3	18.4	9.2	1.0000	38.4	0.9381	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	13.3	18.4	9.2	1.0000	38.4	0.9381	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	13.3	18.4	5.8	1.0000	38.4	0.9381	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0000	8.5	0.9358	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0000	8.5	0.9358	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0000	8.5	0.9358	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0000	8.5	0.9358	10.9	1	6
SUBSYSTEM TOTALS				1069.7	114.1	635.3	-301.3				1377.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 8:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.6	2.9	11.0	0.0	1.0000	18.8	0.9883	29.4	2	7	7		
134	MAD6A	6.9000	G1	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0	2	7	7		
135	MAD6B	6.9000	G2	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0	2	7	7		
136	MAD6C	6.9000	G3	9.7	0.1	6.0	-6.0	1.0000	9.7	0.9999	13.0	2	7	7		
140	GAT6A	6.9000	G1	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9961	4.1	2	7	7		
140	GAT6A	6.9000	G2	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9961	4.1	2	7	7		



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140	GAT6A	6.9000	G3	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9961	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9734	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9734	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9734	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0203	18.0	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0294	17.8	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0294	17.8	0.9281	23.0	2	7
SUBSYSTEM TOTALS				116.0	20.4	77.5	-12.5				168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 8:44
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2009 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	254.1	569.4	-236.5	0.0	469.6	33.5	357.3	
6	1069.7	1017.2	0.0	0.0	0.0	27.7	24.8	25.0
PANAMA	114.1	254.9	-61.4	0.0	457.7	52.9	325.4	
7	116.0	40.2	0.0	0.0	0.0	74.0	1.9	50.0
ACANAL	20.4	10.1	0.0	0.0	0.0	-9.6	19.9	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.5	6.1	
TOTALS	6334.4	6210.8	0.0	0.0	0.0	0.0	123.6	0.0
	607.3	1906.8	-909.4	0.0	2007.2	0.0	1617.1	

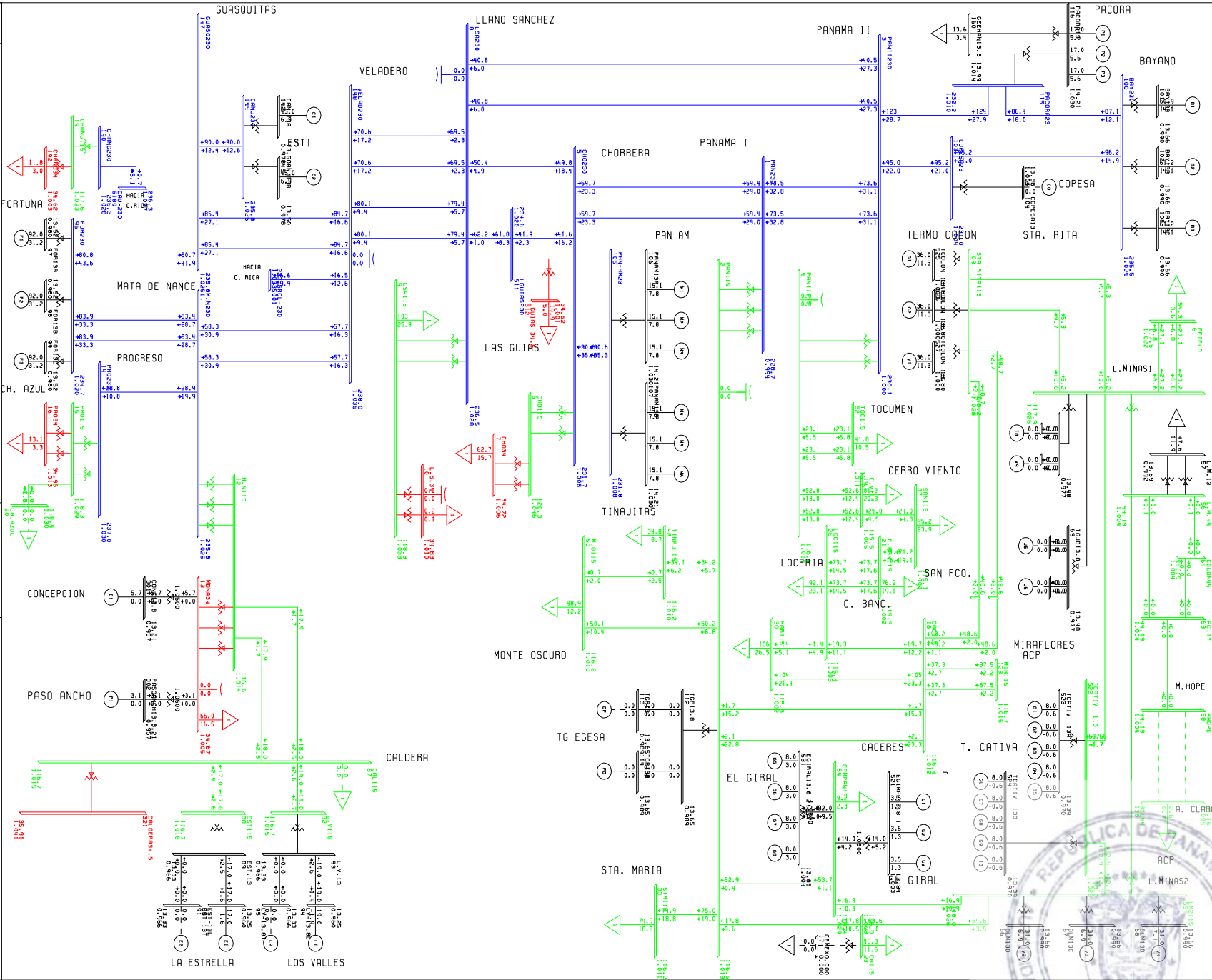


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0003	230.07	5		CHO230		230.00	6	1.0076	231.74
8		LSA230		230.00	6	1.0281	236.46	11		M.N230		230.00	6	1.0252	235.79
14		PRO230		230.00	6	1.0304	237.00	85		PTP230		230.00	6	1.0224	235.14
96		FOR230		230.00	6	1.0203	234.66	100		BAY230		230.00	6	1.0237	235.45
103		COPESA23		230.00	6	1.0042	230.96	105		PAN-AM23		230.00	6	1.0077	231.78
115		PACORA23		230.00	6	1.0095	232.19	144		CANJ230		230.00	6	1.0253	235.83
147		GUASQ230		230.00	6	1.0254	235.84	148		VELAD230		230.00	6	1.0349	238.03
190		CHANG230		230.00	6	1.0275	236.33	511		LGUIAS230		230.00	6	1.0200	234.61
6000		FRONTER		230.00	6	1.0313	237.20								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9944	228.70								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0127	116.46	4		PANII115		115.00	6	1.0137	116.58
6		CHO115		115.00	6	1.0464	120.34	9		LSA115		115.00	6	1.0334	118.84
12		M.N115		115.00	6	1.0136	116.56	15		PRO115		115.00	6	1.0291	118.34
18		CAC115		115.00	6	1.0123	116.41	19		C.V115		115.00	6	1.0047	115.55
20		CH.AZUL		115.00	6	1.0298	118.43	21		C.BAN115		115.00	6	1.0022	115.26
23		CH115		115.00	6	1.0084	115.96	26		LOC115		115.00	6	1.0034	115.39
30		MAR115		115.00	6	1.0024	115.27	33		STM115		115.00	6	1.0107	116.24
37		SAN115		115.00	6	1.0011	115.12	48		TINAJ115		115.00	6	1.0102	116.17
50		M.O115		115.00	6	1.0103	116.18	52		TOC115		115.00	6	1.0108	116.25
54		LM115		115.00	6	1.0255	117.93	55		LM2115		115.00	6	1.0258	117.97
61		FFIELD		115.00	9	1.0217	117.50	87		CAL115		115.00	6	1.0148	116.71
88		EST115		115.00	6	1.0150	116.73	92		L.V115		115.00	6	1.0149	116.72
109		STA RITA115		115.00	6	1.0279	118.21	110		PTMD115A		115.00	6	1.0222	117.55
111		PTMD115B		115.00	6	1.0222	117.55	123		MIR115		115.00	7	1.0148	116.70
154		CEMPAN15		115.00	6	1.0294	118.38	191		CHANG115		115.00	6	1.0230	117.65
522		TCATIVÁ		115.00	6	1.0258	117.97								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

• NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	31.0	6.9	17.0	0.0	0.9900	32.1	0.9762	47.0							1	6	



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67	BLM13C	13.800	V3	31.0	6.9	17.0	0.0	0.9900	32.1	0.9762	47.0	1	6
68	BLM13D	13.800	V4	31.0	7.1	30.0	0.0	0.9900	32.1	0.9745	47.0	1	6
90	EST-13L	13.800	E1	17.0	-1.6	12.0	-5.0	0.9600	17.8	0.9957	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.4	12.0	-5.0	0.9600	19.8	0.9972	27.0	1	6
97	FOR13A	13.800	F1	92.0	-31.2	50.0	-50.0	0.9800	99.1	0.9470	111.0	1	6
98	FOR13B	13.800	F2	92.0	-31.2	50.0	-50.0	0.9800	99.1	0.9470	111.0	1	6
99	FOR13C	13.800	F3	92.0	-31.2	50.0	-50.0	0.9800	99.1	0.9470	111.0	1	6
101	BAY13A	13.800	B1	60.9	14.1	50.0	-25.0	0.9900	63.1	0.9742	96.0	1	6
102	BAY13B	13.800	B2	61.2	14.1	50.0	-25.0	0.9900	63.4	0.9743	96.0	1	6
106	PANAM13A	13.800	M1	15.1	7.8	9.0	0.0	1.0300	16.5	0.8892	20.7	1	6
106	PANAM13A	13.800	M2	15.1	7.8	9.0	0.0	1.0300	16.5	0.8892	20.7	1	6
106	PANAM13A	13.800	M3	15.1	7.8	9.0	0.0	1.0300	16.5	0.8892	20.7	1	6
107	PANAM13B	13.800	M4	15.1	7.8	9.0	0.0	1.0300	16.5	0.8892	20.7	1	6
107	PANAM13B	13.800	M5	15.1	7.8	9.0	0.0	1.0300	16.5	0.8892	20.7	1	6
107	PANAM13B	13.800	M6	15.1	7.8	9.0	0.0	1.0300	16.5	0.8892	20.7	1	6
108	BAY13C	13.800	B3	61.2	14.1	50.0	-25.0	0.9900	63.4	0.9743	100.0	1	6
116	PACORA13	13.800	P1	17.0	5.6	8.8	0.0	1.0300	17.4	0.9493	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.6	8.8	0.0	1.0300	17.4	0.9493	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.6	8.8	0.0	1.0300	17.4	0.9493	21.7	1	6
142	CANJ13A	13.800	C1	45.0	6.9	29.0	-29.0	0.9783	46.5	0.9885	69.0	1	6
143	CANJ13B	13.800	C2	45.0	6.9	29.0	-29.0	0.9783	46.5	0.9885	69.0	1	6
301	CONC13.8	13.800	C1	5.7	0.0	0.0	0.0	0.9570	6.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.1	0.0	0.0	0.0	0.9570	3.2	1.0000	6.2	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0028	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0028	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0028	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0028	3.7	0.9373	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	11.3	18.4	9.2	1.0000	37.7	0.9539	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	11.3	18.4	9.2	1.0000	37.7	0.9539	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	11.3	18.4	5.8	1.0000	37.7	0.9539	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0037	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0037	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0037	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0037	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1062.6	89.4	684.1	-317.1				1472.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	23.0	0.6	11.0	0.0	1.0000	23.0	0.9996	29.4				2	7
129	MIR13D	13.800	G4	37.0	0.0	15.0	0.0	1.0010	37.0	1.0000	44.1				2	7
134	MAD6A	6.9000	G1	4.7	0.7	6.0	-6.0	1.0000	4.8	0.9893	13.0				2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0277	17.9	0.9289	23.0				2	7



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171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0367	17.8	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0367	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	21.8	65.5	14.5				155.6		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:18
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2009 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	245.9	569.4	-236.9	0.0	470.4	26.9	356.9	
6	1062.6	1017.2	0.0	0.0	0.0	27.1	18.3	25.0
PANAMA	89.4	254.9	-15.4	0.0	465.1	55.4	259.6	
7	116.0	40.2	0.0	0.0	0.0	74.7	1.2	50.0
ACANAL	21.8	10.1	0.0	0.0	0.0	-5.3	17.0	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.5	6.1	
TOTALS	6327.3	6210.8	0.0	0.0	0.0	0.0	116.5	0.0
	575.6	1906.8	-863.7	0.0	2015.5	0.0	1548.1	

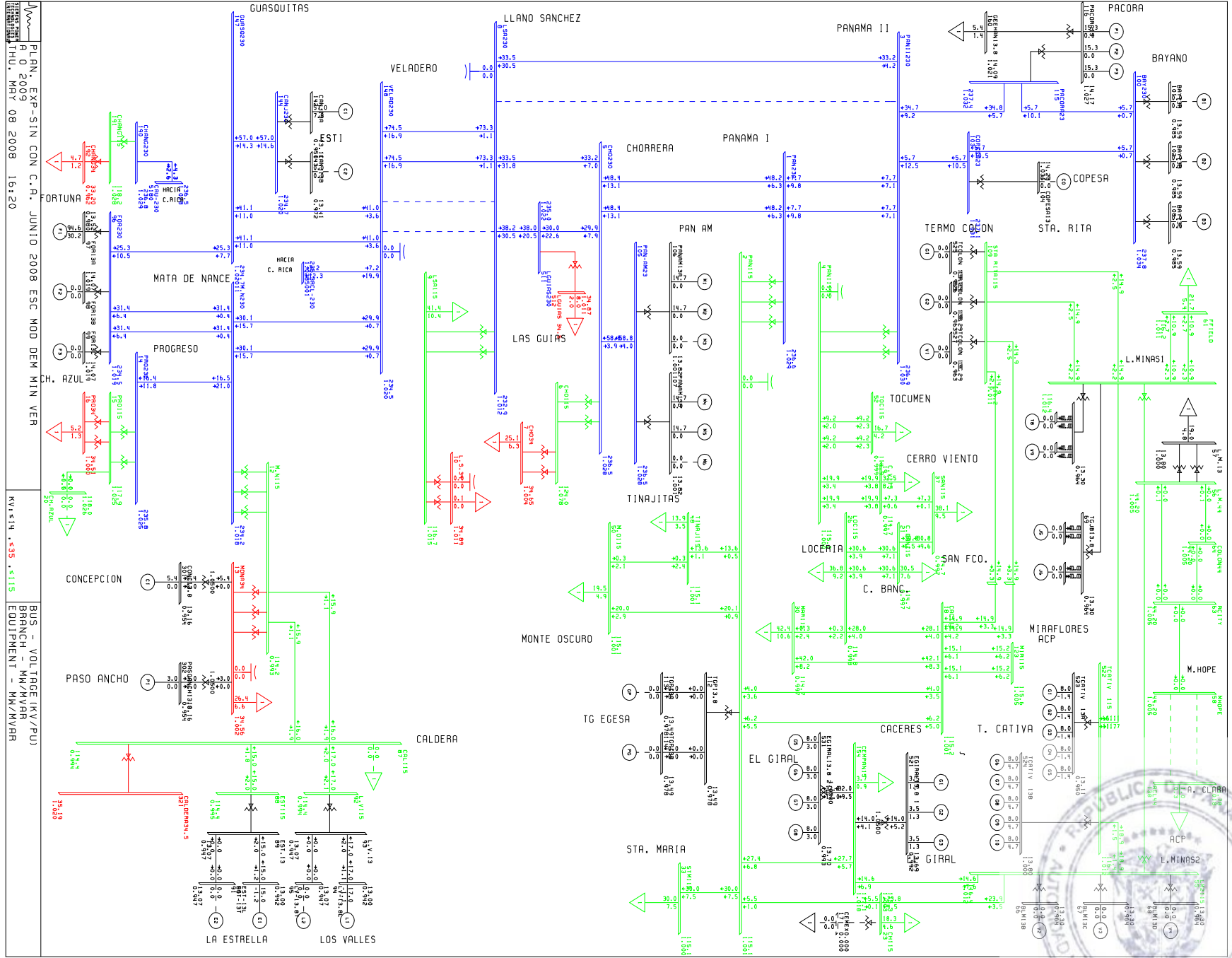


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de



PLN. EXP-STIN CON C.A. JUNIO 2008 ESC MOD DEN MIN VER
 9 0 2009
 H.U. MAY 08 2008 16:20
 BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR
 KY:K14 .535 .5115

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 9:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2009

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	1.0286	236.57	3		PANII230		230.00	6	1.0298	236.86
5		CHO230		230.00	6	1.0285	236.55	8		LSA230		230.00	6	1.0124	232.86
11		M.N230		230.00	6	1.0184	234.24	14		PRO230		230.00	6	1.0254	235.85
85		PTP230		230.00	6	1.0228	235.25	96		FOR230		230.00	6	1.0195	234.47
100		BAY230		230.00	6	1.0340	237.83	103		COPESA23		230.00	6	1.0310	237.12
105		PAN-AM23		230.00	6	1.0285	236.55	115		PACORA23		230.00	6	1.0322	237.42
144		CANJ230		230.00	6	1.0203	234.66	147		GUASQ230		230.00	6	1.0204	234.69
148		VELAD230		230.00	6	1.0198	234.55	190		CHANG230		230.00	6	1.0294	236.76
511		LGUIAS230		230.00	6	1.0218	235.01	6000		FRONTIER		230.00	6	1.0262	236.03

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 9:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2009

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0013	115.15	4		PANII115		115.00	6	1.0004	115.04
6		CHO115		115.00	6	1.0780	123.97	9		LSA115		115.00	6	1.0151	116.74
15		PRO115		115.00	6	1.0255	117.93	18		CAC115		115.00	6	1.0013	115.15
20		CH.AZUL		115.00	6	1.0262	118.02	23		CH115		115.00	6	1.0025	115.29
33		STM115		115.00	6	1.0005	115.06	48		TINAJ115		115.00	6	1.0005	115.06
50		M.O115		115.00	6	1.0006	115.07	54		LM115		115.00	6	1.0120	116.38
55		LM2115		115.00	6	1.0123	116.41	61		FFIELD		115.00	9	1.0105	116.21
109		STA RITA115		115.00	6	1.0109	116.25	110		PTMD115A		115.00	6	1.0075	115.86
111		PTMD115B		115.00	6	1.0075	115.86	123		MIR115		115.00	7	1.0049	115.56
154		CEMPAN15		115.00	6	1.0180	117.07	191		CHANG115		115.00	6	1.0277	118.19
522		TCATIVÁ	115	115.00	6	1.0124	116.42								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
12		M.N115		115.00	6	0.9929	114.18	19		C.V115		115.00	6	0.9974	114.70
21		C.BAN115		115.00	6	0.9975	114.71	26		LOC115		115.00	6	0.9979	114.76
30		MAR115		115.00	6	0.9975	114.71	37		SAN115		115.00	6	0.9970	114.65
52		TOC115		115.00	6	0.9993	114.91	87		CAL115		115.00	6	0.9944	114.35
88		EST115		115.00	6	0.9946	114.38	92		L.V115		115.00	6	0.9945	114.37

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 9:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2009

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
90		EST-13L		13.800	E1	15.0	-1.2	12.0	-5.0	0.9420	16.0	0.9968	27.0					1	6



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94	LV-13.8L	13.800	L1	17.0	-1.1	12.0	-5.0	0.9420	18.1	0.9981	27.0	1	6	
97	FOR13A	13.800	F1	94.6	-30.2	50.0	-50.0	0.9800	101.3	0.9526	111.0	1	6	SYST
106	PANAM13A	13.800	M1	14.7	0.0	9.0	0.0	1.0011	14.7	1.0000	20.7	1	6	
106	PANAM13A	13.800	M2	14.7	0.0	9.0	0.0	1.0011	14.7	1.0000	20.7	1	6	
107	PANAM13B	13.800	M4	14.7	0.0	9.0	0.0	1.0011	14.7	1.0000	20.7	1	6	
107	PANAM13B	13.800	M5	14.7	0.0	9.0	0.0	1.0011	14.7	1.0000	20.7	1	6	
116	PACORA13	13.800	P1	15.3	0.0	8.8	0.0	1.0270	14.9	1.0000	21.7	1	6	
116	PACORA13	13.800	P2	15.3	0.0	8.8	0.0	1.0270	14.9	1.0000	21.7	1	6	
116	PACORA13	13.800	P3	15.3	0.0	8.8	0.0	1.0270	14.9	1.0000	21.7	1	6	
142	CANJ13A	13.800	C1	57.0	7.8	29.0	-29.0	0.9500	60.6	0.9908	69.0	1	6	
301	CONC13.8	13.800	C1	5.4	0.0	0.0	0.0	0.9539	5.7	1.0000	13.5	1	6	
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9539	3.1	1.0000	6.2	1	6	
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	0.9922	3.8	0.9372	4.8	1	6	
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	0.9922	3.8	0.9372	4.8	1	6	
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	0.9922	3.8	0.9372	4.8	1	6	
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	0.9922	3.8	0.9372	4.8	1	6	
523	TCATIVÁ 13A	13.800	G1	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9852	10.9	1	6	
523	TCATIVÁ 13A	13.800	G2	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9852	10.9	1	6	
523	TCATIVÁ 13A	13.800	G3	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9852	10.9	1	6	
523	TCATIVÁ 13A	13.800	G4	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9852	10.9	1	6	
523	TCATIVÁ 13A	13.800	G5	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9852	10.9	1	6	
524	TCATIVÁ 13B	13.800	10	8.0	4.7	6.6	-6.6	1.0000	9.3	0.8610	10.9	1	6	
524	TCATIVÁ 13B	13.800	G6	8.0	4.7	6.6	-6.6	1.0000	9.3	0.8610	10.9	1	6	
524	TCATIVÁ 13B	13.800	G7	8.0	4.7	6.6	-6.6	1.0000	9.3	0.8610	10.9	1	6	
524	TCATIVÁ 13B	13.800	G8	8.0	4.7	6.6	-6.6	1.0000	9.3	0.8610	10.9	1	6	
524	TCATIVÁ 13B	13.800	G9	8.0	4.7	6.6	-6.6	1.0000	9.3	0.8610	10.9	1	6	
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	0.9931	8.6	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	0.9931	8.6	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	0.9931	8.6	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	0.9931	8.6	0.9363	10.9	1	6	
SUBSYSTEM TOTALS				422.7	9.2	268.0	-137.4				573.9			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 9:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2009

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0361	17.8	0.9289	23.0			2	7	
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0456	17.6	0.9289	23.0			2	7	
171	MIR13H	13.800	M2	12.2	6.8	11.2	6.8	1.0456	13.4	0.8729	23.0			2	7	
SUBSYSTEM TOTALS							46.4	20.5	33.5	20.5			69.1			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 9:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2009

X-- AREA	--X GENERATION	FROM TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL	1347.5 1312.2	0.0	0.0	0.0	0.0	35.2	0.0
		29.8 349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR	911.8 902.0	0.0	0.0	0.0	0.0	9.8	0.0
		100.8 182.3	-58.1	0.0	219.9	38.4	158.1	
3		1006.8 985.5	0.0	0.0	0.0	0.0	21.4	0.0



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HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.3	19.2	0.0
C.RICA	250.9	569.4	-236.2	0.0	469.8	30.6	356.9	
6	422.7	406.9	0.0	0.0	0.0	10.2	5.6	25.0
PANAMA	9.2	102.0	184.5	0.0	384.7	13.5	94.0	
7	46.4	16.1	0.0	0.0	0.0	30.3	0.1	50.0
ACANAL	20.5	4.0	0.0	0.0	0.0	12.3	4.1	
9	0.0	40.7	0.0	0.0	0.0	-40.8	0.0	-75.0
COLON	0.0	10.2	0.0	0.0	1.1	-10.1	1.0	
TOTALS	5617.7	5515.2	0.0	0.0	0.0	0.0	102.5	0.0
	499.3	1732.5	-663.2	0.0	1934.4	0.0	1364.4	

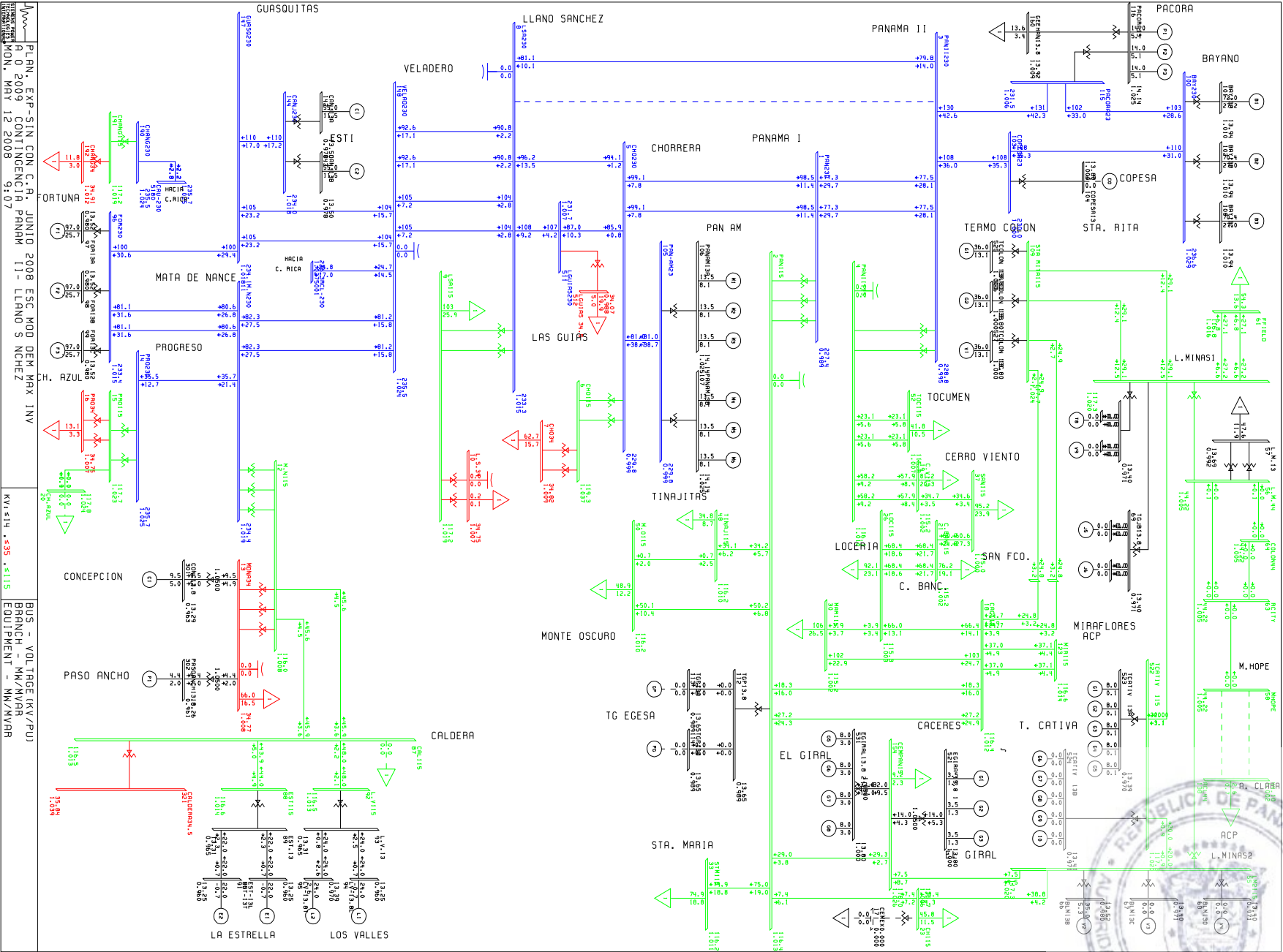


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Panamá II-Llano Sánchez**



de



PLAN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEB MEX INV
 R 0 2009 CONTINGENCIA PANAM I - LLANO SANCHEZ
 ESTACION MON. MAT 12 2008 9:07

kv:114 .*35 .*115

BUS - VOLTAGE (KV/PV)
 BRANCH - KM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:05
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0145	233.34	11	M.N230	230.00	6	1.0192	234.42				
14	PRO230	230.00	6	1.0247	235.69	85	PTP230	230.00	6	1.0172	233.95				
96	FOR230	230.00	6	1.0147	233.38	100	BAY230	230.00	6	1.0288	236.63				
103	COPESA23	230.00	6	1.0001	230.02	115	PACORA23	230.00	6	1.0065	231.49				
144	CANJ230	230.00	6	1.0175	234.03	147	GUASQ230	230.00	6	1.0176	234.05				
148	VELAD230	230.00	6	1.0238	235.47	190	CHANG230	230.00	6	1.0238	235.49				
511	LGUIAS230	230.00	6	1.0072	231.66	6000	FRONTER	230.00	6	1.0257	235.90				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9889	227.45	3	PANII230	230.00	6	0.9946	228.76				
5	CHO230	230.00	6	0.9991	229.78	105	PAN-AM23	230.00	6	0.9992	229.82				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:05
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0126	116.44	4	PANII115	115.00	6	1.0096	116.11				
6	CHO115	115.00	6	1.0373	119.29	9	LSA115	115.00	6	1.0191	117.20				
12	M.N115	115.00	6	1.0085	115.97	15	PRO115	115.00	6	1.0233	117.68				
18	CAC115	115.00	6	1.0120	116.38	19	C.V115	115.00	6	1.0017	115.19				
20	CH.AZUL	115.00	6	1.0241	117.77	21	C.BAN115	115.00	6	1.0016	115.18				
23	CH115	115.00	6	1.0064	115.74	26	LOC115	115.00	6	1.0029	115.33				
30	MAR115	115.00	6	1.0020	115.23	33	STM115	115.00	6	1.0106	116.22				
37	SAN115	115.00	6	1.0002	115.02	48	TINAJ115	115.00	6	1.0101	116.16				
50	M.O115	115.00	6	1.0102	116.17	52	TOC115	115.00	6	1.0068	115.78				
54	LM1115	115.00	6	1.0199	117.29	55	LM2115	115.00	6	1.0199	117.29				
61	FFIELD	115.00	9	1.0161	116.85	87	CAL115	115.00	6	1.0129	116.48				
88	EST115	115.00	6	1.0137	116.58	92	L.V115	115.00	6	1.0134	116.55				
109	STA RITA115	115.00	6	1.0238	117.74	110	PTMD115A	115.00	6	1.0197	117.26				
111	PTMD115B	115.00	6	1.0197	117.26	123	MIR115	115.00	7	1.0138	116.59				
154	CEMPAN15	115.00	6	1.0257	117.96	191	CHANG115	115.00	6	1.0193	117.22				
522	TCATIVÁ	115.00	6	1.0200	117.30										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:05
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66	BLM13B	13.800	V2	35.0	5.3	17.0	0.0	0.9800	36.1	0.9889	47.0								



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90	EST-13L	13.800	E1	22.0	-0.7	12.0	-5.0	0.9600	22.9	0.9994	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.7	12.0	-5.0	0.9600	22.9	0.9994	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.7	12.0	-5.0	0.9600	25.0	0.9996	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.6	12.0	-5.0	0.9700	24.9	0.9942	27.0	1	6
97	FOR13A	13.800	F1	97.0	-25.7	50.0	-50.0	0.9800	102.4	0.9667	111.0	1	6
98	FOR13B	13.800	F2	97.0	-25.7	50.0	-50.0	0.9800	102.4	0.9667	111.0	1	6
99	FOR13C	13.800	F3	97.0	-25.7	50.0	-50.0	0.9800	102.4	0.9667	111.0	1	6
101	BAY13A	13.800	B1	72.0	27.2	50.0	-25.0	1.0100	76.2	0.9355	96.0	1	6
102	BAY13B	13.800	B2	70.4	27.0	50.0	-25.0	1.0100	74.7	0.9335	96.0	1	6
106	PANAM13A	13.800	M1	13.5	8.1	9.0	0.0	1.0250	15.3	0.8582	20.7	1	6
106	PANAM13A	13.800	M2	13.5	8.1	9.0	0.0	1.0250	15.3	0.8582	20.7	1	6
106	PANAM13A	13.800	M3	13.5	8.1	9.0	0.0	1.0250	15.3	0.8582	20.7	1	6
107	PANAM13B	13.800	M4	13.5	8.1	9.0	0.0	1.0250	15.3	0.8582	20.7	1	6
107	PANAM13B	13.800	M5	13.5	8.1	9.0	0.0	1.0250	15.3	0.8582	20.7	1	6
107	PANAM13B	13.800	M6	13.5	8.1	9.0	0.0	1.0250	15.3	0.8582	20.7	1	6
108	BAY13C	13.800	B3	70.4	27.0	50.0	-25.0	1.0100	74.7	0.9335	100.0	1	6
116	PACORA13	13.800	P1	14.0	5.1	8.8	0.0	1.0250	14.5	0.9402	21.7	1	6
116	PACORA13	13.800	P2	14.0	5.1	8.8	0.0	1.0250	14.5	0.9402	21.7	1	6
116	PACORA13	13.800	P3	14.0	5.1	8.8	0.0	1.0250	14.5	0.9402	21.7	1	6
142	CANJ13A	13.800	C1	55.0	11.5	29.0	-29.0	0.9783	57.4	0.9787	69.0	1	6
143	CANJ13B	13.800	C2	55.0	11.5	29.0	-29.0	0.9783	57.4	0.9787	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9630	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9611	5.0	0.9110	6.2	1	6
521	EGIRA 13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0000	3.7	0.9341	4.8	1	6
521	EGIRA 13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0000	3.7	0.9341	4.8	1	6
521	EGIRA 13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0000	3.7	0.9341	4.8	1	6
521	EGIRA 13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0000	3.7	0.9341	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	13.1	18.4	9.2	1.0000	38.3	0.9394	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	13.1	18.4	9.2	1.0000	38.3	0.9394	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	13.1	18.4	5.8	1.0000	38.3	0.9394	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0003	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0003	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0003	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0003	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1071.7	161.0	635.3	-301.3				1377.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:05
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.6	2.8	11.0	0.0	1.0000	18.8	0.9891	29.4	2	7					
134	MAD6A	6.9000	G1	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0	2	7					
135	MAD6B	6.9000	G2	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0	2	7					
136	MAD6C	6.9000	G3	9.7	0.1	6.0	-6.0	1.0000	9.7	1.0000	13.0	2	7					
140	GAT6A	6.9000	G1	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9958	4.1	2	7					
140	GAT6A	6.9000	G2	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9958	4.1	2	7					
140	GAT6A	6.9000	G3	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9958	4.1	2	7					



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141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9730	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9730	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9730	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0207	17.9	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0298	17.8	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0298	17.8	0.9281	23.0	2	7
SUBSYSTEM TOTALS				116.0	20.2	77.5	-12.5				168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2009 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	254.6	569.4	-236.5	0.0	469.5	33.9	357.3	
6	1071.7	1017.2	0.0	0.0	0.0	27.7	26.8	25.0
PANAMA	161.0	254.9	-61.5	0.0	421.9	52.6	336.9	
7	116.0	40.2	0.0	0.0	0.0	74.0	1.9	50.0
ACANAL	20.2	10.1	0.0	0.0	0.0	-9.8	19.9	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.5	6.1	
TOTALS	6336.3	6210.8	0.0	0.0	0.0	0.0	125.6	0.0
	654.6	1906.8	-909.5	0.0	1971.4	0.0	1628.7	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas-Veladero**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0014	230.33	8		LSA230		230.00	6	1.0156	233.58
11		M.N230		230.00	6	1.0159	233.65	14		PRO230		230.00	6	1.0219	235.04
85		PTP230		230.00	6	1.0143	233.28	96		FOR230		230.00	6	1.0116	232.66
100		BAY230		230.00	6	1.0268	236.17	103		COPESA23		230.00	6	1.0035	230.80
105		PAN-AM23		230.00	6	1.0016	230.36	115		PACORA23		230.00	6	1.0080	231.83
144		CANJ230		230.00	6	1.0127	232.91	147		GUASQ230		230.00	6	1.0127	232.92
148		VELAD230		230.00	6	1.0212	234.87	190		CHANG230		230.00	6	1.0217	235.00
511		LGUIAS230		230.00	6	1.0095	232.19	6000		FRONTER		230.00	6	1.0229	235.27

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9932	228.44	3		PANII230		230.00	6	0.9990	229.77

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0057	115.65	4		PANII115		115.00	6	1.0022	115.25
6		CHO115		115.00	6	1.0399	119.59	9		LSA115		115.00	6	1.0202	117.32
12		M.N115		115.00	6	1.0059	115.68	15		PRO115		115.00	6	1.0205	117.36
18		CAC115		115.00	6	1.0052	115.60	20		CH.AZUL		115.00	6	1.0212	117.44
23		CH115		115.00	6	1.0010	115.12	33		STM115		115.00	6	1.0038	115.43
48		TINAJ115		115.00	6	1.0032	115.36	50		M.O115		115.00	6	1.0033	115.38
54		LM1115		115.00	6	1.0168	116.93	55		LM2115		115.00	6	1.0167	116.92
61		FFIELD		115.00	9	1.0129	116.49	87		CAL115		115.00	6	1.0112	116.29
88		EST115		115.00	6	1.0122	116.40	92		L.V115		115.00	6	1.0118	116.36
109		STA RITA115		115.00	6	1.0207	117.38	110		PTMD115A		115.00	6	1.0149	116.71
111		PTMD115B		115.00	6	1.0149	116.71	123		MIR115		115.00	7	1.0073	115.84
154		CEMPAN15		115.00	6	1.0222	117.56	191		CHANG115		115.00	6	1.0172	116.98
522		TCATIVÁ	115	115.00	6	1.0168	116.94								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9943	114.34	21		C.BAN115		115.00	6	0.9946	114.38
26		LOC115		115.00	6	0.9959	114.53	30		MAR115		115.00	6	0.9951	114.43
37		SAN115		115.00	6	0.9931	114.21	52		TOC115		115.00	6	0.9993	114.91

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	35.0	6.6	17.0	0.0	0.9800	36.3	0.9828	47.0			1	6	
90		EST-13L		13.800	E1	22.0	-0.3	12.0	-5.0	0.9600	22.9	0.9999	27.0			1	6	



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91	EST-13T	13.800	E2	22.0	-0.3	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.2	12.0	-5.0	0.9600	25.0	1.0000	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	3.1	12.0	-5.0	0.9700	24.9	0.9919	27.0	1	6
97	FOR13A	13.800	F1	97.0	-22.9	50.0	-50.0	0.9800	101.7	0.9733	111.0	1	6
98	FOR13B	13.800	F2	97.0	-22.9	50.0	-50.0	0.9800	101.7	0.9733	111.0	1	6
99	FOR13C	13.800	F3	97.0	-22.9	50.0	-50.0	0.9800	101.7	0.9733	111.0	1	6
101	BAY13A	13.800	B1	72.3	20.7	50.0	-25.0	1.0000	75.2	0.9614	96.0	1	6
102	BAY13B	13.800	B2	70.4	20.5	50.0	-25.0	1.0000	73.3	0.9601	96.0	1	6
106	PANAM13A	13.800	M1	13.5	5.4	9.0	0.0	1.0100	14.4	0.9274	20.7	1	6
106	PANAM13A	13.800	M2	13.5	5.4	9.0	0.0	1.0100	14.4	0.9274	20.7	1	6
106	PANAM13A	13.800	M3	13.5	5.4	9.0	0.0	1.0100	14.4	0.9274	20.7	1	6
107	PANAM13B	13.800	M4	13.5	5.4	9.0	0.0	1.0100	14.4	0.9274	20.7	1	6
107	PANAM13B	13.800	M5	13.5	5.4	9.0	0.0	1.0100	14.4	0.9274	20.7	1	6
107	PANAM13B	13.800	M6	13.5	5.4	9.0	0.0	1.0100	14.4	0.9274	20.7	1	6
108	BAY13C	13.800	B3	70.4	20.5	50.0	-25.0	1.0000	73.3	0.9601	100.0	1	6
116	PACORA13	13.800	P1	14.0	2.0	8.8	0.0	1.0100	14.0	0.9896	21.7	1	6
116	PACORA13	13.800	P2	14.0	2.0	8.8	0.0	1.0100	14.0	0.9896	21.7	1	6
116	PACORA13	13.800	P3	14.0	2.0	8.8	0.0	1.0100	14.0	0.9896	21.7	1	6
142	CANJ13A	13.800	C1	55.0	12.3	29.0	-29.0	0.9783	57.6	0.9757	69.0	1	6
143	CANJ13B	13.800	C2	55.0	12.3	29.0	-29.0	0.9783	57.6	0.9757	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9605	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9587	5.1	0.9110	6.2	1	6
521	EGIRA 13.8	113.800	G1	3.5	1.5	2.8	1.3	1.0000	3.8	0.9181	4.8	1	6
521	EGIRA 13.8	113.800	G2	3.5	1.5	2.8	1.3	1.0000	3.8	0.9181	4.8	1	6
521	EGIRA 13.8	113.800	G3	3.5	1.5	2.8	1.3	1.0000	3.8	0.9181	4.8	1	6
521	EGIRA 13.8	113.800	G4	3.5	1.5	2.8	1.3	1.0000	3.8	0.9181	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	0.5	6.6	-6.6	0.9700	8.3	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	0.5	6.6	-6.6	0.9700	8.3	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	0.5	6.6	-6.6	0.9700	8.3	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	0.5	6.6	-6.6	0.9700	8.3	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	0.5	6.6	-6.6	0.9700	8.3	0.9983	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	14.6	18.4	9.2	1.0000	38.8	0.9270	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	14.6	18.4	9.2	1.0000	38.8	0.9270	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	14.6	18.4	5.8	1.0000	38.8	0.9270	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.4	6.4	3.0	1.0000	8.7	0.9223	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.4	6.4	3.0	1.0000	8.7	0.9223	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.4	6.4	3.0	1.0000	8.7	0.9223	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.4	6.4	3.0	1.0000	8.7	0.9223	10.9	1	6
SUBSYSTEM TOTALS				1072.0	137.7	635.3	-301.3				1377.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.6	3.8	11.0	0.0	1.0000	19.0	0.9800	29.4			2	7	
134	MAD6A	6.9000	G1	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9995	13.0			2	7	
135	MAD6B	6.9000	G2	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9995	13.0			2	7	
136	MAD6C	6.9000	G3	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9995	13.0			2	7	
140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9982	4.1			2	7	
140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9982	4.1			2	7	
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9982	4.1			2	7	



141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9764	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9764	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9764	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0169	18.0	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0260	17.9	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0260	17.9	0.9281	23.0	2	7
SUBSYSTEM TOTALS				116.0	22.2	77.5	-12.5				168.0		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2009 CONTINGENCIA GUASQUITAS-VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.1	19.4	0.0
C.RICA	258.9	569.4	-236.4	0.0	469.1	37.2	357.7	
6	1072.0	1017.2	0.0	0.0	0.0	27.8	27.0	25.0
PANAMA	137.7	254.9	-60.7	0.0	441.1	47.3	337.3	
7	116.0	40.2	0.0	0.0	0.0	74.0	1.9	50.0
ACANAL	22.2	10.1	0.0	0.0	0.0	-7.9	20.0	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.6	6.1	
TOTALS	6336.7	6210.8	0.0	0.0	0.0	0.0	125.9	0.0
	637.8	1906.8	-908.5	0.0	1990.1	0.0	1629.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance-Veladero**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0026	230.60	8		LSA230		230.00	6	1.0169	233.88
11		M.N230		230.00	6	1.0153	233.53	14		PRO230		230.00	6	1.0217	234.99
85		PTP230		230.00	6	1.0146	233.36	96		FOR230		230.00	6	1.0119	232.74
100		BAY230		230.00	6	1.0271	236.24	103		COPESA23		230.00	6	1.0036	230.82
105		PAN-AM23		230.00	6	1.0028	230.63	115		PACORA23		230.00	6	1.0087	232.00
144		CANJ230		230.00	6	1.0150	233.44	147		GUASQ230		230.00	6	1.0150	233.46
148		VELAD230		230.00	6	1.0229	235.27	190		CHANG230		230.00	6	1.0221	235.07
511		LGUIAS230		230.00	6	1.0108	232.48	6000		FRONTER		230.00	6	1.0228	235.24

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9930	228.39	3		PANII230		230.00	6	0.9990	229.78

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0163	116.88	4		PANII115		115.00	6	1.0141	116.62
6		CHO115		115.00	6	1.0412	119.73	9		LSA115		115.00	6	1.0216	117.48
12		M.N115		115.00	6	1.0055	115.64	15		PRO115		115.00	6	1.0203	117.33
18		CAC115		115.00	6	1.0158	116.81	19		C.V115		115.00	6	1.0060	115.68
20		CH.AZUL		115.00	6	1.0210	117.42	21		C.BAN115		115.00	6	1.0055	115.63
23		CH115		115.00	6	1.0094	116.09	26		LOC115		115.00	6	1.0068	115.78
30		MAR115		115.00	6	1.0058	115.67	33		STM115		115.00	6	1.0144	116.66
37		SAN115		115.00	6	1.0041	115.47	48		TINAJ115		115.00	6	1.0138	116.59
50		M.O115		115.00	6	1.0140	116.61	52		TOC115		115.00	6	1.0112	116.29
54		LM115		115.00	6	1.0218	117.51	55		LM2115		115.00	6	1.0218	117.51
61		FFIELD		115.00	9	1.0180	117.07	87		CAL115		115.00	6	1.0109	116.26
88		EST115		115.00	6	1.0120	116.37	92		L.V115		115.00	6	1.0116	116.33
109		STA RITA115		115.00	6	1.0257	117.96	110		PTMD115A		115.00	6	1.0224	117.57
111		PTMD115B		115.00	6	1.0224	117.57	123		MIR115		115.00	7	1.0173	116.99
154		CEMPAN15		115.00	6	1.0281	118.23	191		CHANG115		115.00	6	1.0175	117.01
522		TCATIVÁ	115	115.00	6	1.0219	117.52								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:47
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	35.0	4.5	17.0	0.0	0.9800	36.0	0.9920	47.0			1	6	



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90	EST-13L	13.800	E1	22.0	-0.2	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.2	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.1	12.0	-5.0	0.9600	25.0	1.0000	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	3.1	12.0	-5.0	0.9700	25.0	0.9916	27.0	1	6
97	FOR13A	13.800	F1	97.0	-23.2	50.0	-50.0	0.9800	101.8	0.9725	111.0	1	6
98	FOR13B	13.800	F2	97.0	-23.2	50.0	-50.0	0.9800	101.8	0.9725	111.0	1	6
99	FOR13C	13.800	F3	97.0	-23.2	50.0	-50.0	0.9800	101.8	0.9725	111.0	1	6
101	BAY13A	13.800	B1	70.7	20.3	50.0	-25.0	1.0000	73.5	0.9611	96.0	1	6
102	BAY13B	13.800	B2	70.4	20.3	50.0	-25.0	1.0000	73.3	0.9609	96.0	1	6
106	PANAM13A	13.800	M1	13.5	6.8	9.0	0.0	1.0200	14.8	0.8933	20.7	1	6
106	PANAM13A	13.800	M2	13.5	6.8	9.0	0.0	1.0200	14.8	0.8933	20.7	1	6
106	PANAM13A	13.800	M3	13.5	6.8	9.0	0.0	1.0200	14.8	0.8933	20.7	1	6
107	PANAM13B	13.800	M4	13.5	6.8	9.0	0.0	1.0200	14.8	0.8933	20.7	1	6
107	PANAM13B	13.800	M5	13.5	6.8	9.0	0.0	1.0200	14.8	0.8933	20.7	1	6
107	PANAM13B	13.800	M6	13.5	6.8	9.0	0.0	1.0200	14.8	0.8933	20.7	1	6
108	BAY13C	13.800	B3	70.4	20.3	50.0	-25.0	1.0000	73.3	0.9609	100.0	1	6
116	PACORA13	13.800	P1	14.0	3.7	8.8	0.0	1.0200	14.2	0.9662	21.7	1	6
116	PACORA13	13.800	P2	14.0	3.7	8.8	0.0	1.0200	14.2	0.9662	21.7	1	6
116	PACORA13	13.800	P3	14.0	3.7	8.8	0.0	1.0200	14.2	0.9662	21.7	1	6
142	CANJ13A	13.800	C1	55.0	12.0	29.0	-29.0	0.9783	57.5	0.9772	69.0	1	6
143	CANJ13B	13.800	C2	55.0	12.0	29.0	-29.0	0.9783	57.5	0.9772	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9602	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9583	5.1	0.9110	6.2	1	6
521	EGIRA 13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0016	3.7	0.9373	4.8	1	6
521	EGIRA 13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0016	3.7	0.9373	4.8	1	6
521	EGIRA 13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0016	3.7	0.9373	4.8	1	6
521	EGIRA 13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0016	3.7	0.9373	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	12.3	18.4	9.2	1.0000	38.0	0.9463	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	12.3	18.4	9.2	1.0000	38.0	0.9463	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	12.3	18.4	5.8	1.0000	38.0	0.9463	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0025	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0025	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0025	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0025	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1070.4	134.6	635.3	-301.3				1377.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 12 2008 9:47
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2009 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	18.6	2.2	11.0	0.0	1.0000	18.7	0.9930	29.4			2	7	7
134	MAD6A	6.9000	G1	9.7	0.0	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	7
135	MAD6B	6.9000	G2	9.7	0.0	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	7
136	MAD6C	6.9000	G3	9.7	0.0	6.0	-6.0	1.0000	9.7	1.0000	13.0			2	7	7
140	GAT6A	6.9000	G1	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9941	4.1			2	7	7
140	GAT6A	6.9000	G2	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9941	4.1			2	7	7



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140	GAT6A	6.9000	G3	1.9	-0.2	2.0	-2.0	1.0000	1.9	0.9941	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-1.0	3.0	-3.0	1.0000	4.0	0.9711	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-1.0	3.0	-3.0	1.0000	4.0	0.9711	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-1.0	3.0	-3.0	1.0000	4.0	0.9711	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0228	17.9	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0319	17.8	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0319	17.8	0.9281	23.0	2	7
SUBSYSTEM TOTALS				116.0	19.1	77.5	-12.5				168.0		



Handwritten signature or initials.

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	258.4	569.4	-236.4	0.0	469.1	37.1	357.5	
6	1070.4	1017.2	0.0	0.0	0.0	27.7	25.5	25.0
PANAMA	134.6	254.9	-62.0	0.0	441.1	50.4	332.4	
7	116.0	40.2	0.0	0.0	0.0	74.0	1.9	50.0
ACANAL	19.1	10.1	0.0	0.0	0.0	-10.9	19.9	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.5	6.0	
TOTALS	6335.1	6210.8	0.0	0.0	0.0	0.0	124.3	0.0
	631.1	1906.8	-909.8	0.0	1990.2	0.0	1624.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2009 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO



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Contingencia 4: Contingencia Panamá – Cemento Panamá



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:47
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0050	231.16	8		LSA230		230.00	6	1.0262	236.04
11		M.N230		230.00	6	1.0245	235.63	14		PRO230		230.00	6	1.0298	236.86
85		PTP230		230.00	6	1.0218	235.02	96		FOR230		230.00	6	1.0197	234.53
100		BAY230		230.00	6	1.0221	235.08	103		COPESA23		230.00	6	1.0016	230.36
105		PAN-AM23		230.00	6	1.0052	231.20	115		PACORA23		230.00	6	1.0072	231.65
144		CANJ230		230.00	6	1.0246	235.66	147		GUASQ230		230.00	6	1.0247	235.67
148		VELAD230		230.00	6	1.0338	237.77	190		CHANG230		230.00	6	1.0271	236.24
511		LGUIAS230		230.00	6	1.0179	234.11	6000		FRONTER		230.00	6	1.0307	237.06

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9913	228.00	3		PANII230		230.00	6	0.9975	229.43

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0087	116.00	4		PANII115		115.00	6	1.0105	116.21
6		CHO115		115.00	6	1.0437	120.02	9		LSA115		115.00	6	1.0314	118.62
12		M.N115		115.00	6	1.0130	116.49	15		PRO115		115.00	6	1.0284	118.27
18		CAC115		115.00	6	1.0083	115.96	19		C.V115		115.00	6	1.0013	115.15
20		CH.AZUL		115.00	6	1.0292	118.36	23		CH115		115.00	6	1.0053	115.61
33		STM115		115.00	6	1.0068	115.78	48		TINAJ115		115.00	6	1.0062	115.71
50		M.O115		115.00	6	1.0063	115.72	52		TOC115		115.00	6	1.0076	115.88
54		LM1115		115.00	6	1.0253	117.91	55		LM2115		115.00	6	1.0260	117.99
61		FFIELD		115.00	9	1.0215	117.47	87		CAL115		115.00	6	1.0144	116.65
88		EST115		115.00	6	1.0146	116.68	92		L.V115		115.00	6	1.0145	116.67
109		STA RITA115		115.00	6	1.0269	118.10	110		PTMD115A		115.00	6	1.0198	117.28
111		PTMD115B		115.00	6	1.0198	117.28	123		MIR115		115.00	7	1.0111	116.28
154		CEMPAN15		115.00	6	1.0366	119.21	191		CHANG115		115.00	6	1.0226	117.60
522		TCATIVÁ		115.00	6	1.0258	117.97								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21		C.BAN115		115.00	6	0.9983	114.81	26		LOC115		115.00	6	0.9995	114.94
30		MAR115		115.00	6	0.9984	114.82	37		SAN115		115.00	6	0.9972	114.68

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:47
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	31.0	6.8	17.0	0.0	0.9900	32.1	0.9765	47.0	1	6
67	BLM13C	13.800	V3	31.0	6.8	17.0	0.0	0.9900	32.1	0.9765	47.0	1	6
68	BLM13D	13.800	V4	31.0	7.1	30.0	0.0	0.9900	32.1	0.9749	47.0	1	6
90	EST-13L	13.800	E1	17.0	-1.5	12.0	-5.0	0.9600	17.8	0.9963	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.3	12.0	-5.0	0.9600	19.8	0.9977	27.0	1	6
97	FOR13A	13.800	F1	92.0	-30.7	50.0	-50.0	0.9800	99.0	0.9486	111.0	1	6
98	FOR13B	13.800	F2	92.0	-30.7	50.0	-50.0	0.9800	99.0	0.9486	111.0	1	6
99	FOR13C	13.800	F3	92.0	-30.7	50.0	-50.0	0.9800	99.0	0.9486	111.0	1	6
101	BAY13A	13.800	B1	62.1	15.4	50.0	-25.0	0.9900	64.6	0.9706	96.0	1	6
102	BAY13B	13.800	B2	61.2	15.3	50.0	-25.0	0.9900	63.7	0.9700	96.0	1	6
106	PANAM13A	13.800	M1	15.1	8.1	9.0	0.0	1.0300	16.7	0.8803	20.7	1	6
106	PANAM13A	13.800	M2	15.1	8.1	9.0	0.0	1.0300	16.7	0.8803	20.7	1	6
106	PANAM13A	13.800	M3	15.1	8.1	9.0	0.0	1.0300	16.7	0.8803	20.7	1	6
107	PANAM13B	13.800	M4	15.1	8.1	9.0	0.0	1.0300	16.7	0.8803	20.7	1	6
107	PANAM13B	13.800	M5	15.1	8.1	9.0	0.0	1.0300	16.7	0.8803	20.7	1	6
107	PANAM13B	13.800	M6	15.1	8.1	9.0	0.0	1.0300	16.7	0.8803	20.7	1	6
108	BAY13C	13.800	B3	61.2	15.3	50.0	-25.0	0.9900	63.7	0.9700	100.0	1	6
116	PACORA13	13.800	P1	17.0	6.1	8.8	0.0	1.0300	17.5	0.9420	21.7	1	6
116	PACORA13	13.800	P2	17.0	6.1	8.8	0.0	1.0300	17.5	0.9420	21.7	1	6
116	PACORA13	13.800	P3	17.0	6.1	8.8	0.0	1.0300	17.5	0.9420	21.7	1	6
142	CANJ13A	13.800	C1	45.0	7.0	29.0	-29.0	0.9783	46.6	0.9881	69.0	1	6
143	CANJ13B	13.800	C2	45.0	7.0	29.0	-29.0	0.9783	46.6	0.9881	69.0	1	6
301	CONC13.8	13.800	C1	5.7	0.0	0.0	0.0	0.9564	6.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.1	0.0	0.0	0.0	0.9564	3.2	1.0000	6.2	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0095	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0095	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0095	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0095	3.7	0.9373	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9975	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	11.8	18.4	9.2	1.0000	37.9	0.9506	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	11.8	18.4	9.2	1.0000	37.9	0.9506	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	11.8	18.4	5.8	1.0000	37.9	0.9506	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0104	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0104	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0104	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0104	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1063.9	99.7	684.1	-317.1				1472.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:47
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 7 [ACANAL] MACHINE SUMMARY:
 BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE
 128 MIR13C 12.000 G3 23.0 1.2 11.0 0.0 1.0000 23.0 0.9987 29.4
 129 MIR13D 13.800 G4 37.0 0.5 15.0 0.0 1.0000 37.0 0.9999 44.1
 134 MAD6A 6.9000 G1 4.7 0.9 6.0 -6.0 1.0000 4.8 0.9811 13.0

X T R A N GENTAP ZONE AREA SWING



170 MIR13G	13.800 M1	17.1	6.8	11.2	6.8	1.0256	18.0	0.9289	23.0	2	7
171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0346	17.8	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0346	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	23.0	65.5	14.5				155.6		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2009 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1 GUATEMAL	1347.5 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2 SALVADOR	911.8 100.8	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.4	9.8 158.1	0.0
3 HONDURAS	1006.8 55.7	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.9	0.0 -5.3	21.4 261.6	0.0
4 NICA	538.2 32.4	527.1 224.5	0.0 -98.9	0.0 0.0	0.0 143.3	0.0 -97.3	11.1 147.4	0.0
5 C.RICA	1344.3 246.8	1324.8 569.4	0.0 -236.8	0.0 0.0	0.0 470.3	0.2 27.6	19.3 357.0	0.0
6 PANAMA	1063.9 99.7	1017.2 254.9	0.0 -15.3	0.0 0.0	0.0 461.5	27.1 53.4	19.6 268.1	25.0
7 ACANAL	116.0 23.0	40.2 10.1	0.0 0.0	0.0 0.0	0.0 0.0	74.7 -4.1	1.2 17.1	50.0
9 COLON	0.0 0.0	101.9 25.5	0.0 0.0	0.0 0.0	0.0 1.1	-102.0 -30.5	0.1 6.1	-75.0
TOTALS	6328.5 588.2	6210.8 1906.8	0.0 -863.6	0.0 0.0	0.0 2011.8	0.0 0.0	117.8 1556.7	0.0

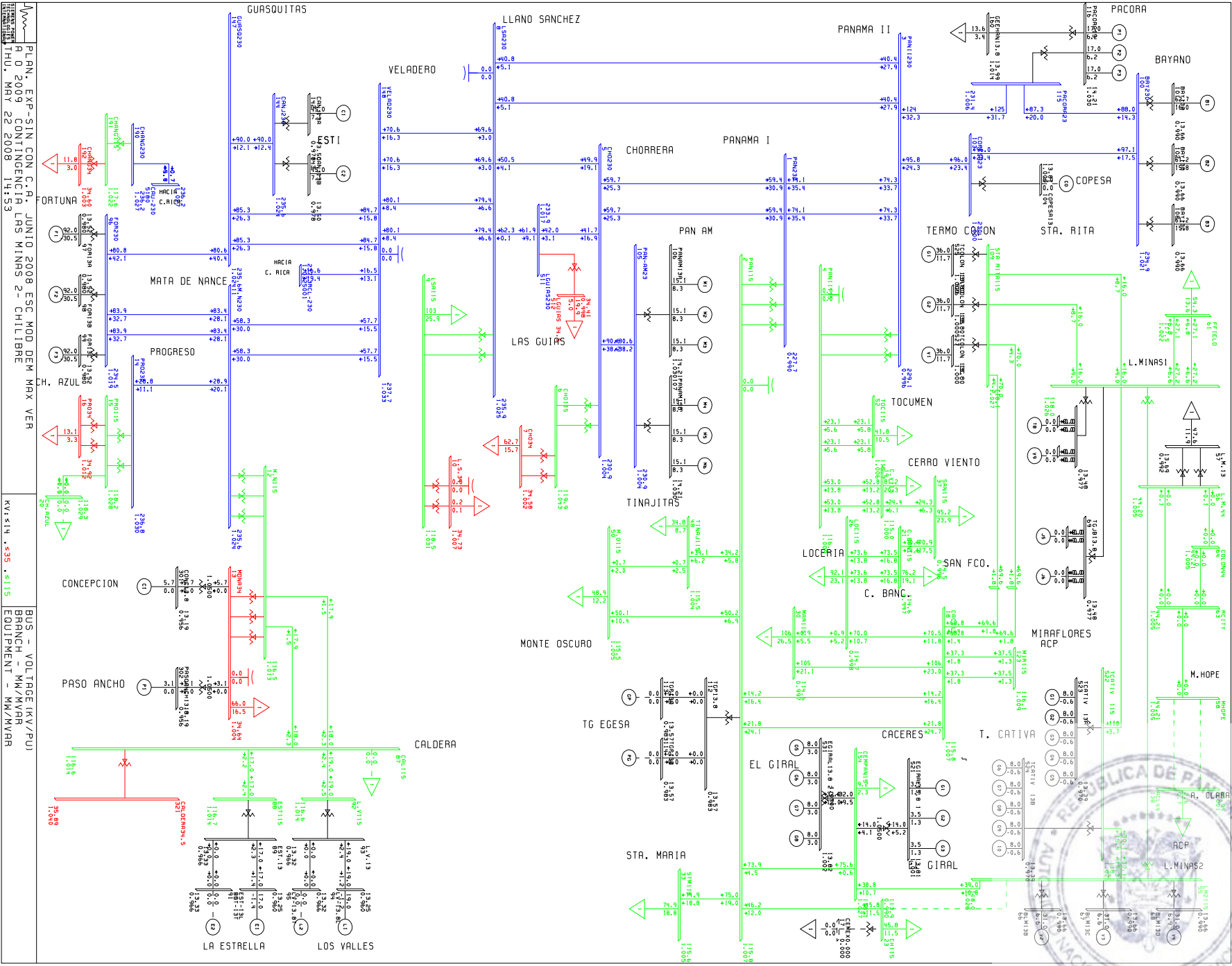


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 5: Contingencia Las Minas 2-Chilibre**



de



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:52
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0039	230.90	8		LSA230		230.00	6	1.0254	235.85
11		M.N230		230.00	6	1.0242	235.56	14		PRO230		230.00	6	1.0295	236.79
85		PTP230		230.00	6	1.0216	234.97	96		FOR230		230.00	6	1.0195	234.47
100		BAY230		230.00	6	1.0214	234.92	103		COPESA23		230.00	6	1.0004	230.10
105		PAN-AM23		230.00	6	1.0041	230.94	115		PACORA23		230.00	6	1.0062	231.42
144		CANJ230		230.00	6	1.0243	235.59	147		GUASQ230		230.00	6	1.0243	235.60
148		VELAD230		230.00	6	1.0333	237.65	190		CHANG230		230.00	6	1.0270	236.21
511		LGUIAS230		230.00	6	1.0169	233.90	6000		FRONTER		230.00	6	1.0304	237.00

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9900	227.69	3		PANII230		230.00	6	0.9963	229.15

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0069	115.80	4		PANII115		115.00	6	1.0091	116.05
6		CHO115		115.00	6	1.0425	119.89	9		LSA115		115.00	6	1.0306	118.52
12		M.N115		115.00	6	1.0127	116.46	15		PRO115		115.00	6	1.0282	118.24
18		CAC115		115.00	6	1.0066	115.76	20		CH.AZUL		115.00	6	1.0289	118.33
33		STM115		115.00	6	1.0050	115.58	48		TINAJ115		115.00	6	1.0044	115.51
50		M.O115		115.00	6	1.0045	115.52	52		TOC115		115.00	6	1.0062	115.72
54		LM115		115.00	6	1.0257	117.95	55		LM2115		115.00	6	1.0264	118.04
61		FFIELD		115.00	9	1.0218	117.51	87		CAL115		115.00	6	1.0142	116.63
88		EST115		115.00	6	1.0144	116.66	92		L.V115		115.00	6	1.0143	116.64
109		STA RITA115		115.00	6	1.0269	118.10	110		PTMD115A		115.00	6	1.0190	117.18
111		PTMD115B		115.00	6	1.0190	117.18	123		MIR115		115.00	7	1.0095	116.09
154		CEMPAN15		115.00	6	1.0273	118.14	191		CHANG115		115.00	6	1.0225	117.58
522		TCATIVÁ	115	115.00	6	1.0262	118.01								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9998	114.98	21		C.BAN115		115.00	6	0.9966	114.61
23		CH115		115.00	6	0.9904	113.89	26		LOC115		115.00	6	0.9977	114.74
30		MAR115		115.00	6	0.9967	114.62	37		SAN115		115.00	6	0.9955	114.48

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:52
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	31.0	6.6	17.0	0.0	0.9900	32.0	0.9778	47.0	1	6
67	BLM13C	13.800	V3	31.0	6.6	17.0	0.0	0.9900	32.0	0.9778	47.0	1	6
68	BLM13D	13.800	V4	31.0	6.9	30.0	0.0	0.9900	32.1	0.9763	47.0	1	6
90	EST-13L	13.800	E1	17.0	-1.4	12.0	-5.0	0.9600	17.8	0.9966	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.2	12.0	-5.0	0.9600	19.8	0.9979	27.0	1	6
97	FOR13A	13.800	F1	92.0	-30.5	50.0	-50.0	0.9800	98.9	0.9493	111.0	1	6
98	FOR13B	13.800	F2	92.0	-30.5	50.0	-50.0	0.9800	98.9	0.9493	111.0	1	6
99	FOR13C	13.800	F3	92.0	-30.5	50.0	-50.0	0.9800	98.9	0.9493	111.0	1	6
101	BAY13A	13.800	B1	62.7	16.0	50.0	-25.0	0.9900	65.4	0.9691	96.0	1	6
102	BAY13B	13.800	B2	61.2	15.8	50.0	-25.0	0.9900	63.8	0.9681	96.0	1	6
106	PANAM13A	13.800	M1	15.1	8.3	9.0	0.0	1.0300	16.7	0.8764	20.7	1	6
106	PANAM13A	13.800	M2	15.1	8.3	9.0	0.0	1.0300	16.7	0.8764	20.7	1	6
106	PANAM13A	13.800	M3	15.1	8.3	9.0	0.0	1.0300	16.7	0.8764	20.7	1	6
107	PANAM13B	13.800	M4	15.1	8.3	9.0	0.0	1.0300	16.7	0.8764	20.7	1	6
107	PANAM13B	13.800	M5	15.1	8.3	9.0	0.0	1.0300	16.7	0.8764	20.7	1	6
107	PANAM13B	13.800	M6	15.1	8.3	9.0	0.0	1.0300	16.7	0.8764	20.7	1	6
108	BAY13C	13.800	B3	61.2	15.8	50.0	-25.0	0.9900	63.8	0.9681	100.0	1	6
116	PACORA13	13.800	P1	17.0	6.2	8.8	0.0	1.0300	17.6	0.9387	21.7	1	6
116	PACORA13	13.800	P2	17.0	6.2	8.8	0.0	1.0300	17.6	0.9387	21.7	1	6
116	PACORA13	13.800	P3	17.0	6.2	8.8	0.0	1.0300	17.6	0.9387	21.7	1	6
142	CANJ13A	13.800	C1	45.0	7.1	29.0	-29.0	0.9783	46.6	0.9879	69.0	1	6
143	CANJ13B	13.800	C2	45.0	7.1	29.0	-29.0	0.9783	46.6	0.9879	69.0	1	6
301	CONC13.8	13.800	C1	5.7	0.0	0.0	0.0	0.9561	6.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.1	0.0	0.0	0.0	0.9561	3.2	1.0000	6.2	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0008	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0008	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0008	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0008	3.7	0.9373	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	-0.6	6.6	-6.6	0.9700	8.3	0.9971	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	11.7	18.4	9.2	1.0000	37.9	0.9507	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	11.7	18.4	9.2	1.0000	37.9	0.9507	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	11.7	18.4	5.8	1.0000	37.9	0.9507	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0018	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0018	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0018	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0018	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1064.5	102.7	684.1	-317.1				1472.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:52
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:
 BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE
 128 MIR13C 12.000 G3 23.0 1.4 11.0 0.0 1.0000 23.0 0.9982 29.4
 129 MIR13D 12.000 G4 37.0 0.8 15.0 0.0 1.0000 37.0 0.9998 44.1
 134 MAD6A 6.9000 G1 4.7 1.0 6.0 -6.0 1.0000 4.8 0.9774 13.0

X T R A N GENTAP ZONE AREA SWING



170 MIR13G	13.800 M1	17.1	6.8	11.2	6.8	1.0248	18.0	0.9289	23.0	2	7
171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0339	17.8	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0339	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	23.7	65.5	14.5				155.6		



de

PDI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 14:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2009 CONTINGENCIA LAS MINAS 2- CHILIBRE IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	247.2	569.4	-236.8	0.0	470.3	27.9	357.0	
6	1064.5	1017.2	0.0	0.0	0.0	27.1	20.2	25.0
PANAMA	102.7	254.9	-15.2	0.0	461.3	52.5	271.8	
7	116.0	40.2	0.0	0.0	0.0	74.7	1.2	50.0
ACANAL	23.7	10.1	0.0	0.0	0.0	-3.5	17.1	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.5	6.1	
TOTALS	6329.1	6210.8	0.0	0.0	0.0	0.0	118.3	0.0
	592.2	1906.8	-863.5	0.0	2011.6	0.0	1560.4	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2009 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 6: Contingencia Las Minas 1- Santa Rita**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 1-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3	PANII230	230.00	6	1.0004	230.09	5	CHO230	230.00	6	1.0076	231.75				
8	LSA230	230.00	6	1.0281	236.47	11	M.N230	230.00	6	1.0252	235.79				
14	PRO230	230.00	6	1.0305	237.00	85	FTP230	230.00	6	1.0224	235.15				
96	FOR230	230.00	6	1.0203	234.67	100	BAY230	230.00	6	1.0237	235.46				
103	COPESA23	230.00	6	1.0042	230.97	105	PAN-AM23	230.00	6	1.0078	231.79				
115	PACORA23	230.00	6	1.0096	232.20	144	CANJ230	230.00	6	1.0254	235.83				
147	GUASQ230	230.00	6	1.0254	235.84	148	VELAD230	230.00	6	1.0350	238.04				
190	CHANG230	230.00	6	1.0275	236.33	511	LGUIAS230	230.00	6	1.0201	234.62				
6000	FRONTIER	230.00	6	1.0313	237.20										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9944	228.72										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 1-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0128	116.47	4	PANII115	115.00	6	1.0138	116.59				
6	CHO115	115.00	6	1.0465	120.35	9	LSA115	115.00	6	1.0334	118.84				
12	M.N115	115.00	6	1.0136	116.56	15	PRO115	115.00	6	1.0291	118.34				
18	CAC115	115.00	6	1.0124	116.42	19	C.V115	115.00	6	1.0048	115.55				
20	CH.AZUL	115.00	6	1.0298	118.43	21	C.BAN115	115.00	6	1.0023	115.27				
23	CH115	115.00	6	1.0081	115.93	26	LOC115	115.00	6	1.0035	115.40				
30	MAR115	115.00	6	1.0025	115.29	33	STM115	115.00	6	1.0108	116.25				
37	SAN115	115.00	6	1.0012	115.13	48	TINAJ115	115.00	6	1.0103	116.18				
50	M.O115	115.00	6	1.0104	116.19	52	TOC115	115.00	6	1.0109	116.26				
54	LM1115	115.00	6	1.0247	117.84	55	LM2115	115.00	6	1.0251	117.89				
61	FFIELD	115.00	9	1.0209	117.40	87	CAL115	115.00	6	1.0148	116.71				
88	EST115	115.00	6	1.0151	116.73	92	L.V115	115.00	6	1.0149	116.72				
109	STA RITA115	115.00	6	1.0289	118.32	110	PTMD115A	115.00	6	1.0228	117.62				
111	PTMD115B	115.00	6	1.0228	117.62	123	MIR115	115.00	7	1.0149	116.72				
154	CEMPAN15	115.00	6	1.0289	118.32	191	CHANG115	115.00	6	1.0230	117.65				
522	TCATIVÁ	115.00	6	1.0251	117.88										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 1-SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	31.0	7.2	17.0	0.0	0.9900	32.1	0.9740	47.0							



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67	BLM13C	13.800	V3	31.0	7.2	17.0	0.0	0.9900	32.1	0.9740	47.0	1	6
68	BLM13D	13.800	V4	31.0	7.5	30.0	0.0	0.9900	32.2	0.9721	47.0	1	6
90	EST-13L	13.800	E1	17.0	-1.6	12.0	-5.0	0.9600	17.8	0.9957	27.0	1	6
94	LV-13.8L	13.800	L1	19.0	-1.4	12.0	-5.0	0.9600	19.8	0.9972	27.0	1	6
97	FOR13A	13.800	F1	92.0	-31.2	50.0	-50.0	0.9800	99.1	0.9469	111.0	1	6
98	FOR13B	13.800	F2	92.0	-31.2	50.0	-50.0	0.9800	99.1	0.9469	111.0	1	6
99	FOR13C	13.800	F3	92.0	-31.2	50.0	-50.0	0.9800	99.1	0.9469	111.0	1	6
101	BAY13A	13.800	B1	60.9	14.1	50.0	-25.0	0.9900	63.1	0.9743	96.0	1	6
102	BAY13B	13.800	B2	61.2	14.1	50.0	-25.0	0.9900	63.4	0.9744	96.0	1	6
106	PANAM13A	13.800	M1	15.1	7.8	9.0	0.0	1.0300	16.5	0.8894	20.7	1	6
106	PANAM13A	13.800	M2	15.1	7.8	9.0	0.0	1.0300	16.5	0.8894	20.7	1	6
106	PANAM13A	13.800	M3	15.1	7.8	9.0	0.0	1.0300	16.5	0.8894	20.7	1	6
107	PANAM13B	13.800	M4	15.1	7.8	9.0	0.0	1.0300	16.5	0.8894	20.7	1	6
107	PANAM13B	13.800	M5	15.1	7.8	9.0	0.0	1.0300	16.5	0.8894	20.7	1	6
107	PANAM13B	13.800	M6	15.1	7.8	9.0	0.0	1.0300	16.5	0.8894	20.7	1	6
108	BAY13C	13.800	B3	61.2	14.1	50.0	-25.0	0.9900	63.4	0.9744	100.0	1	6
116	PACORA13	13.800	P1	17.0	5.6	8.8	0.0	1.0300	17.4	0.9495	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.6	8.8	0.0	1.0300	17.4	0.9495	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.6	8.8	0.0	1.0300	17.4	0.9495	21.7	1	6
142	CANJ13A	13.800	C1	45.0	6.9	29.0	-29.0	0.9783	46.5	0.9885	69.0	1	6
143	CANJ13B	13.800	C2	45.0	6.9	29.0	-29.0	0.9783	46.5	0.9885	69.0	1	6
301	CONC13.8	13.800	C1	5.7	0.0	0.0	0.0	0.9570	6.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.1	0.0	0.0	0.0	0.9570	3.2	1.0000	6.2	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0023	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0023	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0023	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0023	3.7	0.9373	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	-0.5	6.6	-6.6	0.9700	8.3	0.9982	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	10.9	18.4	9.2	1.0000	37.6	0.9573	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	10.9	18.4	9.2	1.0000	37.6	0.9573	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	10.9	18.4	5.8	1.0000	37.6	0.9573	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0032	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0032	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0032	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0032	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1062.6	89.7	684.1	-317.1				1472.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2009 CONTINGENCIA LAS MINAS 1-SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	23.0	0.6	11.0	0.0	1.0000	23.0	0.9996	29.4				2	7
129		MIR13D		13.800	G4	37.0	0.0	15.0	0.0	1.0010	37.0	1.0000	44.1				2	7
134		MAD6A		6.9000	G1	4.7	0.7	6.0	-6.0	1.0000	4.7	0.9896	13.0				2	7
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0277	17.9	0.9289	23.0				2	7



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171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0368	17.8	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0368	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	21.8	65.5	14.5						



Handwritten signature or initials

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2009 CONTINGENCIA LAS MINAS 1-SANTA RITA IN MW/MVAR

X-- AREA	--X GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	245.9	569.4	-236.9	0.0	470.4	26.9	356.9	
6	1062.6	1017.2	0.0	0.0	0.0	27.1	18.3	25.0
PANAMA	89.7	254.9	-15.4	0.0	464.9	55.4	259.6	
7	116.0	40.2	0.0	0.0	0.0	74.7	1.2	50.0
ACANAL	21.8	10.1	0.0	0.0	0.0	-5.3	17.0	
9	0.0	101.9	0.0	0.0	0.0	-102.0	0.1	-75.0
COLON	0.0	25.5	0.0	0.0	1.1	-30.5	6.1	
TOTALS	6327.3	6210.8	0.0	0.0	0.0	0.0	116.5	0.0
	575.9	1906.8	-863.7	0.0	2015.3	0.0	1548.1	



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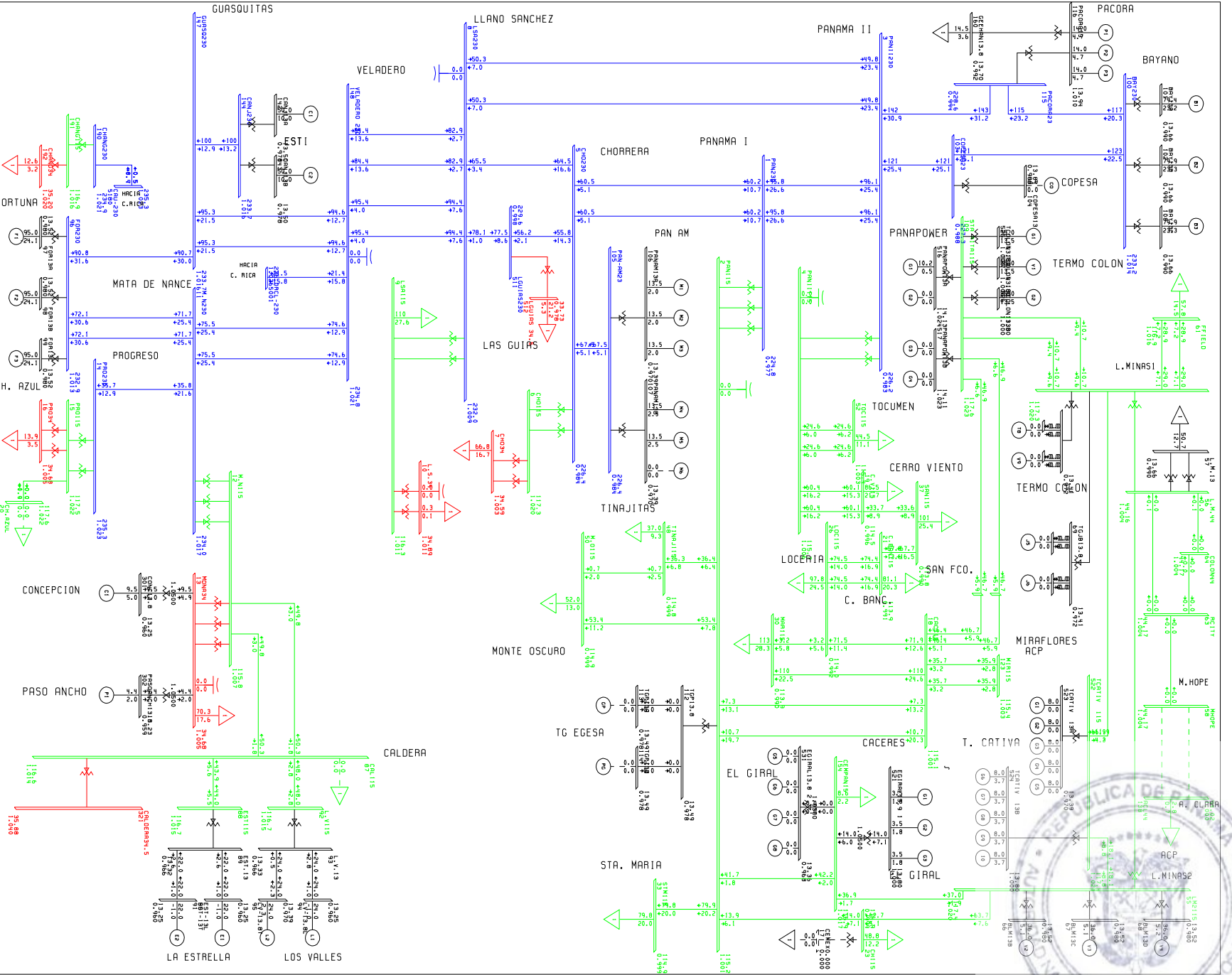
**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de

PLRN - EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2010
 THU, MAY 22 2008 15:28

KV: 114 . 35 . 115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0088	232.02	11	M.N230	230.00	6	1.0174	234.01				
14	PRO230	230.00	6	1.0231	235.31	85	PTP230	230.00	6	1.0134	233.07				
96	FOR230	230.00	6	1.0127	232.93	100	BAY230	230.00	6	1.0137	233.16				
144	CANJ230	230.00	6	1.0159	233.66	147	GUASQ230	230.00	6	1.0159	233.66				
148	VELADERO	230230.00	6	1.0211	234.85	190	CHANG230	230.00	6	1.0211	234.86				
6000	FRONTER	230.00	6	1.0241	235.54										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9774	224.80	3	PANII230	230.00	6	0.9833	226.16				
5	CHO230	230.00	6	0.9844	226.41	103	COPESA23	230.00	6	0.9881	227.26				
105	PAN-AM23	230.00	6	0.9844	226.42	115	PACORA23	230.00	6	0.9938	228.57				
511	LGUIAS230	230.00	6	0.9984	229.63										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0013	115.15	4	PANII115	115.00	6	1.0064	115.74				
6	CHO115	115.00	6	1.0204	117.34	9	LSA115	115.00	6	1.0114	116.32				
12	M.N115	115.00	6	1.0073	115.84	15	PRO115	115.00	6	1.0215	117.47				
18	CAC115	115.00	6	1.0010	115.11	20	CH.AZUL	115.00	6	1.0223	117.56				
52	TOC115	115.00	6	1.0033	115.38	54	LM115	115.00	6	1.0203	117.33				
55	LM2115	115.00	6	1.0205	117.36	61	FFIELD	115.00	9	1.0162	116.86				
87	CAL115	115.00	6	1.0140	116.62	88	EST115	115.00	6	1.0147	116.70				
92	L.V115	115.00	6	1.0146	116.67	109	STA RITA115	115.00	6	1.0228	117.62				
110	PTMD115A	115.00	6	1.0144	116.65	111	PTMD115B	115.00	6	1.0144	116.65				
123	MIR115	115.00	7	1.0032	115.37	154	CEMPAN15	115.00	6	1.0168	116.94				
191	CHANG115	115.00	6	1.0163	116.87	522	TCATIVÁ	115 115.00	6	1.0206	117.37				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9956	114.50	21	C.BAN115	115.00	6	0.9906	113.91				
23	CH115	115.00	6	0.9989	114.87	26	LOC115	115.00	6	0.9917	114.05				
30	MAR115	115.00	6	0.9905	113.90	33	STM115	115.00	6	0.9993	114.92				
37	SAN115	115.00	6	0.9895	113.79	48	TINAJ115	115.00	6	0.9986	114.84				
50	M.O115	115.00	6	0.9987	114.86										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66	BLM13B	13.800	V2	36.0	5.1	17.0	0.0	0.9800	37.1	0.9901	47.0							1	6



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67	BLM13C	13.800	V3	36.0	5.1	17.0	0.0	0.9800	37.1	0.9901	47.0	1	6
68	BLM13D	13.800	V4	36.0	5.2	30.0	0.0	0.9800	37.1	0.9897	47.0	1	6
90	EST-13L	13.800	E1	22.0	-1.0	12.0	-5.0	0.9600	22.9	0.9989	27.0	1	6
91	EST-13T	13.800	E2	22.0	-1.0	12.0	-5.0	0.9600	22.9	0.9989	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-1.0	12.0	-5.0	0.9600	25.0	0.9992	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.3	12.0	-5.0	0.9700	24.9	0.9955	27.0	1	6
97	FOR13A	13.800	F1	95.0	-24.1	50.0	-50.0	0.9800	100.0	0.9692	111.0	1	6
98	FOR13B	13.800	F2	95.0	-24.1	50.0	-50.0	0.9800	100.0	0.9692	111.0	1	6
99	FOR13C	13.800	F3	95.0	-24.1	50.0	-50.0	0.9800	100.0	0.9692	111.0	1	6
101	BAY13A	13.800	B1	79.4	23.2	50.0	-25.0	0.9900	83.5	0.9598	96.0	1	6
102	BAY13B	13.800	B2	79.9	23.3	50.0	-25.0	0.9900	84.1	0.9601	96.0	1	6
106	PANAM13A	13.800	M1	13.5	2.0	9.0	0.0	0.9700	14.1	0.9890	20.7	1	6
106	PANAM13A	13.800	M2	13.5	2.0	9.0	0.0	0.9700	14.1	0.9890	20.7	1	6
106	PANAM13A	13.800	M3	13.5	2.0	9.0	0.0	0.9700	14.1	0.9890	20.7	1	6
107	PANAM13B	13.800	M4	13.5	2.5	9.0	0.0	0.9700	14.1	0.9837	20.7	1	6
107	PANAM13B	13.800	M5	13.5	2.5	9.0	0.0	0.9700	14.1	0.9837	20.7	1	6
108	BAY13C	13.800	B3	79.9	23.3	50.0	-25.0	0.9900	84.1	0.9601	100.0	1	6
116	PACORA13	13.800	P1	14.0	4.7	8.8	0.0	1.0100	14.6	0.9477	21.7	1	6
116	PACORA13	13.800	P2	14.0	4.7	8.8	0.0	1.0100	14.6	0.9477	21.7	1	6
116	PACORA13	13.800	P3	14.0	4.7	8.8	0.0	1.0100	14.6	0.9477	21.7	1	6
142	CANJ13A	13.800	C1	50.0	10.0	29.0	-29.0	0.9783	52.1	0.9805	69.0	1	6
143	CANJ13B	13.800	C2	50.0	10.0	29.0	-29.0	0.9783	52.1	0.9805	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9604	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9585	5.1	0.9110	6.2	1	6
304	ALGA13.8	13.800	A1	8.7	5.0	5.0	0.0	0.9688	10.4	0.8670	13.5	1	6
516	PANAPOWL3A	13.800	G1	10.2	0.5	12.5	0.5	1.0237	10.0	0.9987	20.9	1	6
521	EGIRAL13.9	113.800	G1	3.5	1.8	2.8	1.3	1.0000	3.9	0.8911	4.8	1	6
521	EGIRAL13.9	113.800	G2	3.5	1.8	2.8	1.3	1.0000	3.9	0.8911	4.8	1	6
521	EGIRAL13.9	113.800	G3	3.5	1.8	2.8	1.3	1.0000	3.9	0.8911	4.8	1	6
521	EGIRAL13.9	113.800	G4	3.5	1.8	2.8	1.3	1.0000	3.9	0.8911	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	0.0	6.6	-6.6	0.9700	8.2	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	0.0	6.6	-6.6	0.9700	8.2	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	0.0	6.6	-6.6	0.9700	8.2	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	0.0	6.6	-6.6	0.9700	8.2	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	0.0	6.6	-6.6	0.9700	8.2	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	3.7	6.6	-6.6	1.0000	8.8	0.9056	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	3.7	6.6	-6.6	1.0000	8.8	0.9056	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	3.7	6.6	-6.6	1.0000	8.8	0.9056	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	3.7	6.6	-6.6	1.0000	8.8	0.9056	10.9	1	6
525	TCOLON 13A	13.800	G1	35.0	13.5	18.4	9.2	1.0000	37.5	0.9328	44.4	1	6
526	TCOLON 13B	13.800	G2	35.0	13.5	18.4	9.2	1.0000	37.5	0.9328	44.4	1	6
527	TCOLON 13C	13.800	V1	35.0	13.5	18.4	5.8	1.0000	37.5	0.9328	44.4	1	6
SUBSYSTEM TOTALS				1165.5	136.2	698.1	-345.6				1496.6		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 Año 2010

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVBASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	18.3	4.5	11.0	0.0	1.0000	18.8	0.9712	29.4			2	7	
134		MAD6A		6.9000	G1	9.7	0.5	6.0	-6.0	1.0000	9.7	0.9989	13.0			2	7	
135		MAD6B		6.9000	G2	9.7	0.5	6.0	-6.0	1.0000	9.7	0.9989	13.0			2	7	
136		MAD6C		6.9000	G3	9.7	0.5	6.0	-6.0	1.0000	9.7	0.9989	13.0			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9995	4.1			2	7	



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140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9995	4.1	2	7
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9995	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9792	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9792	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9792	6.2	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0143	18.2	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0234	18.0	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0234	18.0	0.9289	23.0	2	7
SUBSYSTEM TOTALS							116.0	23.7	77.5	-12.5	168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2010 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	257.9	569.4	-236.4	0.0	469.2	37.0	357.2	
6	1165.5	1103.8	0.0	0.0	0.0	36.9	24.8	25.0
PANAMA	136.2	276.6	-60.2	0.0	452.2	48.6	323.4	
7	116.0	42.7	0.0	0.0	0.0	71.5	1.8	50.0
ACANAL	23.7	10.7	0.0	0.0	0.0	-6.4	19.5	
9	0.0	108.5	0.0	0.0	0.0	-108.6	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-33.0	6.9	
TOTALS	6430.1	6306.6	0.0	0.0	0.0	0.0	123.6	0.0
	636.8	1930.8	-908.1	0.0	2001.4	0.0	1615.4	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0023	230.54	8		LSA230		230.00	6	1.0245	235.65
11		M.N230		230.00	6	1.0231	235.32	14		PRO230		230.00	6	1.0287	236.60
85		PTP230		230.00	6	1.0185	234.25	96		FOR230		230.00	6	1.0182	234.19
100		BAY230		230.00	6	1.0207	234.75	105		PAN-AM23		230.00	6	1.0025	230.58
115		PACORA23		230.00	6	1.0052	231.21	144		CANJ230		230.00	6	1.0236	235.44
147		GUASQ230		230.00	6	1.0236	235.43	148		VELADERO	230	230.00	6	1.0328	237.54
190		CHANG230		230.00	6	1.0247	235.69	511		LGUIAS230		230.00	6	1.0157	233.61
6000		FRONTER		230.00	6	1.0296	236.81								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9883	227.30	3		PANII230		230.00	6	0.9952	228.89
103		COPESA23		230.00	6	0.9994	229.86								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0154	116.77	4		PANII115		115.00	6	1.0097	116.12
6		CHO115		115.00	6	1.0397	119.56	9		LSA115		115.00	6	1.0281	118.23
12		M.N115		115.00	6	1.0110	116.26	15		PRO115		115.00	6	1.0271	118.12
18		CAC115		115.00	6	1.0149	116.72	19		C.V115		115.00	6	1.0020	115.23
20		CH.AZUL		115.00	6	1.0279	118.21	21		C.BAN115		115.00	6	1.0034	115.39
23		CH115		115.00	6	1.0125	116.44	26		LOC115		115.00	6	1.0048	115.55
30		MAR115		115.00	6	1.0041	115.47	33		STM115		115.00	6	1.0134	116.54
37		SAN115		115.00	6	1.0018	115.20	48		TINAJ115		115.00	6	1.0127	116.46
50		M.O115		115.00	6	1.0128	116.48	52		TOC115		115.00	6	1.0066	115.76
54		LM1115		115.00	6	1.0357	119.10	55		LM2115		115.00	6	1.0357	119.11
61		FFIELD		115.00	9	1.0316	118.64	87		CAL115		115.00	6	1.0131	116.51
88		EST115		115.00	6	1.0135	116.55	92		L.V115		115.00	6	1.0133	116.53
109		STA RITA115		115.00	6	1.0363	119.17	110		PTMD115A		115.00	6	1.0279	118.21
111		PTMD115B		115.00	6	1.0279	118.21	123		MIR115		115.00	7	1.0173	116.99
154		CEMPAN15		115.00	6	1.0364	119.19	191		CHANG115		115.00	6	1.0199	117.29
522		TCATIVÁ	115	115.00	6	1.0359	119.13								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010

AREA 6 [PANAMA] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	7.7	17.0	0.0	1.0000	38.8	0.9799	47.0			1	6		
67		BLM13C		13.800	V3	38.0	7.7	17.0	0.0	1.0000	38.8	0.9799	47.0			1	6		
68		BLM13D		13.800	V4	38.0	8.0	30.0	0.0	1.0000	38.8	0.9787	47.0			1	6		
70		TGJB13A		13.800	J5	31.0	7.4	20.0	0.0	1.0000	31.9	0.9726	39.4			1	6		
73		BLMCCB		13.800	V9	21.0	6.8	40.0	0.0	1.0000	22.1	0.9508	71.0			1	6		
90		EST-13L		13.800	E1	18.0	-1.1	12.0	-5.0	0.9600	18.8	0.9983	27.0			1	6		
94		LV-13.8L		13.800	L1	20.0	-0.9	12.0	-5.0	0.9600	20.9	0.9990	27.0			1	6		
97		FOR13A		13.800	F1	93.0	-29.3	50.0	-50.0	0.9800	99.5	0.9539	111.0			1	6		
98		FOR13B		13.800	F2	93.0	-29.3	50.0	-50.0	0.9800	99.5	0.9539	111.0			1	6		
99		FOR13C		13.800	F3	93.0	-29.3	50.0	-50.0	0.9800	99.5	0.9539	111.0			1	6		
101		BAY13A		13.800	B1	59.5	16.3	50.0	-25.0	0.9900	62.4	0.9647	96.0			1	6	SYST	
102		BAY13B		13.800	B2	59.6	16.3	50.0	-25.0	0.9900	62.4	0.9647	96.0			1	6		
106		PANAM13A		13.800	M1	15.1	8.5	9.0	0.0	1.0300	16.8	0.8707	20.7			1	6		
106		PANAM13A		13.800	M2	15.1	8.5	9.0	0.0	1.0300	16.8	0.8707	20.7			1	6		
106		PANAM13A		13.800	M3	15.1	8.5	9.0	0.0	1.0300	16.8	0.8707	20.7			1	6		
107		PANAM13B		13.800	M4	15.1	8.5	9.0	0.0	1.0300	16.8	0.8707	20.7			1	6		
107		PANAM13B		13.800	M5	15.1	8.5	9.0	0.0	1.0300	16.8	0.8707	20.7			1	6		
107		PANAM13B		13.800	M6	15.1	8.5	9.0	0.0	1.0300	16.8	0.8707	20.7			1	6		
108		BAY13C		13.800	B3	59.6	16.3	50.0	-25.0	0.9900	62.4	0.9647	100.0			1	6		
116		PACORA13		13.800	P1	17.0	6.5	8.8	0.0	1.0300	17.7	0.9338	21.7			1	6		
116		PACORA13		13.800	P2	17.0	6.5	8.8	0.0	1.0300	17.7	0.9338	21.7			1	6		
116		PACORA13		13.800	P3	17.0	6.5	8.8	0.0	1.0300	17.7	0.9338	21.7			1	6		
142		CANJ13A		13.800	C1	40.0	5.8	29.0	-29.0	0.9783	41.3	0.9898	69.0			1	6		
143		CANJ13B		13.800	C2	40.0	5.8	29.0	-29.0	0.9783	41.3	0.9898	69.0			1	6		
301		CONC13.8		13.800	C1	5.3	0.0	0.0	0.0	0.9649	5.5	1.0000	13.5			1	6		
302		PASOANCH13.8		13.800	P1	3.0	0.0	0.0	0.0	0.9649	3.1	1.0000	6.2			1	6		
304		ALGA13.8		13.800	A1	4.0	0.0	0.0	0.0	0.9649	4.1	1.0000	13.5			1	6		
516		PANAPOW13A		13.800	G1	15.1	0.5	12.5	0.5	1.0366	14.6	0.9994	20.9			1	6		
516		PANAPOW13A		13.800	G2	15.1	0.5	12.5	0.5	1.0366	14.6	0.9994	20.9			1	6		
521		EGIRAL13.8		113.800	G1	3.5	1.3	2.8	1.3	1.0094	3.7	0.9372	4.8			1	6		
521		EGIRAL13.8		113.800	G2	3.5	1.3	2.8	1.3	1.0094	3.7	0.9372	4.8			1	6		
521		EGIRAL13.8		113.800	G3	3.5	1.3	2.8	1.3	1.0094	3.7	0.9372	4.8			1	6		
521		EGIRAL13.8		113.800	G4	3.5	1.3	2.8	1.3	1.0094	3.7	0.9372	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9775	10.9			1	6		
523		TCATIVÁ 13A		13.800	G2	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9775	10.9			1	6		
523		TCATIVÁ 13A		13.800	G3	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9775	10.9			1	6		
523		TCATIVÁ 13A		13.800	G4	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9775	10.9			1	6		
523		TCATIVÁ 13A		13.800	G5	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9775	10.9			1	6		
524		TCATIVÁ 13B		13.800	10	8.0	1.9	6.6	-6.6	1.0000	8.2	0.9720	10.9			1	6		
524		TCATIVÁ 13B		13.800	G6	8.0	1.9	6.6	-6.6	1.0000	8.2	0.9720	10.9			1	6		
524		TCATIVÁ 13B		13.800	G7	8.0	1.9	6.6	-6.6	1.0000	8.2	0.9720	10.9			1	6		
524		TCATIVÁ 13B		13.800	G8	8.0	1.9	6.6	-6.6	1.0000	8.2	0.9720	10.9			1	6		
524		TCATIVÁ 13B		13.800	G9	8.0	1.9	6.6	-6.6	1.0000	8.2	0.9720	10.9			1	6		
525		TCOLON 13A		13.800	G1	36.0	9.2	18.4	9.2	1.0035	37.0	0.9688	44.4			1	6		
526		TCOLON 13B		13.800	G2	36.0	9.2	18.4	9.2	1.0035	37.0	0.9688	44.4			1	6		
527		TCOLON 13C		13.800	V1	36.0	7.5	18.4	5.8	1.0000	36.8	0.9787	44.4			1	6		
531		EGIRAL13.8		213.800	G5	8.0	3.0	6.4	3.0	1.0103	8.5	0.9363	10.9			1	6		
531		EGIRAL13.8		213.800	G6	8.0	3.0	6.4	3.0	1.0103	8.5	0.9363	10.9			1	6		
531		EGIRAL13.8		213.800	G7	8.0	3.0	6.4	3.0	1.0103	8.5	0.9363	10.9			1	6		
531		EGIRAL13.8		213.800	G8	8.0	3.0	6.4	3.0	1.0103	8.5	0.9363	10.9			1	6		
SUBSYSTEM TOTALS						1159.8	124.2	769.2	-316.1				1638.2						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126		MIR13A		12.000	G1	8.0	0.0	5.0	0.0	1.0734	7.5	1.0000	13.5			2	7	
128		MIR13C		12.000	G3	22.0	0.4	11.0	0.0	1.0000	22.0	0.9999	29.4			2	7	
129		MIR13D		13.800	G4	35.0	0.0	15.0	0.0	1.0017	34.9	1.0000	44.1			2	7	
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0289	17.8	0.9281	23.0			2	7	
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0379	17.6	0.9281	23.0			2	7	
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0379	17.6	0.9281	23.0			2	7	
SUBSYSTEM TOTALS						116.0	20.8	64.5	20.5				156.2					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2010 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	249.2	569.4	-236.8	0.0	470.1	30.0	356.8	
6	1159.8	1103.4	0.0	0.0	0.0	36.1	20.3	25.0
PANAMA	124.2	276.5	-15.5	0.0	462.6	55.1	270.6	
7	116.0	42.7	0.0	0.0	0.0	72.2	1.1	50.0
ACANAL	20.8	10.7	0.0	0.0	0.0	-5.9	16.1	
9	0.0	108.4	0.0	0.0	0.0	-108.5	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-32.8	6.8	
TOTALS	6424.4	6306.1	0.0	0.0	0.0	0.0	118.3	0.0
	612.9	1930.7	-863.8	0.0	2012.8	0.0	1558.7	

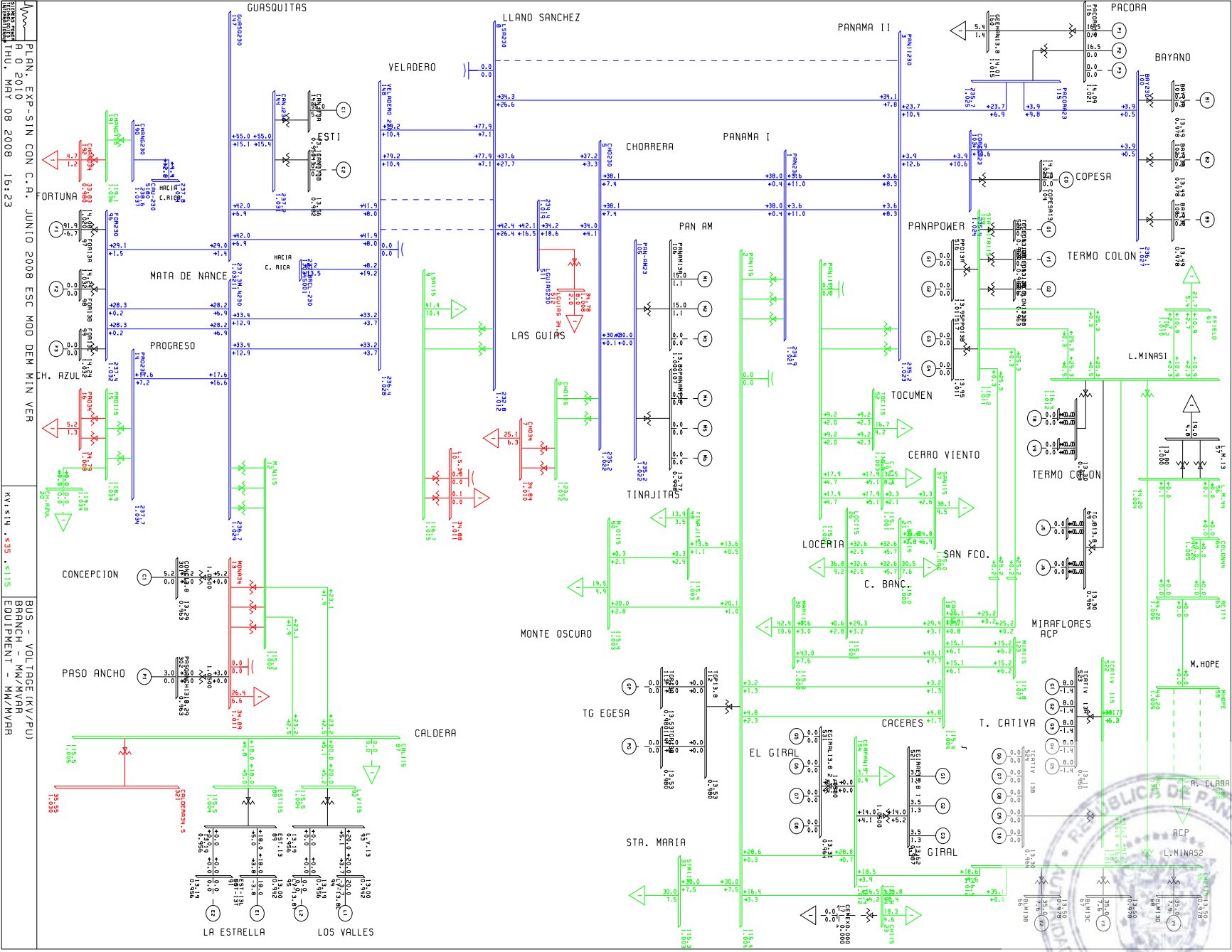


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de



PLAN - EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MIN VER
 R 0 2010
 THU, MAY 08 2008 16:23

KV/114 -35 -1115
 BUS - VOLTAGE (KV/PV)
 BRANCH - KM/WVAR
 EQUIPMENT - KM/WVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2010

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0212	234.89	3	PANII230	230.00	6	1.0225	235.18				
5	CHO230	230.00	6	1.0224	235.16	8	LSA230	230.00	6	1.0122	232.80				
11	M.N230	230.00	6	1.0291	236.70	14	PRO230	230.00	6	1.0336	237.73				
85	PTP230	230.00	6	1.0343	237.89	96	FOR230	230.00	6	1.0320	237.36				
100	BAY230	230.00	6	1.0266	236.12	103	COPESA23	230.00	6	1.0237	235.44				
105	PAN-AM23	230.00	6	1.0225	235.17	115	PACORA23	230.00	6	1.0248	235.70				
144	CANJ230	230.00	6	1.0314	237.22	147	GUASQ230	230.00	6	1.0315	237.26				
148	VELADERO	230.00	6	1.0276	236.35	190	CHANG230	230.00	6	1.0372	238.56				
511	LGUIAS230	230.00	6	1.0190	234.38	6000	FRONTER	230.00	6	1.0340	237.81				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
• NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2010

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0038	115.44	4	PANII115	115.00	6	1.0042	115.48				
6	CHO115	115.00	6	1.0717	123.24	9	LSA115	115.00	6	1.0149	116.71				
12	M.N115	115.00	6	1.0025	115.28	15	PRO115	115.00	6	1.0337	118.87				
18	CAC115	115.00	6	1.0038	115.44	19	C.V115	115.00	6	1.0009	115.10				
20	CH.AZUL	115.00	6	1.0344	118.96	21	C.BAN115	115.00	6	1.0002	115.02				
23	CH115	115.00	6	1.0039	115.45	26	LOC115	115.00	6	1.0006	115.06				
30	MAR115	115.00	6	1.0001	115.01	33	STM115	115.00	6	1.0030	115.35				
48	TINAJ115	115.00	6	1.0031	115.35	50	M.O115	115.00	6	1.0031	115.36				
52	TOC115	115.00	6	1.0031	115.35	54	LM115	115.00	6	1.0117	116.35				
55	LM2115	115.00	6	1.0125	116.43	61	FFIELD	115.00	9	1.0102	116.18				
87	CAL115	115.00	6	1.0046	115.52	88	EST115	115.00	6	1.0043	115.50				
92	L.V115	115.00	6	1.0045	115.52	109	STA RITA115	115.00	6	1.0108	116.24				
110	PTMD115A	115.00	6	1.0088	116.01	111	PTMD115B	115.00	6	1.0088	116.01				
123	MIR115	115.00	7	1.0074	115.85	154	CEMPAN15	115.00	6	1.0124	116.43				
191	CHANG115	115.00	6	1.0356	119.09	522	TCATIVÁ	115	115.00	6	1.0122	116.40			

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
37	SAN115	115.00	6	0.9997	114.97										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2010

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	35.0	7.6	17.0	0.0	0.9783	36.6	0.9771	47.0	1	6									



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67	BLM13C	13.800	V3	35.0	7.6	17.0	0.0	0.9783	36.6	0.9771	47.0	1	6
68	BLM13D	13.800	V4	35.0	7.9	30.0	0.0	0.9783	36.7	0.9756	47.0	1	6
90	EST-13L	13.800	E1	18.0	-3.8	12.0	-5.0	0.9420	19.5	0.9781	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	-3.7	12.0	-5.0	0.9420	21.6	0.9829	27.0	1	6
97	FOR13A	13.800	F1	91.9	-6.7	50.0	-50.0	1.0200	90.3	0.9974	111.0	1	6
106	PANAM13A	13.800	M1	15.0	1.1	9.0	0.0	1.0000	15.0	0.9975	20.7	1	6
106	PANAM13A	13.800	M2	15.0	1.1	9.0	0.0	1.0000	15.0	0.9975	20.7	1	6
116	PACORA13	13.800	P1	16.5	0.0	8.8	0.0	1.0209	16.2	1.0000	21.7	1	6
116	PACORA13	13.800	P2	16.5	0.0	8.8	0.0	1.0209	16.2	1.0000	21.7	1	6
142	CANJ13A	13.800	C1	55.0	5.2	29.0	-29.0	0.9500	58.2	0.9955	69.0	1	6
301	CONC13.8	13.800	C1	5.2	0.0	0.0	-5.0	0.9633	5.4	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	-2.0	0.9633	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.4	5.0	5.0	0.0	0.9598	10.2	0.8593	13.5	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	0.9869	3.8	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	0.9869	3.8	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	0.9869	3.8	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	0.9869	3.8	0.9372	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9857	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9857	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9857	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9857	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-1.4	6.6	-6.6	0.9500	8.5	0.9857	10.9	1	6
SUBSYSTEM TOTALS				423.5	19.6	251.8	-123.6				567.1		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 07 2008 10:57
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
AÑO 2010

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
170		MIR13G		13.800	M1	15.5	6.8	11.2	6.8	1.0386	16.3	0.9150	23.0			2	7	
171		MIR13H		13.800	M1	15.5	6.8	11.2	6.8	1.0478	16.1	0.9150	23.0			2	7	
171		MIR13H		13.800	M2	15.5	6.8	11.2	6.8	1.0478	16.1	0.9150	23.0			2	7	
SUBSYSTEM TOTALS						46.4	20.5	33.5	20.5				69.1					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2010

WED, MAY 07 2008 10:57
 AREA TOTALS
 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1 GUATEMAL	1347.5 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2 SALVADOR	911.8 100.8	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.3	9.8 158.1	0.0
3 HONDURAS	1006.8 55.6	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.9	0.0 -5.3	21.4 261.6	0.0
4 NICA	538.2 32.3	527.1 224.5	0.0 -98.9	0.0 0.0	0.0 143.3	0.0 -97.4	11.1 147.3	0.0
5 C.RICA	1344.3 238.8	1324.8 569.4	0.0 -236.4	0.0 0.0	0.0 471.0	0.2 19.9	19.3 356.8	0.0
6 PANAMA	423.5 19.6	406.9 102.0	0.0 186.2	0.0 0.0	0.0 386.9	10.2 24.5	6.4 93.8	25.0
7 ACANAL	46.4 20.5	16.1 4.0	0.0 0.0	0.0 0.0	0.0 0.0	30.3 12.3	0.1 4.2	50.0
9 COLON	0.0 0.0	40.7 10.2	0.0 0.0	0.0 0.0	0.0 1.1	-40.8 -10.1	0.0 1.0	-75.0
TOTALS	5618.5 497.2	5515.2 1732.5	0.0 -661.7	0.0 0.0	0.0 1937.9	0.0 0.0	103.3 1364.2	0.0



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Panamá II- Llano Sánchez**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0132	233.05	14	PRO230	230.00	6	1.0193	234.45				
85	PTP230	230.00	6	1.0102	232.34	96	FOR230	230.00	6	1.0093	232.14				
100	BAY230	230.00	6	1.0037	230.86	144	CANJ230	230.00	6	1.0116	232.66				
147	GUASQ230	230.00	6	1.0116	232.66	148	VELADERO	230230.00	6	1.0140	233.21				
190	CHANG230	230.00	6	1.0189	234.34	6000	FRONTER	230.00	6	1.0204	234.69				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9597	220.73	3	PANII230	230.00	6	0.9661	222.20				
5	CHO230	230.00	6	0.9691	222.89	8	LSA230	230.00	6	0.9975	229.42				
103	COPESA23	230.00	6	0.9720	223.55	105	PAN-AM23	230.00	6	0.9692	222.91				
115	PACORA23	230.00	6	0.9795	225.29	511	LGUIAS230	230.00	6	0.9848	226.49				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0057	115.65	4	PANII115	115.00	6	1.0035	115.40				
6	CHO115	115.00	6	1.0040	115.46	12	M.N115	115.00	6	1.0041	115.47				
15	PRO115	115.00	6	1.0178	117.04	18	CAC115	115.00	6	1.0052	115.60				
20	CH.AZUL	115.00	6	1.0185	117.13	23	CH115	115.00	6	1.0021	115.24				
33	STM115	115.00	6	1.0036	115.42	48	TINAJ115	115.00	6	1.0030	115.34				
50	M.O115	115.00	6	1.0031	115.36	52	TOC115	115.00	6	1.0004	115.05				
54	LM1115	115.00	6	1.0219	117.51	55	LM2115	115.00	6	1.0221	117.54				
61	FFIELD	115.00	9	1.0178	117.04	87	CAL115	115.00	6	1.0119	116.37				
88	EST115	115.00	6	1.0129	116.48	92	L.V115	115.00	6	1.0125	116.44				
109	STA RITA115	115.00	6	1.0245	117.82	110	PTMD115A	115.00	6	1.0172	116.98				
111	PTMD115B	115.00	6	1.0172	116.98	123	MIR115	115.00	7	1.0072	115.83				
154	CEMPAN15	115.00	6	1.0191	117.19	191	CHANG115	115.00	6	1.0140	116.61				
522	TCATIVÁ	115.00	6	1.0222	117.55										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
9	LSA115	115.00	6	0.9995	114.94	19	C.V115	115.00	6	0.9947	114.39				
21	C.BAN115	115.00	6	0.9940	114.31	26	LOC115	115.00	6	0.9954	114.47				
30	MAR115	115.00	6	0.9944	114.36	37	SAN115	115.00	6	0.9925	114.14				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:25
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



66	BLM13B	13.800	V2	36.0	4.4	17.0	0.0	0.9800	37.0	0.9925	47.0	1	6
67	BLM13C	13.800	V3	36.0	4.4	17.0	0.0	0.9800	37.0	0.9925	47.0	1	6
68	BLM13D	13.800	V4	36.0	4.5	30.0	0.0	0.9800	37.0	0.9923	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.5	12.0	-5.0	0.9600	22.9	0.9997	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.5	12.0	-5.0	0.9600	22.9	0.9997	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.4	12.0	-5.0	0.9600	25.0	0.9999	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	2.9	12.0	-5.0	0.9700	24.9	0.9930	27.0	1	6
97	FOR13A	13.800	F1	95.0	-21.1	50.0	-50.0	0.9800	99.3	0.9763	111.0	1	6
98	FOR13B	13.800	F2	95.0	-21.1	50.0	-50.0	0.9800	99.3	0.9763	111.0	1	6
99	FOR13C	13.800	F3	95.0	-21.1	50.0	-50.0	0.9800	99.3	0.9763	111.0	1	6
101	BAY13A	13.800	B1	81.1	30.8	50.0	-25.0	0.9900	87.7	0.9348	96.0	1	6
102	BAY13B	13.800	B2	79.9	30.7	50.0	-25.0	0.9900	86.5	0.9334	96.0	1	6
106	PANAM13A	13.800	M1	13.5	4.1	9.0	0.0	0.9700	14.6	0.9564	20.7	1	6
106	PANAM13A	13.800	M2	13.5	4.1	9.0	0.0	0.9700	14.6	0.9564	20.7	1	6
106	PANAM13A	13.800	M3	13.5	4.1	9.0	0.0	0.9700	14.6	0.9564	20.7	1	6
107	PANAM13B	13.800	M4	13.5	5.6	9.0	0.0	0.9700	15.1	0.9234	20.7	1	6
107	PANAM13B	13.800	M5	13.5	5.6	9.0	0.0	0.9700	15.1	0.9234	20.7	1	6
108	BAY13C	13.800	B3	79.9	30.7	50.0	-25.0	0.9900	86.5	0.9334	100.0	1	6
116	PACORA13	13.800	P1	14.0	7.3	8.8	0.0	1.0100	15.6	0.8864	21.7	1	6
116	PACORA13	13.800	P2	14.0	7.3	8.8	0.0	1.0100	15.6	0.8864	21.7	1	6
116	PACORA13	13.800	P3	14.0	7.3	8.8	0.0	1.0100	15.6	0.8864	21.7	1	6
142	CANJ13A	13.800	C1	50.0	10.7	29.0	-29.0	0.9783	52.3	0.9778	69.0	1	6
143	CANJ13B	13.800	C2	50.0	10.7	29.0	-29.0	0.9783	52.3	0.9778	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9573	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9554	5.1	0.9110	6.2	1	6
304	ALG13.8	13.800	A1	8.7	5.0	5.0	0.0	0.9668	10.4	0.8670	13.5	1	6
516	PANAPOW13A	13.800	G1	10.2	0.5	12.5	0.5	1.0254	10.0	0.9987	20.9	1	6
521	EGIRAL13.9	113.800	G1	3.5	1.7	2.8	1.3	1.0000	3.9	0.9024	4.8	1	6
521	EGIRAL13.9	113.800	G2	3.5	1.7	2.8	1.3	1.0000	3.9	0.9024	4.8	1	6
521	EGIRAL13.9	113.800	G3	3.5	1.7	2.8	1.3	1.0000	3.9	0.9024	4.8	1	6
521	EGIRAL13.9	113.800	G4	3.5	1.7	2.8	1.3	1.0000	3.9	0.9024	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.2	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.2	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.2	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.2	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.2	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9136	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9136	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9136	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9136	10.9	1	6
525	TCOLON 13A	13.800	G1	35.0	12.8	18.4	9.2	1.0000	37.3	0.9394	44.4	1	6
526	TCOLON 13B	13.800	G2	35.0	12.8	18.4	9.2	1.0000	37.3	0.9394	44.4	1	6
527	TCOLON 13C	13.800	V1	35.0	12.8	18.4	5.8	1.0000	37.3	0.9394	44.4	1	6
SUBSYSTEM TOTALS				1167.2	185.3	698.1	-345.6				1496.6		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:25
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	18.3	3.9	11.0	0.0	1.0000	18.7	0.9785	29.4			2	7	
134		MAD6A		6.9000	G1	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9995	13.0			2	7	
135		MAD6B		6.9000	G2	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9994	13.0			2	7	
136		MAD6C		6.9000	G3	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9994	13.0			2	7	



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140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9986	4.1	2	7
140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9986	4.1	2	7
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9986	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9773	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9773	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9773	6.2	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0167	18.1	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0258	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0258	17.9	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	22.5	77.5	-12.5				168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2010 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.8	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	263.0	569.4	-236.4	0.0	468.6	41.4	357.3	
6	1167.2	1103.8	0.0	0.0	0.0	36.8	26.6	25.0
PANAMA	185.3	276.6	-60.7	0.0	410.6	45.2	334.7	
7	116.0	42.7	0.0	0.0	0.0	71.5	1.8	50.0
ACANAL	22.5	10.7	0.0	0.0	0.0	-7.7	19.4	
9	0.0	108.5	0.0	0.0	0.0	-108.6	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-33.0	6.9	
TOTALS	6431.9	6306.6	0.0	0.0	0.0	0.0	125.4	0.0
	689.9	1930.8	-908.5	0.0	1959.2	0.0	1626.8	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas- Veladero**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA GUASQUITAS- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230		230.00	6	1.0019	230.43		11	M.N230		230.00	6	1.0116	232.66	
14	PRO230		230.00	6	1.0179	234.12		85	PTP230		230.00	6	1.0087	232.00	
96	FOR230		230.00	6	1.0077	231.78		100	BAY230		230.00	6	1.0109	232.50	
144	CANJ230		230.00	6	1.0089	232.05		147	GUASQ230		230.00	6	1.0089	232.04	
148	VELADERO	230230.00	6	1.0134	233.09			190	CHANG230		230.00	6	1.0178	234.09	
6000	FRONTER		230.00	6	1.0191	234.38									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230		230.00	6	0.9714	223.43		3	PANII230		230.00	6	0.9783	225.02	
5	CHO230		230.00	6	0.9788	225.12		103	COPESA23		230.00	6	0.9834	226.19	
105	PAN-AM23		230.00	6	0.9789	225.14		115	PACORA23		230.00	6	0.9897	227.63	
511	LGUIAS230		230.00	6	0.9920	228.15									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA GUASQUITAS- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115		115.00	6	1.0055	115.64		4	PANII115		115.00	6	1.0037	115.43	
6	CHO115		115.00	6	1.0144	116.66		9	LSA115		115.00	6	1.0041	115.48	
12	M.N115		115.00	6	1.0028	115.33		15	PRO115		115.00	6	1.0163	116.88	
18	CAC115		115.00	6	1.0051	115.58		20	CH.AZUL		115.00	6	1.0171	116.97	
23	CH115		115.00	6	1.0020	115.23		33	STM115		115.00	6	1.0035	115.40	
48	TINAJ115		115.00	6	1.0028	115.32		50	M.O115		115.00	6	1.0029	115.34	
52	TOC115		115.00	6	1.0006	115.07		54	LM115		115.00	6	1.0218	117.51	
55	LM2115		115.00	6	1.0220	117.53		61	FFIELD		115.00	9	1.0177	117.04	
87	CAL115		115.00	6	1.0111	116.28		88	EST115		115.00	6	1.0121	116.39	
92	L.V115		115.00	6	1.0117	116.35		109	STA RITA115		115.00	6	1.0244	117.81	
110	PTMD115A		115.00	6	1.0171	116.97		111	PTMD115B		115.00	6	1.0171	116.97	
123	MIR115		115.00	7	1.0071	115.82		154	CEMPAN15		115.00	6	1.0190	117.18	
191	CHANG115		115.00	6	1.0129	116.49		522	TCATIVÁ	115	115.00	6	1.0221	117.54	

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115		115.00	6	0.9948	114.40		21	C.BAN115		115.00	6	0.9939	114.30	
26	LOC115		115.00	6	0.9952	114.45		30	MAR115		115.00	6	0.9943	114.34	
37	SAN115		115.00	6	0.9925	114.13									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA GUASQUITAS- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	36.0	4.5	17.0	0.0	0.9800	37.0	0.9924	47.0	1	6
67	BLM13C	13.800	V3	36.0	4.5	17.0	0.0	0.9800	37.0	0.9924	47.0	1	6
68	BLM13D	13.800	V4	36.0	4.5	30.0	0.0	0.9800	37.0	0.9922	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.3	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.3	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.2	12.0	-5.0	0.9600	25.0	1.0000	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	3.1	12.0	-5.0	0.9700	24.9	0.9918	27.0	1	6
97	FOR13A	13.800	F1	95.0	-19.7	50.0	-50.0	0.9800	99.0	0.9792	111.0	1	6
98	FOR13B	13.800	F2	95.0	-19.7	50.0	-50.0	0.9800	99.0	0.9792	111.0	1	6
99	FOR13C	13.800	F3	95.0	-19.7	50.0	-50.0	0.9800	99.0	0.9792	111.0	1	6
101	BAY13A	13.800	B1	81.4	25.6	50.0	-25.0	0.9900	86.2	0.9540	96.0	1	6
102	BAY13B	13.800	B2	79.9	25.4	50.0	-25.0	0.9900	84.7	0.9530	96.0	1	6
106	PANAM13A	13.800	M1	13.5	2.8	9.0	0.0	0.9700	14.2	0.9793	20.7	1	6
106	PANAM13A	13.800	M2	13.5	2.8	9.0	0.0	0.9700	14.2	0.9793	20.7	1	6
106	PANAM13A	13.800	M3	13.5	2.8	9.0	0.0	0.9700	14.2	0.9793	20.7	1	6
107	PANAM13B	13.800	M4	13.5	3.6	9.0	0.0	0.9700	14.4	0.9659	20.7	1	6
107	PANAM13B	13.800	M5	13.5	3.6	9.0	0.0	0.9700	14.4	0.9659	20.7	1	6
108	BAY13C	13.800	B3	79.9	25.4	50.0	-25.0	0.9900	84.7	0.9530	100.0	1	6
116	PACORA13	13.800	P1	14.0	5.5	8.8	0.0	1.0100	14.9	0.9316	21.7	1	6
116	PACORA13	13.800	P2	14.0	5.5	8.8	0.0	1.0100	14.9	0.9316	21.7	1	6
116	PACORA13	13.800	P3	14.0	5.5	8.8	0.0	1.0100	14.9	0.9316	21.7	1	6
142	CANJ13A	13.800	C1	50.0	11.1	29.0	-29.0	0.9783	52.4	0.9761	69.0	1	6
143	CANJ13B	13.800	C2	50.0	11.1	29.0	-29.0	0.9783	52.4	0.9761	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9561	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9542	5.1	0.9110	6.2	1	6
304	ALGA13.8	13.800	A1	8.7	5.0	5.0	0.0	0.9660	10.4	0.8670	13.5	1	6
516	PANAPOW13A	13.800	G1	10.2	0.5	12.5	0.5	1.0253	10.0	0.9987	20.9	1	6
521	EGIRAL13.9	113.800	G1	3.5	1.7	2.8	1.3	1.0000	3.9	0.9020	4.8	1	6
521	EGIRAL13.9	113.800	G2	3.5	1.7	2.8	1.3	1.0000	3.9	0.9020	4.8	1	6
521	EGIRAL13.9	113.800	G3	3.5	1.7	2.8	1.3	1.0000	3.9	0.9020	4.8	1	6
521	EGIRAL13.9	113.800	G4	3.5	1.7	2.8	1.3	1.0000	3.9	0.9020	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.1	6.6	-6.6	0.9700	8.2	0.9998	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9133	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9133	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9133	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9133	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	3.6	6.6	-6.6	1.0000	8.8	0.9133	10.9	1	6
525	TCOLON 13A	13.800	G1	35.0	12.8	18.4	9.2	1.0000	37.3	0.9392	44.4	1	6
526	TCOLON 13B	13.800	G2	35.0	12.8	18.4	9.2	1.0000	37.3	0.9392	44.4	1	6
527	TCOLON 13C	13.800	V1	35.0	12.8	18.4	5.8	1.0000	37.3	0.9392	44.4	1	6
SUBSYSTEM TOTALS				1167.5	162.2	698.1	-345.6				1496.6		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA GUASQUITAS- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	18.3	3.9	11.0	0.0	1.0000	18.7	0.9782	29.4			2	7	
134		MAD6A		6.9000	G1	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9994	13.0			2	7	
135		MAD6B		6.9000	G2	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9994	13.0			2	7	
136		MAD6C		6.9000	G3	9.7	0.3	6.0	-6.0	1.0000	9.7	0.9994	13.0			2	7	



140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9987	4.1	2	7
140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9987	4.1	2	7
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9987	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9773	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9773	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9773	6.2	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0166	18.1	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0257	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0257	17.9	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	22.5	77.5	-12.5				168.0		



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PDI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 15:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2010 CONTINGENCIA GUASQUITAS- VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.8	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	265.2	569.4	-236.3	0.0	468.4	42.9	357.6	
6	1167.5	1103.8	0.0	0.0	0.0	36.9	26.8	25.0
PANAMA	162.2	276.6	-60.7	0.0	431.8	43.6	334.3	
7	116.0	42.7	0.0	0.0	0.0	71.5	1.8	50.0
ACANAL	22.5	10.7	0.0	0.0	0.0	-7.6	19.4	
9	0.0	108.5	0.0	0.0	0.0	-108.6	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-33.0	6.9	
TOTALS	6432.2	6306.6	0.0	0.0	0.0	0.0	125.6	0.0
	669.1	1930.8	-908.4	0.0	1980.1	0.0	1626.8	

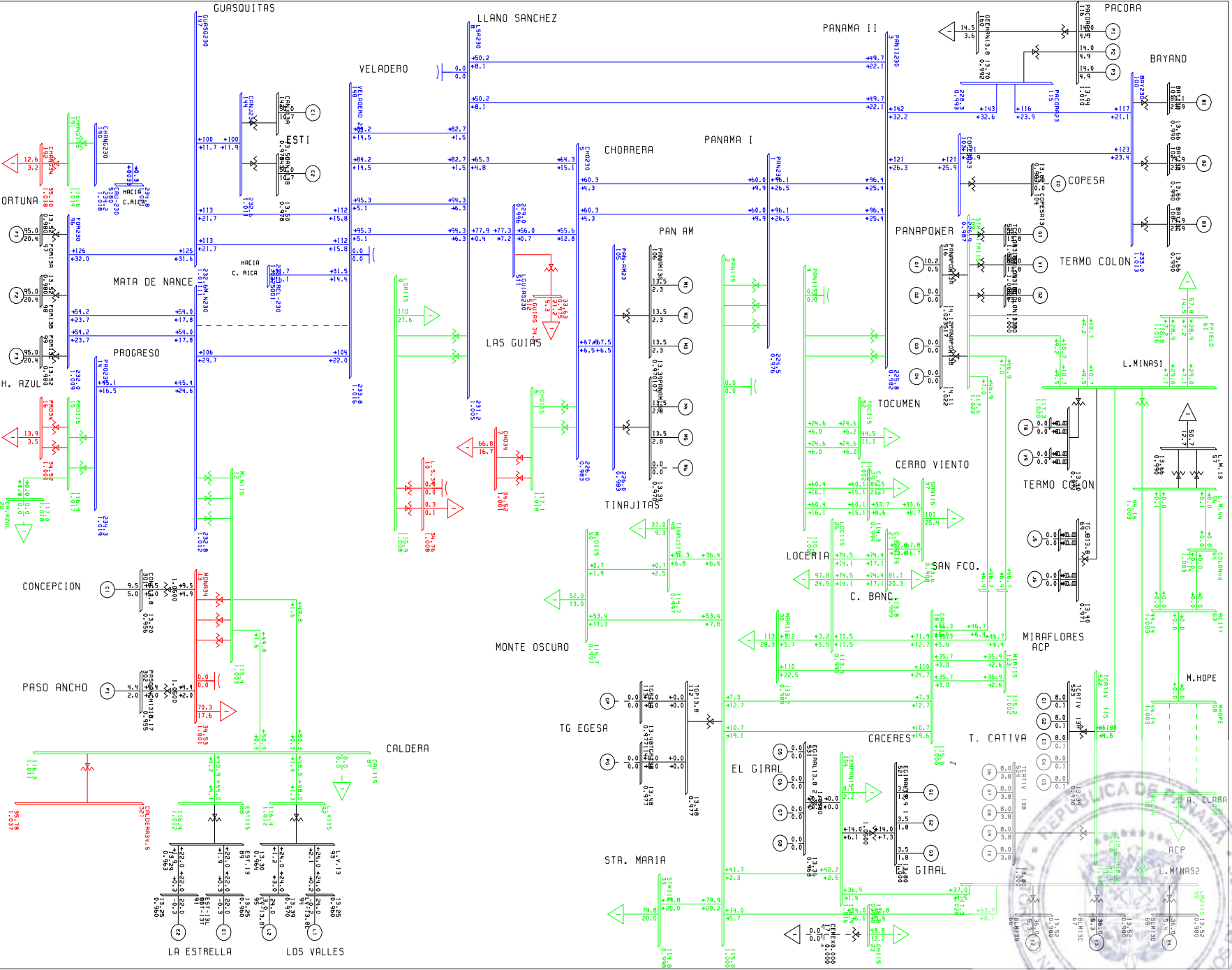


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance- Veladero**



de



PLANN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 P O 2010 CONTINGENCIA MATA DE NANCE-VELADERO
 FRI. MAY 23 2008 7:51

BUS - VOLTAGE (KV/V/PU)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR

KV:114 .435 .4115

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA	230	230.00	6	1.0052	231.20	11	M.N	230	230.00	6	1.0120	232.76		
14	PRO	230	230.00	6	1.0185	234.26	85	PTP	230	230.00	6	1.0095	232.18		
96	FOR	230	230.00	6	1.0085	231.97	100	BAY	230	230.00	6	1.0129	232.96		
144	CANJ	230	230.00	6	1.0114	232.61	147	GUASQ	230	230.00	6	1.0114	232.61		
148	VELADERO	230	230.00	6	1.0164	233.76	190	CHANG	230	230.00	6	1.0184	234.23		
6000	FRONTER	230	230.00	6	1.0197	234.53									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230	230.00	6	0.9759	224.46	3	PANII	230	230.00	6	0.9818	225.82		
5	CHO	230	230.00	6	0.9826	226.00	103	COPE	230	230.00	6	0.9867	226.94		
105	PAN-AM	230	230.00	6	0.9827	226.01	115	PACORA	230	230.00	6	0.9926	228.29		
511	LGUIAS	230	230.00	6	0.9955	228.97									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115	115.00	6	1.0000	115.00	4	PANII	115	115.00	6	1.0049	115.57		
6	CHO	115	115.00	6	1.0184	117.12	9	LSA	115	115.00	6	1.0077	115.88		
12	M.N	115	115.00	6	1.0032	115.36	15	PRO	115	115.00	6	1.0169	116.95		
20	CH.AZUL	115	115.00	6	1.0177	117.03	52	TOC	115	115.00	6	1.0018	115.21		
54	LM	115	115.00	6	1.0198	117.28	55	LM2	115	115.00	6	1.0200	117.30		
61	FFIELD	115	115.00	9	1.0157	116.81	87	CAL	115	115.00	6	1.0113	116.30		
88	EST	115	115.00	6	1.0123	116.41	92	L.V	115	115.00	6	1.0119	116.37		
109	STA RITA	115	115.00	6	1.0223	117.56	110	PTMD	115A	115.00	6	1.0135	116.55		
111	PTMD	115B	115.00	6	1.0135	116.55	123	MIR	115	115.00	7	1.0019	115.22		
154	CEMPAN	115	115.00	6	1.0162	116.86	191	CHANG	115	115.00	6	1.0135	116.55		
522	TCATIVÁ	115	115.00	6	1.0201	117.31									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
18	CAC	115	115.00	6	0.9996	114.96	19	C.V	115	115.00	6	0.9941	114.33		
21	C.BAN	115	115.00	6	0.9892	113.76	23	CH	115	115.00	6	0.9979	114.76		
26	LOC	115	115.00	6	0.9904	113.89	30	MAR	115	115.00	6	0.9891	113.75		
33	STM	115	115.00	6	0.9979	114.76	37	SAN	115	115.00	6	0.9881	113.63		
48	TINAJ	115	115.00	6	0.9973	114.69	50	M.O	115	115.00	6	0.9974	114.70		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	5.3	17.0	0.0	0.9800	37.1	0.9894	47.0	1	6
67	BLM13C	13.800	V3	36.0	5.3	17.0	0.0	0.9800	37.1	0.9894	47.0	1	6
68	BLM13D	13.800	V4	36.0	5.4	30.0	0.0	0.9800	37.1	0.9889	47.0	1	6
90	EST-13L	13.800	E1	22.0	-0.3	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
91	EST-13T	13.800	E2	22.0	-0.3	12.0	-5.0	0.9600	22.9	0.9999	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	-0.2	12.0	-5.0	0.9600	25.0	0.9999	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	3.0	12.0	-5.0	0.9700	24.9	0.9921	27.0	1	6
97	FOR13A	13.800	F1	95.0	-20.4	50.0	-50.0	0.9800	99.1	0.9777	111.0	1	6
98	FOR13B	13.800	F2	95.0	-20.4	50.0	-50.0	0.9800	99.1	0.9777	111.0	1	6
99	FOR13C	13.800	F3	95.0	-20.4	50.0	-50.0	0.9800	99.1	0.9777	111.0	1	6
101	BAY13A	13.800	B1	80.1	23.9	50.0	-25.0	0.9900	84.4	0.9581	96.0	1	6
102	BAY13B	13.800	B2	79.9	23.9	50.0	-25.0	0.9900	84.2	0.9580	96.0	1	6
106	PANAM13A	13.800	M1	13.5	2.3	9.0	0.0	0.9700	14.1	0.9862	20.7	1	6
106	PANAM13A	13.800	M2	13.5	2.3	9.0	0.0	0.9700	14.1	0.9862	20.7	1	6
106	PANAM13A	13.800	M3	13.5	2.3	9.0	0.0	0.9700	14.1	0.9862	20.7	1	6
107	PANAM13B	13.800	M4	13.5	2.8	9.0	0.0	0.9700	14.2	0.9787	20.7	1	6
107	PANAM13B	13.800	M5	13.5	2.8	9.0	0.0	0.9700	14.2	0.9787	20.7	1	6
108	BAY13C	13.800	B3	79.9	23.9	50.0	-25.0	0.9900	84.2	0.9580	100.0	1	6
116	PACORA13	13.800	P1	14.0	4.9	8.8	0.0	1.0100	14.7	0.9430	21.7	1	6
116	PACORA13	13.800	P2	14.0	4.9	8.8	0.0	1.0100	14.7	0.9430	21.7	1	6
116	PACORA13	13.800	P3	14.0	4.9	8.8	0.0	1.0100	14.7	0.9430	21.7	1	6
142	CANJ13A	13.800	C1	50.0	10.7	29.0	-29.0	0.9783	52.3	0.9777	69.0	1	6
143	CANJ13B	13.800	C2	50.0	10.7	29.0	-29.0	0.9783	52.3	0.9777	69.0	1	6
301	CONC13.8	13.800	C1	9.5	5.0	5.0	-5.0	0.9564	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9545	5.1	0.9110	6.2	1	6
304	ALG13.8	13.800	A1	8.7	5.0	5.0	0.0	0.9662	10.4	0.8670	13.5	1	6
516	PANAPOW13A	13.800	G1	10.2	0.5	12.5	0.5	1.0232	10.0	0.9987	20.9	1	6
521	EGIRAL13.9	113.800	G1	3.5	1.8	2.8	1.3	1.0000	3.9	0.8875	4.8	1	6
521	EGIRAL13.9	113.800	G2	3.5	1.8	2.8	1.3	1.0000	3.9	0.8875	4.8	1	6
521	EGIRAL13.9	113.800	G3	3.5	1.8	2.8	1.3	1.0000	3.9	0.8875	4.8	1	6
521	EGIRAL13.9	113.800	G4	3.5	1.8	2.8	1.3	1.0000	3.9	0.8875	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	0.1	6.6	-6.6	0.9700	8.2	0.9999	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	3.8	6.6	-6.6	1.0000	8.9	0.9031	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	3.8	6.6	-6.6	1.0000	8.9	0.9031	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	3.8	6.6	-6.6	1.0000	8.9	0.9031	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	3.8	6.6	-6.6	1.0000	8.9	0.9031	10.9	1	6
525	TCOLON 13A	13.800	G1	35.0	13.8	18.4	9.2	1.0000	37.6	0.9307	44.4	1	6
526	TCOLON 13B	13.800	G2	35.0	13.8	18.4	9.2	1.0000	37.6	0.9307	44.4	1	6
527	TCOLON 13C	13.800	V1	35.0	13.8	18.4	5.8	1.0000	37.6	0.9307	44.4	1	6
SUBSYSTEM TOTALS				1166.2	158.0	698.1	-345.6				1496.6		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2010 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	18.3	4.7	11.0	0.0	1.0000	18.9	0.9687	29.4			2	7	
134		MAD6A		6.9000	G1	9.7	0.5	6.0	-6.0	1.0000	9.7	0.9987	13.0			2	7	
135		MAD6B		6.9000	G2	9.7	0.5	6.0	-6.0	1.0000	9.7	0.9987	13.0			2	7	
136		MAD6C		6.9000	G3	9.7	0.5	6.0	-6.0	1.0000	9.7	0.9987	13.0			2	7	



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140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9996	4.1	2	7
140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9996	4.1	2	7
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9996	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.8	3.0	-3.0	1.0000	3.9	0.9798	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.8	3.0	-3.0	1.0000	3.9	0.9798	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.8	3.0	-3.0	1.0000	3.9	0.9798	6.2	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0136	18.2	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0227	18.0	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0227	18.0	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	24.1	77.5	-12.5				168.0		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2010 CONTINGENCIA MATA DE NANCE-VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.8	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	263.9	569.4	-236.4	0.0	468.6	42.0	357.4	
6	1166.2	1103.8	0.0	0.0	0.0	36.9	25.5	25.0
PANAMA	158.0	276.6	-60.0	0.0	432.2	43.0	330.5	
7	116.0	42.7	0.0	0.0	0.0	71.5	1.8	50.0
ACANAL	24.1	10.7	0.0	0.0	0.0	-6.1	19.5	
9	0.0	108.5	0.0	0.0	0.0	-108.6	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-33.0	6.9	
TOTALS	6430.9	6306.6	0.0	0.0	0.0	0.0	124.3	0.0
	665.1	1930.8	-907.8	0.0	1980.7	0.0	1622.8	

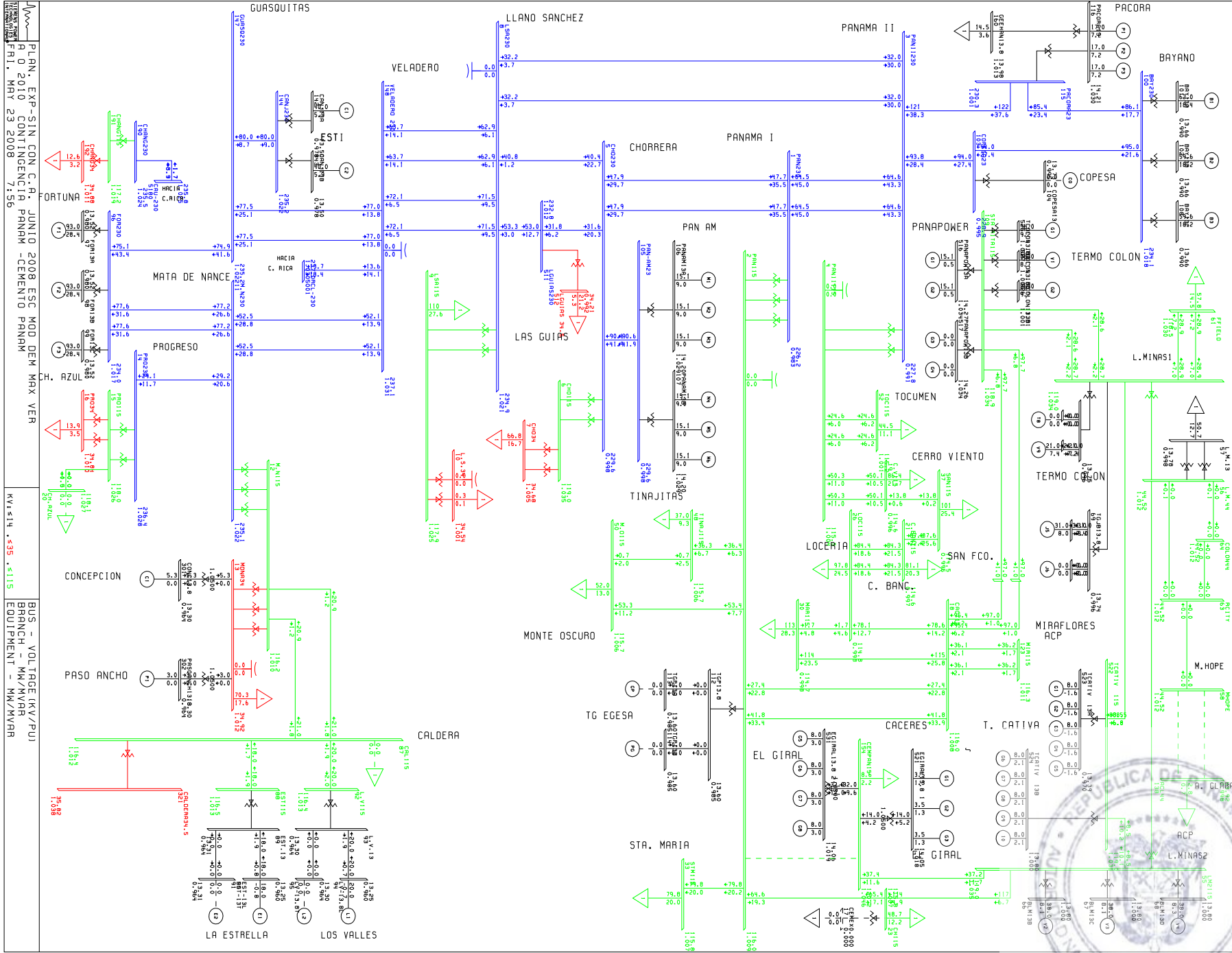


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá- Cemento Panamá**

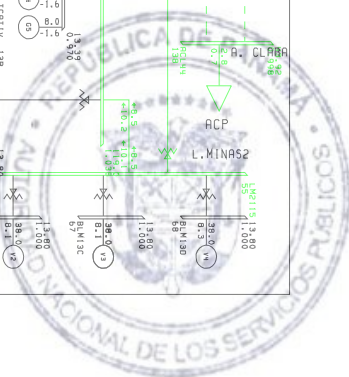


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PLAN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX VER
 R D 2010 CONTINGENCIA PANAM - CEMENTO PANAM
 F.R.I. MAY 23 2008 7:56

BUS - VOLTAGE (KV/VU)
 BRANCH - MM/MYR
 EQUIPMENT - MM/MYR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0215	234.94	11	M.N230	230.00	6	1.0220	235.05				
14	PRO230	230.00	6	1.0276	236.36	85	PTP230	230.00	6	1.0176	234.04				
96	FOR230	230.00	6	1.0173	233.97	100	BAY230	230.00	6	1.0180	234.15				
115	PACORA23	230.00	6	1.0015	230.33	144	CANJ230	230.00	6	1.0225	235.16				
147	GUASQ230	230.00	6	1.0224	235.16	148	VELADERO	230230.00	6	1.0308	237.09				
190	CHANG230	230.00	6	1.0241	235.54	511	LGUIAS230	230.00	6	1.0121	232.78				
6000	FRONTIER	230.00	6	1.0286	236.58										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9833	226.15	3	PANII230	230.00	6	0.9906	227.84				
5	CHO230	230.00	6	0.9981	229.56	103	COPESA23	230.00	6	0.9951	228.87				
105	PAN-AM23	230.00	6	0.9983	229.60										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0089	116.02	4	PANII115	115.00	6	1.0045	115.52				
6	CHO115	115.00	6	1.0351	119.03	9	LSA115	115.00	6	1.0248	117.86				
12	M.N115	115.00	6	1.0100	116.15	15	PRO115	115.00	6	1.0261	118.00				
18	CAC115	115.00	6	1.0085	115.97	20	CH.AZUL	115.00	6	1.0268	118.09				
23	CH115	115.00	6	1.0067	115.77	33	STM115	115.00	6	1.0068	115.79				
48	TINAJ115	115.00	6	1.0062	115.71	50	M.O115	115.00	6	1.0063	115.73				
52	TOC115	115.00	6	1.0014	115.16	54	LM115	115.00	6	1.0344	118.95				
55	LM2115	115.00	6	1.0349	119.02	61	FFIELD	115.00	9	1.0303	118.49				
87	CAL115	115.00	6	1.0124	116.42	88	EST115	115.00	6	1.0127	116.46				
92	L.V115	115.00	6	1.0125	116.44	109	STA RITA115	115.00	6	1.0337	118.87				
110	PTMD115A	115.00	6	1.0229	117.64	111	PTMD115B	115.00	6	1.0229	117.64				
123	MIR115	115.00	7	1.0111	116.28	154	CEMPAN15	115.00	6	1.0456	120.25				
191	CHANG115	115.00	6	1.0193	117.21	522	TCATIVÁ	115 115.00	6	1.0348	119.01				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9964	114.58	21	C.BAN115	115.00	6	0.9969	114.65				
26	LOC115	115.00	6	0.9983	114.81	30	MAR115	115.00	6	0.9976	114.72				
37	SAN115	115.00	6	0.9954	114.47										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	8.1	17.0	0.0	1.0000	38.9	0.9781	47.0	1	6
67	BLM13C	13.800	V3	38.0	8.1	17.0	0.0	1.0000	38.9	0.9781	47.0	1	6
68	BLM13D	13.800	V4	38.0	8.3	30.0	0.0	1.0000	38.9	0.9768	47.0	1	6
70	TGJB13A	13.800	J5	31.0	8.0	20.0	0.0	1.0000	32.0	0.9684	39.4	1	6
73	BLMCCB	13.800	V9	21.0	7.4	40.0	0.0	1.0000	22.3	0.9429	71.0	1	6
90	EST-13L	13.800	E1	18.0	-0.8	12.0	-5.0	0.9600	18.8	0.9989	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	-0.7	12.0	-5.0	0.9600	20.8	0.9995	27.0	1	6
97	FOR13A	13.800	F1	93.0	-28.4	50.0	-50.0	0.9800	99.2	0.9563	111.0	1	6
98	FOR13B	13.800	F2	93.0	-28.4	50.0	-50.0	0.9800	99.2	0.9563	111.0	1	6
99	FOR13C	13.800	F3	93.0	-28.4	50.0	-50.0	0.9800	99.2	0.9563	111.0	1	6
101	BAY13A	13.800	B1	62.0	18.4	50.0	-25.0	0.9900	65.3	0.9586	96.0	1	6
102	BAY13B	13.800	B2	59.6	18.2	50.0	-25.0	0.9900	62.9	0.9563	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	1.0290	17.1	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	1.0290	17.1	0.8590	20.7	1	6
106	PANAM13A	13.800	M3	15.1	9.0	9.0	0.0	1.0290	17.1	0.8590	20.7	1	6
107	PANAM13B	13.800	M4	15.1	9.0	9.0	0.0	1.0290	17.1	0.8590	20.7	1	6
107	PANAM13B	13.800	M5	15.1	9.0	9.0	0.0	1.0290	17.1	0.8590	20.7	1	6
107	PANAM13B	13.800	M6	15.1	9.0	9.0	0.0	1.0290	17.1	0.8590	20.7	1	6
108	BAY13C	13.800	B3	59.6	18.2	50.0	-25.0	0.9900	62.9	0.9563	100.0	1	6
116	PACORA13	13.800	P1	17.0	7.2	8.8	0.0	1.0300	17.9	0.9205	21.7	1	6
116	PACORA13	13.800	P2	17.0	7.2	8.8	0.0	1.0300	17.9	0.9205	21.7	1	6
116	PACORA13	13.800	P3	17.0	7.2	8.8	0.0	1.0300	17.9	0.9205	21.7	1	6
142	CANJ13A	13.800	C1	40.0	5.9	29.0	-29.0	0.9783	41.3	0.9892	69.0	1	6
143	CANJ13B	13.800	C2	40.0	5.9	29.0	-29.0	0.9783	41.3	0.9892	69.0	1	6
301	CONC13.8	13.800	C1	5.3	0.0	0.0	0.0	0.9640	5.5	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9640	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9642	4.1	1.0000	13.5	1	6
516	PANAPOW13A	13.800	G1	15.1	0.5	12.5	0.5	1.0340	14.6	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.1	0.5	12.5	0.5	1.0340	14.6	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0180	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0180	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0180	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0180	3.7	0.9372	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9804	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9804	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9804	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9804	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9804	10.9	1	6
524	TCATIVÁ 13B	13.800	G10	8.0	2.1	6.6	-6.6	1.0000	8.3	0.9685	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	2.1	6.6	-6.6	1.0000	8.3	0.9685	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	2.1	6.6	-6.6	1.0000	8.3	0.9685	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	2.1	6.6	-6.6	1.0000	8.3	0.9685	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	2.1	6.6	-6.6	1.0000	8.3	0.9685	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0010	37.1	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0010	37.1	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	8.7	18.4	5.8	1.0000	37.0	0.9719	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0189	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0189	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0189	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0189	8.4	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1162.2	143.1	769.2	-316.1				1638.2		

SYST



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126	MIR13A	12.000	G1	8.0	0.0	5.0	0.0	1.0694	7.5	1.0000	13.5					2	7	
128	MIR13C	12.000	G3	22.0	1.4	11.0	0.0	1.0000	22.0	0.9981	29.4					2	7	
129	MIR13D	13.800	G4	35.0	0.8	15.0	0.0	1.0000	35.0	0.9997	44.1					2	7	
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0251	17.9	0.9281	23.0					2	7	
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0342	17.7	0.9281	23.0					2	7	
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0342	17.7	0.9281	23.0					2	7	
SUBSYSTEM TOTALS						116.0	22.7	64.5	20.5			156.2						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2010 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	250.8	569.4	-236.8	0.0	470.0	31.2	356.9	
6	1162.2	1103.4	0.0	0.0	0.0	36.1	22.8	25.0
PANAMA	143.1	276.5	-15.3	0.0	458.0	52.2	287.7	
7	116.0	42.7	0.0	0.0	0.0	72.2	1.1	50.0
ACANAL	22.7	10.7	0.0	0.0	0.0	-4.2	16.2	
9	0.0	108.4	0.0	0.0	0.0	-108.5	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-32.8	6.8	
TOTALS	6426.9	6306.1	0.0	0.0	0.0	0.0	120.8	0.0
	635.3	1930.7	-863.5	0.0	2007.9	0.0	1576.0	



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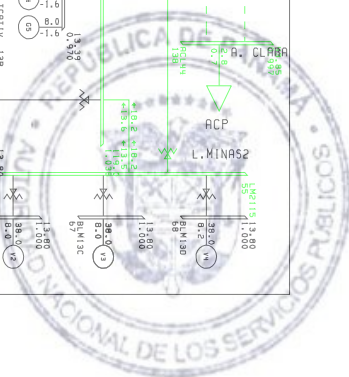
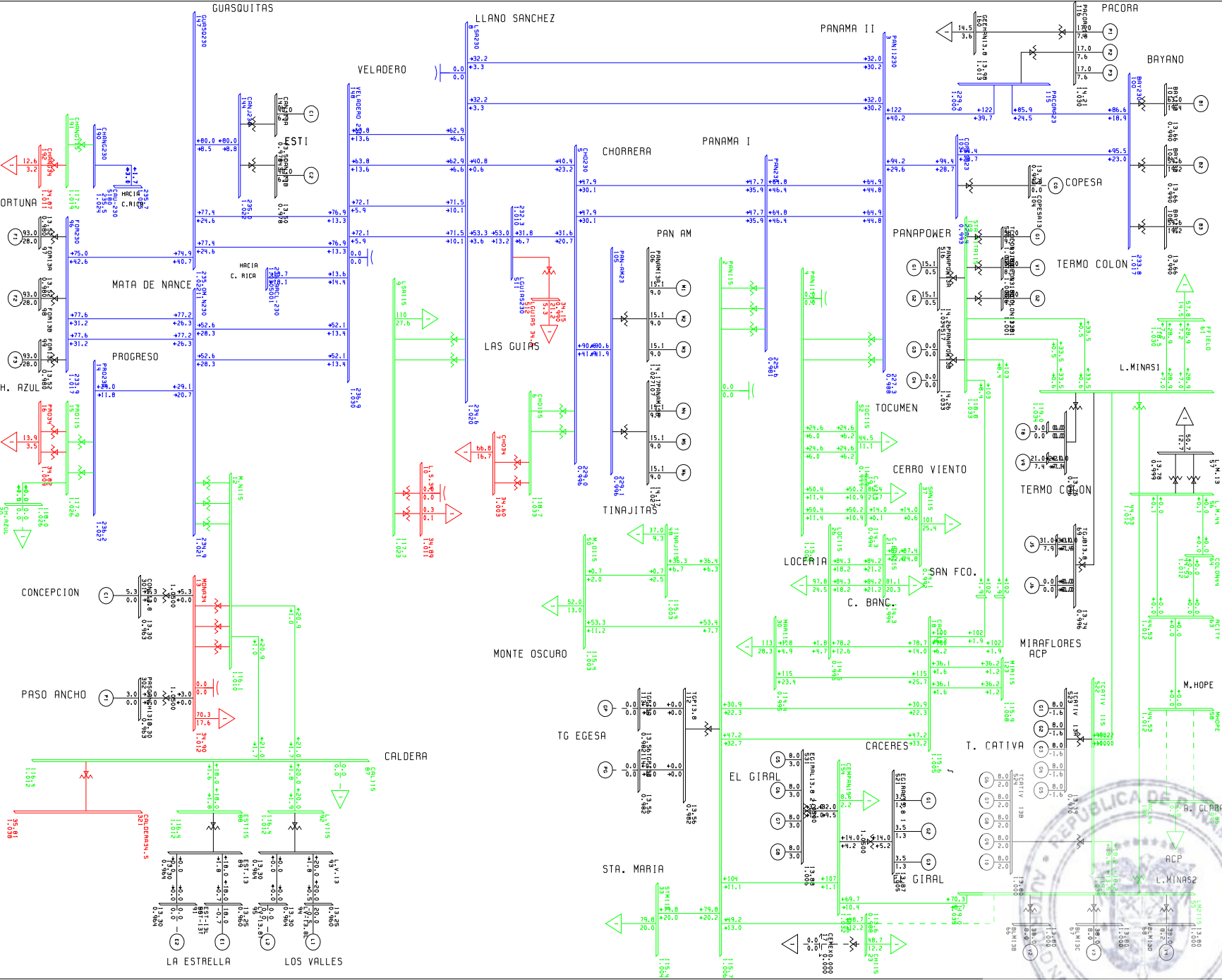
**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 5: Contingencia Las Minas 2- Chilibre**



de

PLAN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX VER
 R D 2010 CONTINGENCIA LAS MINAS 2- CHILIBRE
 F.R.I. MAY 23 2008 8:100

BUS - VOLTAGE (KV/PUI)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0199	234.58	11	M.N230	230.00	6	1.0214	234.91				
14	PRO230	230.00	6	1.0271	236.23	85	PTP230	230.00	6	1.0171	233.94				
96	FOR230	230.00	6	1.0168	233.86	100	BAY230	230.00	6	1.0167	233.85				
144	CANJ230	230.00	6	1.0218	235.02	147	GUASQ230	230.00	6	1.0218	235.02				
148	VELADERO	230230.00	6	1.0298	236.86	190	CHANG230	230.00	6	1.0238	235.47				
511	LGUIAS230	230.00	6	1.0102	232.35	6000	FRONTER	230.00	6	1.0281	236.46				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9808	225.59	3	PANII230	230.00	6	0.9884	227.32				
5	CHO230	230.00	6	0.9958	229.03	103	COPESA23	230.00	6	0.9930	228.39				
105	PAN-AM23	230.00	6	0.9960	229.08	115	PACORA23	230.00	6	0.9996	229.91				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0058	115.67	4	PANII115	115.00	6	1.0020	115.23				
6	CHO115	115.00	6	1.0326	118.75	9	LSA115	115.00	6	1.0232	117.67				
12	M.N115	115.00	6	1.0095	116.09	15	PRO115	115.00	6	1.0256	117.94				
18	CAC115	115.00	6	1.0054	115.63	20	CH.AZUL	115.00	6	1.0263	118.02				
33	STM115	115.00	6	1.0038	115.43	48	TINAJ115	115.00	6	1.0031	115.36				
50	M.O115	115.00	6	1.0033	115.37	54	LM1115	115.00	6	1.0345	118.96				
55	LM2115	115.00	6	1.0351	119.04	61	FFIELD	115.00	9	1.0304	118.50				
87	CAL115	115.00	6	1.0120	116.38	88	EST115	115.00	6	1.0124	116.42				
92	L.V115	115.00	6	1.0121	116.40	109	STA RITA115	115.00	6	1.0332	118.82				
110	PTMD115A	115.00	6	1.0212	117.44	111	PTMD115B	115.00	6	1.0212	117.44				
123	MIR115	115.00	7	1.0083	115.95	154	CEMPAN15	115.00	6	1.0315	118.63				
191	CHANG115	115.00	6	1.0189	117.18	522	TCATIVÁ	115	115.00	6	1.0350	119.02			

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9937	114.27	21	C.BAN115	115.00	6	0.9939	114.30				
23	CH115	115.00	6	0.9881	113.63	26	LOC115	115.00	6	0.9953	114.46				
30	MAR115	115.00	6	0.9945	114.37	37	SAN115	115.00	6	0.9924	114.13				
52	TOC115	115.00	6	0.9989	114.87										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 7:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	8.0	17.0	0.0	1.0000	38.8	0.9786	47.0	1	6
67	BLM13C	13.800	V3	38.0	8.0	17.0	0.0	1.0000	38.8	0.9786	47.0	1	6
68	BLM13D	13.800	V4	38.0	8.2	30.0	0.0	1.0000	38.9	0.9773	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.9	20.0	0.0	1.0000	32.0	0.9687	39.4	1	6
73	BLMCCB	13.800	V9	21.0	7.4	40.0	0.0	1.0000	22.3	0.9435	71.0	1	6
90	EST-13L	13.800	E1	18.0	-0.7	12.0	-5.0	0.9600	18.8	0.9992	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	-0.5	12.0	-5.0	0.9600	20.8	0.9996	27.0	1	6
97	FOR13A	13.800	F1	93.0	-28.0	50.0	-50.0	0.9800	99.1	0.9576	111.0	1	6
98	FOR13B	13.800	F2	93.0	-28.0	50.0	-50.0	0.9800	99.1	0.9576	111.0	1	6
99	FOR13C	13.800	F3	93.0	-28.0	50.0	-50.0	0.9800	99.1	0.9576	111.0	1	6
101	BAY13A	13.800	B1	63.0	19.4	50.0	-25.0	0.9900	66.6	0.9555	96.0	1	6
102	BAY13B	13.800	B2	59.6	19.2	50.0	-25.0	0.9900	63.2	0.9519	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	1.0269	17.1	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	1.0269	17.1	0.8590	20.7	1	6
106	PANAM13A	13.800	M3	15.1	9.0	9.0	0.0	1.0269	17.1	0.8590	20.7	1	6
107	PANAM13B	13.800	M4	15.1	9.0	9.0	0.0	1.0269	17.1	0.8590	20.7	1	6
107	PANAM13B	13.800	M5	15.1	9.0	9.0	0.0	1.0269	17.1	0.8590	20.7	1	6
107	PANAM13B	13.800	M6	15.1	9.0	9.0	0.0	1.0269	17.1	0.8590	20.7	1	6
108	BAY13C	13.800	B3	59.6	19.2	50.0	-25.0	0.9900	63.2	0.9519	100.0	1	6
116	PACORA13	13.800	P1	17.0	7.6	8.8	0.0	1.0300	18.1	0.9137	21.7	1	6
116	PACORA13	13.800	P2	17.0	7.6	8.8	0.0	1.0300	18.1	0.9137	21.7	1	6
116	PACORA13	13.800	P3	17.0	7.6	8.8	0.0	1.0300	18.1	0.9137	21.7	1	6
142	CANJ13A	13.800	C1	40.0	6.0	29.0	-29.0	0.9783	41.4	0.9888	69.0	1	6
143	CANJ13B	13.800	C2	40.0	6.0	29.0	-29.0	0.9783	41.4	0.9888	69.0	1	6
301	CONC13.8	13.800	C1	5.3	0.0	0.0	0.0	0.9635	5.5	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9635	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9638	4.2	1.0000	13.5	1	6
516	PANAPOW13A	13.800	G1	15.1	0.5	12.5	0.5	1.0335	14.6	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.1	0.5	12.5	0.5	1.0335	14.6	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0048	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0048	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0048	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0048	3.7	0.9372	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-1.6	6.6	-6.6	0.9700	8.4	0.9800	10.9	1	6
524	TCATIVÁ 13B	13.800	G1	8.0	2.0	6.6	-6.6	1.0000	8.3	0.9690	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	2.0	6.6	-6.6	1.0000	8.3	0.9690	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	2.0	6.6	-6.6	1.0000	8.3	0.9690	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	2.0	6.6	-6.6	1.0000	8.3	0.9690	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	2.0	6.6	-6.6	1.0000	8.3	0.9690	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0006	37.1	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0006	37.1	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	8.9	18.4	5.8	1.0000	37.1	0.9706	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0057	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0057	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0057	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0057	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1163.2	148.5	769.2	-316.1				1638.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 2- CHILIBRE

FRI, MAY 23 2008 7:59



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126		MIR13A		12.000	G1	8.0	0.0	5.0	0.0	1.0678	7.5	1.0000	13.5			2	7	
128		MIR13C		12.000	G3	22.0	1.8	11.0	0.0	1.0000	22.1	0.9968	29.4			2	7	
129		MIR13D		13.800	G4	35.0	1.5	15.0	0.0	1.0000	35.0	0.9991	44.1			2	7	
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0236	17.9	0.9281	23.0			2	7	
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0327	17.7	0.9281	23.0			2	7	
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0327	17.7	0.9281	23.0			2	7	
SUBSYSTEM TOTALS						116.0	23.7	64.5	20.5				156.2					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2010 CONTINGENCIA LAS MINAS 2- CHILIBRE IN MW/MVAR

X-- AREA	--X GENERATION	FROM LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	251.5	569.4	-236.7	0.0	469.9	31.8	356.9	
6	1163.2	1103.4	0.0	0.0	0.0	36.1	23.7	25.0
PANAMA	148.5	276.5	-15.2	0.0	457.2	50.6	293.7	
7	116.0	42.7	0.0	0.0	0.0	72.2	1.1	50.0
ACANAL	23.7	10.7	0.0	0.0	0.0	-3.2	16.2	
9	0.0	108.4	0.0	0.0	0.0	-108.5	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-32.8	6.8	
TOTALS	6427.8	6306.1	0.0	0.0	0.0	0.0	121.7	0.0
	642.4	1930.7	-863.4	0.0	2007.1	0.0	1582.1	

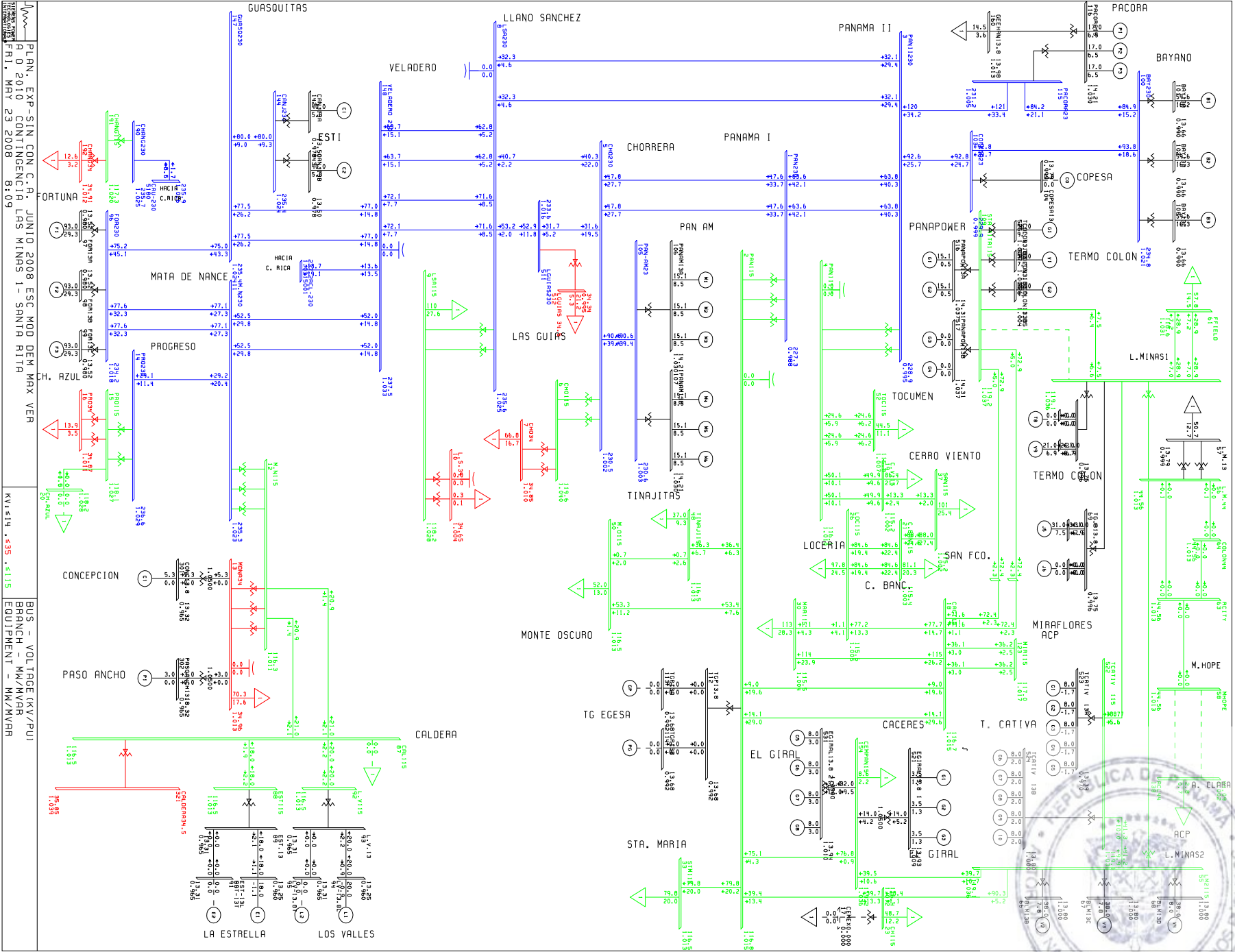


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2010 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1- Santa Rita**



de



PLN. EXP. SIN CON. C.H. JUNIO 2008 ESC. MOD. DEM. MAX. VER.
 C.D. 2010 CONTINGENCIA. CAS. MINAS 1 - SANJA RITTA
 P.R.I. MAR. 23 2008 8109

KV+14. +35. +115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0024	230.54	8		LSA230		230.00	6	1.0246	235.65
11		M.N230		230.00	6	1.0231	235.32	14		PRO230		230.00	6	1.0287	236.60
85		PTP230		230.00	6	1.0185	234.25	96		FOR230		230.00	6	1.0182	234.19
100		BAY230		230.00	6	1.0207	234.75	105		PAN-AM23		230.00	6	1.0026	230.59
115		PACORA23		230.00	6	1.0053	231.21	144		CANJ230		230.00	6	1.0236	235.44
147		GUASQ230		230.00	6	1.0236	235.44	148		VELADERO	230	230.00	6	1.0328	237.54
190		CHANG230		230.00	6	1.0247	235.69	511		LGUIAS230		230.00	6	1.0157	233.61
6000		FRONTER		230.00	6	1.0296	236.81								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9883	227.31	3		PANII230		230.00	6	0.9952	228.90
103		COPESA23		230.00	6	0.9994	229.86								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0154	116.77	4		PANII115		115.00	6	1.0098	116.12
6		CHO115		115.00	6	1.0397	119.56	9		LSA115		115.00	6	1.0281	118.23
12		M.N115		115.00	6	1.0110	116.26	15		PRO115		115.00	6	1.0271	118.12
18		CAC115		115.00	6	1.0150	116.72	19		C.V115		115.00	6	1.0021	115.24
20		CH.AZUL		115.00	6	1.0279	118.21	21		C.BAN115		115.00	6	1.0034	115.39
23		CH115		115.00	6	1.0125	116.43	26		LOC115		115.00	6	1.0048	115.56
30		MAR115		115.00	6	1.0041	115.47	33		STM115		115.00	6	1.0134	116.54
37		SAN115		115.00	6	1.0018	115.21	48		TINAJ115		115.00	6	1.0127	116.47
50		M.O115		115.00	6	1.0129	116.48	52		TOC115		115.00	6	1.0067	115.77
54		LM1115		115.00	6	1.0355	119.08	55		LM2115		115.00	6	1.0356	119.09
61		FFIELD		115.00	9	1.0315	118.62	87		CAL115		115.00	6	1.0131	116.51
88		EST115		115.00	6	1.0135	116.55	92		L.V115		115.00	6	1.0133	116.53
109		STA RITA115		115.00	6	1.0366	119.21	110		PTMD115A		115.00	6	1.0281	118.23
111		PTMD115B		115.00	6	1.0281	118.23	123		MIR115		115.00	7	1.0173	116.99
154		CEMPAN15		115.00	6	1.0363	119.18	191		CHANG115		115.00	6	1.0199	117.29
522		TCATIVÁ	115	115.00	6	1.0357	119.11								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:05
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2010 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	



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66	BLM13B	13.800	V2	38.0	7.8	17.0	0.0	1.0000	38.8	0.9795	47.0	1	6
67	BLM13C	13.800	V3	38.0	7.8	17.0	0.0	1.0000	38.8	0.9795	47.0	1	6
68	BLM13D	13.800	V4	38.0	8.0	30.0	0.0	1.0000	38.8	0.9783	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.5	20.0	0.0	1.0000	31.9	0.9721	39.4	1	6
73	BLMCCB	13.800	V9	21.0	6.9	40.0	0.0	1.0000	22.1	0.9498	71.0	1	6
90	EST-13L	13.800	E1	18.0	-1.1	12.0	-5.0	0.9600	18.8	0.9983	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	-0.9	12.0	-5.0	0.9600	20.9	0.9990	27.0	1	6
97	FOR13A	13.800	F1	93.0	-29.3	50.0	-50.0	0.9800	99.5	0.9539	111.0	1	6
98	FOR13B	13.800	F2	93.0	-29.3	50.0	-50.0	0.9800	99.5	0.9539	111.0	1	6
99	FOR13C	13.800	F3	93.0	-29.3	50.0	-50.0	0.9800	99.5	0.9539	111.0	1	6
101	BAY13A	13.800	B1	59.6	16.2	50.0	-25.0	0.9900	62.4	0.9647	96.0	1	6
102	BAY13B	13.800	B2	59.6	16.3	50.0	-25.0	0.9900	62.4	0.9647	96.0	1	6
106	PANAM13A	13.800	M1	15.1	8.5	9.0	0.0	1.0300	16.8	0.8708	20.7	1	6
106	PANAM13A	13.800	M2	15.1	8.5	9.0	0.0	1.0300	16.8	0.8708	20.7	1	6
106	PANAM13A	13.800	M3	15.1	8.5	9.0	0.0	1.0300	16.8	0.8708	20.7	1	6
107	PANAM13B	13.800	M4	15.1	8.5	9.0	0.0	1.0300	16.8	0.8708	20.7	1	6
107	PANAM13B	13.800	M5	15.1	8.5	9.0	0.0	1.0300	16.8	0.8708	20.7	1	6
107	PANAM13B	13.800	M6	15.1	8.5	9.0	0.0	1.0300	16.8	0.8708	20.7	1	6
108	BAY13C	13.800	B3	59.6	16.3	50.0	-25.0	0.9900	62.4	0.9647	100.0	1	6
116	PACORA13	13.800	P1	17.0	6.5	8.8	0.0	1.0300	17.7	0.9339	21.7	1	6
116	PACORA13	13.800	P2	17.0	6.5	8.8	0.0	1.0300	17.7	0.9339	21.7	1	6
116	PACORA13	13.800	P3	17.0	6.5	8.8	0.0	1.0300	17.7	0.9339	21.7	1	6
142	CANJ13A	13.800	C1	40.0	5.8	29.0	-29.0	0.9783	41.3	0.9898	69.0	1	6
143	CANJ13B	13.800	C2	40.0	5.8	29.0	-29.0	0.9783	41.3	0.9898	69.0	1	6
301	CONC13.8	13.800	C1	5.3	0.0	0.0	0.0	0.9650	5.5	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9650	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9649	4.1	1.0000	13.5	1	6
516	PANAPOW13A	13.800	G1	15.1	0.5	12.5	0.5	1.0369	14.6	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.1	0.5	12.5	0.5	1.0369	14.6	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0093	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0093	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0093	3.7	0.9372	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0093	3.7	0.9372	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9779	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9779	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9779	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9779	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-1.7	6.6	-6.6	0.9700	8.4	0.9779	10.9	1	6
524	TCATIVÁ 13B	13.800	G10	8.0	2.0	6.6	-6.6	1.0000	8.2	0.9715	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	2.0	6.6	-6.6	1.0000	8.2	0.9715	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	2.0	6.6	-6.6	1.0000	8.2	0.9715	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	2.0	6.6	-6.6	1.0000	8.2	0.9715	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	2.0	6.6	-6.6	1.0000	8.2	0.9715	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0038	37.0	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0038	37.0	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	7.4	18.4	5.8	1.0000	36.8	0.9795	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0102	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0102	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0102	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0102	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1159.8	124.5	769.2	-316.1				1638.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2010 CONTINGENCIA LAS MINAS 1- SANTA RITA

FRI, MAY 23 2008 8:05



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126	MIR13A	12.000	G1	8.0	0.0	5.0	0.0	1.0735	7.5	1.0000	13.5			2	7	
128	MIR13C	12.000	G3	22.0	0.4	11.0	0.0	1.0000	22.0	0.9999	29.4			2	7	
129	MIR13D	13.800	G4	35.0	0.0	15.0	0.0	1.0017	34.9	1.0000	44.1			2	7	
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0289	17.8	0.9281	23.0			2	7	
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0380	17.6	0.9281	23.0			2	7	
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0380	17.6	0.9281	23.0			2	7	
SUBSYSTEM TOTALS				116.0	20.8	64.5	20.5				156.2					



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PFI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2010 CONTINGENCIA LAS MINAS 1- SANTA RITA IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.5	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.3	1324.8	0.0	0.0	0.0	0.2	19.3	0.0
C.RICA	249.2	569.4	-236.8	0.0	470.1	30.0	356.8	
6	1159.8	1103.4	0.0	0.0	0.0	36.1	20.3	25.0
PANAMA	124.5	276.5	-15.5	0.0	462.3	55.2	270.6	
7	116.0	42.7	0.0	0.0	0.0	72.2	1.1	50.0
ACANAL	20.8	10.7	0.0	0.0	0.0	-5.9	16.1	
9	0.0	108.4	0.0	0.0	0.0	-108.5	0.1	-75.0
COLON	0.0	27.2	0.0	0.0	1.1	-32.8	6.8	
TOTALS	6424.4	6306.1	0.0	0.0	0.0	0.0	118.3	0.0
	613.2	1930.7	-863.8	0.0	2012.5	0.0	1558.7	

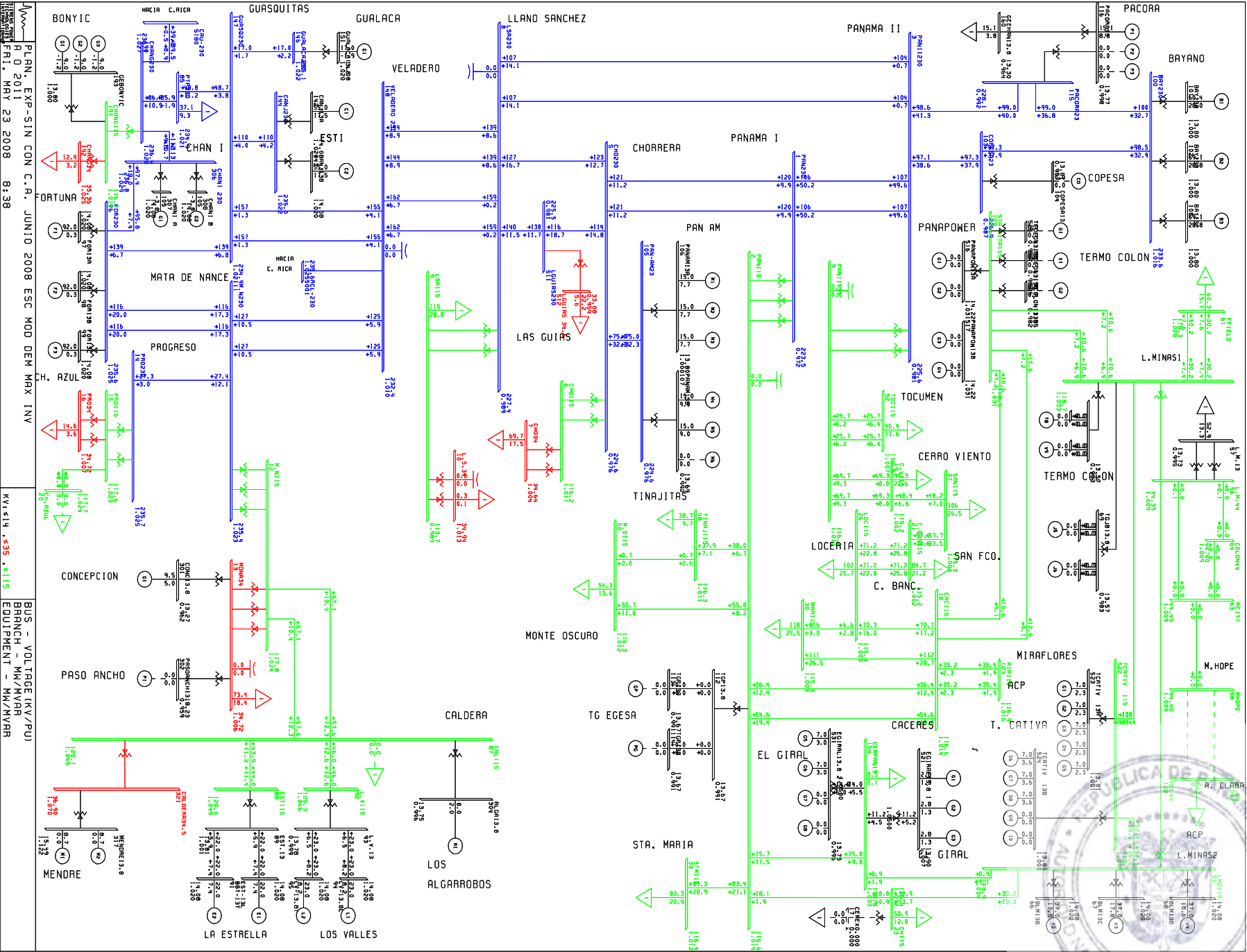


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



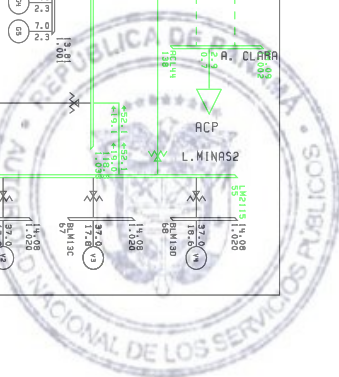
de



PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2011
 FRI, MAY 23 2008 8:38

KV:115, *35, *115

BUS - VOLTAGE (KV/PV)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0233	235.36	14	PRO230	230.00	6	1.0247	235.68				
85	PTP230	230.00	6	1.0215	234.94	96	FOR230	230.00	6	1.0245	235.64				
100	BAY230	230.00	6	1.0156	233.60	144	CANJ230	230.00	6	1.0215	234.95				
146	GUALACA230	230.00	6	1.0222	235.11	147	GUASQ230	230.00	6	1.0214	234.91				
148	VELADERO	230230.00	6	1.0103	232.37	190	CHANG230	230.00	6	1.0278	236.39				
306	CHAN1	230	230.00	6	1.0294	236.77	6000	FRONTER	230.00	6	1.0249	235.73			

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9717	223.48	3	PANII230	230.00	6	0.9810	225.62				
5	CHO230	230.00	6	0.9763	224.55	8	LSA230	230.00	6	0.9887	227.41				
103	COPESA23	230.00	6	0.9865	226.90	105	PAN-AM23	230.00	6	0.9765	224.59				
115	PACORA23	230.00	6	0.9916	228.06	511	LGUIAS230	230.00	6	0.9805	225.52				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0143	116.65	4	PANII115	115.00	6	1.0105	116.21				
6	CHO115	115.00	6	1.0108	116.24	12	M.N115	115.00	6	1.0242	117.79				
15	PRO115	115.00	6	1.0230	117.65	18	CAC115	115.00	6	1.0138	116.59				
19	C.V115	115.00	6	1.0017	115.20	20	CH.AZUL	115.00	6	1.0238	117.73				
21	C.BAN115	115.00	6	1.0020	115.23	23	CH115	115.00	6	1.0123	116.41				
26	LOC115	115.00	6	1.0035	115.40	30	MAR115	115.00	6	1.0026	115.30				
33	STM115	115.00	6	1.0122	116.40	37	SAN115	115.00	6	1.0003	115.04				
48	TINAJ115	115.00	6	1.0115	116.32	50	M.O115	115.00	6	1.0116	116.34				
52	TOC115	115.00	6	1.0073	115.84	54	LM1115	115.00	6	1.0326	118.75				
55	LM2115	115.00	6	1.0337	118.87	61	FFIELD	115.00	9	1.0284	118.26				
87	CAL115	115.00	6	1.0448	120.15	88	EST115	115.00	6	1.0487	120.61				
92	L.V115	115.00	6	1.0463	120.32	109	STA RITA115	115.00	6	1.0306	118.52				
123	MIR115	115.00	7	1.0163	116.87	154	CEMPAN15	115.00	6	1.0330	118.79				
191	CHANG115	115.00	6	1.0148	116.71	522	TCATIVÁ	115	115.00	6	1.0333	118.83			

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
9	LSA115	115.00	6	0.9890	113.74										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	37.0	17.8	25.0	0.0	1.0200	40.3	0.9009	47.0	1	6
67	BLM13C	13.800	V3	37.0	17.8	25.0	0.0	1.0200	40.3	0.9009	47.0	1	6
68	BLM13D	13.800	V4	37.0	18.6	25.0	0.0	1.0200	40.6	0.8935	47.0	1	6
90	EST-13L	13.800	E1	22.0	7.4	12.0	-5.0	1.0200	22.7	0.9481	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.4	12.0	-5.0	1.0200	22.7	0.9481	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	8.2	12.0	-5.0	1.0200	23.9	0.9422	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	8.2	12.0	-5.0	1.0200	23.9	0.9422	27.0	1	6
97	FOR13A	13.800	F1	92.0	0.3	50.0	-50.0	1.0200	90.2	1.0000	111.0	1	6
98	FOR13B	13.800	F2	92.0	0.3	50.0	-50.0	1.0200	90.2	1.0000	111.0	1	6
99	FOR13C	13.800	F3	92.0	0.3	50.0	-50.0	1.0200	90.2	1.0000	111.0	1	6
101	BAY13A	13.800	B1	60.4	28.0	50.0	-25.0	1.0000	66.6	0.9071	96.0	1	6
102	BAY13B	13.800	B2	69.1	28.8	50.0	-25.0	1.0000	74.8	0.9231	96.0	1	6
106	PANAM13A	13.800	M1	15.0	7.7	9.0	0.0	1.0000	16.8	0.8903	20.7	1	6
106	PANAM13A	13.800	M2	15.0	7.7	9.0	0.0	1.0000	16.8	0.8903	20.7	1	6
106	PANAM13A	13.800	M3	15.0	7.7	9.0	0.0	1.0000	16.8	0.8903	20.7	1	6
107	PANAM13B	13.800	M4	15.0	9.0	9.0	0.0	0.9919	17.6	0.8575	20.7	1	6
107	PANAM13B	13.800	M5	15.0	9.0	9.0	0.0	0.9919	17.6	0.8575	20.7	1	6
108	BAY13C	13.800	B3	69.1	28.8	50.0	-25.0	1.0000	74.8	0.9231	100.0	1	6
116	PACORA13	13.800	P1	15.1	8.8	8.8	0.0	0.9975	17.5	0.8632	21.7	1	6
142	CANJ13A	13.800	C1	55.0	17.5	29.0	-29.0	1.0200	56.6	0.9531	69.0	1	6
143	CANJ13B	13.800	C2	55.0	17.5	29.0	-29.0	1.0200	56.6	0.9531	69.0	1	6
151	GUALACA13.8	13.800	G1	17.0	-1.9	10.0	-10.0	1.0200	16.8	0.9937	26.7	1	6
193	GEBONYIC	13.800	G1	9.0	-1.2	4.0	-4.0	1.0000	9.1	0.9910	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	-1.2	4.0	-4.0	1.0000	9.1	0.9910	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	-1.2	4.0	-4.0	1.0000	9.1	0.9910	35.3	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9616	11.2	0.8849	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9962	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.0	-3.8	50.0	-50.0	1.0200	103.0	0.9993	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	-3.8	50.0	-50.0	1.0200	103.0	0.9993	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1225	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1225	7.8	1.0000	35.3	1	6
521	EGIRAL13.8	113.800	G1	2.8	1.3	2.8	1.3	1.0069	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.8	1.3	2.8	1.3	1.0069	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.8	1.3	2.8	1.3	1.0069	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G4	2.8	1.3	2.8	1.3	1.0069	3.1	0.9068	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.0	2.3	6.6	-6.6	1.0010	7.4	0.9499	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	2.3	6.6	-6.6	1.0010	7.4	0.9499	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	2.3	6.6	-6.6	1.0010	7.4	0.9499	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	2.3	6.6	-6.6	1.0010	7.4	0.9499	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.0	2.3	6.6	-6.6	1.0010	7.4	0.9499	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.0	3.6	6.6	-6.6	1.0010	7.9	0.8879	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.0	3.6	6.6	-6.6	1.0010	7.9	0.8879	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.0	3.6	6.6	-6.6	1.0010	7.9	0.8879	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	0.9963	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	0.9963	7.6	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1245.7	283.9	748.4	-471.2				1733.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011

AREA 7 [ACANAL] MACHINE SUMMARY:
 BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE X T R A N GENTAP ZONE AREA SWING
 128 MIR13C 12.000 G3 12.6 1.0 11.0 0.0 1.0000 12.6 0.9969 29.4
 129 MIR13D 13.800 G4 35.0 0.0 15.0 0.0 1.0021 34.9 1.0000 44.1
 130 MIR13F 13.800 G5 17.1 0.0 8.0 0.0 1.0149 16.8 1.0000 27.7



170 MIR13G	13.800 M1	17.1	6.8	11.2	6.8	1.0293	17.9	0.9289	23.0	2	7
171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0383	17.7	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0383	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	21.4	67.5	20.5				170.3		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:54
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2011 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.1	20.2	0.0
C.RICA	256.2	569.4	-237.6	0.0	469.2	31.4	362.1	
6	1245.7	1149.6	0.0	0.0	0.0	43.0	53.2	25.0
PANAMA	283.9	288.1	-123.0	0.0	475.5	54.1	540.2	
7	116.0	44.6	0.0	0.0	0.0	70.5	0.9	50.0
ACANAL	21.4	11.2	0.0	0.0	0.0	-4.6	14.9	
9	0.0	113.2	0.0	0.0	0.0	-113.4	0.1	-75.0
COLON	0.0	28.4	0.0	0.0	1.1	-34.7	7.5	
TOTALS	6510.9	6359.0	0.0	0.0	0.0	0.0	152.0	0.0
	780.5	1944.0	-972.0	0.0	2024.6	0.0	1833.1	

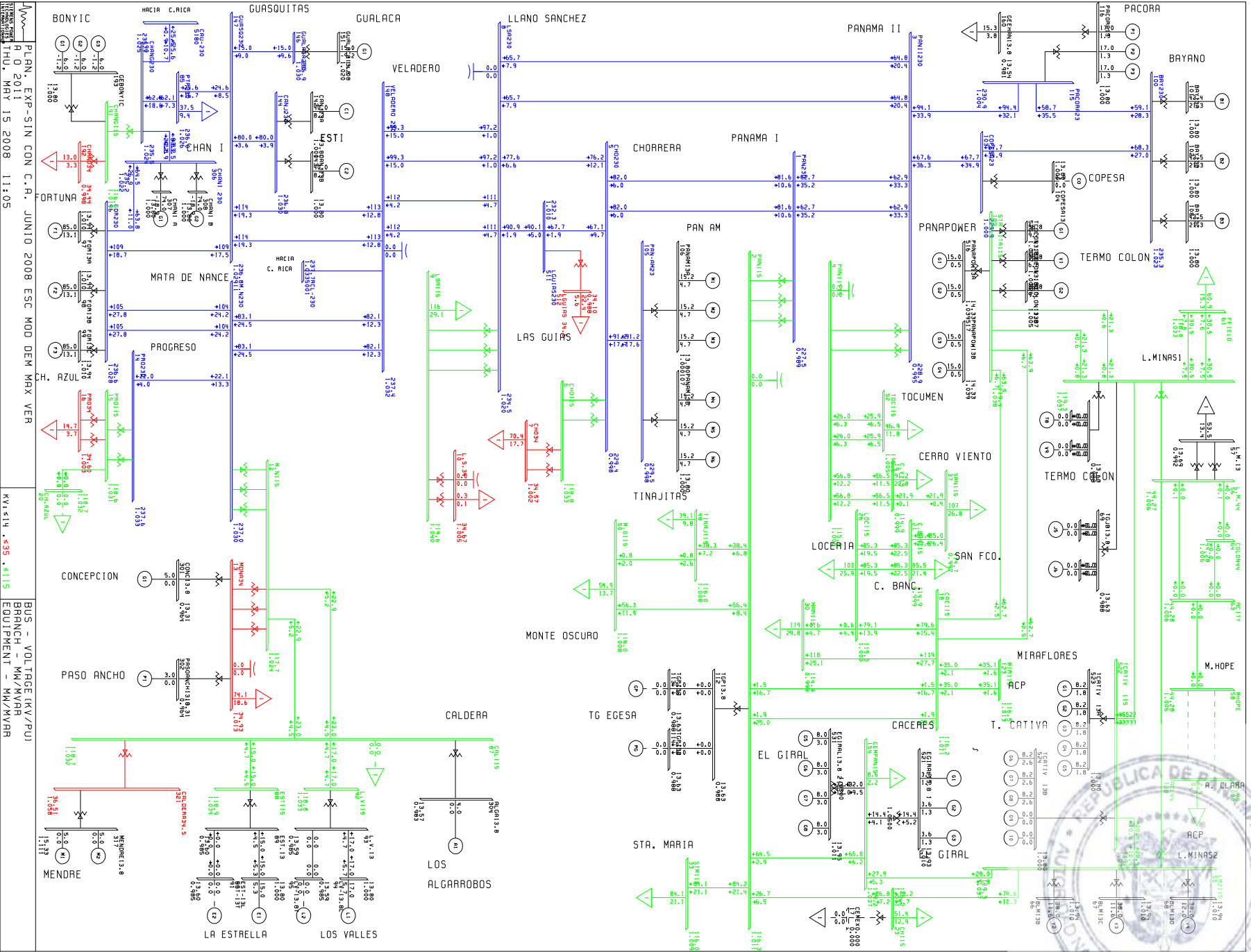


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de



PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 R 0 2011
 THU, MAY 15 2008 11:05

KV:414 .<35 .415

BUS - VOLTAGE (KV/PU)
 BRANCH - MM/VVTR
 EQUIPMENT - MM/VVTR



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA	230	230.00	6	1.0198	234.55	11	M.N	230	230.00	6	1.0304	236.99		
14	PRO	230	230.00	6	1.0328	237.55	85	PTP	230	230.00	6	1.0261	236.00		
96	FOR	230	230.00	6	1.0285	236.55	100	BAY	230	230.00	6	1.0230	235.29		
115	PACORA	230	230.00	6	1.0040	230.92	144	CANJ	230	230.00	6	1.0296	236.81		
146	GUALACA	230	230.00	6	1.0300	236.90	147	GUASQ	230	230.00	6	1.0295	236.78		
148	VELADERO	230	230.00	6	1.0323	237.42	190	CHANG	230	230.00	6	1.0240	235.53		
306	CHAN1	230	230.00	6	1.0225	235.17	511	LGUIAS	230	230.00	6	1.0099	232.27		
6000	FRONTER	230	230.00	6	1.0332	237.64									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230	230.00	6	0.9890	227.48	3	PANII	230	230.00	6	0.9950	228.86		
5	CHO	230	230.00	6	0.9976	229.44	103	COPESA	230	230.00	6	0.9997	229.93		
105	PAN-AM	230	230.00	6	0.9977	229.46									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:04
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115	115.00	6	1.0112	116.29	4	PANII	115	115.00	6	1.0081	115.93		
6	CHO	115	115.00	6	1.0333	118.83	9	LSA	115	115.00	6	1.0404	119.64		
12	M.N	115	115.00	6	1.0239	117.75	15	PRO	115	115.00	6	1.0312	118.58		
18	CAC	115	115.00	6	1.0108	116.24	20	CH.AZUL	115	115.00	6	1.0319	118.67		
23	CH	115	115.00	6	1.0108	116.24	26	LOC	115	115.00	6	1.0002	115.03		
33	STM	115	115.00	6	1.0090	116.04	48	TINAJ	115	115.00	6	1.0083	115.96		
50	M.O	115	115.00	6	1.0085	115.97	52	TOC	115	115.00	6	1.0049	115.56		
54	LM	115	115.00	6	1.0371	119.27	55	LM2	115	115.00	6	1.0374	119.30		
61	FFIELD	115	115.00	9	1.0329	118.78	87	CAL	115	115.00	6	1.0324	118.73		
88	EST	115	115.00	6	1.0340	118.91	92	L.V	115	115.00	6	1.0330	118.80		
109	STA RITA	115	115.00	6	1.0382	119.39	123	MIR	115	115.00	7	1.0133	116.53		
154	CEMPAN	115	115.00	6	1.0369	119.24	191	CHANG	115	115.00	6	1.0128	116.48		
522	TCATIVÁ	115	115.00	6	1.0375	119.31									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115	115.00	6	0.9991	114.90	21	C.BAN	115	115.00	6	0.9988	114.86		
30	MAR	115	115.00	6	0.9994	114.93	37	SAN	115	115.00	6	0.9972	114.68		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	11.6	25.0	0.0	1.0100	39.3	0.9565	47.0	1	6
67	BLM13C	13.800	V3	38.0	11.6	25.0	0.0	1.0100	39.3	0.9565	47.0	1	6
68	BLM13D	13.800	V4	38.0	12.0	25.0	0.0	1.0100	39.5	0.9533	47.0	1	6
90	EST-13L	13.800	E1	15.0	5.3	12.0	-5.0	1.0000	15.9	0.9435	27.0	1	6
94	LV-13.8L	13.800	L1	17.0	5.7	12.0	-5.0	1.0000	17.9	0.9488	27.0	1	6
97	FOR13A	13.800	F1	85.0	-13.1	50.0	-50.0	1.0100	85.2	0.9882	111.0	1	6
98	FOR13B	13.800	F2	85.0	-13.1	50.0	-50.0	1.0100	85.2	0.9882	111.0	1	6
99	FOR13C	13.800	F3	85.0	-13.1	50.0	-50.0	1.0100	85.2	0.9882	111.0	1	6
101	BAY13A	13.800	B1	42.4	21.3	50.0	-25.0	1.0000	47.4	0.8935	96.0	1	6
102	BAY13B	13.800	B2	42.5	21.3	50.0	-25.0	1.0000	47.6	0.8939	96.0	1	6
106	PANAM13A	13.800	M1	15.2	4.7	9.0	0.0	1.0000	15.9	0.9556	20.7	1	6
106	PANAM13A	13.800	M2	15.2	4.7	9.0	0.0	1.0000	15.9	0.9556	20.7	1	6
106	PANAM13A	13.800	M3	15.2	4.7	9.0	0.0	1.0000	15.9	0.9556	20.7	1	6
107	PANAM13B	13.800	M4	15.2	4.7	9.0	0.0	1.0000	15.9	0.9556	20.7	1	6
107	PANAM13B	13.800	M5	15.2	4.7	9.0	0.0	1.0000	15.9	0.9556	20.7	1	6
107	PANAM13B	13.800	M6	15.2	4.7	9.0	0.0	1.0000	15.9	0.9556	20.7	1	6
108	BAY13C	13.800	B3	42.5	21.3	50.0	-25.0	1.0000	47.6	0.8939	100.0	1	6
116	PACORA13	13.800	P1	17.0	1.3	8.8	0.0	1.0000	17.1	0.9970	21.7	1	6
116	PACORA13	13.800	P2	17.0	1.3	8.8	0.0	1.0000	17.1	0.9970	21.7	1	6
116	PACORA13	13.800	P3	17.0	1.3	8.8	0.0	1.0000	17.1	0.9970	21.7	1	6
142	CANJ13A	13.800	C1	40.0	8.2	29.0	-29.0	1.0000	40.8	0.9794	69.0	1	6
143	CANJ13B	13.800	C2	40.0	8.2	29.0	-29.0	1.0000	40.8	0.9794	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	-9.2	10.0	-10.0	1.0200	17.3	0.8515	26.7	1	6
193	GEBONYIC	13.800	G1	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9803	35.3	1	6
193	GEBONYIC	13.800	G2	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9803	35.3	1	6
193	GEBONYIC	13.800	G3	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9803	35.3	1	6
301	CONC13.8	13.800	G1	5.0	0.0	0.0	0.0	0.9643	5.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9643	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9833	4.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	74.0	-18.9	50.0	-50.0	1.0000	76.4	0.9690	118.6	1	6
308	CHAN1 B	13.800	G2	74.0	-18.9	50.0	-50.0	1.0000	76.4	0.9690	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1110	4.5	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.0	0.0	4.0	0.0	1.1110	4.5	1.0000	35.3	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0385	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0385	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0385	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0385	14.5	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0097	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0097	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0097	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0097	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9777	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9777	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9777	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9777	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9777	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	2.6	6.6	-6.6	1.0000	8.6	0.9519	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	2.6	6.6	-6.6	1.0000	8.6	0.9519	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	2.6	6.6	-6.6	1.0000	8.6	0.9519	10.9	1	6
525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0051	37.7	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	9.2	18.4	9.2	1.0051	37.7	0.9701	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	6.8	18.4	5.8	1.0000	37.4	0.9835	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0107	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0107	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0107	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0107	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1236.0	129.8	862.1	-423.9				1988.1		

SYST



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 PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

THU, MAY 15 2008 11:03

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	1.6	11.0	0.0	1.0000	12.7	0.9922	29.4			2	7	
129		MIR13D		13.800	G4	35.0	0.0	15.0	0.0	1.0000	35.0	1.0000	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0126	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0271	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0361	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0361	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	22.1	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2011 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.9	0.0
C.RICA	247.9	569.4	-237.7	0.0	470.3	26.8	359.7	
6	1236.0	1161.1	0.0	0.0	0.0	44.2	30.7	25.0
PANAMA	129.8	291.0	-61.4	0.0	490.5	58.9	331.7	
7	116.0	45.1	0.0	0.0	0.0	70.0	0.9	50.0
ACANAL	22.1	11.3	0.0	0.0	0.0	-4.1	14.9	
9	0.0	114.4	0.0	0.0	0.0	-114.5	0.1	-75.0
COLON	0.0	28.7	0.0	0.0	1.1	-35.2	7.6	
TOTALS	6501.2	6372.1	0.0	0.0	0.0	0.0	129.1	0.0
	618.4	1947.3	-910.5	0.0	2040.8	0.0	1622.4	

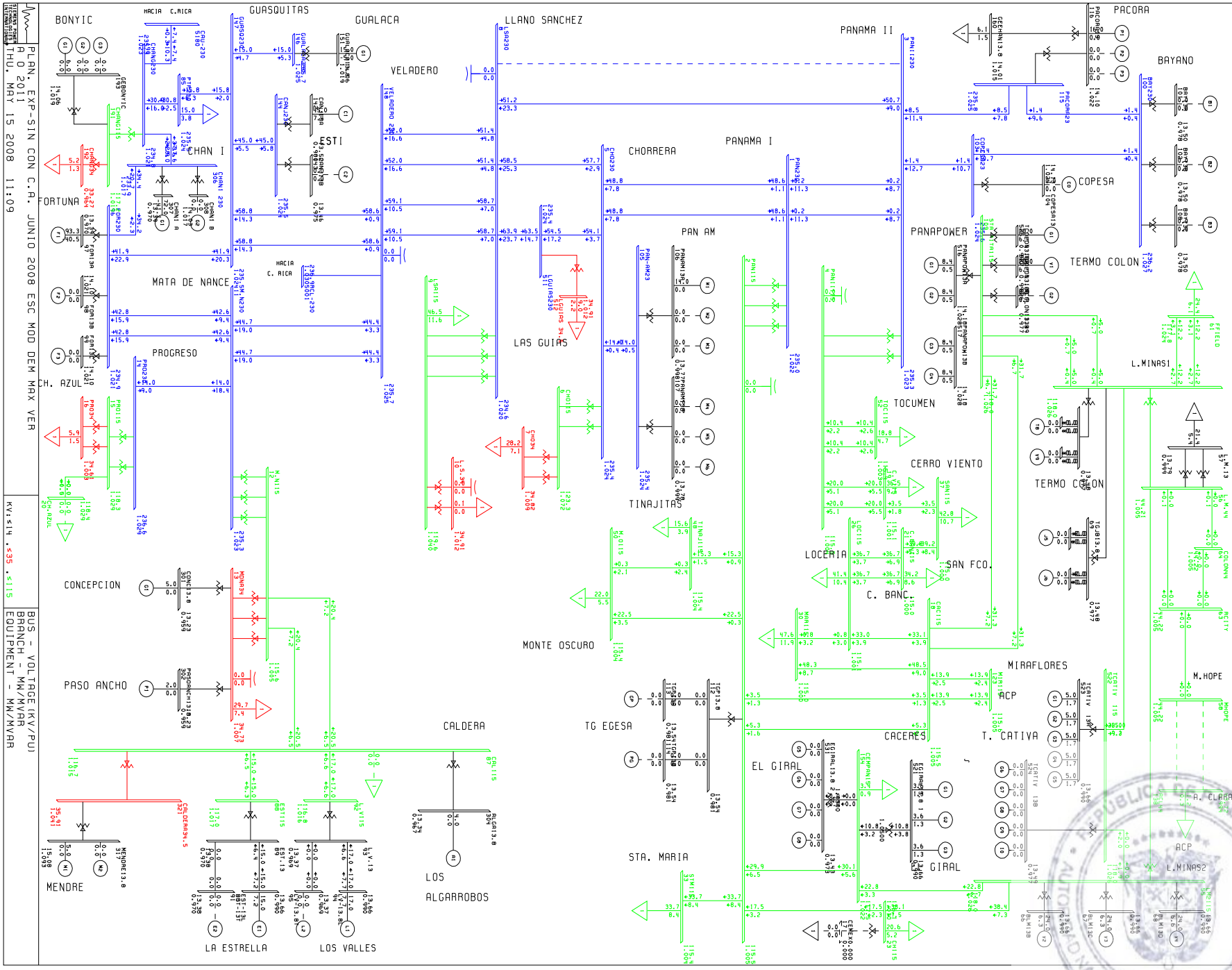


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de



PLN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MBX VER
 R 0 2011
 THU, MAY 15 2008 11:09

KV:414 <35 >115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MN/MVAR
 EQUIPMENT - MN/MVAR

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:08
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0219	235.04	3	PANII230	230.00	6	1.0231	235.32				
5	CHO230	230.00	6	1.0236	235.43	8	LSA230	230.00	6	1.0202	234.64				
11	M.N230	230.00	6	1.0229	235.26	14	PRO230	230.00	6	1.0286	236.59				
85	PTP230	230.00	6	1.0241	235.55	96	FOR230	230.00	6	1.0214	234.92				
100	BAY230	230.00	6	1.0270	236.21	103	COPESA23	230.00	6	1.0242	235.57				
105	PAN-AM23	230.00	6	1.0236	235.44	115	PACORA23	230.00	6	1.0250	235.75				
144	CANJ230	230.00	6	1.0240	235.51	146	GUALACA230	230.00	6	1.0246	235.66				
147	GUASQ230	230.00	6	1.0240	235.51	148	VELADERO 230	230.00	6	1.0248	235.72				
190	CHANG230	230.00	6	1.0208	234.79	306	CHAN1 230	230.00	6	1.0169	233.89				
511	LGUIAS230	230.00	6	1.0237	235.45	6000	FRONTER	230.00	6	1.0293	236.73				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:08
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0046	115.52	4	PANII115	115.00	6	1.0044	115.51				
6	CHO115	115.00	6	1.0723	123.31	9	LSA115	115.00	6	1.0403	119.63				
12	M.N115	115.00	6	1.0049	115.56	15	PRO115	115.00	6	1.0286	118.29				
18	CAC115	115.00	6	1.0045	115.52	19	C.V115	115.00	6	1.0008	115.09				
20	CH.AZUL	115.00	6	1.0293	118.37	21	C.BAN115	115.00	6	1.0003	115.03				
23	CH115	115.00	6	1.0096	116.10	26	LOC115	115.00	6	1.0008	115.09				
30	MAR115	115.00	6	1.0002	115.03	33	STML115	115.00	6	1.0037	115.42				
48	TINAJ115	115.00	6	1.0037	115.42	50	M.O115	115.00	6	1.0038	115.43				
52	TOC115	115.00	6	1.0032	115.36	54	LM115	115.00	6	1.0260	117.98				
55	LM2115	115.00	6	1.0261	118.00	61	FFIELD	115.00	9	1.0243	117.79				
87	CAL115	115.00	6	1.0151	116.73	88	EST115	115.00	6	1.0170	116.95				
92	L.V115	115.00	6	1.0158	116.81	109	STA RITA115	115.00	6	1.0260	117.99				
123	MIR115	115.00	7	1.0050	115.57	154	CEMPAN15	115.00	6	1.0217	117.50				
191	CHANG115	115.00	6	1.0189	117.17	522	TCATIVÁ 115	115.00	6	1.0261	118.00				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
37	SAN115	115.00	6	0.9998	114.97										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:08
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	24.0	6.3	17.0	0.0	0.9900	25.1	0.9669	47.0	1	6
67	BLM13C	13.800	V3	24.0	6.3	17.0	0.0	0.9900	25.1	0.9669	47.0	1	6
68	BLM13D	13.800	V4	24.0	6.6	30.0	0.0	0.9900	25.1	0.9643	47.0	1	6
90	EST-13L	13.800	E1	15.0	7.2	12.0	-5.0	0.9900	16.8	0.9017	27.0	1	6
94	LV-13.8L	13.800	L1	17.0	7.7	12.0	-5.0	0.9900	18.8	0.9116	27.0	1	6
97	FOR13A	13.800	F1	93.3	-40.5	50.0	-50.0	0.9700	104.9	0.9174	111.0	1	6
106	PANAM13A	13.800	M1	14.0	0.0	9.0	0.0	0.9981	14.0	1.0000	20.7	1	6
116	PACORA13	13.800	P1	16.0	0.0	8.8	0.0	1.0218	15.7	1.0000	21.7	1	6
142	CANJ13A	13.800	C1	45.0	7.4	29.0	-29.0	0.9800	46.5	0.9868	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	-5.0	5.0	-5.0	1.0191	15.5	0.9487	26.7	1	6
193	GEBONYIC	13.800	G1	6.0	0.0	4.0	0.0	1.0187	5.9	1.0000	35.3	1	6
301	CONC13.8	13.800	G1	5.0	0.0	0.0	0.0	0.9586	5.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	2.0	0.0	0.0	0.0	0.9586	2.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9667	4.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	72.0	-41.1	50.0	-50.0	0.9700	85.5	0.8684	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.0929	4.6	1.0000	35.3	1	6
516	PANAPOW13A	13.800	G1	8.4	0.5	12.5	0.5	1.0276	8.1	0.9980	20.9	1	6
516	PANAPOW13A	13.800	G2	8.4	0.5	12.5	0.5	1.0276	8.1	0.9980	20.9	1	6
517	PANAPOW13B	13.800	G3	8.4	0.5	12.5	0.5	1.0276	8.1	0.9980	20.9	1	6
517	PANAPOW13B	13.800	G4	8.4	0.5	12.5	0.5	1.0276	8.1	0.9980	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	0.9900	3.9	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	0.0	0.9900	3.9	0.9440	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	0.0	0.9900	3.9	0.9440	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	5.0	1.7	6.6	-6.6	0.9900	5.3	0.9483	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	5.0	1.7	6.6	-6.6	0.9900	5.3	0.9483	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	5.0	1.7	6.6	-6.6	0.9900	5.3	0.9483	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	5.0	1.7	6.6	-6.6	0.9900	5.3	0.9483	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	5.0	1.7	6.6	-6.6	0.9900	5.3	0.9483	10.9	1	6
525	TCOLON 13A	13.800	G1	20.0	6.4	18.4	0.0	0.9900	21.2	0.9522	44.4	1	6
527	TCOLON 13C	13.800	V1	20.0	6.4	18.4	0.0	0.9900	21.2	0.9522	44.4	1	6
SUBSYSTEM TOTALS				490.5	-18.0	376.0	-173.4				908.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:08
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.6	11.0	0.0	0.9900	13.0	0.9798	29.4			2	7	
129		MIR13D		13.800	G4	33.8	1.7	15.0	0.0	0.9900	34.2	0.9988	44.1			2	7	
SUBSYSTEM TOTALS						46.4	4.2	26.0	0.0				73.5					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 11:09
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011

FROM	TO	TO BUS	TO LINE	FROM	TO	LOSSES	DESIRED
AREA	AREA	SHUNT	SHUNT	CHARGING	NET INT		NET INT
1	1347.4	1312.2	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4



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2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C. RICA	253.6	569.4	-236.9	0.0	469.8	32.9	357.9	
6	490.5	464.6	0.0	0.0	0.0	17.4	8.5	25.0
PANAMA	-18.0	116.4	186.5	0.0	455.9	29.9	105.1	
7	46.4	18.0	0.0	0.0	0.0	27.7	0.6	50.0
ACANAL	4.2	4.5	0.0	0.0	0.0	-5.0	4.7	
9	0.0	45.8	0.0	0.0	0.0	-45.8	0.0	-75.0
COLON	0.0	11.5	0.0	0.0	1.1	-11.6	1.2	
TOTALS	5686.1	5580.0	0.0	0.0	0.0	0.0	106.2	0.0
	458.6	1748.7	-661.9	0.0	2005.6	0.0	1377.3	



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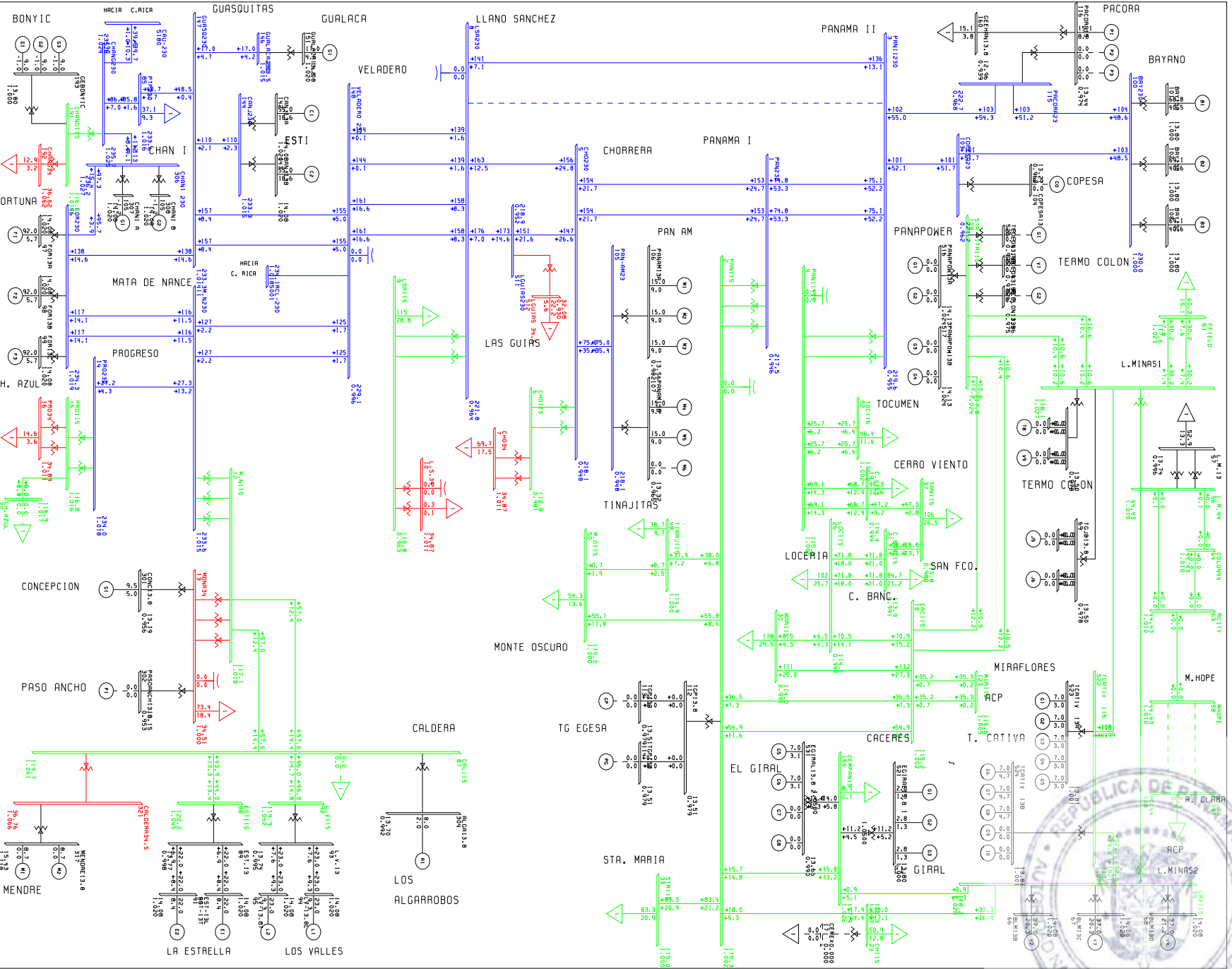
**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Panamá II- Llano Sánchez**



de

PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2011 CONTINGENCIA PANAM II - LLANO SANCHEZ
 FRI, MAY 23 2008 8:55

KV:414 <35 <115
 BUS - VOLTAGE (KV/PV)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



Handwritten signature or initials.

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA PANAMÁ II- LLANO SANCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230			230.00	6	1.0155	233.56	14	PRO230			230.00	6	1.0175	234.03
85	PTP230			230.00	6	1.0158	233.63	96	FOR230			230.00	6	1.0187	234.30
144	CANJ230			230.00	6	1.0145	233.34	146	GUALACA230			230.00	6	1.0154	233.54
147	GUASQ230			230.00	6	1.0143	233.30	190	CHANG230			230.00	6	1.0249	235.73
306	CHAN1	230		230.00	6	1.0268	236.17	6000	FRONTIER			230.00	6	1.0179	234.11

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230			230.00	6	0.9457	217.51	3	PANII230			230.00	6	0.9548	219.59
5	CHO230			230.00	6	0.9481	218.07	8	LSA230			230.00	6	0.9645	221.83
100	BAY230			230.00	6	0.9999	229.97	103	COPESA23			230.00	6	0.9619	221.23
105	PAN-AM23			230.00	6	0.9483	218.11	115	PACORA23			230.00	6	0.9683	222.70
148	VELADERO	230	230.00	6	0.9959	229.05	511	LGUIAS230			230.00	6	0.9518	218.92	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA PANAMÁ II- LLANO SANCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115			115.00	6	1.0024	115.27	4	PANII115			115.00	6	1.0052	115.59
12	M.N115			115.00	6	1.0183	117.10	15	PRO115			115.00	6	1.0158	116.82
18	CAC115			115.00	6	1.0020	115.23	20	CH.AZUL			115.00	6	1.0166	116.90
23	CH115			115.00	6	1.0028	115.33	33	STM115			115.00	6	1.0002	115.03
52	TOC115			115.00	6	1.0019	115.22	54	LM115			115.00	6	1.0269	118.10
55	LM2115			115.00	6	1.0280	118.22	61	FFIELD			115.00	9	1.0227	117.61
87	CAL115			115.00	6	1.0408	119.69	88	EST115			115.00	6	1.0452	120.20
92	L.V115			115.00	6	1.0425	119.88	109	STA RITA115			115.00	6	1.0242	117.79
123	MIR115			115.00	7	1.0051	115.58	154	CEMPAN15			115.00	6	1.0256	117.95
191	CHANG115			115.00	6	1.0128	116.48	522	TCATIVÁ	115	115.00	6	1.0277	118.18	

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO115			115.00	6	0.9806	112.77	9	LSA115			115.00	6	0.9632	110.77
19	C.V115			115.00	6	0.9945	114.36	21	C.BAN115			115.00	6	0.9908	113.94
26	LOC115			115.00	6	0.9921	114.09	30	MAR115			115.00	6	0.9909	113.95
37	SAN115			115.00	6	0.9895	113.79	48	TINAJ115			115.00	6	0.9995	114.94
50	M.O115			115.00	6	0.9997	114.96								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA PANAMÁ II- LLANO SANCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B			13.800	V2	37.0	20.3	25.0	0.0	1.0200	41.4	0.8768	47.0				1	6



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67	BLM13C	13.800	V3	37.0	20.3	25.0	0.0	1.0200	41.4	0.8768	47.0	1	6
68	BLM13D	13.800	V4	37.0	21.2	25.0	0.0	1.0200	41.8	0.8677	47.0	1	6
90	EST-13L	13.800	E1	22.0	8.4	12.0	-5.0	1.0200	23.1	0.9338	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.4	12.0	-5.0	1.0200	23.1	0.9338	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	9.3	12.0	-5.0	1.0200	24.3	0.9269	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	9.3	12.0	-5.0	1.0200	24.3	0.9269	27.0	1	6
97	FOR13A	13.800	F1	92.0	5.7	50.0	-50.0	1.0200	90.4	0.9981	111.0	1	6
98	FOR13B	13.800	F2	92.0	5.7	50.0	-50.0	1.0200	90.4	0.9981	111.0	1	6
99	FOR13C	13.800	F3	92.0	5.7	50.0	-50.0	1.0200	90.4	0.9981	111.0	1	6
101	BAY13A	13.800	B1	68.8	40.5	50.0	-25.0	1.0000	79.8	0.8615	96.0	1	6
102	BAY13B	13.800	B2	69.1	40.6	50.0	-25.0	1.0000	80.1	0.8623	96.0	1	6
106	PANAM13A	13.800	M1	15.0	9.0	9.0	0.0	0.9824	17.8	0.8575	20.7	1	6
106	PANAM13A	13.800	M2	15.0	9.0	9.0	0.0	0.9824	17.8	0.8575	20.7	1	6
106	PANAM13A	13.800	M3	15.0	9.0	9.0	0.0	0.9824	17.8	0.8575	20.7	1	6
107	PANAM13B	13.800	M4	15.0	9.0	9.0	0.0	0.9653	18.1	0.8575	20.7	1	6
107	PANAM13B	13.800	M5	15.0	9.0	9.0	0.0	0.9653	18.1	0.8575	20.7	1	6
108	BAY13C	13.800	B3	69.1	40.6	50.0	-25.0	1.0000	80.1	0.8623	100.0	1	6
116	PACORA13	13.800	P1	15.1	8.8	8.8	0.0	0.9742	18.0	0.8632	21.7	1	6
142	CANJ13A	13.800	C1	55.0	18.6	29.0	-29.0	1.0200	56.9	0.9471	69.0	1	6
143	CANJ13B	13.800	C2	55.0	18.6	29.0	-29.0	1.0200	56.9	0.9471	69.0	1	6
151	GUALACA13.8	13.800	G1	17.0	4.5	10.0	-10.0	1.0200	17.2	0.9671	26.7	1	6
193	GEBONYIC	13.800	G1	9.0	-1.0	4.0	-4.0	1.0000	9.1	0.9939	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	-1.0	4.0	-4.0	1.0000	9.1	0.9939	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	-1.0	4.0	-4.0	1.0000	9.1	0.9939	35.3	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9559	11.2	0.8849	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9925	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.0	-1.2	50.0	-50.0	1.0200	102.9	0.9999	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	-1.2	50.0	-50.0	1.0200	102.9	0.9999	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1182	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1182	7.8	1.0000	35.3	1	6
521	EGIRAL13.8	113.800	G1	2.8	1.3	2.8	1.3	1.0001	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.8	1.3	2.8	1.3	1.0001	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.8	1.3	2.8	1.3	1.0001	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G4	2.8	1.3	2.8	1.3	1.0001	3.1	0.9068	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.0	3.0	6.6	-6.6	1.0010	7.6	0.9204	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	3.0	6.6	-6.6	1.0010	7.6	0.9204	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	3.0	6.6	-6.6	1.0010	7.6	0.9204	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	3.0	6.6	-6.6	1.0010	7.6	0.9204	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.0	3.0	6.6	-6.6	1.0010	7.6	0.9204	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.0	4.7	6.6	-6.6	1.0010	8.4	0.8280	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.0	4.7	6.6	-6.6	1.0010	8.4	0.8280	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.0	4.7	6.6	-6.6	1.0010	8.4	0.8280	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.1	6.4	3.0	0.9900	7.8	0.9121	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.1	6.4	3.0	0.9900	7.8	0.9121	10.9	1	6
SUBSYSTEM TOTALS				1254.1	373.8	748.4	-471.2				1733.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA PANAMÁ II- LLANO SANCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	2.7	11.0	0.0	1.0000	12.9	0.9771	29.4	2	7	7	7	7
129	MIR13D	13.800	G4	35.0	1.8	15.0	0.0	1.0000	35.0	0.9987	44.1	2	2	2	2	2
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0082	17.0	1.0000	27.7	2	2	2	2	2
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0227	18.0	0.9289	23.0	2	2	2	2	2



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171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0318	17.8	0.9289	23.0		
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0318	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	25.0	67.5	20.5						



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2011 CONTINGENCIA PANAMÁ II- LLANO SANCHEZ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.9	224.5	-98.9	0.0	143.2	-96.9	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.1	20.2	0.0
C.RICA	265.8	569.4	-237.1	0.0	468.1	39.0	362.5	
6	1254.1	1149.6	0.0	0.0	0.0	43.0	61.6	25.0
PANAMA	373.8	288.1	-120.9	0.0	427.7	42.9	591.4	
7	116.0	44.6	0.0	0.0	0.0	70.5	0.9	50.0
ACANAL	25.0	11.2	0.0	0.0	0.0	-1.3	15.1	
9	0.0	113.2	0.0	0.0	0.0	-113.4	0.1	-75.0
COLON	0.0	28.4	0.0	0.0	1.1	-34.7	7.5	
TOTALS	6519.3	6359.0	0.0	0.0	0.0	0.0	160.4	0.0
	883.8	1944.0	-969.4	0.0	1975.7	0.0	1885.0	

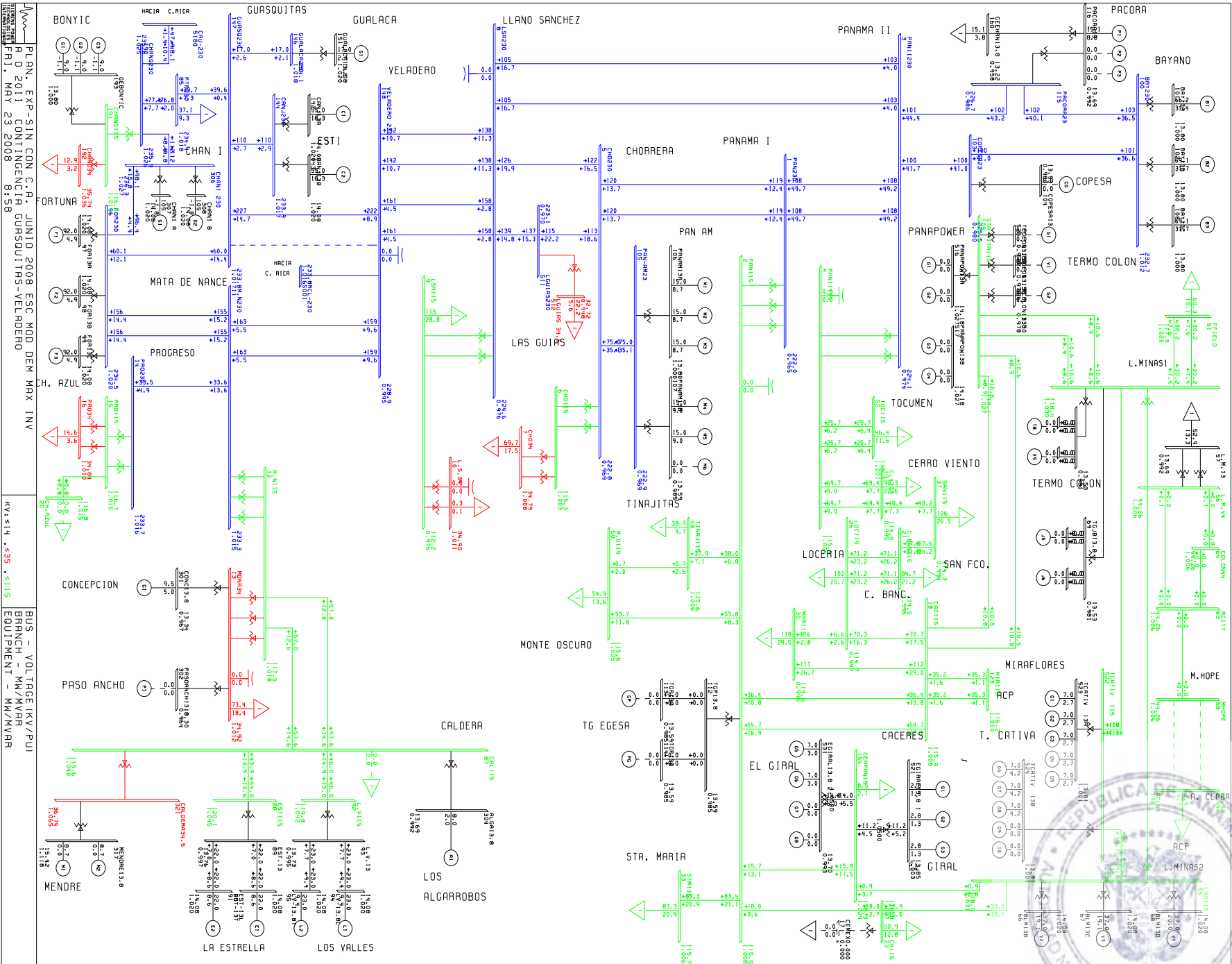


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas- Veladero**



de



PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 P.O 2011 CONTINGENCIA GUASQUITAS-VELADERO
 F.R.I., MAY 23 2008 8:39

KV: 115, 230, 5115
 BUS - VOLTAGE (KV/PV)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR

LA ESTRELLA
 LOS VALLES
 MENDRE
 PASO ANCHO
 CONCEPCION
 H. AZUL
 ORTUNA
 BONYIC

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0145	233.34	14	PRO230	230.00	6	1.0162	233.73				
85	PTP230	230.00	6	1.0178	234.09	96	FOR230	230.00	6	1.0196	234.50				
100	BAY230	230.00	6	1.0118	232.70	144	CANJ230	230.00	6	1.0168	233.87				
146	GUALACA230	230.00	6	1.0176	234.05	147	GUASQ230	230.00	6	1.0166	233.83				
190	CHANG230	230.00	6	1.0256	235.89	306	CHANI 230	230.00	6	1.0274	236.30				
6000	FRONTER	230.00	6	1.0165	233.80										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9651	221.97	3	PANII230	230.00	6	0.9744	224.12				
5	CHO230	230.00	6	0.9688	222.82	8	LSA230	230.00	6	0.9764	224.56				
103	COPESA23	230.00	6	0.9804	225.49	105	PAN-AM23	230.00	6	0.9690	222.86				
115	PACORA23	230.00	6	0.9858	226.72	148	VELADERO	230.00	6	0.9953	228.93				
511	LGUIAS230	230.00	6	0.9700	223.10										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0081	115.33	4	PANII115	115.00	6	1.0038	115.44				
6	CHO115	115.00	6	1.0027	115.31	12	M.N115	115.00	6	1.0176	117.02				
15	PRO115	115.00	6	1.0145	116.67	18	CAC115	115.00	6	1.0076	115.88				
20	CH.AZUL	115.00	6	1.0153	116.75	23	CH115	115.00	6	1.0074	115.85				
33	STM115	115.00	6	1.0060	115.69	48	TINAJ115	115.00	6	1.0053	115.61				
50	M.O115	115.00	6	1.0054	115.62	52	TOC115	115.00	6	1.0006	115.07				
54	LM115	115.00	6	1.0296	118.41	55	LM2115	115.00	6	1.0307	118.53				
61	FFIELD	115.00	9	1.0254	117.92	87	CAL115	115.00	6	1.0403	119.64				
88	EST115	115.00	6	1.0448	120.15	92	L.V115	115.00	6	1.0420	119.83				
109	STA RITA115	115.00	6	1.0273	118.14	123	MIR115	115.00	7	1.0104	116.19				
154	CEMPAN15	115.00	6	1.0291	118.34	191	CHANG115	115.00	6	1.0133	116.53				
522	TCATIVÁ	115.00	6	1.0303	118.49										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
9	LSA115	115.00	6	0.9759	112.22	19	C.V115	115.00	6	0.9951	114.43				
21	C.BAN115	115.00	6	0.9957	114.50	26	LOC115	115.00	6	0.9972	114.68				
30	MAR115	115.00	6	0.9963	114.58	37	SAN115	115.00	6	0.9940	114.31				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	37.0	19.1	25.0	0.0	1.0200	40.8	0.8884	47.0	1	6
67	BLM13C	13.800	V3	37.0	19.1	25.0	0.0	1.0200	40.8	0.8884	47.0	1	6
68	BLM13D	13.800	V4	37.0	20.0	25.0	0.0	1.0200	41.2	0.8801	47.0	1	6
90	EST-13L	13.800	E1	22.0	8.6	12.0	-5.0	1.0200	23.1	0.9320	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.6	12.0	-5.0	1.0200	23.1	0.9320	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	9.4	12.0	-5.0	1.0200	24.4	0.9250	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	9.4	12.0	-5.0	1.0200	24.4	0.9250	27.0	1	6
97	FOR13A	13.800	F1	92.0	4.9	50.0	-50.0	1.0200	90.3	0.9986	111.0	1	6
98	FOR13B	13.800	F2	92.0	4.9	50.0	-50.0	1.0200	90.3	0.9986	111.0	1	6
99	FOR13C	13.800	F3	92.0	4.9	50.0	-50.0	1.0200	90.3	0.9986	111.0	1	6
101	BAY13A	13.800	B1	66.2	31.4	50.0	-25.0	1.0000	73.2	0.9034	96.0	1	6
102	BAY13B	13.800	B2	69.1	31.7	50.0	-25.0	1.0000	76.0	0.9090	96.0	1	6
106	PANAM13A	13.800	M1	15.0	8.7	9.0	0.0	1.0000	17.4	0.8639	20.7	1	6
106	PANAM13A	13.800	M2	15.0	8.7	9.0	0.0	1.0000	17.4	0.8639	20.7	1	6
106	PANAM13A	13.800	M3	15.0	8.7	9.0	0.0	1.0000	17.4	0.8639	20.7	1	6
107	PANAM13B	13.800	M4	15.0	9.0	9.0	0.0	0.9848	17.8	0.8575	20.7	1	6
107	PANAM13B	13.800	M5	15.0	9.0	9.0	0.0	0.9848	17.8	0.8575	20.7	1	6
108	BAY13C	13.800	B3	69.1	31.7	50.0	-25.0	1.0000	76.0	0.9090	100.0	1	6
116	PACORA13	13.800	P1	15.1	8.8	8.8	0.0	0.9917	17.6	0.8632	21.7	1	6
142	CANJ13A	13.800	C1	55.0	18.3	29.0	-29.0	1.0200	56.8	0.9491	69.0	1	6
143	CANJ13B	13.800	C2	55.0	18.3	29.0	-29.0	1.0200	56.8	0.9491	69.0	1	6
151	GUALACA13.8	13.800	G1	17.0	2.4	10.0	-10.0	1.0200	16.8	0.9903	26.7	1	6
193	GEBONYIC	13.800	G1	9.0	-1.1	4.0	-4.0	1.0000	9.1	0.9932	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	-1.1	4.0	-4.0	1.0000	9.1	0.9932	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	-1.1	4.0	-4.0	1.0000	9.1	0.9932	35.3	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9670	11.1	0.8849	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9920	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.0	-1.8	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	-1.8	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1177	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1177	7.8	1.0000	35.3	1	6
521	EGIRAL13.8	113.800	G1	2.8	1.3	2.8	1.3	1.0033	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.8	1.3	2.8	1.3	1.0033	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.8	1.3	2.8	1.3	1.0033	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G4	2.8	1.3	2.8	1.3	1.0033	3.1	0.9068	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.0	2.7	6.6	-6.6	1.0010	7.5	0.9350	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	2.7	6.6	-6.6	1.0010	7.5	0.9350	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	2.7	6.6	-6.6	1.0010	7.5	0.9350	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	2.7	6.6	-6.6	1.0010	7.5	0.9350	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.0	2.7	6.6	-6.6	1.0010	7.5	0.9350	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.0	4.2	6.6	-6.6	1.0010	8.2	0.8568	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.0	4.2	6.6	-6.6	1.0010	8.2	0.8568	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.0	4.2	6.6	-6.6	1.0010	8.2	0.8568	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	0.9926	7.7	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	0.9926	7.7	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1251.5	333.0	748.4	-471.2				1733.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:
 BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE
 128 MIR13C 12.000 G3 12.6 2.0 11.0 0.0 1.0000 12.8 0.9878 29.4
 129 MIR13D 13.800 G4 35.0 0.7 15.0 0.0 1.0000 35.0 0.9998 44.1
 130 MIR13F 13.800 G5 17.1 0.0 8.0 0.0 1.0111 16.9 1.0000 27.7

X T R A N GENTAP ZONE AREA SWING



170 MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0255	18.0	0.9289	23.0	2	7
171 MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0346	17.8	0.9289	23.0	2	7
171 MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0346	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS			116.0	23.1	67.5	20.5				170.3		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 8:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2011 CONTINGENCIA GUASQUITAS-VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1 GUATEMAL	1347.4 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2 SALVADOR	911.8 100.8	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.4	9.8 158.1	0.0
3 HONDURAS	1006.8 55.8	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.8	0.0 -5.2	21.4 261.6	0.0
4 NICA	538.2 33.0	527.1 224.5	0.0 -98.9	0.0 0.0	0.0 143.2	0.0 -96.8	11.1 147.4	0.0
5 C.RICA	1344.9 268.0	1324.8 569.4	0.0 -237.0	0.0 0.0	0.0 467.8	-0.4 39.0	20.5 364.5	0.0
6 PANAMA	1251.5 333.0	1149.6 288.1	0.0 -121.4	0.0 0.0	0.0 451.5	43.3 44.7	58.7 573.1	25.0
7 ACANAL	116.0 23.1	44.6 11.2	0.0 0.0	0.0 0.0	0.0 0.0	70.5 -3.1	0.9 15.0	50.0
9 COLON	0.0 0.0	113.2 28.4	0.0 0.0	0.0 0.0	0.0 1.1	-113.4 -34.8	0.1 7.5	-75.0
TOTALS	6516.7 843.5	6359.0 1944.0	0.0 -969.8	0.0 0.0	0.0 1999.2	0.0 0.0	157.8 1868.6	0.0



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance- Veladero**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0191	234.38	14	PRO	230		230.00	6	1.0197	234.53
85	PTP	230		230.00	6	1.0164	233.77	96	FOR	230		230.00	6	1.0201	234.62
100	BAY	230		230.00	6	1.0127	232.91	144	CANJ	230		230.00	6	1.0154	233.53
146	GUALACA	230		230.00	6	1.0162	233.72	147	GUASQ	230		230.00	6	1.0152	233.49
190	CHANG	230		230.00	6	1.0253	235.82	306	CHANI	230		230.00	6	1.0273	236.28
6000	FRONTER			230.00	6	1.0198	234.56								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9667	222.33	3	PANII	230		230.00	6	0.9760	224.48
5	CHO	230		230.00	6	0.9706	223.24	8	LSA	230		230.00	6	0.9794	225.27
103	COPE	SA23		230.00	6	0.9819	225.83	105	PAN-AM	23		230.00	6	0.9708	223.27
115	PACORA	23		230.00	6	0.9872	227.04	148	VELADERO	230		230.00	6	0.9993	229.84
511	LGUIAS	230		230.00	6	0.9726	223.69								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0096	116.10	4	PANII	115		115.00	6	1.0054	115.62
6	CHO	115		115.00	6	1.0047	115.54	12	M.N	115		115.00	6	1.0210	117.42
15	PRO	115		115.00	6	1.0180	117.07	18	CAC	115		115.00	6	1.0091	116.05
20	CH.	AZUL		115.00	6	1.0187	117.15	23	CH	115		115.00	6	1.0085	115.98
33	STM	115		115.00	6	1.0075	115.86	48	TINAJ	115		115.00	6	1.0068	115.78
50	M.O	115		115.00	6	1.0069	115.79	52	TOC	115		115.00	6	1.0022	115.25
54	LM	115		115.00	6	1.0303	118.49	55	LM2	115		115.00	6	1.0314	118.61
61	FF	FIELD		115.00	9	1.0261	118.00	87	CAL	115		115.00	6	1.0426	119.90
88	EST	115		115.00	6	1.0468	120.38	92	L.V	115		115.00	6	1.0442	120.08
109	STA	RITA	115	115.00	6	1.0281	118.23	123	MIR	115		115.00	7	1.0118	116.35
154	CEMPAN	15		115.00	6	1.0300	118.45	191	CHANG	115		115.00	6	1.0131	116.51
522	TCATIVÁ	115		115.00	6	1.0310	118.57								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
9	LSA	115		115.00	6	0.9791	112.60	19	C.V	115		115.00	6	0.9967	114.62
21	C.BAN	115		115.00	6	0.9972	114.67	26	LOC	115		115.00	6	0.9987	114.85
30	MAR	115		115.00	6	0.9978	114.75	37	SAN	115		115.00	6	0.9955	114.48

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	37.0	18.8	25.0	0.0	1.0200	40.7	0.8914	47.0	1	6
67	BLM13C	13.800	V3	37.0	18.8	25.0	0.0	1.0200	40.7	0.8914	47.0	1	6
68	BLM13D	13.800	V4	37.0	19.6	25.0	0.0	1.0200	41.1	0.8833	47.0	1	6
90	EST-13L	13.800	E1	22.0	7.9	12.0	-5.0	1.0200	22.9	0.9405	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.9	12.0	-5.0	1.0200	22.9	0.9405	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	8.8	12.0	-5.0	1.0200	24.1	0.9340	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	8.8	12.0	-5.0	1.0200	24.1	0.9340	27.0	1	6
97	FOR13A	13.800	F1	92.0	4.4	50.0	-50.0	1.0200	90.3	0.9989	111.0	1	6
98	FOR13B	13.800	F2	92.0	4.4	50.0	-50.0	1.0200	90.3	0.9989	111.0	1	6
99	FOR13C	13.800	F3	92.0	4.4	50.0	-50.0	1.0200	90.3	0.9989	111.0	1	6
101	BAY13A	13.800	B1	62.9	30.4	50.0	-25.0	1.0000	69.9	0.9000	96.0	1	6
102	BAY13B	13.800	B2	69.1	31.0	50.0	-25.0	1.0000	75.7	0.9124	96.0	1	6
106	PANAM13A	13.800	M1	15.0	8.5	9.0	0.0	1.0000	17.2	0.8703	20.7	1	6
106	PANAM13A	13.800	M2	15.0	8.5	9.0	0.0	1.0000	17.2	0.8703	20.7	1	6
106	PANAM13A	13.800	M3	15.0	8.5	9.0	0.0	1.0000	17.2	0.8703	20.7	1	6
107	PANAM13B	13.800	M4	15.0	9.0	9.0	0.0	0.9865	17.7	0.8575	20.7	1	6
107	PANAM13B	13.800	M5	15.0	9.0	9.0	0.0	0.9865	17.7	0.8575	20.7	1	6
108	BAY13C	13.800	B3	69.1	31.0	50.0	-25.0	1.0000	75.7	0.9124	100.0	1	6
116	PACORA13	13.800	P1	15.1	8.8	8.8	0.0	0.9931	17.6	0.8632	21.7	1	6
142	CANJ13A	13.800	C1	55.0	18.5	29.0	-29.0	1.0200	56.9	0.9478	69.0	1	6
143	CANJ13B	13.800	C2	55.0	18.5	29.0	-29.0	1.0200	56.9	0.9478	69.0	1	6
151	GUALACA13.8	13.800	G1	17.0	3.7	10.0	-10.0	1.0200	17.1	0.9768	26.7	1	6
193	GEBONYIC	13.800	G1	9.0	-1.0	4.0	-4.0	1.0000	9.1	0.9935	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	-1.0	4.0	-4.0	1.0000	9.1	0.9935	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	-1.0	4.0	-4.0	1.0000	9.1	0.9935	35.3	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9585	11.2	0.8849	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9942	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.0	-1.7	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	-1.7	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1202	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1202	7.8	1.0000	35.3	1	6
521	EGIRAL13.8	113.800	G1	2.8	1.3	2.8	1.3	1.0042	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.8	1.3	2.8	1.3	1.0042	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.8	1.3	2.8	1.3	1.0042	3.1	0.9068	4.8	1	6
521	EGIRAL13.8	113.800	G4	2.8	1.3	2.8	1.3	1.0042	3.1	0.9068	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.0	2.6	6.6	-6.6	1.0010	7.5	0.9386	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	2.6	6.6	-6.6	1.0010	7.5	0.9386	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	2.6	6.6	-6.6	1.0010	7.5	0.9386	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	2.6	6.6	-6.6	1.0010	7.5	0.9386	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.0	2.6	6.6	-6.6	1.0010	7.5	0.9386	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.0	4.1	6.6	-6.6	1.0010	8.1	0.8643	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.0	4.1	6.6	-6.6	1.0010	8.1	0.8643	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.0	4.1	6.6	-6.6	1.0010	8.1	0.8643	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	0.9935	7.7	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	0.9935	7.7	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1248.2	326.2	748.4	-471.2				1733.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2011 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:
 BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE
 128 MIR13C 12.000 G3 12.6 1.8 11.0 0.0 1.0000 12.7 0.9900 29.4
 129 MIR13D 13.800 G4 35.0 0.4 15.0 0.0 1.0000 35.0 0.9999 44.1
 130 MIR13F 13.800 G5 17.1 0.0 8.0 0.0 1.0119 16.9 1.0000 27.7

X T R A N GENTAP ZONE AREA SWING



170 MIR13G	13.800 M1	17.1	6.8	11.2	6.8	1.0263	17.9	0.9289	23.0		
171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0353	17.8	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0353	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	22.6	67.5	20.5				170.3		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2011 CONTINGENCIA MATA DE NANCE-VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.9	224.5	-98.9	0.0	143.2	-96.9	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.1	20.2	0.0
C.RICA	264.0	569.4	-237.2	0.0	468.3	37.6	362.5	
6	1248.2	1149.6	0.0	0.0	0.0	43.0	55.6	25.0
PANAMA	326.2	288.1	-121.8	0.0	452.2	46.6	565.5	
7	116.0	44.6	0.0	0.0	0.0	70.5	0.9	50.0
ACANAL	22.6	11.2	0.0	0.0	0.0	-3.6	15.0	
9	0.0	113.2	0.0	0.0	0.0	-113.4	0.1	-75.0
COLON	0.0	28.4	0.0	0.0	1.1	-34.8	7.5	
TOTALS	6513.4	6359.0	0.0	0.0	0.0	0.0	154.4	0.0
	832.1	1944.0	-970.4	0.0	2000.4	0.0	1858.9	

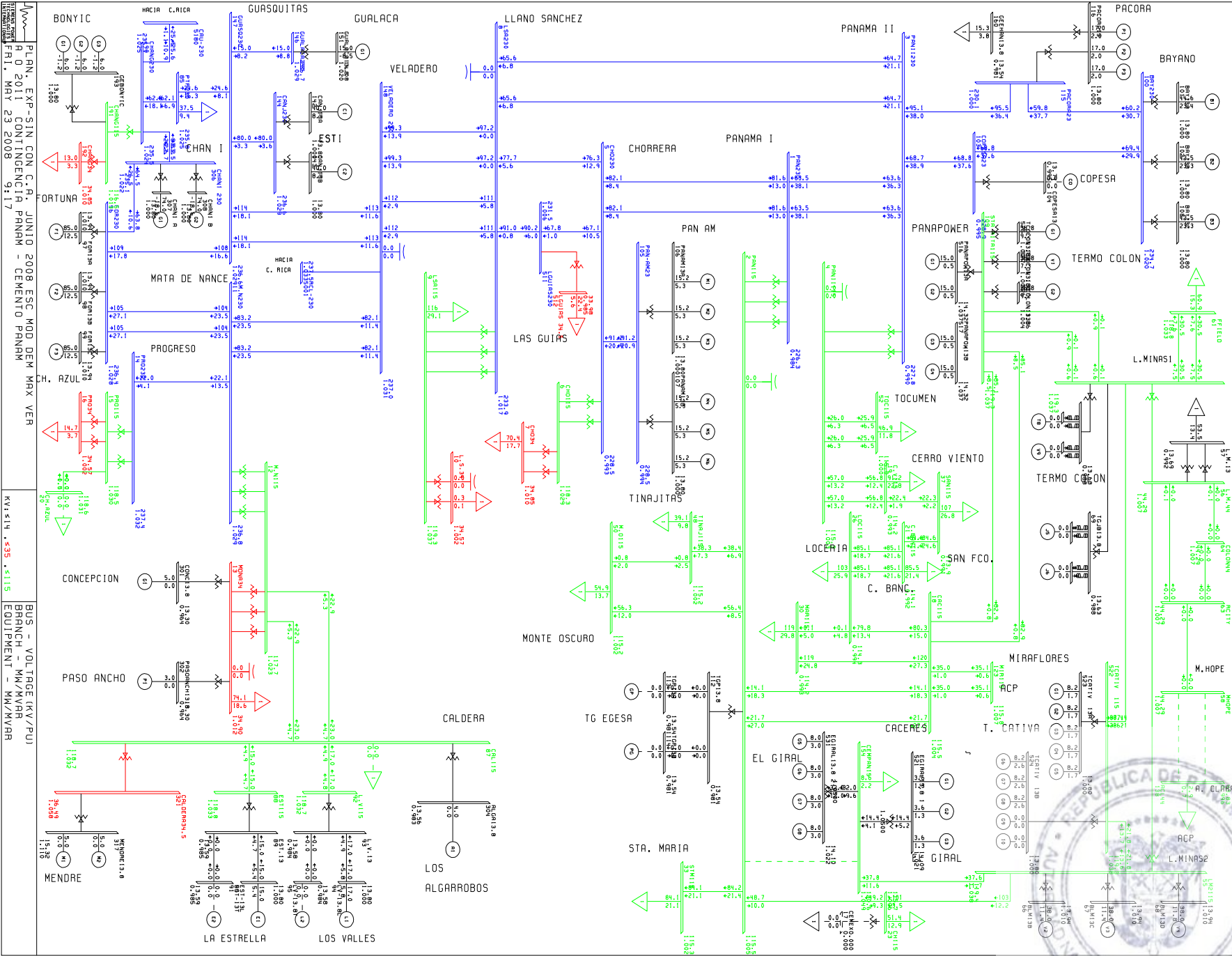


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá- Cemento Panamá**



de



PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 P.O 2011 CONTINGENCIA PRAM - CEMENTO PRAMH
 R.I., MAY 23 2008 9:17

CH. AZUL
 FORTUNA
 MATA DE NANCE
 PROGRESO
 PASO ANCHO
 CONCEPCION
 MENDRE

LA ESTRELLA
 LOS VALLES
 LOS ALGARROBOS
 CALDERA
 MONTE OSCURO
 TINAJITA
 LAS GUIAS
 LLANO SANCHEZ
 VELADERO
 ESTI
 GUASQUITAS
 GUALACA
 BONYIC

CH. AZUL
 FORTUNA
 MATA DE NANCE
 PROGRESO
 PASO ANCHO
 CONCEPCION
 MENDRE

LA ESTRELLA
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 LOS ALGARROBOS
 CALDERA
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 LAS GUIAS
 LLANO SANCHEZ
 VELADERO
 ESTI
 GUASQUITAS
 GUALACA
 BONYIC



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA PANAMÁ- CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0169	233.88	11	M.N230	230.00	6	1.0295	236.78				
14	PRO230	230.00	6	1.0320	237.35	85	PTP230	230.00	6	1.0254	235.84				
96	FOR230	230.00	6	1.0278	236.39	100	BAY230	230.00	6	1.0204	234.69				
115	PACORA23	230.00	6	1.0002	230.06	144	CANJ230	230.00	6	1.0288	236.62				
146	GUALACA230	230.00	6	1.0292	236.72	147	GUASQ230	230.00	6	1.0287	236.59				
148	VELADERO	230230.00	6	1.0305	237.03	190	CHANG230	230.00	6	1.0237	235.45				
306	CHAN1	230	230.00	6	1.0222	235.10	511	LGUIAS230	230.00	6	1.0064	231.48			
6000	FRONTER	230.00	6	1.0324	237.45										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9840	226.33	3	PANII230	230.00	6	0.9905	227.80				
5	CHO230	230.00	6	0.9934	228.49	103	COPESA23	230.00	6	0.9954	228.94				
105	PAN-AM23	230.00	6	0.9936	228.52										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA PANAMÁ- CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0047	115.54	4	PANII115	115.00	6	1.0029	115.33				
6	CHO115	115.00	6	1.0290	118.33	9	LSA115	115.00	6	1.0374	119.30				
12	M.N115	115.00	6	1.0231	117.66	15	PRO115	115.00	6	1.0303	118.48				
18	CAC115	115.00	6	1.0043	115.49	20	CH.AZUL	115.00	6	1.0310	118.57				
23	CH115	115.00	6	1.0059	115.68	33	STM115	115.00	6	1.0025	115.29				
48	TINAJ115	115.00	6	1.0018	115.20	50	M.O115	115.00	6	1.0019	115.22				
54	LM115	115.00	6	1.0372	119.28	55	LM2115	115.00	6	1.0379	119.36				
61	FFIELD	115.00	9	1.0330	118.79	87	CAL115	115.00	6	1.0318	118.66				
88	EST115	115.00	6	1.0334	118.84	92	L.V115	115.00	6	1.0324	118.73				
109	STA RITA115	115.00	6	1.0370	119.26	123	MIR115	115.00	7	1.0072	115.83				
154	CEMPAN15	115.00	6	1.0486	120.59	191	CHANG115	115.00	6	1.0126	116.45				
522	TCATIVÁ	115	115.00	6	1.0378	119.34									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9934	114.25	21	C.BAN115	115.00	6	0.9923	114.12				
26	LOC115	115.00	6	0.9937	114.28	30	MAR115	115.00	6	0.9928	114.17				
37	SAN115	115.00	6	0.9908	113.95	52	TOC115	115.00	6	0.9996	114.95				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA PANAMÁ- CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	11.4	25.0	0.0	1.0100	39.3	0.9580	47.0	1	6
67	BLM13C	13.800	V3	38.0	11.4	25.0	0.0	1.0100	39.3	0.9580	47.0	1	6
68	BLM13D	13.800	V4	38.0	11.8	25.0	0.0	1.0100	39.4	0.9550	47.0	1	6
90	EST-13L	13.800	E1	15.0	5.4	12.0	-5.0	1.0000	16.0	0.9400	27.0	1	6
94	LV-13.8L	13.800	L1	17.0	5.8	12.0	-5.0	1.0000	18.0	0.9457	27.0	1	6
97	FOR13A	13.800	F1	85.0	-12.5	50.0	-50.0	1.0100	85.1	0.9893	111.0	1	6
98	FOR13B	13.800	F2	85.0	-12.5	50.0	-50.0	1.0100	85.1	0.9893	111.0	1	6
99	FOR13C	13.800	F3	85.0	-12.5	50.0	-50.0	1.0100	85.1	0.9893	111.0	1	6
101	BAY13A	13.800	B1	44.6	23.4	50.0	-25.0	1.0000	50.4	0.8856	96.0	1	6
102	BAY13B	13.800	B2	42.5	23.3	50.0	-25.0	1.0000	48.5	0.8772	96.0	1	6
106	PANAM13A	13.800	M1	15.2	5.3	9.0	0.0	1.0000	16.1	0.9449	20.7	1	6
106	PANAM13A	13.800	M2	15.2	5.3	9.0	0.0	1.0000	16.1	0.9449	20.7	1	6
106	PANAM13A	13.800	M3	15.2	5.3	9.0	0.0	1.0000	16.1	0.9449	20.7	1	6
107	PANAM13B	13.800	M4	15.2	5.3	9.0	0.0	1.0000	16.1	0.9449	20.7	1	6
107	PANAM13B	13.800	M5	15.2	5.3	9.0	0.0	1.0000	16.1	0.9449	20.7	1	6
107	PANAM13B	13.800	M6	15.2	5.3	9.0	0.0	1.0000	16.1	0.9449	20.7	1	6
108	BAY13C	13.800	B3	42.5	23.3	50.0	-25.0	1.0000	48.5	0.8772	100.0	1	6
116	PACORA13	13.800	P1	17.0	2.0	8.8	0.0	1.0000	17.1	0.9932	21.7	1	6
116	PACORA13	13.800	P2	17.0	2.0	8.8	0.0	1.0000	17.1	0.9932	21.7	1	6
116	PACORA13	13.800	P3	17.0	2.0	8.8	0.0	1.0000	17.1	0.9932	21.7	1	6
142	CANJ13A	13.800	C1	40.0	8.4	29.0	-29.0	1.0000	40.9	0.9788	69.0	1	6
143	CANJ13B	13.800	C2	40.0	8.4	29.0	-29.0	1.0000	40.9	0.9788	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	-8.5	10.0	-10.0	1.0200	16.9	0.8704	26.7	1	6
193	GEBONYIC	13.800	G1	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9810	35.3	1	6
193	GEBONYIC	13.800	G2	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9810	35.3	1	6
193	GEBONYIC	13.800	G3	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9810	35.3	1	6
301	CONC13.8	13.800	G1	5.0	0.0	0.0	0.0	0.9635	5.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9635	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9827	4.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	74.0	-18.6	50.0	-50.0	1.0000	76.3	0.9699	118.6	1	6
308	CHAN1 B	13.800	G2	74.0	-18.6	50.0	-50.0	1.0000	76.3	0.9699	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1103	4.5	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.0	0.0	4.0	0.0	1.1103	4.5	1.0000	35.3	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0374	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0374	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0374	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0374	14.5	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0207	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0207	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0207	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0207	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	2.6	6.6	-6.6	1.0000	8.6	0.9539	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	2.6	6.6	-6.6	1.0000	8.6	0.9539	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	2.6	6.6	-6.6	1.0000	8.6	0.9539	10.9	1	6
525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0041	37.8	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	9.2	18.4	9.2	1.0041	37.8	0.9701	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	7.3	18.4	5.8	1.0000	37.5	0.9811	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0217	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0217	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0217	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0217	8.4	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1238.2	144.7	862.1	-423.9				1988.1		

SYST



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA PANAMÁ- CEMENTO PANAMÁ

FRI, MAY 23 2008 9:16

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.5	11.0	0.0	1.0000	12.8	0.9815	29.4			2	7	
129		MIR13D		13.800	G4	35.0	1.4	15.0	0.0	1.0000	35.0	0.9992	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0093	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0238	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0329	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0329	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	24.3	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2011 CONTINGENCIA PANAMÁ- CEMENTO PANAMÁ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.9	0.0
C.RICA	249.1	569.4	-237.6	0.0	470.2	27.7	359.8	
6	1238.2	1161.1	0.0	0.0	0.0	44.2	32.9	25.0
PANAMA	144.7	291.0	-60.6	0.0	486.0	55.8	344.4	
7	116.0	45.1	0.0	0.0	0.0	70.0	0.9	50.0
ACANAL	24.3	11.3	0.0	0.0	0.0	-2.0	15.0	
9	0.0	114.4	0.0	0.0	0.0	-114.5	0.1	-75.0
COLON	0.0	28.7	0.0	0.0	1.1	-35.2	7.6	
TOTALS	6503.5	6372.1	0.0	0.0	0.0	0.0	131.3	0.0
	636.7	1947.3	-909.7	0.0	2036.2	0.0	1635.3	

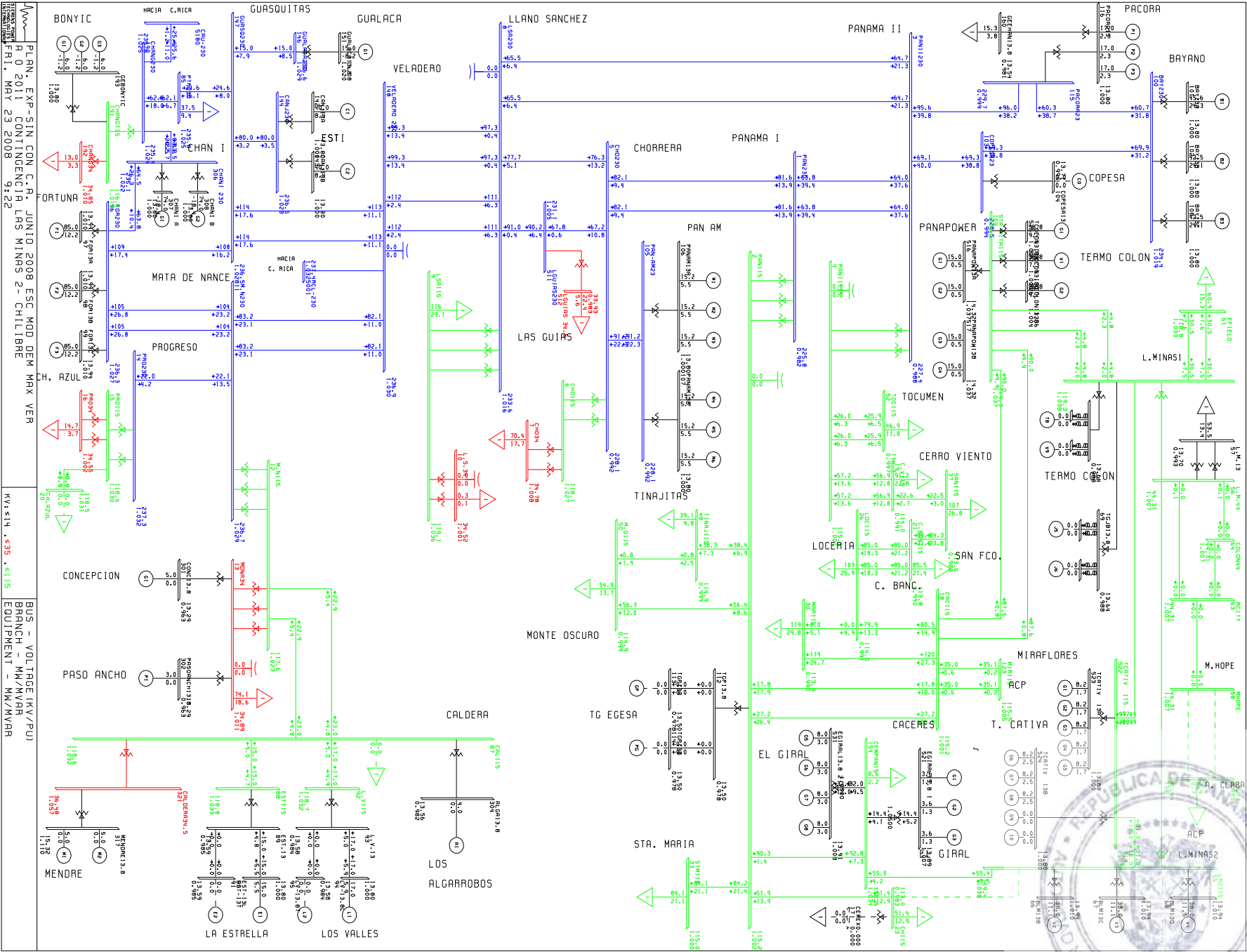


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 5: Contingencia Las Minas 2- Chilibre**



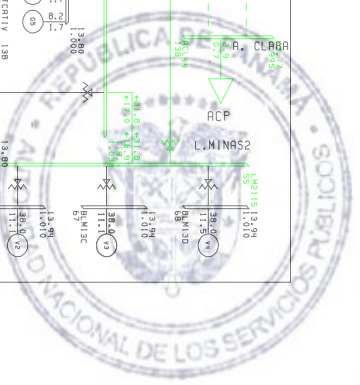
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PLAN. EXP-SIN CON C.A. JUNTO 2008 ESC MOD DEM MAX VER
 P O 2011 CONTINGENCIA LAS MINAS 2- CHILIBRE
 CHIL. MAR 23 2008 9122

BUS - VOL TAGE (KV/PV)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR

9122



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0156	233.59	11		M.N230		230.00	6	1.0291	236.68
14		PRO230		230.00	6	1.0316	237.27	85		FTP230		230.00	6	1.0251	235.77
96		FOR230		230.00	6	1.0275	236.32	100		BAY230		230.00	6	1.0193	234.43
144		CANJ230		230.00	6	1.0284	236.53	146		GUALACA230		230.00	6	1.0288	236.64
147		GUASQ230		230.00	6	1.0283	236.51	148		VELADERO	230	230.00	6	1.0298	236.86
190		CHANG230		230.00	6	1.0236	235.42	306		CHAN1	230	230.00	6	1.0220	235.07
511		LGUIAS230		230.00	6	1.0049	231.13	6000		FRONTER		230.00	6	1.0320	237.37

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9819	225.83	3		PANII230		230.00	6	0.9885	227.35
5		CHO230		230.00	6	0.9917	228.08	103		COPESA23		230.00	6	0.9936	228.52
105		PAN-AM23		230.00	6	0.9918	228.11	115		PACORA23		230.00	6	0.9986	229.68

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0019	115.21	4		PANII115		115.00	6	1.0006	115.07
6		CHO115		115.00	6	1.0271	118.11	9		LSA115		115.00	6	1.0361	119.15
12		M.N115		115.00	6	1.0228	117.62	15		PRO115		115.00	6	1.0299	118.44
18		CAC115		115.00	6	1.0015	115.17	20		CH.AZUL		115.00	6	1.0307	118.53
54		LM115		115.00	6	1.0376	119.33	55		LM2115		115.00	6	1.0385	119.43
61		FFIELD		115.00	9	1.0334	118.84	87		CAL115		115.00	6	1.0316	118.63
88		EST115		115.00	6	1.0331	118.81	92		L.V115		115.00	6	1.0321	118.70
109		STA RITA115		115.00	6	1.0370	119.25	123		MIR115		115.00	7	1.0046	115.53
154		CEMPAN15		115.00	6	1.0337	118.88	191		CHANG115		115.00	6	1.0125	116.44
522		TCATIVÁ	115	115.00	6	1.0382	119.40								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9910	113.97	21		C.BAN115		115.00	6	0.9896	113.80
23		CH115		115.00	6	0.9830	113.04	26		LOC115		115.00	6	0.9910	113.96
30		MAR115		115.00	6	0.9900	113.85	33		STM115		115.00	6	0.9997	114.96
37		SAN115		115.00	6	0.9881	113.63	48		TINAJ115		115.00	6	0.9989	114.88
50		M.O115		115.00	6	0.9991	114.89	52		TOC115		115.00	6	0.9974	114.70

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	38.0	11.1	25.0	0.0	1.0100	39.2	0.9597	47.0								1	6



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67	BLM13C	13.800	V3	38.0	11.1	25.0	0.0	1.0100	39.2	0.9597	47.0	1	6
68	BLM13D	13.800	V4	38.0	11.5	25.0	0.0	1.0100	39.3	0.9568	47.0	1	6
90	EST-13L	13.800	E1	15.0	5.5	12.0	-5.0	1.0000	16.0	0.9384	27.0	1	6
94	LV-13.8L	13.800	L1	17.0	5.9	12.0	-5.0	1.0000	18.0	0.9443	27.0	1	6
97	FOR13A	13.800	F1	85.0	-12.2	50.0	-50.0	1.0100	85.0	0.9898	111.0	1	6
98	FOR13B	13.800	F2	85.0	-12.2	50.0	-50.0	1.0100	85.0	0.9898	111.0	1	6
99	FOR13C	13.800	F3	85.0	-12.2	50.0	-50.0	1.0100	85.0	0.9898	111.0	1	6
101	BAY13A	13.800	B1	45.6	24.3	50.0	-25.0	1.0000	51.7	0.8828	96.0	1	6
102	BAY13B	13.800	B2	42.5	24.1	50.0	-25.0	1.0000	48.9	0.8699	96.0	1	6
106	PANAM13A	13.800	M1	15.2	5.5	9.0	0.0	1.0000	16.2	0.9400	20.7	1	6
106	PANAM13A	13.800	M2	15.2	5.5	9.0	0.0	1.0000	16.2	0.9400	20.7	1	6
106	PANAM13A	13.800	M3	15.2	5.5	9.0	0.0	1.0000	16.2	0.9400	20.7	1	6
107	PANAM13B	13.800	M4	15.2	5.5	9.0	0.0	1.0000	16.2	0.9400	20.7	1	6
107	PANAM13B	13.800	M5	15.2	5.5	9.0	0.0	1.0000	16.2	0.9400	20.7	1	6
107	PANAM13B	13.800	M6	15.2	5.5	9.0	0.0	1.0000	16.2	0.9400	20.7	1	6
108	BAY13C	13.800	B3	42.5	24.1	50.0	-25.0	1.0000	48.9	0.8699	100.0	1	6
116	PACORA13	13.800	P1	17.0	2.3	8.8	0.0	1.0000	17.2	0.9911	21.7	1	6
116	PACORA13	13.800	P2	17.0	2.3	8.8	0.0	1.0000	17.2	0.9911	21.7	1	6
116	PACORA13	13.800	P3	17.0	2.3	8.8	0.0	1.0000	17.2	0.9911	21.7	1	6
142	CANJ13A	13.800	C1	40.0	8.4	29.0	-29.0	1.0000	40.9	0.9785	69.0	1	6
143	CANJ13B	13.800	C2	40.0	8.4	29.0	-29.0	1.0000	40.9	0.9785	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	-8.2	10.0	-10.0	1.0200	16.7	0.8785	26.7	1	6
193	GEBONYIC	13.800	G1	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9814	35.3	1	6
193	GEBONYIC	13.800	G2	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9814	35.3	1	6
193	GEBONYIC	13.800	G3	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9814	35.3	1	6
301	CONC13.8	13.800	G1	5.0	0.0	0.0	0.0	0.9632	5.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9632	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9824	4.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	74.0	-18.4	50.0	-50.0	1.0000	76.3	0.9703	118.6	1	6
308	CHAN1 B	13.800	G2	74.0	-18.4	50.0	-50.0	1.0000	76.3	0.9703	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1100	4.5	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.0	0.0	4.0	0.0	1.1100	4.5	1.0000	35.3	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0373	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0373	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0373	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0373	14.5	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0067	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0067	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0067	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0067	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9800	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9800	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	2.5	6.6	-6.6	1.0000	8.6	0.9570	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	2.5	6.6	-6.6	1.0000	8.6	0.9570	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	2.5	6.6	-6.6	1.0000	8.6	0.9570	10.9	1	6
525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0040	37.8	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	9.2	18.4	9.2	1.0040	37.8	0.9701	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	7.3	18.4	5.8	1.0000	37.5	0.9809	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0078	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0078	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0078	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0078	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1239.2	150.1	862.1	-423.9				1988.1		

SYST



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 2- CHILIBRE

FRI, MAY 23 2008 9:20

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.8	11.0	0.0	1.0000	12.9	0.9758	29.4			2	7	
129		MIR13D		13.800	G4	35.0	1.9	15.0	0.0	1.0000	35.1	0.9985	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0079	17.0	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0224	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0315	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0315	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	25.2	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2011 CONTINGENCIA LAS MINAS 2- CHILIBRE IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	249.6	569.4	-237.6	0.0	470.1	28.1	359.8	
6	1239.2	1161.1	0.0	0.0	0.0	44.2	33.9	25.0
PANAMA	150.1	291.0	-60.2	0.0	485.4	54.6	350.2	
7	116.0	45.1	0.0	0.0	0.0	70.0	0.9	50.0
ACANAL	25.2	11.3	0.0	0.0	0.0	-1.2	15.1	
9	0.0	114.4	0.0	0.0	0.0	-114.5	0.1	-75.0
COLON	0.0	28.7	0.0	0.0	1.1	-35.2	7.6	
TOTALS	6504.5	6372.1	0.0	0.0	0.0	0.0	132.4	0.0
	643.5	1947.3	-909.3	0.0	2035.5	0.0	1641.1	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2011 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1- Santa Rita**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0198	234.55	11	M.N230	230.00	6	1.0304	237.00				
14	PRO230	230.00	6	1.0328	237.55	85	PTP230	230.00	6	1.0261	236.00				
96	FOR230	230.00	6	1.0285	236.56	100	BAY230	230.00	6	1.0230	235.29				
115	PACORA23	230.00	6	1.0040	230.93	144	CANJ230	230.00	6	1.0296	236.81				
146	GUALACA230	230.00	6	1.0300	236.90	147	GUASQ230	230.00	6	1.0295	236.78				
148	VELADERO	230230.00	6	1.0323	237.42	190	CHANG230	230.00	6	1.0240	235.53				
306	CHAN1	230	230.00	6	1.0225	235.17	511	LGUIAS230	230.00	6	1.0099	232.28			
6000	FRONTER	230.00	6	1.0332	237.64										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9891	227.49	3	PANII230	230.00	6	0.9951	228.86				
5	CHO230	230.00	6	0.9976	229.45	103	COPESA23	230.00	6	0.9997	229.94				
105	PAN-AM23	230.00	6	0.9977	229.47										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0113	116.29	4	PANII115	115.00	6	1.0082	115.94				
6	CHO115	115.00	6	1.0334	118.84	9	LSA115	115.00	6	1.0404	119.64				
12	M.N115	115.00	6	1.0239	117.75	15	PRO115	115.00	6	1.0312	118.58				
18	CAC115	115.00	6	1.0108	116.24	20	CH.AZUL	115.00	6	1.0319	118.67				
23	CH115	115.00	6	1.0107	116.23	26	LOC115	115.00	6	1.0003	115.03				
33	STM115	115.00	6	1.0091	116.05	48	TINAJ115	115.00	6	1.0084	115.96				
50	M.O115	115.00	6	1.0085	115.98	52	TOC115	115.00	6	1.0049	115.56				
54	LM1115	115.00	6	1.0368	119.23	55	LM2115	115.00	6	1.0371	119.27				
61	FFIELD	115.00	9	1.0325	118.74	87	CAL115	115.00	6	1.0325	118.73				
88	EST115	115.00	6	1.0340	118.91	92	L.V115	115.00	6	1.0330	118.80				
109	STA RITA115	115.00	6	1.0386	119.44	123	MIR115	115.00	7	1.0134	116.54				
154	CEMPAN15	115.00	6	1.0367	119.22	191	CHANG115	115.00	6	1.0128	116.48				
522	TCATIVÁ	115	115.00	6	1.0371	119.27									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9991	114.90	21	C.BAN115	115.00	6	0.9988	114.87				
30	MAR115	115.00	6	0.9994	114.93	37	SAN115	115.00	6	0.9973	114.69				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	11.7	25.0	0.0	1.0100	39.4	0.9555	47.0	1	6
67	BLM13C	13.800	V3	38.0	11.7	25.0	0.0	1.0100	39.4	0.9555	47.0	1	6
68	BLM13D	13.800	V4	38.0	12.2	25.0	0.0	1.0100	39.5	0.9523	47.0	1	6
90	EST-13L	13.800	E1	15.0	5.3	12.0	-5.0	1.0000	15.9	0.9436	27.0	1	6
94	LV-13.8L	13.800	L1	17.0	5.7	12.0	-5.0	1.0000	17.9	0.9488	27.0	1	6
97	FOR13A	13.800	F1	85.0	-13.2	50.0	-50.0	1.0100	85.2	0.9882	111.0	1	6
98	FOR13B	13.800	F2	85.0	-13.2	50.0	-50.0	1.0100	85.2	0.9882	111.0	1	6
99	FOR13C	13.800	F3	85.0	-13.2	50.0	-50.0	1.0100	85.2	0.9882	111.0	1	6
101	BAY13A	13.800	B1	42.4	21.3	50.0	-25.0	1.0000	47.4	0.8937	96.0	1	6
102	BAY13B	13.800	B2	42.5	21.3	50.0	-25.0	1.0000	47.5	0.8941	96.0	1	6
106	PANAM13A	13.800	M1	15.2	4.7	9.0	0.0	1.0000	15.9	0.9557	20.7	1	6
106	PANAM13A	13.800	M2	15.2	4.7	9.0	0.0	1.0000	15.9	0.9557	20.7	1	6
106	PANAM13A	13.800	M3	15.2	4.7	9.0	0.0	1.0000	15.9	0.9557	20.7	1	6
107	PANAM13B	13.800	M4	15.2	4.7	9.0	0.0	1.0000	15.9	0.9557	20.7	1	6
107	PANAM13B	13.800	M5	15.2	4.7	9.0	0.0	1.0000	15.9	0.9557	20.7	1	6
107	PANAM13B	13.800	M6	15.2	4.7	9.0	0.0	1.0000	15.9	0.9557	20.7	1	6
108	BAY13C	13.800	B3	42.5	21.3	50.0	-25.0	1.0000	47.5	0.8941	100.0	1	6
116	PACORA13	13.800	P1	17.0	1.3	8.8	0.0	1.0000	17.1	0.9971	21.7	1	6
116	PACORA13	13.800	P2	17.0	1.3	8.8	0.0	1.0000	17.1	0.9971	21.7	1	6
116	PACORA13	13.800	P3	17.0	1.3	8.8	0.0	1.0000	17.1	0.9971	21.7	1	6
142	CANJ13A	13.800	C1	40.0	8.2	29.0	-29.0	1.0000	40.8	0.9794	69.0	1	6
143	CANJ13B	13.800	C2	40.0	8.2	29.0	-29.0	1.0000	40.8	0.9794	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	-9.2	10.0	-10.0	1.0200	17.3	0.8513	26.7	1	6
193	GEBONYIC	13.800	G1	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9803	35.3	1	6
193	GEBONYIC	13.800	G2	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9803	35.3	1	6
193	GEBONYIC	13.800	G3	6.0	-1.2	4.0	-4.0	1.0000	6.1	0.9803	35.3	1	6
301	CONC13.8	13.800	G1	5.0	0.0	0.0	0.0	0.9643	5.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.0	0.0	0.0	0.0	0.9643	3.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	4.0	0.0	0.0	0.0	0.9833	4.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	74.0	-18.9	50.0	-50.0	1.0000	76.4	0.9690	118.6	1	6
308	CHAN1 B	13.800	G2	74.0	-18.9	50.0	-50.0	1.0000	76.4	0.9690	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1110	4.5	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.0	0.0	4.0	0.0	1.1110	4.5	1.0000	35.3	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0390	14.4	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0390	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0390	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0390	14.4	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0095	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0095	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0095	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0095	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9768	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9768	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9768	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9768	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.8	6.6	-6.6	1.0000	8.4	0.9768	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	2.7	6.6	-6.6	1.0000	8.6	0.9496	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	2.7	6.6	-6.6	1.0000	8.6	0.9496	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	2.7	6.6	-6.6	1.0000	8.6	0.9496	10.9	1	6
525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0055	37.7	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	9.2	18.4	9.2	1.0055	37.7	0.9701	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	6.6	18.4	5.8	1.0000	37.4	0.9844	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0106	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0106	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0106	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0106	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1236.0	130.3	862.1	-423.9				1988.1		

SYST



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2011 CONTINGENCIA LAS MINAS 1- SANTA RITA

FRI, MAY 23 2008 9:26

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	1.6	11.0	0.0	1.0000	12.7	0.9922	29.4			2	7	
129		MIR13D		13.800	G4	35.0	0.0	15.0	0.0	1.0000	35.0	1.0000	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0127	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0271	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0361	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0361	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	22.1	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2011 CONTINGENCIA LAS MINAS 1- SANTA RITA IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.9	0.0
C.RICA	247.9	569.4	-237.7	0.0	470.3	26.8	359.7	
6	1236.0	1161.1	0.0	0.0	0.0	44.2	30.7	25.0
PANAMA	130.3	291.0	-61.4	0.0	490.2	58.9	331.9	
7	116.0	45.1	0.0	0.0	0.0	70.0	0.9	50.0
ACANAL	22.1	11.3	0.0	0.0	0.0	-4.1	14.9	
9	0.0	114.4	0.0	0.0	0.0	-114.5	0.1	-75.0
COLON	0.0	28.7	0.0	0.0	1.1	-35.2	7.6	
TOTALS	6501.3	6372.1	0.0	0.0	0.0	0.0	129.1	0.0
	618.9	1947.3	-910.5	0.0	2040.5	0.0	1622.6	



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AÑO 2012

**Caso 1: REGMHTCB8
Caso 2: REGMHTGDC8**

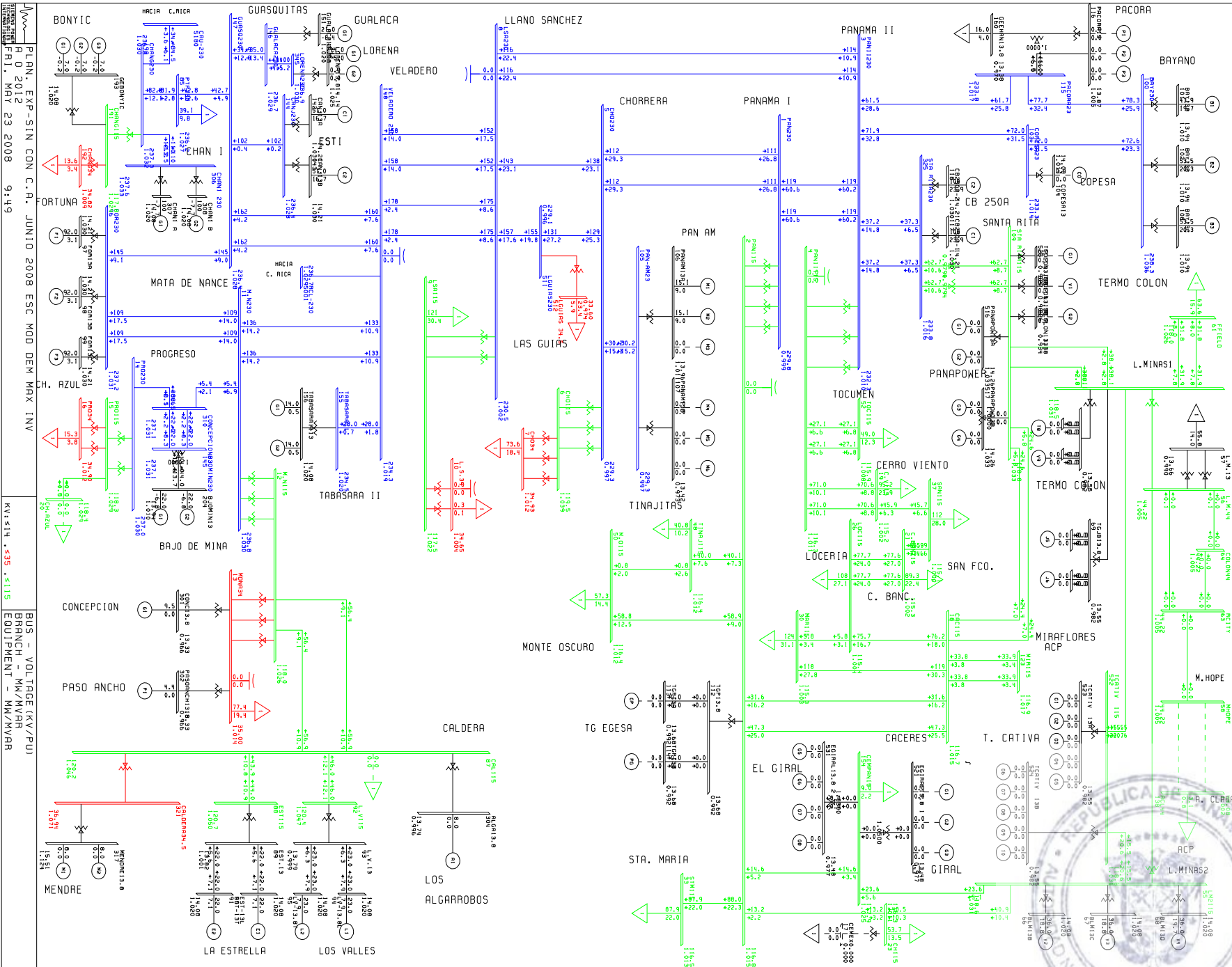


de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de



PLN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX INV
 P. O 2012
 F. I. 23 2008 9:49

BUS - VOLTAGE (KV/PU)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR
 KV=115 .435 .5115



Handwritten signature or initials.

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0099	232.29	8		LSA230		230.00	6	1.0023	230.54
11		M.N230		230.00	6	1.0296	236.81	14		PRO230		230.00	6	1.0303	236.98
85		PTP230		230.00	6	1.0270	236.21	96		FOR230		230.00	6	1.0313	237.21
100		BAY230		230.00	6	1.0359	238.27	103		COPESA23		230.00	6	1.0143	233.29
115		PACORA23		230.00	6	1.0167	233.84	144		CANJ230		230.00	6	1.0280	236.44
145		BJOMIN230		230.00	6	1.0307	237.06	146		GUALACA230		230.00	6	1.0292	236.72
147		GUASQ230		230.00	6	1.0278	236.38	148		VELADERO 230		230.00	6	1.0188	234.32
155		TABASARAI		230.00	6	1.0196	234.51	190		CHANG230		230.00	6	1.0318	237.32
306		CHAN1 230		230.00	6	1.0329	237.56	310		CONCEPCION23		230.00	6	1.0310	237.13
325		STA RITA230		230.00	6	1.0164	233.77	345		LORENA230		230.00	6	1.0300	236.90
6000		FRONTIER		230.00	6	1.0303	236.97								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9993	229.83	5		CHO230		230.00	6	0.9970	229.31
105		PAN-AM23		230.00	6	0.9971	229.33	511		LGUIAS230		230.00	6	0.9963	229.14

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0153	116.76	4		PANII115		115.00	6	1.0109	116.26
6		CHO115		115.00	6	1.0390	119.49	9		LSA115		115.00	6	1.0221	117.54
12		M.N115		115.00	6	1.0264	118.04	15		PRO115		115.00	6	1.0285	118.28
18		CAC115		115.00	6	1.0147	116.69	19		C.V115		115.00	6	1.0017	115.20
20		CH.AZUL		115.00	6	1.0293	118.37	21		C.BAN115		115.00	6	1.0022	115.25
23		CH115		115.00	6	1.0111	116.28	26		LOC115		115.00	6	1.0038	115.43
30		MAR115		115.00	6	1.0028	115.33	33		STM115		115.00	6	1.0131	116.50
37		SAN115		115.00	6	1.0004	115.05	48		TINAJ115		115.00	6	1.0123	116.42
50		M.O115		115.00	6	1.0125	116.43	52		TOC115		115.00	6	1.0075	115.87
54		LM115		115.00	6	1.0308	118.54	55		LM2115		115.00	6	1.0312	118.58
61		FFIELD		115.00	9	1.0264	118.03	87		CAL115		115.00	6	1.0456	120.25
88		EST115		115.00	6	1.0495	120.70	92		L.V115		115.00	6	1.0471	120.42
109		STA RITA115		115.00	6	1.0330	118.80	123		MIR115		115.00	7	1.0166	116.90
154		CEMPAN15		115.00	6	1.0254	117.92	191		CHANG115		115.00	6	1.0241	117.77
522		TCATIVÁ		115 115.00	6	1.0310	118.56								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
										NONE *					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	18.8	25.0	0.0	1.0200	39.8	0.8861	47.0	1	6
67	BLM13C	13.800	V3	36.0	18.8	25.0	0.0	1.0200	39.8	0.8861	47.0	1	6
68	BLM13D	13.800	V4	36.0	19.7	25.0	0.0	1.0200	40.2	0.8776	47.0	1	6
90	EST-13L	13.800	E1	22.0	7.1	12.0	-5.0	1.0200	22.7	0.9511	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.1	12.0	-5.0	1.0200	22.7	0.9511	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	7.9	12.0	-5.0	1.0200	23.9	0.9453	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	7.9	12.0	-5.0	1.0200	23.9	0.9453	27.0	1	6
97	FOR13A	13.800	F1	92.0	3.1	50.0	-50.0	1.0300	89.4	0.9994	111.0	1	6
98	FOR13B	13.800	F2	92.0	3.1	50.0	-50.0	1.0300	89.4	0.9994	111.0	1	6
99	FOR13C	13.800	F3	92.0	3.1	50.0	-50.0	1.0300	89.4	0.9994	111.0	1	6
101	BAY13A	13.800	B1	43.9	19.7	50.0	-25.0	1.0100	47.6	0.9121	96.0	1	6
102	BAY13B	13.800	B2	53.5	20.3	50.0	-25.0	1.0100	56.7	0.9349	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	1.0113	17.4	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	1.0113	17.4	0.8590	20.7	1	6
108	BAY13C	13.800	B3	53.5	20.3	50.0	-25.0	1.0100	56.7	0.9349	100.0	1	6
117	CB250A-1	13.800	C1	100.0	23.9	75.6	0.0	1.0300	99.8	0.9727	143.5	1	6
118	CB250A-2	13.800	C2	100.0	23.9	75.6	0.0	1.0300	99.8	0.9727	143.5	1	6
142	CANJ13A	13.800	C1	51.0	16.7	29.0	-29.0	1.0300	52.1	0.9505	69.0	1	6
143	CANJ13B	13.800	C2	51.0	16.7	29.0	-29.0	1.0300	52.1	0.9505	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	-8.4	10.0	-10.0	1.0200	22.2	0.9287	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	0.5	5.7	0.2	1.0200	13.7	0.9993	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	0.5	5.7	0.2	1.0200	13.7	0.9993	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.2	4.0	-4.0	1.0200	6.9	0.9995	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.2	4.0	-4.0	1.0200	6.9	0.9995	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.2	4.0	-4.0	1.0200	6.9	0.9995	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-6.8	13.0	-13.0	1.0100	22.8	0.9549	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-6.8	13.0	-13.0	1.0100	22.8	0.9549	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9661	9.8	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9661	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9958	8.0	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	-7.7	50.0	-50.0	1.0200	98.3	0.9970	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	-7.7	50.0	-50.0	1.0200	98.3	0.9970	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1238	7.1	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1238	7.1	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0246	14.5	0.9417	19.9	1	6
SUBSYSTEM TOTALS				1323.0	214.2	820.0	-462.5				1932.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.0	11.0	0.0	1.0000	12.7	0.9873	29.4			2	7	
129		MIR13D		13.800	G4	35.0	0.7	15.0	0.0	1.0000	35.0	0.9998	44.1			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9971	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9971	4.1			2	7	



140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9971	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9747	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9747	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9747	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0254	17.9	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0345	17.7	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0345	17.7	0.9281	23.0	2	7
SUBSYSTEM TOTALS				116.0	20.1	74.5	5.5				173.1		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C.RICA	247.7	569.4	-237.8	0.0	470.0	25.2	361.0	
6	1323.0	1212.6	0.0	0.0	0.0	51.9	58.5	25.0
PANAMA	214.2	303.9	-184.8	0.0	520.2	65.9	549.4	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	20.1	11.8	0.0	0.0	0.0	-7.5	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.2	8.4	
TOTALS	6588.2	6430.7	0.0	0.0	0.0	0.0	157.5	0.0
	700.7	1962.0	-1034.0	0.0	2070.3	0.0	1843.0	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0082	231.89	5		CHO230		230.00	6	1.0117	232.70
8		LSA230		230.00	6	1.0335	237.71	11		M.N230		230.00	6	1.0318	237.32
14		PRO230		230.00	6	1.0376	238.65	85		PTP230		230.00	6	1.0269	236.20
96		FOR230		230.00	6	1.0244	235.61	100		BAY230		230.00	6	1.0272	236.26
103		COPESA23		230.00	6	1.0116	232.66	105		PAN-AM23		230.00	6	1.0119	232.74
115		PACORA23		230.00	6	1.0159	233.67	144		CANJ230		230.00	6	1.0306	237.03
145		BJOMIN230		230.00	6	1.0385	238.84	146		GUALACA230		230.00	6	1.0316	237.26
147		GUASQ230		230.00	6	1.0304	237.00	148		VELADERO	230	230.00	6	1.0412	239.48
155		TABASARAI		230.00	6	1.0416	239.58	190		CHANG230		230.00	6	1.0245	235.63
306		CHAN1	230	230.00	6	1.0225	235.19	310		CONCEPCION23	230	230.00	6	1.0372	238.56
325		STA RITA230		230.00	6	1.0190	234.37	345		LORENA230		230.00	6	1.0320	237.36
511		LGUIAS230		230.00	6	1.0244	235.61	6000		FRONTER		230.00	6	1.0380	238.74

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9996	229.91								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0087	116.00	4		PANII115		115.00	6	1.0113	116.30
6		CHO115		115.00	6	1.0544	121.26	9		LSA115		115.00	6	1.0482	120.55
12		M.N115		115.00	6	1.0243	117.79	15		PRO115		115.00	6	1.0358	119.11
18		CAC115		115.00	6	1.0082	115.95	20		CH.AZUL		115.00	6	1.0365	119.20
23		CH115		115.00	6	1.0093	116.07	33		STM115		115.00	6	1.0064	115.73
48		TINAJ115		115.00	6	1.0056	115.64	50		M.O115		115.00	6	1.0057	115.66
52		TOC115		115.00	6	1.0078	115.90	54		LM1115		115.00	6	1.0387	119.44
55		LM2115		115.00	6	1.0390	119.49	61		FFIELD		115.00	9	1.0341	118.93
87		CAL115		115.00	6	1.0326	118.74	88		EST115		115.00	6	1.0341	118.92
92		L.V115		115.00	6	1.0331	118.81	109		STA RITA115		115.00	6	1.0394	119.54
123		MIR115		115.00	7	1.0105	116.21	154		CEMPAN15		115.00	6	1.0373	119.29
191		CHANG115		115.00	6	1.0130	116.50	522		TCATIVÁ	115	115.00	6	1.0391	119.49

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	1.0000	115.00	21		C.BAN115		115.00	6	0.9961	114.55
26		LOC115		115.00	6	0.9975	114.71	30		MAR115		115.00	6	0.9963	114.57
37		SAN115		115.00	6	0.9948	114.40								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	15.5	25.0	0.0	1.0200	40.3	0.9255	47.0	1	6
67	BLM13C	13.800	V3	38.0	15.5	25.0	0.0	1.0200	40.3	0.9255	47.0	1	6
68	BLM13D	13.800	V4	38.0	16.2	25.0	0.0	1.0200	40.5	0.9200	47.0	1	6
90	EST-13L	13.800	E1	16.0	5.3	12.0	-5.0	1.0000	16.8	0.9497	27.0	1	6
94	LV-13.8L	13.800	L1	18.0	5.7	12.0	-5.0	1.0000	18.9	0.9537	27.0	1	6
97	FOR13A	13.800	F1	65.0	-37.2	50.0	-50.0	0.9800	76.4	0.8677	111.0	1	6
98	FOR13B	13.800	F2	65.0	-37.2	50.0	-50.0	0.9800	76.4	0.8677	111.0	1	6
99	FOR13C	13.800	F3	65.0	-37.2	50.0	-50.0	0.9800	76.4	0.8677	111.0	1	6
101	BAY13A	13.800	B1	40.1	18.0	50.0	-25.0	1.0000	44.0	0.9120	96.0	1	6
102	BAY13B	13.800	B2	40.1	18.0	50.0	-25.0	1.0000	44.0	0.9120	96.0	1	6
106	PANAM13A	13.800	M1	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
106	PANAM13A	13.800	M2	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
106	PANAM13A	13.800	M3	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
107	PANAM13B	13.800	M4	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
107	PANAM13B	13.800	M5	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
107	PANAM13B	13.800	M6	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
116	PACORA13	13.800	P1	17.0	5.0	8.8	0.0	1.0300	17.2	0.9595	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.0	8.8	0.0	1.0300	17.2	0.9595	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.0	8.8	0.0	1.0300	17.2	0.9595	21.7	1	6
117	CB250A-1	13.800	C1	115.0	20.9	75.6	0.0	1.0300	113.5	0.9838	143.5	1	6
118	CB250A-2	13.800	C2	115.0	20.9	75.6	0.0	1.0300	113.5	0.9838	143.5	1	6
142	CANJ13A	13.800	C1	37.0	7.3	29.0	-29.0	1.0000	37.7	0.9808	69.0	1	6
143	CANJ13B	13.800	C2	37.0	7.3	29.0	-29.0	1.0000	37.7	0.9808	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	0.0	10.0	0.0	1.0315	14.5	1.0000	26.7	1	6
156	TABASARAI13	13.800	G1	10.0	0.2	5.7	0.2	1.0420	9.6	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9687	35.3	1	6
193	GEBONYIC	13.800	G2	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9687	35.3	1	6
193	GEBONYIC	13.800	G3	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9687	35.3	1	6
204	BJOMIN13	13.800	G1	15.0	0.0	13.0	0.0	1.0383	14.4	1.0000	28.9	1	6
301	CONC13.8	13.800	G1	4.0	0.0	0.0	0.0	0.9628	4.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	2.0	0.0	0.0	0.0	0.9628	2.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	3.0	0.0	0.0	0.0	0.9834	3.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-29.4	50.0	-50.0	0.9890	76.8	0.9219	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1118	4.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	9.0	-5.0	10.5	-5.0	1.0267	10.0	0.8742	19.9	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0398	14.4	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0398	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0401	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0401	14.4	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0101	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0101	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0101	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0101	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.2	1.6	6.6	-6.6	1.0000	8.3	0.9822	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0064	36.9	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0064	36.9	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	6.1	18.4	5.8	1.0000	36.5	0.9858	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0111	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0111	8.5	0.9363	10.9	1	6

SYST



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531 EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0111	8.5	0.9363	10.9	1	6
531 EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0111	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS			1312.6	118.5	951.6	-356.8				2112.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	23.0	1.9	11.0	0.0	1.0000	23.1	0.9967	29.4			2	7	
129		MIR13D		13.800	G4	37.0	1.5	15.0	0.0	1.0000	37.0	0.9992	44.1			2	7	
140		GAT6A		6.9000	G1	1.7	0.7	2.0	-2.0	1.0000	1.8	0.9315	4.1			2	7	
141		GAT6B		6.9000	G4	3.0	-1.8	3.0	-3.0	1.0000	3.5	0.8597	5.6			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0230	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	22.7	64.5	15.5				152.4					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.6	19.5	0.0
C.RICA	243.4	569.4	-236.3	0.0	471.0	23.1	358.1	
6	1312.6	1237.1	0.0	0.0	0.0	54.6	21.0	25.0
PANAMA	118.5	310.0	0.0	0.0	531.8	66.2	274.0	
7	116.0	48.0	0.0	0.0	0.0	66.9	1.1	50.0
ACANAL	22.7	12.0	0.0	0.0	0.0	-4.8	15.5	
9	0.0	121.9	0.0	0.0	0.0	-122.0	0.1	-75.0
COLON	0.0	30.5	0.0	0.0	1.1	-38.0	8.6	
TOTALS	6577.8	6458.5	0.0	0.0	0.0	0.0	119.3	0.0
	603.0	1968.9	-847.8	0.0	2082.8	0.0	1564.7	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0079	231.83	3	PANII230	230.00	6	1.0106	232.43				
5	CHO230	230.00	6	1.0073	231.69	11	M.N230	230.00	6	1.0204	234.70				
14	PRO230	230.00	6	1.0280	236.44	85	PTP230	230.00	6	1.0227	235.21				
96	FOR230	230.00	6	1.0205	234.71	100	BAY230	230.00	6	1.0141	233.25				
103	COPESA23	230.00	6	1.0116	232.67	105	PAN-AM23	230.00	6	1.0073	231.69				
115	PACORA23	230.00	6	1.0119	232.74	144	CANJ230	230.00	6	1.0213	234.90				
145	BJOMIN230	230.00	6	1.0279	236.42	146	GUALACA230	230.00	6	1.0220	235.06				
147	GUASQ230	230.00	6	1.0213	234.89	148	VELADERO 230	230.00	6	1.0147	233.37				
155	TABASARAI	230.00	6	1.0148	233.41	190	CHANG230	230.00	6	1.0222	235.10				
306	CHAN1 230	230.00	6	1.0203	234.68	310	CONCEPCION23	230.00	6	1.0267	236.14				
325	STA RITA230	230.00	6	1.0150	233.45	345	LORENA230	230.00	6	1.0224	235.16				
511	LGUIAS230	230.00	6	1.0026	230.60	6000	FRONTIER	230.00	6	1.0283	236.51				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	0.9957	229.01										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 16:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0034	115.39	4	PANII115	115.00	6	1.0048	115.55				
6	CHO115	115.00	6	1.0568	121.53	9	LSA115	115.00	6	1.0090	116.03				
12	M.N115	115.00	6	1.0025	115.29	15	PRO115	115.00	6	1.0279	118.21				
18	CAC115	115.00	6	1.0034	115.39	19	C.V115	115.00	6	1.0005	115.06				
20	CH.AZUL	115.00	6	1.0287	118.29	23	CH115	115.00	6	1.0044	115.51				
33	STM115	115.00	6	1.0025	115.29	48	TINAJ115	115.00	6	1.0025	115.28				
50	M.O115	115.00	6	1.0025	115.29	52	TOC115	115.00	6	1.0035	115.40				
54	LM1115	115.00	6	1.0151	116.74	55	LM2115	115.00	6	1.0157	116.80				
61	FFIELD	115.00	9	1.0134	116.54	87	CAL115	115.00	6	1.0132	116.52				
88	EST115	115.00	6	1.0152	116.75	92	L.V115	115.00	6	1.0139	116.60				
109	STA RITA115	115.00	6	1.0138	116.58	123	MIR115	115.00	7	1.0067	115.77				
154	CEMPAN15	115.00	6	1.0166	116.91	191	CHANG115	115.00	6	1.0108	116.25				
522	TCATTIVÁ	115.00	6	1.0155	116.78										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21	C.BAN115	115.00	6	0.9991	114.89	26	LOC115	115.00	6	0.9995	114.95				
30	MAR115	115.00	6	0.9989	114.87	37	SAN115	115.00	6	0.9986	114.83				



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	25.0	6.3	17.0	0.0	0.9800	26.3	0.9695	47.0			1	6		
67		BLM13C		13.800	V3	25.0	6.3	17.0	0.0	0.9800	26.3	0.9695	47.0			1	6		
68		BLM13D		13.800	V4	25.0	6.6	30.0	0.0	0.9800	26.4	0.9671	47.0			1	6		
90		EST-13L		13.800	E1	15.0	7.7	12.0	-5.0	0.9900	17.0	0.8888	27.0			1	6		
94		LV-13.8L		13.800	L1	17.0	8.2	12.0	-5.0	0.9900	19.1	0.9002	27.0			1	6		
97		FOR13A		13.800	F1	70.7	-24.7	50.0	-50.0	0.9900	75.6	0.9440	111.0			1	6	SYST	
106		PANAM13A		13.800	M1	14.0	0.0	9.0	0.0	0.9822	14.3	1.0000	20.7			1	6		
117		CB250A-1		13.800	C1	65.0	0.0	75.6	0.0	1.0141	64.1	1.0000	143.5			1	6		
118		CB250A-2		13.800	C2	65.0	0.0	75.6	0.0	1.0141	64.1	1.0000	143.5			1	6		
142		CANJ13A		13.800	C1	35.0	6.7	29.0	-29.0	0.9900	36.0	0.9819	69.0			1	6		
151		GUALACA13.8		13.800	G1	8.0	0.0	10.0	0.0	1.0220	7.8	1.0000	26.7			1	6		
193		GEBONYIC		13.800	G1	6.0	-3.2	4.0	-4.0	0.9900	6.9	0.8821	35.3			1	6		
193		GEBONYIC		13.800	G3	6.0	-3.2	4.0	-4.0	0.9900	6.9	0.8821	35.3			1	6		
204		BJOMIN13		13.800	G1	15.0	0.0	13.0	0.0	1.0277	14.6	1.0000	28.9			1	6		
301		CONC13.8		13.800	G1	6.0	0.0	0.0	0.0	0.9619	6.2	1.0000	13.5			1	6		
302		PASOANCH13.8		13.800	P1	2.0	0.0	0.0	0.0	0.9619	2.1	1.0000	6.2			1	6		
304		ALGA13.8		13.800	A1	4.0	0.0	0.0	0.0	0.9649	4.1	1.0000	13.5			1	6		
308		CHAN1 B		13.800	G2	61.0	-27.0	50.0	-50.0	0.9900	67.4	0.9144	118.6			1	6		
317		MENDRE13.8		13.800	M1	4.9	0.0	4.0	0.0	1.0909	4.5	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	8.5	-5.0	10.5	-5.0	1.0170	9.7	0.8619	19.9			1	6		
521		EGIRAL13.8		113.800	G1	3.0	1.3	2.8	1.3	0.9804	3.4	0.9194	4.8			1	6		
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	0.9804	3.4	0.9194	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.9	2.8	6.6	-6.6	0.9800	8.6	0.9439	10.9			1	6		
523		TCATIVÁ 13A		13.800	G2	7.9	2.8	6.6	-6.6	0.9800	8.6	0.9439	10.9			1	6		
523		TCATIVÁ 13A		13.800	G3	7.9	2.8	6.6	-6.6	0.9800	8.6	0.9439	10.9			1	6		
531		EGIRAL13.8		213.800	G5	6.8	3.0	6.4	3.0	0.9809	7.6	0.9151	10.9			1	6		
531		EGIRAL13.8		213.800	G6	6.8	3.0	6.4	3.0	0.9809	7.6	0.9151	10.9			1	6		
SUBSYSTEM TOTALS						521.6	-4.3	460.8	-163.1				1080.3						

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0370	17.8	0.9289	23.0			2	7		
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0465	17.6	0.9289	23.0			2	7		
171		MIR13H		13.800	M2	12.2	6.8	11.2	6.8	1.0465	13.4	0.8729	23.0			2	7		
SUBSYSTEM TOTALS						46.4	20.5	33.5	20.5				69.1						

AREA TOTALS
 IN MW/MVAR

FROM	TO	TO BUS	TO LINE	FROM	TO	DESIRED
X-- AREA	--X GENERATION	LOAD	SHUNT	SHUNT CHARGING	NET INT	LOSSES NET INT



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1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	255.2	569.4	-236.5	0.0	469.5	33.9	357.9	
6	521.6	491.5	0.0	0.0	0.0	20.4	9.7	25.0
PANAMA	-4.3	123.2	182.3	0.0	422.7	12.9	100.1	
7	46.4	19.1	0.0	0.0	0.0	27.3	0.1	50.0
ACANAL	20.5	4.8	0.0	0.0	0.0	11.8	3.9	
9	0.0	48.4	0.0	0.0	0.0	-48.4	0.0	-75.0
COLON	0.0	12.1	0.0	0.0	1.1	-12.4	1.3	
TOTALS	5717.2	5610.5	0.0	0.0	0.0	0.0	106.7	0.0
	490.2	1756.4	-665.7	0.0	1972.2	0.0	1371.7	



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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Panamá II- Llano Sánchez



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 15:56
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0239	235.50	14	PRO230	230.00	6	1.0256	235.88				
85	PTP230	230.00	6	1.0227	235.23	96	FOR230	230.00	6	1.0270	236.21				
100	BAY230	230.00	6	1.0268	236.15	115	PACORA23	230.00	6	1.0030	230.68				
144	CANJ230	230.00	6	1.0227	235.22	145	BJOMIN230	230.00	6	1.0263	236.06				
146	GUALACA230	230.00	6	1.0241	235.54	147	GUASQ230	230.00	6	1.0225	235.17				
148	VELADERO	230230.00	6	1.0075	231.73	155	TABASARAI	230.00	6	1.0090	232.07				
190	CHANG230	230.00	6	1.0297	236.83	306	CHAN1 230	230.00	6	1.0309	237.12				
310	CONCEPCION23	230.00	6	1.0262	236.02	325	STA RITA230	230.00	6	1.0062	231.42				
345	LORENA230	230.00	6	1.0249	235.73	6000	FRONTER	230.00	6	1.0256	235.88				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9832	226.13	3	PANII230	230.00	6	0.9945	228.74				
5	CHO230	230.00	6	0.9766	224.61	8	LSA230	230.00	6	0.9817	225.78				
103	COPESA23	230.00	6	0.9998	229.95	105	PAN-AM23	230.00	6	0.9767	224.63				
511	LGUIAS230	230.00	6	0.9726	223.69										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 15:56
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0128	116.47	4	PANII115	115.00	6	1.0172	116.97				
6	CHO115	115.00	6	1.0173	116.99	9	LSA115	115.00	6	1.0008	115.09				
12	M.N115	115.00	6	1.0221	117.54	15	PRO115	115.00	6	1.0237	117.73				
18	CAC115	115.00	6	1.0123	116.41	19	C.V115	115.00	6	1.0056	115.64				
20	CH.AZUL	115.00	6	1.0245	117.82	21	C.BAN115	115.00	6	1.0008	115.09				
23	CH115	115.00	6	1.0097	116.11	26	LOC115	115.00	6	1.0021	115.24				
30	MAR115	115.00	6	1.0008	115.09	33	STM115	115.00	6	1.0105	116.21				
48	TINAJ115	115.00	6	1.0098	116.12	50	M.O115	115.00	6	1.0099	116.14				
52	TOC115	115.00	6	1.0138	116.58	54	LM115	115.00	6	1.0309	118.55				
55	LM2115	115.00	6	1.0312	118.59	61	FFIELD	115.00	9	1.0264	118.04				
87	CAL115	115.00	6	1.0428	119.92	88	EST115	115.00	6	1.0469	120.40				
92	L.V115	115.00	6	1.0443	120.10	109	STA RITA115	115.00	6	1.0334	118.84				
123	MIR115	115.00	7	1.0143	116.64	154	CEMPAN15	115.00	6	1.0247	117.84				
191	CHANG115	115.00	6	1.0226	117.59	522	TCATIVÁ	115 115.00	6	1.0310	118.57				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
37	SAN115	115.00	6	0.9995	114.95										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 15:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	18.8	25.0	0.0	1.0200	39.8	0.8862	47.0	1	6
67	BLM13C	13.800	V3	36.0	18.8	25.0	0.0	1.0200	39.8	0.8862	47.0	1	6
68	BLM13D	13.800	V4	36.0	19.7	25.0	0.0	1.0200	40.2	0.8777	47.0	1	6
90	EST-13L	13.800	E1	22.0	7.9	12.0	-5.0	1.0200	22.9	0.9409	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.9	12.0	-5.0	1.0200	22.9	0.9409	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	8.8	12.0	-5.0	1.0200	24.1	0.9345	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	8.8	12.0	-5.0	1.0200	24.1	0.9345	27.0	1	6
97	FOR13A	13.800	F1	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9969	111.0	1	6
98	FOR13B	13.800	F2	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9969	111.0	1	6
99	FOR13C	13.800	F3	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9969	111.0	1	6
101	BAY13A	13.800	B1	52.5	27.2	50.0	-25.0	1.0100	58.5	0.8879	96.0	1	6
102	BAY13B	13.800	B2	53.5	27.2	50.0	-25.0	1.0100	59.4	0.8911	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	0.9920	17.7	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	0.9920	17.7	0.8590	20.7	1	6
108	BAY13C	13.800	B3	53.5	27.2	50.0	-25.0	1.0100	59.4	0.8911	100.0	1	6
117	CB250A-1	13.800	C1	100.0	39.4	75.6	0.0	1.0300	104.3	0.9304	143.5	1	6
118	CB250A-2	13.800	C2	100.0	39.4	75.6	0.0	1.0300	104.3	0.9304	143.5	1	6
142	CANJ13A	13.800	C1	51.0	17.6	29.0	-29.0	1.0300	52.4	0.9455	69.0	1	6
143	CANJ13B	13.800	C2	51.0	17.6	29.0	-29.0	1.0300	52.4	0.9455	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	-3.6	10.0	-10.0	1.0200	20.9	0.9858	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	2.9	5.7	0.2	1.0200	14.0	0.9786	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	2.9	5.7	0.2	1.0200	14.0	0.9786	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.1	4.0	-4.0	1.0200	6.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.1	4.0	-4.0	1.0200	6.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.1	4.0	-4.0	1.0200	6.9	1.0000	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-5.3	13.0	-13.0	1.0100	22.4	0.9726	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-5.3	13.0	-13.0	1.0100	22.4	0.9726	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9618	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9618	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9931	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	-5.8	50.0	-50.0	1.0200	98.2	0.9983	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	-5.8	50.0	-50.0	1.0200	98.2	0.9983	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1207	7.1	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1207	7.1	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-4.5	10.5	-5.0	1.0200	14.4	0.9526	19.9	1	6
SUBSYSTEM TOTALS				1331.6	301.4	820.0	-462.5				1932.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 15:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	2.3	11.0	0.0	1.0000	12.8	0.9833	29.4	2	7					
129	MIR13D	13.800	G4	35.0	1.2	15.0	0.0	1.0000	35.0	0.9995	44.1	2	7					
140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1	2	7					
140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1	2	7					
140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1	2	7					
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9759	5.6	2	7					
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9759	6.2	2	7					
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9759	6.2	2	7					
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0243	17.9	0.9281	23.0	2	7					
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0334	17.7	0.9281	23.0	2	7					
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0334	17.7	0.9281	23.0	2	7					
SUBSYSTEM TOTALS				116.0	21.0	74.5	5.5				173.1							



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de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 15 2008 15:56
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 CONTINGENCIA PANAMÁ II- LLANO SÁNCHEZ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.1	20.1	0.0
C.RICA	254.6	569.4	-237.5	0.0	469.3	30.7	361.2	
6	1331.6	1212.6	0.0	0.0	0.0	51.9	67.1	25.0
PANAMA	301.4	303.9	-185.4	0.0	473.9	59.3	597.5	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	21.0	11.8	0.0	0.0	0.0	-6.7	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.2	8.4	
TOTALS	6596.8	6430.7	0.0	0.0	0.0	0.0	166.1	0.0
	795.8	1962.0	-1034.3	0.0	2023.2	0.0	1891.4	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas- Veladero**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0061	231.41	11		M.N230		230.00	6	1.0227	235.22
14		PRO230		230.00	6	1.0242	235.56	85		PTP230		230.00	6	1.0241	235.54
96		FOR230		230.00	6	1.0275	236.32	100		BAY230		230.00	6	1.0337	237.76
103		COPESA23		230.00	6	1.0107	232.46	115		PACORA23		230.00	6	1.0133	233.06
144		CANJ230		230.00	6	1.0242	235.56	145		BJOMIN230		230.00	6	1.0252	235.80
146		GUALACA230		230.00	6	1.0255	235.87	147		GUASQ230		230.00	6	1.0239	235.51
148		VELADERO 230		230.00	6	1.0070	231.61	155		TABASARAI		230.00	6	1.0085	231.95
190		CHANG230		230.00	6	1.0301	236.93	306		CHAN1 230		230.00	6	1.0313	237.19
310		CONCEPCION23		230.00	6	1.0250	235.74	325		STA RITA230		230.00	6	1.0140	233.22
345		LORENA230		230.00	6	1.0263	236.05	6000		FRONTER		230.00	6	1.0241	235.55

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9952	228.89	5		CHO230		230.00	6	0.9917	228.09
8		LSA230		230.00	6	0.9930	228.40	105		PAN-AM23		230.00	6	0.9918	228.10
511		LGUIAS230		230.00	6	0.9885	227.37								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:54
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0114	116.31	4		PANII115		115.00	6	1.0070	115.81
6		CHO115		115.00	6	1.0333	118.83	9		LSA115		115.00	6	1.0125	116.44
12		M.N115		115.00	6	1.0212	117.44	15		PRO115		115.00	6	1.0223	117.57
18		CAC115		115.00	6	1.0108	116.24	20		CH.AZUL		115.00	6	1.0231	117.65
23		CH115		115.00	6	1.0078	115.90	33		STM115		115.00	6	1.0091	116.05
48		TINAJ115		115.00	6	1.0084	115.96	50		M.O115		115.00	6	1.0085	115.98
52		TOC115		115.00	6	1.0036	115.42	54		LM115		115.00	6	1.0284	118.27
55		LM2115		115.00	6	1.0288	118.31	61		FFIELD		115.00	9	1.0239	117.75
87		CAL115		115.00	6	1.0421	119.84	88		EST115		115.00	6	1.0464	120.33
92		L.V115		115.00	6	1.0437	120.03	109		STA RITA115		115.00	6	1.0305	118.50
123		MIR115		115.00	7	1.0129	116.48	154		CEMPAN15		115.00	6	1.0226	117.59
191		CHANG115		115.00	6	1.0228	117.63	522		TCATIVÁ 115		115.00	6	1.0286	118.29

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9978	114.74	21		C.BAN115		115.00	6	0.9982	114.80
26		LOC115		115.00	6	0.9998	114.98	30		MAR115		115.00	6	0.9989	114.87
37		SAN115		115.00	6	0.9965	114.59								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	19.9	25.0	0.0	1.0200	40.3	0.8754	47.0	1	6
67	BLM13C	13.800	V3	36.0	19.9	25.0	0.0	1.0200	40.3	0.8754	47.0	1	6
68	BLM13D	13.800	V4	36.0	20.8	25.0	0.0	1.0200	40.7	0.8662	47.0	1	6
90	EST-13L	13.800	E1	22.0	8.1	12.0	-5.0	1.0200	23.0	0.9386	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.1	12.0	-5.0	1.0200	23.0	0.9386	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	8.9	12.0	-5.0	1.0200	24.2	0.9320	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	8.9	12.0	-5.0	1.0200	24.2	0.9320	27.0	1	6
97	FOR13A	13.800	F1	92.0	6.8	50.0	-50.0	1.0300	89.6	0.9973	111.0	1	6
98	FOR13B	13.800	F2	92.0	6.8	50.0	-50.0	1.0300	89.6	0.9973	111.0	1	6
99	FOR13C	13.800	F3	92.0	6.8	50.0	-50.0	1.0300	89.6	0.9973	111.0	1	6
101	BAY13A	13.800	B1	49.6	21.7	50.0	-25.0	1.0100	53.6	0.9160	96.0	1	6
102	BAY13B	13.800	B2	53.5	22.0	50.0	-25.0	1.0100	57.3	0.9249	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	1.0063	17.5	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	1.0063	17.5	0.8590	20.7	1	6
108	BAY13C	13.800	B3	53.5	22.0	50.0	-25.0	1.0100	57.3	0.9249	100.0	1	6
117	CB250A-1	13.800	C1	100.0	27.5	75.6	0.0	1.0300	100.7	0.9643	143.5	1	6
118	CB250A-2	13.800	C2	100.0	27.5	75.6	0.0	1.0300	100.7	0.9643	143.5	1	6
142	CANJ13A	13.800	C1	51.0	17.3	29.0	-29.0	1.0300	52.3	0.9469	69.0	1	6
143	CANJ13B	13.800	C2	51.0	17.3	29.0	-29.0	1.0300	52.3	0.9469	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	-4.9	10.0	-10.0	1.0200	21.1	0.9737	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	3.1	5.7	0.2	1.0200	14.0	0.9770	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	3.1	5.7	0.2	1.0200	14.0	0.9770	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.1	4.0	-4.0	1.0200	6.9	0.9999	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.1	4.0	-4.0	1.0200	6.9	0.9999	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.1	4.0	-4.0	1.0200	6.9	0.9999	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-4.9	13.0	-13.0	1.0100	22.3	0.9765	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-4.9	13.0	-13.0	1.0100	22.3	0.9765	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9608	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9608	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9925	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	-6.1	50.0	-50.0	1.0200	98.2	0.9981	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	-6.1	50.0	-50.0	1.0200	98.2	0.9981	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1200	7.1	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1200	7.1	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0208	14.6	0.9417	19.9	1	6
SUBSYSTEM TOTALS				1328.7	262.2	820.0	-462.5				1932.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.5	11.0	0.0	1.0000	12.8	0.9808	29.4			2	7	
129		MIR13D		13.800	G4	35.0	1.4	15.0	0.0	1.0000	35.0	0.9992	44.1			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9983	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9983	4.1			2	7	



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140 GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9983	4.1	2	7
141 GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9766	5.6	2	7
141 GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9766	6.2	2	7
141 GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9766	6.2	2	7
170 MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0236	17.9	0.9281	23.0	2	7
171 MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0327	17.7	0.9281	23.0	2	7
171 MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0327	17.7	0.9281	23.0	2	7
SUBSYSTEM TOTALS			116.0	21.5	74.5	5.5				173.1		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:54
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 CONTINGENCIA GUASQUITAS-VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.2	20.3	0.0
C.RICA	257.0	569.4	-237.3	0.0	469.0	30.9	363.1	
6	1328.7	1212.6	0.0	0.0	0.0	52.1	64.0	25.0
PANAMA	262.2	303.9	-183.3	0.0	497.7	58.6	580.7	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	21.5	11.8	0.0	0.0	0.0	-6.1	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.2	8.4	
TOTALS	6594.0	6430.7	0.0	0.0	0.0	0.0	163.3	0.0
	759.7	1962.0	-1032.1	0.0	2046.7	0.0	1876.5	

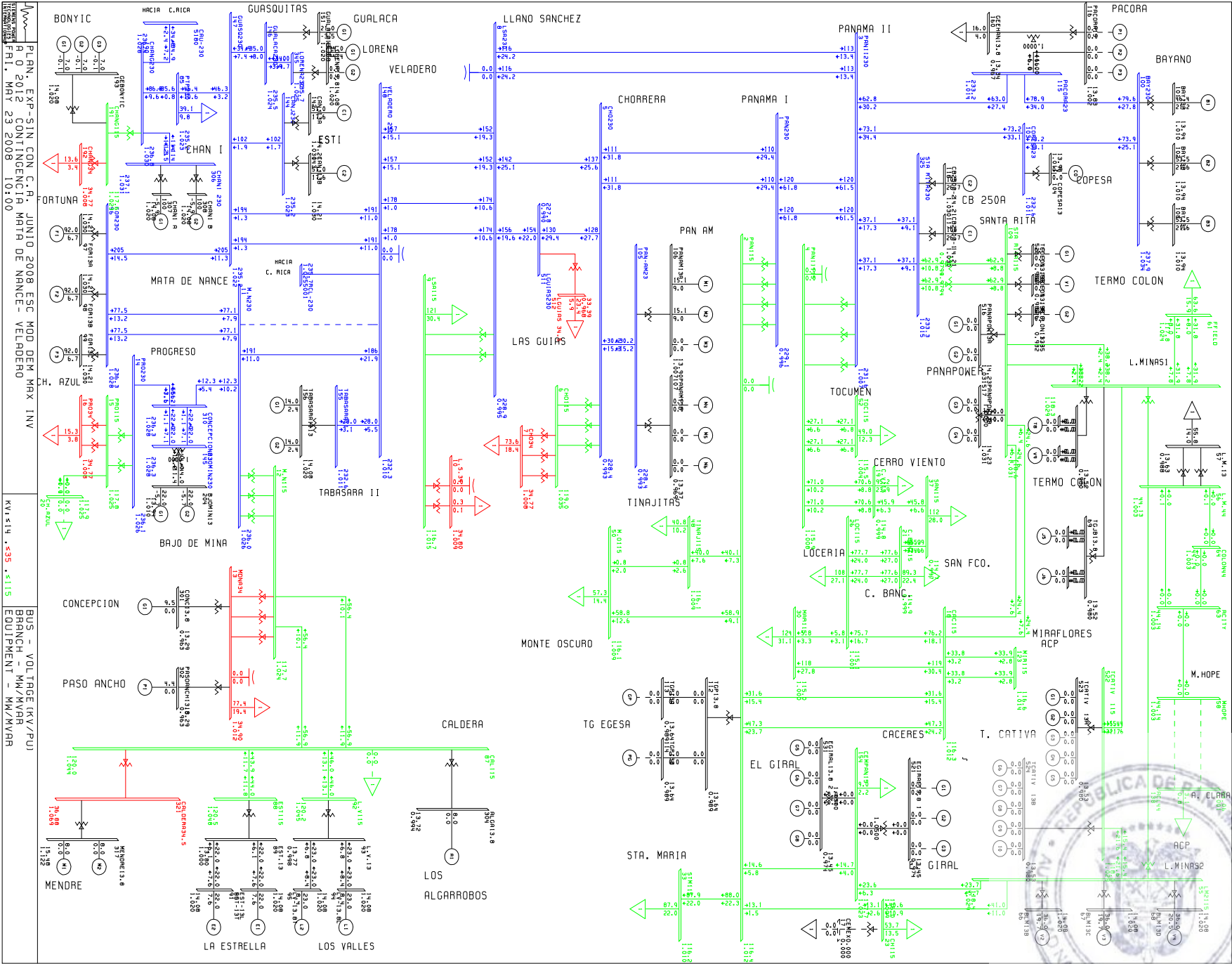


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance- Veladero**



de



PLN. EXP-STIN CON C.A.R. JUNIO 2008 ESC MOD DEM INY
 10:00
 1.0
 CONTINGENCIA MATR DE NANCE- VELADERO

KV: 119, 35, 115

BUS - VOLTAGE (KV/PV)
 BRANCH - MW/VAR
 EQUIPMENT - MW/VAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0069	231.60	11		M.N230		230.00	6	1.0261	235.99
14		PRO230		230.00	6	1.0264	236.07	85		PTP230		230.00	6	1.0226	235.20
96		FOR230		230.00	6	1.0275	236.33	100		BAY230		230.00	6	1.0342	237.86
103		COPESA23		230.00	6	1.0115	232.64	115		PACORA23		230.00	6	1.0140	233.23
144		CANJ230		230.00	6	1.0227	235.21	145		BJOMIN230		230.00	6	1.0276	236.34
146		GUALACA230		230.00	6	1.0240	235.53	147		GUASQ230		230.00	6	1.0224	235.15
148		VELADERO 230		230.00	6	1.0100	232.29	155		TABASARAI		230.00	6	1.0113	232.60
190		CHANG230		230.00	6	1.0297	236.82	306		CHAN1 230		230.00	6	1.0310	237.13
310		CONCEPCION23		230.00	6	1.0275	236.33	325		STA RITA230		230.00	6	1.0145	233.34
345		LORENA230		230.00	6	1.0249	235.72	6000		FRONTER		230.00	6	1.0262	236.03

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9961	229.09	5		CHO230		230.00	6	0.9928	228.35
8		LSA230		230.00	6	0.9952	228.90	105		PAN-AM23		230.00	6	0.9929	228.37
511		LGUIAS230		230.00	6	0.9903	227.77								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0123	116.41	4		PANII115		115.00	6	1.0079	115.91
6		CHO115		115.00	6	1.0346	118.98	9		LSA115		115.00	6	1.0147	116.70
12		M.N115		115.00	6	1.0238	117.73	15		PRO115		115.00	6	1.0246	117.82
18		CAC115		115.00	6	1.0117	116.34	20		CH.AZUL		115.00	6	1.0253	117.91
23		CH115		115.00	6	1.0085	115.98	26		LOC115		115.00	6	1.0007	115.08
33		STM115		115.00	6	1.0100	116.15	48		TINAJ115		115.00	6	1.0092	116.06
50		M.O115		115.00	6	1.0094	116.08	52		TOC115		115.00	6	1.0045	115.51
54		LM115		115.00	6	1.0289	118.33	55		LM2115		115.00	6	1.0293	118.37
61		FFIELD		115.00	9	1.0245	117.81	87		CAL115		115.00	6	1.0438	120.04
88		EST115		115.00	6	1.0479	120.51	92		L.V115		115.00	6	1.0454	120.22
109		STA RITA115		115.00	6	1.0310	118.57	123		MIR115		115.00	7	1.0137	116.58
154		CEMPAN15		115.00	6	1.0232	117.67	191		CHANG115		115.00	6	1.0225	117.59
522		TCATIVÁ 115		115.00	6	1.0291	118.35								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9986	114.84	21		C.BAN115		115.00	6	0.9991	114.90
30		MAR115		115.00	6	0.9998	114.97	37		SAN115		115.00	6	0.9973	114.69

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	19.7	25.0	0.0	1.0200	40.2	0.8777	47.0	1	6
67	BLM13C	13.800	V3	36.0	19.7	25.0	0.0	1.0200	40.2	0.8777	47.0	1	6
68	BLM13D	13.800	V4	36.0	20.5	25.0	0.0	1.0200	40.6	0.8687	47.0	1	6
90	EST-13L	13.800	E1	22.0	7.6	12.0	-5.0	1.0200	22.8	0.9449	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.6	12.0	-5.0	1.0200	22.8	0.9449	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	8.4	12.0	-5.0	1.0200	24.0	0.9387	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	8.4	12.0	-5.0	1.0200	24.0	0.9387	27.0	1	6
97	FOR13A	13.800	F1	92.0	6.7	50.0	-50.0	1.0300	89.6	0.9973	111.0	1	6
98	FOR13B	13.800	F2	92.0	6.7	50.0	-50.0	1.0300	89.6	0.9973	111.0	1	6
99	FOR13C	13.800	F3	92.0	6.7	50.0	-50.0	1.0300	89.6	0.9973	111.0	1	6
101	BAY13A	13.800	B1	46.4	21.2	50.0	-25.0	1.0100	50.5	0.9097	96.0	1	6
102	BAY13B	13.800	B2	53.5	21.6	50.0	-25.0	1.0100	57.1	0.9270	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	1.0074	17.5	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	1.0074	17.5	0.8590	20.7	1	6
108	BAY13C	13.800	B3	53.5	21.6	50.0	-25.0	1.0100	57.1	0.9270	100.0	1	6
117	CB250A-1	13.800	C1	100.0	26.7	75.6	0.0	1.0300	100.5	0.9662	143.5	1	6
118	CB250A-2	13.800	C2	100.0	26.7	75.6	0.0	1.0300	100.5	0.9662	143.5	1	6
142	CANJ13A	13.800	C1	51.0	17.6	29.0	-29.0	1.0300	52.4	0.9455	69.0	1	6
143	CANJ13B	13.800	C2	51.0	17.6	29.0	-29.0	1.0300	52.4	0.9455	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	-3.5	10.0	-10.0	1.0200	20.9	0.9861	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	2.4	5.7	0.2	1.0200	13.9	0.9855	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	2.4	5.7	0.2	1.0200	13.9	0.9855	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.1	4.0	-4.0	1.0200	6.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.1	4.0	-4.0	1.0200	6.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.1	4.0	-4.0	1.0200	6.9	1.0000	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-5.7	13.0	-13.0	1.0100	22.5	0.9680	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-5.7	13.0	-13.0	1.0100	22.5	0.9680	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9634	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9634	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9941	8.0	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	-5.9	50.0	-50.0	1.0200	98.2	0.9983	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	-5.9	50.0	-50.0	1.0200	98.2	0.9983	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1219	7.1	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1219	7.1	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-4.4	10.5	-5.0	1.0200	14.4	0.9533	19.9	1	6
SUBSYSTEM TOTALS				1325.5	256.8	820.0	-462.5				1932.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	2.4	11.0	0.0	1.0000	12.8	0.9823	29.4			2	7	
129	MIR13D	13.800	G4	35.0	1.3	15.0	0.0	1.0000	35.0	0.9993	44.1			2	7	
140	GAT6A	6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9980	4.1			2	7	
140	GAT6A	6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9980	4.1			2	7	



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140	GAT6A	6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9980	4.1	2	7
141	GAT6B	6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9762	5.6	2	7
141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9762	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9762	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0240	17.9	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0331	17.7	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0331	17.7	0.9281	23.0	2	7
SUBSYSTEM TOTALS				116.0	21.2	74.5	5.5				173.1		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 9:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 CONTINGENCIA MATA DE NANCE- VELADERO IN MW/MVAR

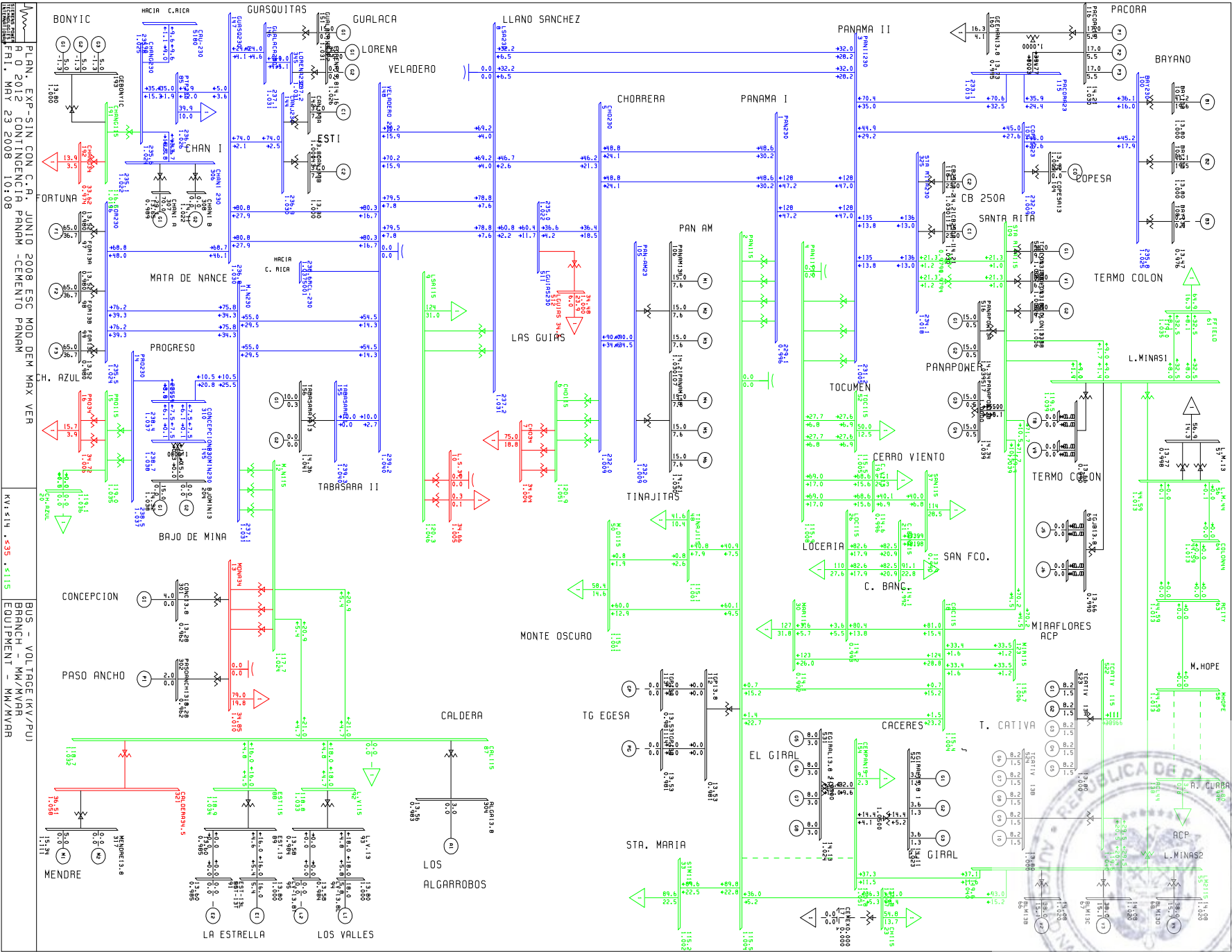
X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C.RICA	254.3	569.4	-237.5	0.0	469.3	30.4	361.3	
6	1325.5	1212.6	0.0	0.0	0.0	51.9	61.1	25.0
PANAMA	256.8	303.9	-183.6	0.0	497.8	59.4	575.0	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	21.2	11.8	0.0	0.0	0.0	-6.4	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.2	8.4	
TOTALS	6590.8	6430.7	0.0	0.0	0.0	0.0	160.1	0.0
	751.2	1962.0	-1032.6	0.0	2047.1	0.0	1868.9	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá- Cemento Panamá**





PRAN. EXP. SIN CON C.R. JUNIO 2008 ESC MOD DEM CH VER
 P.O. 2012 CONTINGENCIA PRANM - CEMENTO PRANM
 F.H.I. MAI 23 2009 10:108

BUS - VOLTAGE (KV/PUI)
 BRANCH - KM/KVAR
 EQUIPMENT - KM/KVAR

KV.5114 .4335 .5115



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0052	231.19	5		CHO230		230.00	6	1.0087	232.00
8		LSA230		230.00	6	1.0315	237.24	11		M.N230		230.00	6	1.0311	237.15
14		PRO230		230.00	6	1.0370	238.50	85		PTP230		230.00	6	1.0264	236.06
96		FOR230		230.00	6	1.0238	235.48	100		BAY230		230.00	6	1.0252	235.80
103		COPESA23		230.00	6	1.0087	232.00	105		PAN-AM23		230.00	6	1.0089	232.04
115		PACORA23		230.00	6	1.0134	233.08	144		CANJ230		230.00	6	1.0298	236.86
145		BJOMIN230		230.00	6	1.0377	238.68	146		GUALACA230		230.00	6	1.0309	237.10
147		GUASQ230		230.00	6	1.0297	236.84	148		VELADERO	230	230.00	6	1.0399	239.19
155		TABASARAI		230.00	6	1.0404	239.29	190		CHANG230		230.00	6	1.0241	235.55
306		CHAN1 230		230.00	6	1.0222	235.11	310		CONCEPCION23	230	230.00	6	1.0365	238.40
325		STA RITA230		230.00	6	1.0176	234.06	345		LORENA230		230.00	6	1.0313	237.20
511		LGUIAS230		230.00	6	1.0219	235.04	6000		FRONTER		230.00	6	1.0373	238.59

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9959	229.06								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0042	115.48	4		PANII115		115.00	6	1.0080	115.92
6		CHO115		115.00	6	1.0512	120.88	9		LSA115		115.00	6	1.0461	120.30
12		M.N115		115.00	6	1.0236	117.72	15		PRO115		115.00	6	1.0351	119.04
18		CAC115		115.00	6	1.0038	115.44	20		CH.AZUL		115.00	6	1.0359	119.12
23		CH115		115.00	6	1.0065	115.75	33		STM115		115.00	6	1.0019	115.22
48		TINAJ115		115.00	6	1.0011	115.12	50		M.O115		115.00	6	1.0012	115.14
52		TOC115		115.00	6	1.0045	115.52	54		LM115		115.00	6	1.0392	119.51
55		LM2115		115.00	6	1.0401	119.62	61		FFIELD		115.00	9	1.0347	118.99
87		CAL115		115.00	6	1.0321	118.69	88		EST115		115.00	6	1.0336	118.87
92		L.V115		115.00	6	1.0327	118.76	109		STA RITA115		115.00	6	1.0385	119.43
123		MIR115		115.00	7	1.0064	115.74	154		CEMPAN15		115.00	6	1.0507	120.83
191		CHANG115		115.00	6	1.0128	116.47	522		TCATIVÁ	115	115.00	6	1.0399	119.59

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9963	114.57	21		C.BAN115		115.00	6	0.9918	114.05
26		LOC115		115.00	6	0.9931	114.21	30		MAR115		115.00	6	0.9919	114.06
37		SAN115		115.00	6	0.9904	113.90								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



66	BLM13B	13.800	V2	38.0	15.1	25.0	0.0	1.0200	40.1	0.9296	47.0	1	6
67	BLM13C	13.800	V3	38.0	15.1	25.0	0.0	1.0200	40.1	0.9296	47.0	1	6
68	BLM13D	13.800	V4	38.0	15.7	25.0	0.0	1.0200	40.3	0.9243	47.0	1	6
90	EST-13L	13.800	E1	16.0	5.4	12.0	-5.0	1.0000	16.9	0.9472	27.0	1	6
94	LV-13.8L	13.800	L1	18.0	5.8	12.0	-5.0	1.0000	18.9	0.9514	27.0	1	6
97	FOR13A	13.800	F1	65.0	-36.7	50.0	-50.0	0.9800	76.2	0.8707	111.0	1	6
98	FOR13B	13.800	F2	65.0	-36.7	50.0	-50.0	0.9800	76.2	0.8707	111.0	1	6
99	FOR13C	13.800	F3	65.0	-36.7	50.0	-50.0	0.9800	76.2	0.8707	111.0	1	6
101	BAY13A	13.800	B1	41.2	19.6	50.0	-25.0	1.0000	45.6	0.9031	96.0	1	6
102	BAY13B	13.800	B2	40.1	19.5	50.0	-25.0	1.0000	44.6	0.8991	96.0	1	6
106	PANAM13A	13.800	M1	15.0	7.6	9.0	0.0	1.0300	16.3	0.8922	20.7	1	6
106	PANAM13A	13.800	M2	15.0	7.6	9.0	0.0	1.0300	16.3	0.8922	20.7	1	6
106	PANAM13A	13.800	M3	15.0	7.6	9.0	0.0	1.0300	16.3	0.8922	20.7	1	6
107	PANAM13B	13.800	M4	15.0	7.6	9.0	0.0	1.0300	16.3	0.8922	20.7	1	6
107	PANAM13B	13.800	M5	15.0	7.6	9.0	0.0	1.0300	16.3	0.8922	20.7	1	6
107	PANAM13B	13.800	M6	15.0	7.6	9.0	0.0	1.0300	16.3	0.8922	20.7	1	6
116	PACORA13	13.800	P1	17.0	5.5	8.8	0.0	1.0300	17.3	0.9520	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.5	8.8	0.0	1.0300	17.3	0.9520	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.5	8.8	0.0	1.0300	17.3	0.9520	21.7	1	6
117	CB250A-1	13.800	C1	115.0	23.0	75.6	0.0	1.0300	113.9	0.9805	143.5	1	6
118	CB250A-2	13.800	C2	115.0	23.0	75.6	0.0	1.0300	113.9	0.9805	143.5	1	6
142	CANJ13A	13.800	C1	37.0	7.5	29.0	-29.0	1.0000	37.7	0.9803	69.0	1	6
143	CANJ13B	13.800	C2	37.0	7.5	29.0	-29.0	1.0000	37.7	0.9803	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	0.0	10.0	0.0	1.0307	14.6	1.0000	26.7	1	6
156	TABASARAI13	13.800	G1	10.0	0.2	5.7	0.2	1.0407	9.6	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9699	35.3	1	6
193	GEBONYIC	13.800	G2	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9699	35.3	1	6
193	GEBONYIC	13.800	G3	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9699	35.3	1	6
204	BJOMIN13	13.800	G1	15.0	0.0	13.0	0.0	1.0376	14.5	1.0000	28.9	1	6
301	CONC13.8	13.800	G1	4.0	0.0	0.0	0.0	0.9622	4.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	2.0	0.0	0.0	0.0	0.9622	2.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	3.0	0.0	0.0	0.0	0.9829	3.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-29.1	50.0	-50.0	0.9890	76.7	0.9234	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1112	4.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	9.0	-5.0	10.5	-5.0	1.0259	10.0	0.8742	19.9	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0389	14.4	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0389	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0391	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0391	14.4	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0226	3.7	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0226	3.7	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0226	3.7	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0226	3.7	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.2	1.5	6.6	-6.6	1.0000	8.3	0.9843	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0056	37.0	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0056	37.0	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	6.5	18.4	5.8	1.0000	36.6	0.9839	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0236	8.3	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0236	8.3	0.9363	10.9	1	6

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531 EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0236	8.3	0.9363	10.9	1	6
531 EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0236	8.3	0.9363	10.9	1	6
SUBSYSTEM TOTALS			1313.7	130.3	951.6	-356.8				2112.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	23.0	2.4	11.0	0.0	1.0000	23.1	0.9945	29.4			2	7	
129		MIR13D		13.800	G4	37.0	2.3	15.0	0.0	1.0000	37.1	0.9980	44.1			2	7	
140		GAT6A		6.9000	G1	1.7	0.8	2.0	-2.0	1.0000	1.9	0.9083	4.1			2	7	
141		GAT6B		6.9000	G4	3.0	-1.7	3.0	-3.0	1.0000	3.4	0.8748	5.6			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0210	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0301	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0301	17.9	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	24.3	64.5	15.5				152.4					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ IN MW/MVAR

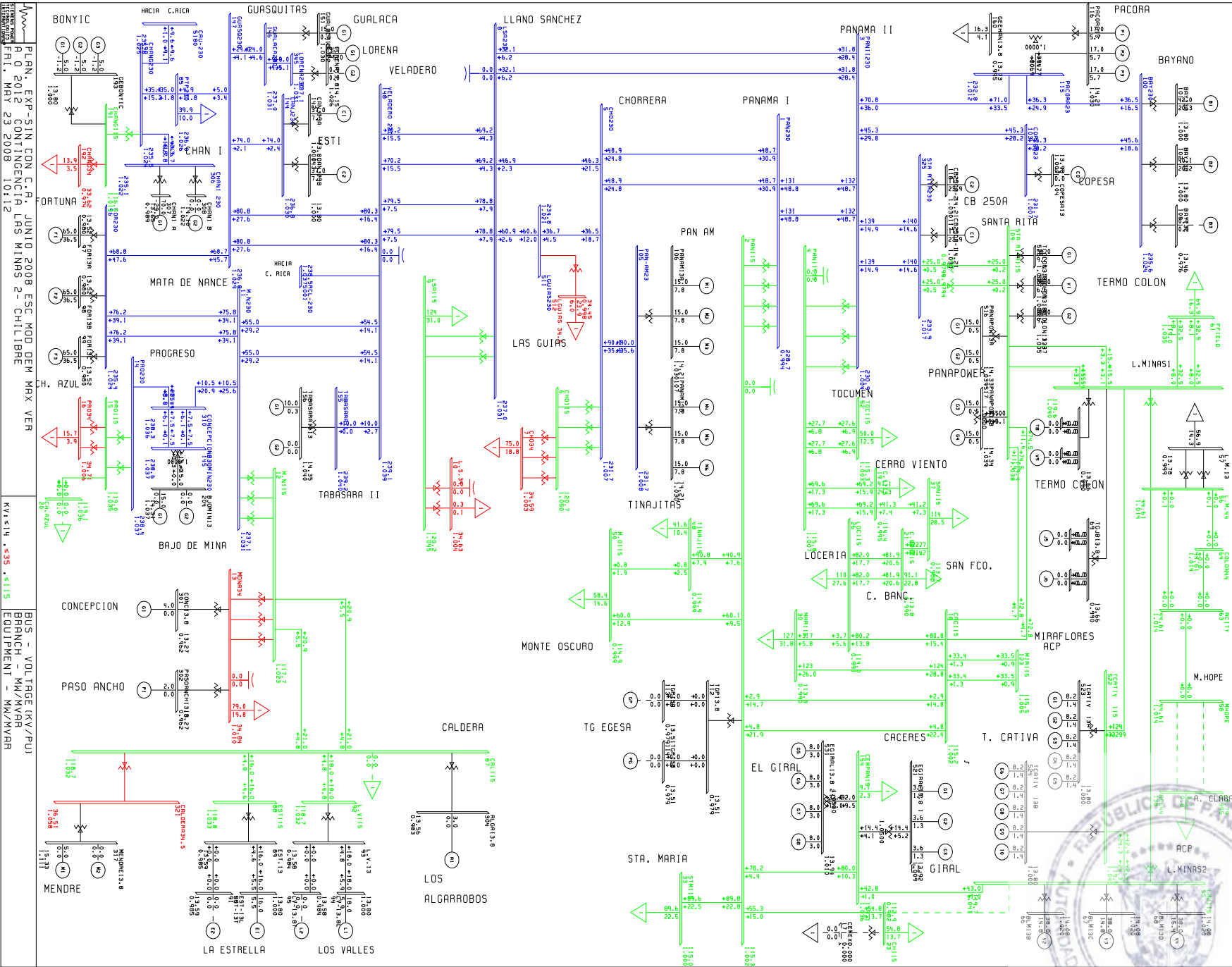
X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.6	19.5	0.0
C.RICA	244.3	569.4	-236.3	0.0	470.9	23.9	358.2	
6	1313.7	1237.1	0.0	0.0	0.0	54.6	22.1	25.0
PANAMA	130.3	310.0	0.0	0.0	527.9	63.9	284.2	
7	116.0	48.0	0.0	0.0	0.0	66.9	1.1	50.0
ACANAL	24.3	12.0	0.0	0.0	0.0	-3.2	15.5	
9	0.0	121.9	0.0	0.0	0.0	-122.0	0.1	-75.0
COLON	0.0	30.5	0.0	0.0	1.1	-38.0	8.6	
TOTALS	6578.9	6458.5	0.0	0.0	0.0	0.0	120.4	0.0
	617.3	1968.9	-847.8	0.0	2078.7	0.0	1574.9	



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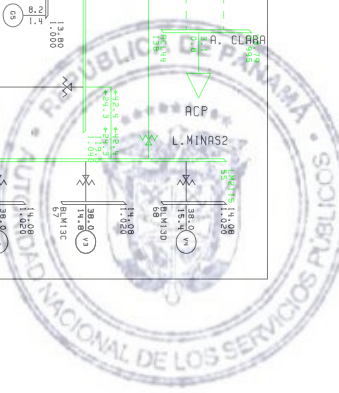
**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 5: Contingencia Las Minas 2- Chilibre**





PLAN EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEN MAX VER
 H 0 2012 CONTINGENCIA LAS MINAS 2 - CHILLIBRE
 FRI. MAY 23 2008 10:12

KV=114.335 kV
 BUS - VOLTAGE (KV/PUI)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3	PANII230	230.00	6	1.0039	230.89	5	CHO230	230.00	6	1.0074	231.69				
8	LSA230	230.00	6	1.0306	237.03	11	M.N230	230.00	6	1.0308	237.08				
14	PRO230	230.00	6	1.0367	238.43	85	PTP230	230.00	6	1.0261	236.00				
96	FOR230	230.00	6	1.0236	235.42	100	BAY230	230.00	6	1.0244	235.60				
103	COPESA23	230.00	6	1.0075	231.71	105	PAN-AM23	230.00	6	1.0075	231.73				
115	PACORA23	230.00	6	1.0123	232.82	144	CANJ230	230.00	6	1.0295	236.79				
145	BJOMIN230	230.00	6	1.0374	238.61	146	GUALACA230	230.00	6	1.0305	237.03				
147	GUASQ230	230.00	6	1.0294	236.76	148	VELADERO	230230.00	6	1.0394	239.06				
155	TABASARAI	230.00	6	1.0398	239.16	190	CHANG230	230.00	6	1.0240	235.52				
306	CHAN1 230	230.00	6	1.0221	235.07	310	CONCEPCION23	230.00	6	1.0362	238.33				
325	STA RITA230	230.00	6	1.0171	233.93	345	LORENA230	230.00	6	1.0310	237.13				
511	LGUIAS230	230.00	6	1.0208	234.79	6000	FRONTER	230.00	6	1.0371	238.52				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9943	228.69										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0022	115.25	4	PANII115	115.00	6	1.0065	115.75				
6	CHO115	115.00	6	1.0498	120.72	9	LSA115	115.00	6	1.0452	120.19				
12	M.N115	115.00	6	1.0234	117.69	15	PRO115	115.00	6	1.0348	119.00				
18	CAC115	115.00	6	1.0018	115.21	20	CH.AZUL	115.00	6	1.0356	119.09				
52	TOC115	115.00	6	1.0030	115.35	54	LM115	115.00	6	1.0396	119.56				
55	LM2115	115.00	6	1.0407	119.68	61	FFIELD	115.00	9	1.0351	119.04				
87	CAL115	115.00	6	1.0319	118.66	88	EST115	115.00	6	1.0334	118.85				
92	L.V115	115.00	6	1.0324	118.73	109	STA RITA115	115.00	6	1.0383	119.41				
123	MIR115	115.00	7	1.0045	115.52	154	CEMPAN15	115.00	6	1.0360	119.14				
191	CHANG115	115.00	6	1.0127	116.46	522	TCATIVÁ	115 115.00	6	1.0404	119.64				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9946	114.38	21	C.BAN115	115.00	6	0.9898	113.82				
23	CH115	115.00	6	0.9820	112.92	26	LOC115	115.00	6	0.9911	113.98				
30	MAR115	115.00	6	0.9899	113.83	33	STM115	115.00	6	0.9999	114.98				
37	SAN115	115.00	6	0.9885	113.68	48	TINAJ115	115.00	6	0.9990	114.89				
50	M.O115	115.00	6	0.9992	114.91										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	14.8	25.0	0.0	1.0200	40.0	0.9317	47.0	1	6
67	BLM13C	13.800	V3	38.0	14.8	25.0	0.0	1.0200	40.0	0.9317	47.0	1	6
68	BLM13D	13.800	V4	38.0	15.4	25.0	0.0	1.0200	40.2	0.9265	47.0	1	6
90	EST-13L	13.800	E1	16.0	5.5	12.0	-5.0	1.0000	16.9	0.9461	27.0	1	6
94	LV-13.8L	13.800	L1	18.0	5.9	12.0	-5.0	1.0000	18.9	0.9504	27.0	1	6
97	FOR13A	13.800	F1	65.0	-36.5	50.0	-50.0	0.9800	76.1	0.8720	111.0	1	6
98	FOR13B	13.800	F2	65.0	-36.5	50.0	-50.0	0.9800	76.1	0.8720	111.0	1	6
99	FOR13C	13.800	F3	65.0	-36.5	50.0	-50.0	0.9800	76.1	0.8720	111.0	1	6
101	BAY13A	13.800	B1	42.0	20.3	50.0	-25.0	1.0000	46.6	0.9005	96.0	1	6
102	BAY13B	13.800	B2	40.1	20.2	50.0	-25.0	1.0000	44.9	0.8934	96.0	1	6
106	PANAM13A	13.800	M1	15.0	7.8	9.0	0.0	1.0300	16.4	0.8876	20.7	1	6
106	PANAM13A	13.800	M2	15.0	7.8	9.0	0.0	1.0300	16.4	0.8876	20.7	1	6
106	PANAM13A	13.800	M3	15.0	7.8	9.0	0.0	1.0300	16.4	0.8876	20.7	1	6
107	PANAM13B	13.800	M4	15.0	7.8	9.0	0.0	1.0300	16.4	0.8876	20.7	1	6
107	PANAM13B	13.800	M5	15.0	7.8	9.0	0.0	1.0300	16.4	0.8876	20.7	1	6
107	PANAM13B	13.800	M6	15.0	7.8	9.0	0.0	1.0300	16.4	0.8876	20.7	1	6
116	PACORA13	13.800	P1	17.0	5.7	8.8	0.0	1.0300	17.4	0.9486	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.7	8.8	0.0	1.0300	17.4	0.9486	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.7	8.8	0.0	1.0300	17.4	0.9486	21.7	1	6
117	CB250A-1	13.800	C1	115.0	23.9	75.6	0.0	1.0300	114.0	0.9791	143.5	1	6
118	CB250A-2	13.800	C2	115.0	23.9	75.6	0.0	1.0300	114.0	0.9791	143.5	1	6
142	CANJ13A	13.800	C1	37.0	7.5	29.0	-29.0	1.0000	37.8	0.9800	69.0	1	6
143	CANJ13B	13.800	C2	37.0	7.5	29.0	-29.0	1.0000	37.8	0.9800	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	0.0	10.0	0.0	1.0304	14.6	1.0000	26.7	1	6
156	TABASARAI13	13.800	G1	10.0	0.2	5.7	0.2	1.0401	9.6	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	5.0	-1.2	4.0	-4.0	1.0000	5.2	0.9704	35.3	1	6
193	GEBONYIC	13.800	G2	5.0	-1.2	4.0	-4.0	1.0000	5.2	0.9704	35.3	1	6
193	GEBONYIC	13.800	G3	5.0	-1.2	4.0	-4.0	1.0000	5.2	0.9704	35.3	1	6
204	BJOMIN13	13.800	G1	15.0	0.0	13.0	0.0	1.0372	14.5	1.0000	28.9	1	6
301	CONC13.8	13.800	G1	4.0	0.0	0.0	0.0	0.9619	4.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	2.0	0.0	0.0	0.0	0.9619	2.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	3.0	0.0	0.0	0.0	0.9827	3.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-29.0	50.0	-50.0	0.9890	76.6	0.9240	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1110	4.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	9.0	-5.0	10.5	-5.0	1.0256	10.0	0.8742	19.9	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0387	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0387	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0389	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0389	14.4	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0088	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0088	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0088	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0088	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9855	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0054	37.0	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0054	37.0	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	6.6	18.4	5.8	1.0000	36.6	0.9834	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0098	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0098	8.5	0.9363	10.9	1	6

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531 EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0098	8.5	0.9363	10.9	1	6
531 EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0098	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS			1314.5	134.9	951.6	-356.8				2112.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	23.0	2.7	11.0	0.0	1.0000	23.2	0.9934	29.4			2	7	
129		MIR13D		13.800	G4	37.0	2.7	15.0	0.0	1.0000	37.1	0.9973	44.1			2	7	
140		GAT6A		6.9000	G1	1.7	0.8	2.0	-2.0	1.0000	1.9	0.8972	4.1			2	7	
141		GAT6B		6.9000	G4	3.0	-1.6	3.0	-3.0	1.0000	3.4	0.8815	5.6			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0200	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0291	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0291	17.9	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	25.1	64.5	15.5				152.4					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 CONTINGENCIA LAS MINAS 2- CHILIBRE IN MW/MVAR

X-- AREA	--X GENERATION	FROM TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1		1347.4	1312.2	0.0	0.0	0.0	35.2	0.0
GUATEMAL		29.8	349.5	-266.2	0.0	412.9	17.9	341.4
2		911.8	902.0	0.0	0.0	0.0	9.8	0.0
SALVADOR		100.8	182.3	-58.1	0.0	219.9	38.3	158.1
3		1006.8	985.5	0.0	0.0	0.0	21.4	0.0
HONDURAS		55.6	290.6	-188.3	0.0	302.9	-5.3	261.6
4		538.2	527.1	0.0	0.0	0.0	11.1	0.0
NICA		32.3	224.5	-98.9	0.0	143.3	-97.4	147.3
5		1344.9	1324.8	0.0	0.0	0.0	19.5	0.0
C.RICA		244.7	569.4	-236.3	0.0	470.8	24.2	358.2
6		1314.5	1237.1	0.0	0.0	0.0	54.6	22.8
PANAMA		134.9	310.0	0.0	0.0	527.5	62.8	289.6
7		116.0	48.0	0.0	0.0	0.0	66.8	1.1
ACANAL		25.1	12.0	0.0	0.0	0.0	-2.5	15.6
9		0.0	121.9	0.0	0.0	0.0	-122.0	0.1
COLON		0.0	30.5	0.0	0.0	1.1	-38.0	8.6
TOTALS		6579.7	6458.5	0.0	0.0	0.0	0.0	121.2
		623.1	1968.9	-847.7	0.0	2078.3	0.0	1580.3

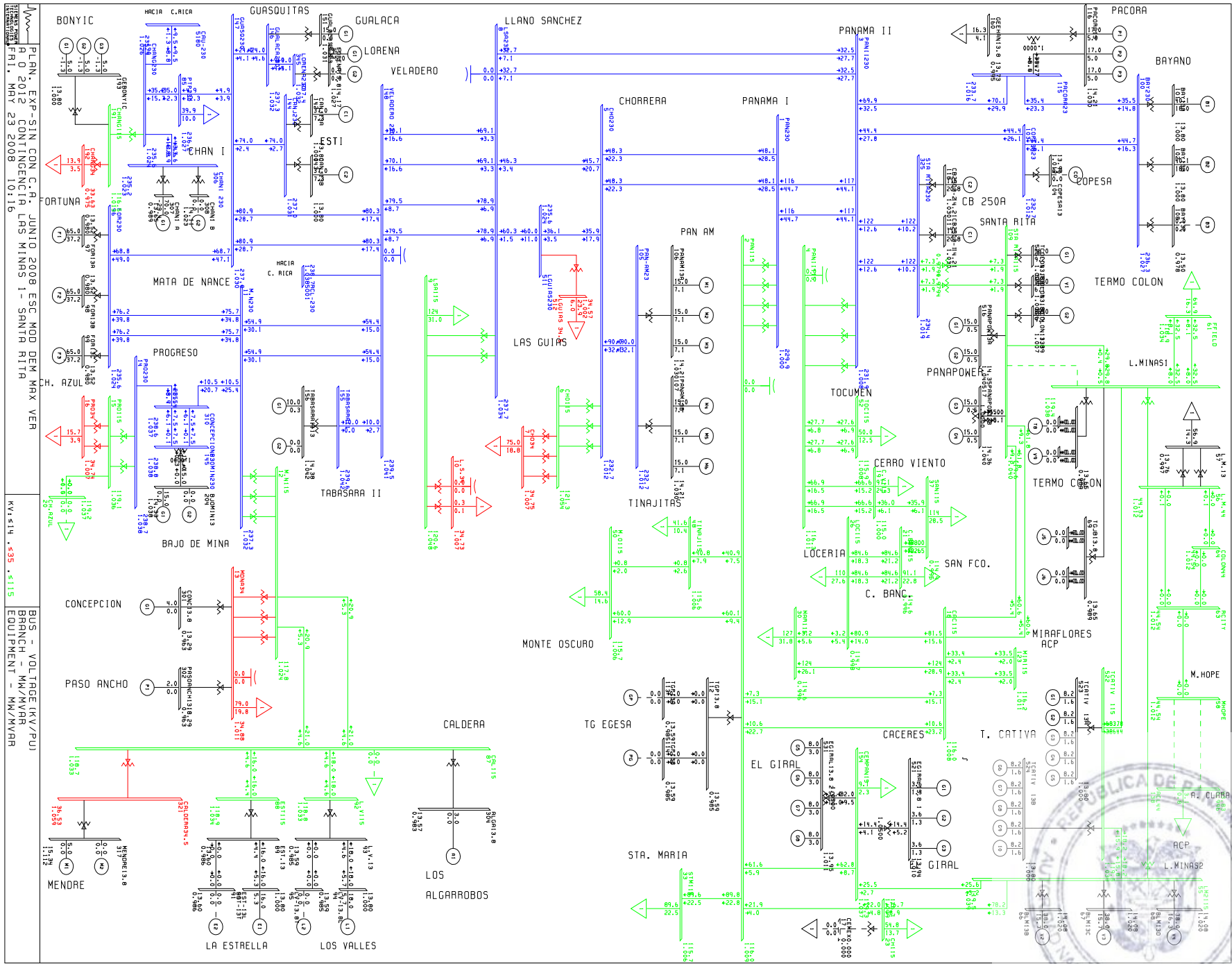


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1- Santa Rita**



de



PLAN - EXP-SIN CON C.A.R JUNIO 2008 ESC MOD DEM MAX VER
 P.A.O 2012 CONTINGENCIA LRS MINAS 1 - SANTRA RITA
 FRI, MAY 23 2008 10:116

KV: 114 .435 .4115
 BUS - VOLTAGE (KV/PV)
 BRNCH - MW/VVVR
 EQUIPMENT - MW/VVVR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0083	231.90	5		CHO230		230.00	6	1.0118	232.71
8		LSA230		230.00	6	1.0336	237.72	11		M.N230		230.00	6	1.0318	237.32
14		PRO230		230.00	6	1.0376	238.66	85		PTP230		230.00	6	1.0270	236.20
96		FOR230		230.00	6	1.0244	235.61	100		BAY230		230.00	6	1.0272	236.26
103		COPESA23		230.00	6	1.0116	232.67	105		PAN-AM23		230.00	6	1.0119	232.74
115		PACORA23		230.00	6	1.0160	233.67	144		CANJ230		230.00	6	1.0306	237.03
145		BJOMIN230		230.00	6	1.0385	238.85	146		GUALACA230		230.00	6	1.0316	237.26
147		GUASQ230		230.00	6	1.0305	237.00	148		VELADERO 230		230.00	6	1.0412	239.48
155		TABASARAI		230.00	6	1.0417	239.58	190		CHANG230		230.00	6	1.0245	235.63
306		CHAN1 230		230.00	6	1.0225	235.19	310		CONCEPCION23		230.00	6	1.0372	238.56
325		STA RITA230		230.00	6	1.0191	234.39	345		LORENA230		230.00	6	1.0320	237.37
511		LGUIAS230		230.00	6	1.0244	235.62	6000		FRONTER		230.00	6	1.0380	238.74

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9996	229.92								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0087	116.00	4		PANII115		115.00	6	1.0113	116.30
6		CHO115		115.00	6	1.0545	121.26	9		LSA115		115.00	6	1.0483	120.55
12		M.N115		115.00	6	1.0243	117.79	15		PRO115		115.00	6	1.0358	119.12
18		CAC115		115.00	6	1.0083	115.95	19		C.V115		115.00	6	1.0000	115.00
20		CH.AZUL		115.00	6	1.0365	119.20	23		CH115		115.00	6	1.0093	116.06
33		STM115		115.00	6	1.0064	115.74	48		TINAJ115		115.00	6	1.0056	115.64
50		M.O115		115.00	6	1.0058	115.66	52		TOC115		115.00	6	1.0078	115.90
54		LM115		115.00	6	1.0383	119.40	55		LM2115		115.00	6	1.0387	119.45
61		FFIELD		115.00	9	1.0338	118.88	87		CAL115		115.00	6	1.0326	118.74
88		EST115		115.00	6	1.0341	118.92	92		L.V115		115.00	6	1.0331	118.81
109		STA RITA115		115.00	6	1.0396	119.55	123		MIR115		115.00	7	1.0106	116.22
154		CEMPAN15		115.00	6	1.0371	119.27	191		CHANG115		115.00	6	1.0130	116.50
522		TCATIVÁ 115		115.00	6	1.0387	119.45								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21		C.BAN115		115.00	6	0.9962	114.56	26		LOC115		115.00	6	0.9976	114.72
30		MAR115		115.00	6	0.9963	114.58	37		SAN115		115.00	6	0.9948	114.40

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	15.7	25.0	0.0	1.0200	40.3	0.9243	47.0	1	6
67	BLM13C	13.800	V3	38.0	15.7	25.0	0.0	1.0200	40.3	0.9243	47.0	1	6
68	BLM13D	13.800	V4	38.0	16.3	25.0	0.0	1.0200	40.6	0.9186	47.0	1	6
90	EST-13L	13.800	E1	16.0	5.3	12.0	-5.0	1.0000	16.8	0.9498	27.0	1	6
94	LV-13.8L	13.800	L1	18.0	5.7	12.0	-5.0	1.0000	18.9	0.9537	27.0	1	6
97	FOR13A	13.800	F1	65.0	-37.2	50.0	-50.0	0.9800	76.4	0.8677	111.0	1	6
98	FOR13B	13.800	F2	65.0	-37.2	50.0	-50.0	0.9800	76.4	0.8677	111.0	1	6
99	FOR13C	13.800	F3	65.0	-37.2	50.0	-50.0	0.9800	76.4	0.8677	111.0	1	6
101	BAY13A	13.800	B1	40.1	18.0	50.0	-25.0	1.0000	43.9	0.9120	96.0	1	6
102	BAY13B	13.800	B2	40.1	18.0	50.0	-25.0	1.0000	44.0	0.9121	96.0	1	6
106	PANAM13A	13.800	M1	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
106	PANAM13A	13.800	M2	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
106	PANAM13A	13.800	M3	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
107	PANAM13B	13.800	M4	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
107	PANAM13B	13.800	M5	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
107	PANAM13B	13.800	M6	15.0	7.1	9.0	0.0	1.0300	16.1	0.9028	20.7	1	6
116	PACORA13	13.800	P1	17.0	5.0	8.8	0.0	1.0300	17.2	0.9596	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.0	8.8	0.0	1.0300	17.2	0.9596	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.0	8.8	0.0	1.0300	17.2	0.9596	21.7	1	6
117	CB250A-1	13.800	C1	115.0	20.8	75.6	0.0	1.0300	113.5	0.9840	143.5	1	6
118	CB250A-2	13.800	C2	115.0	20.8	75.6	0.0	1.0300	113.5	0.9840	143.5	1	6
142	CANJ13A	13.800	C1	37.0	7.3	29.0	-29.0	1.0000	37.7	0.9808	69.0	1	6
143	CANJ13B	13.800	C2	37.0	7.3	29.0	-29.0	1.0000	37.7	0.9808	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	0.0	10.0	0.0	1.0315	14.5	1.0000	26.7	1	6
156	TABASARAI13	13.800	G1	10.0	0.2	5.7	0.2	1.0420	9.6	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9687	35.3	1	6
193	GEBONYIC	13.800	G2	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9687	35.3	1	6
193	GEBONYIC	13.800	G3	5.0	-1.3	4.0	-4.0	1.0000	5.2	0.9687	35.3	1	6
204	BJOMIN13	13.800	G1	15.0	0.0	13.0	0.0	1.0383	14.4	1.0000	28.9	1	6
301	CONC13.8	13.800	G1	4.0	0.0	0.0	0.0	0.9628	4.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	2.0	0.0	0.0	0.0	0.9628	2.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	3.0	0.0	0.0	0.0	0.9834	3.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-29.4	50.0	-50.0	0.9890	76.8	0.9218	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1118	4.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	9.0	-5.0	10.5	-5.0	1.0267	10.0	0.8742	19.9	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0400	14.4	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0400	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0402	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0402	14.4	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0099	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0099	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0099	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0099	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.2	1.6	6.6	-6.6	1.0000	8.4	0.9813	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0066	36.9	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0066	36.9	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	6.1	18.4	5.8	1.0000	36.5	0.9862	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0109	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0109	8.5	0.9363	10.9	1	6

SYST



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531 EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0109	8.5	0.9363	10.9	1	6
531 EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0109	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS			1312.6	118.9	951.6	-356.8				2112.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	23.0	1.9	11.0	0.0	1.0000	23.1	0.9967	29.4			2	7	
129		MIR13D		13.800	G4	37.0	1.5	15.0	0.0	1.0000	37.0	0.9992	44.1			2	7	
140		GAT6A		6.9000	G1	1.7	0.7	2.0	-2.0	1.0000	1.8	0.9317	4.1			2	7	
141		GAT6B		6.9000	G4	3.0	-1.8	3.0	-3.0	1.0000	3.5	0.8596	5.6			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0230	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	22.7	64.5	15.5				152.4					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 CONTINGENCIA LAS MINAS 1- SANTA RITA IN MW/MVAR

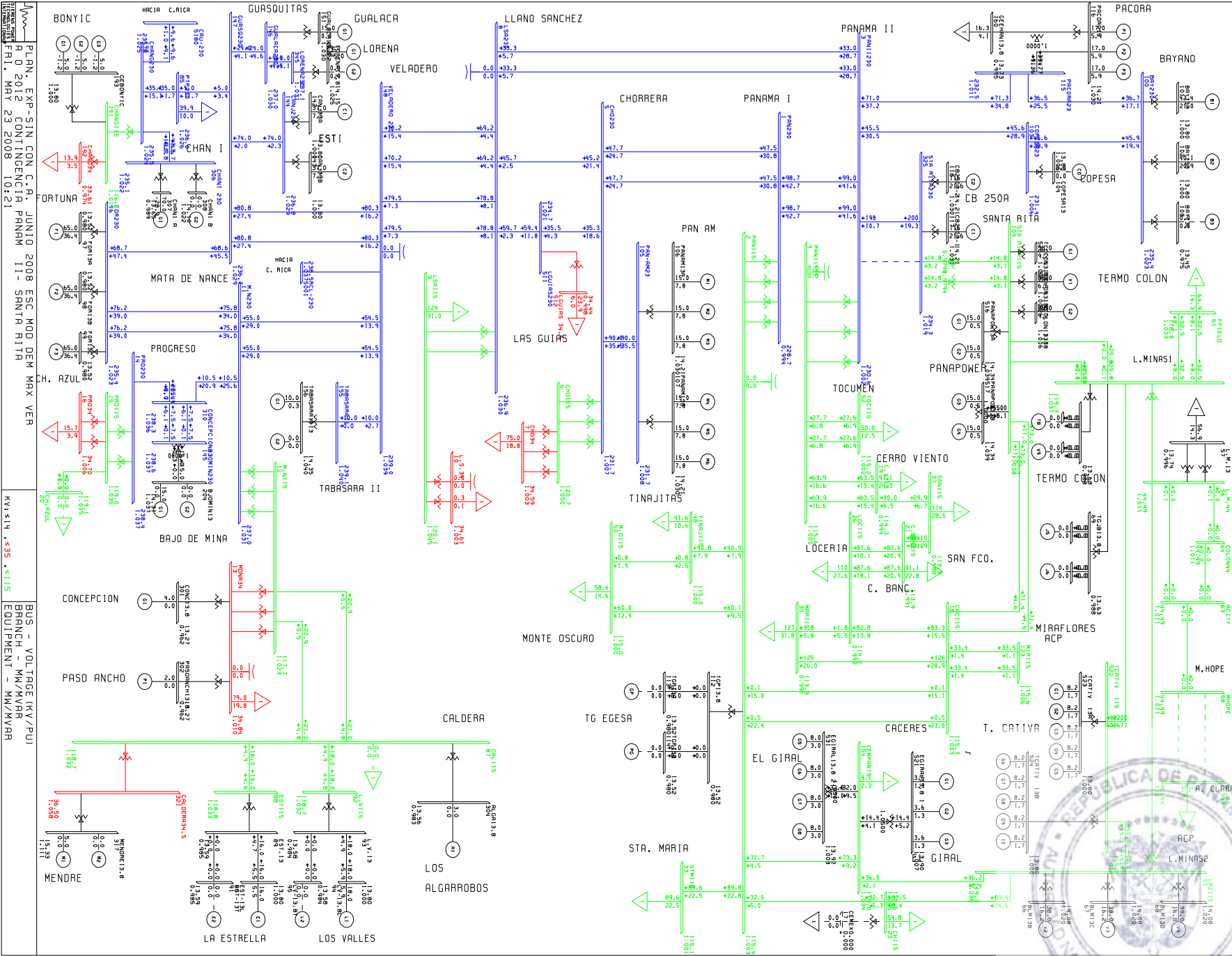
X-- AREA	--X GENERATION	FROM TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1		1347.4	1312.2	0.0	0.0	0.0	35.2	0.0
GUATEMAL		29.8	349.5	-266.2	0.0	412.9	17.9	341.4
2		911.8	902.0	0.0	0.0	0.0	9.8	0.0
SALVADOR		100.8	182.3	-58.1	0.0	219.9	38.3	158.1
3		1006.8	985.5	0.0	0.0	0.0	21.4	0.0
HONDURAS		55.6	290.6	-188.3	0.0	302.9	-5.3	261.6
4		538.2	527.1	0.0	0.0	0.0	11.1	0.0
NICA		32.3	224.5	-98.9	0.0	143.3	-97.4	147.3
5		1344.9	1324.8	0.0	0.0	0.0	19.5	0.0
C.RICA		243.3	569.4	-236.3	0.0	471.0	23.1	358.1
6		1312.6	1237.1	0.0	0.0	0.0	20.9	25.0
PANAMA		118.9	310.0	0.0	0.0	531.5	66.2	274.2
7		116.0	48.0	0.0	0.0	0.0	1.1	50.0
ACANAL		22.7	12.0	0.0	0.0	0.0	-4.8	15.5
9		0.0	121.9	0.0	0.0	0.0	0.1	-75.0
COLON		0.0	30.5	0.0	0.0	1.1	-38.0	8.6
TOTALS		6577.8	6458.5	0.0	0.0	0.0	119.3	0.0
		603.4	1968.9	-847.8	0.0	2082.5	0.0	1564.8



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 7: Contingencia Panamá II- Santa Rita**





PLRN. EXP-SIN CON C.A.P. JUNIO 2008 ESC MOD DEM MAX VER
 P.O 2012 CONTINGENCIA PANAM II - SANTA RITA
 MAY 23 2008 10:21

KV: 214 . * 35 . 2115

BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ II- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0024	230.55	5		CHO230		230.00	6	1.0074	231.71
8		LSA230		230.00	6	1.0301	236.93	11		M.N230		230.00	6	1.0306	237.04
14		PRO230		230.00	6	1.0365	238.40	85		FTP230		230.00	6	1.0260	235.97
96		FOR230		230.00	6	1.0234	235.39	100		BAY230		230.00	6	1.0234	235.37
103		COPESA23		230.00	6	1.0060	231.39	105		PAN-AM23		230.00	6	1.0076	231.75
115		PACORA23		230.00	6	1.0110	232.53	144		CANJ230		230.00	6	1.0294	236.76
145		BJOMIN230		230.00	6	1.0373	238.58	146		GUALACA230		230.00	6	1.0304	236.99
147		GUASQ230		230.00	6	1.0293	236.73	148		VELADERO	230230.00	6	1.0391	239.00	
155		TABASARAI		230.00	6	1.0396	239.10	190		CHANG230		230.00	6	1.0239	235.50
306		CHAN1 230		230.00	6	1.0220	235.06	310		CONCEPCION23	230.00	6	1.0361	238.30	
325		STA RITA230		230.00	6	1.0186	234.28	345		LORENA230		230.00	6	1.0308	237.09
511		LGUIAS230		230.00	6	1.0206	234.74	6000		FRONTER		230.00	6	1.0369	238.49

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9945	228.73								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ II- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0033	115.38	4		PANII115		115.00	6	1.0053	115.61
6		CHO115		115.00	6	1.0498	120.73	9		LSA115		115.00	6	1.0447	120.14
12		M.N115		115.00	6	1.0232	117.67	15		PRO115		115.00	6	1.0347	118.99
18		CAC115		115.00	6	1.0029	115.33	20		CH.AZUL		115.00	6	1.0354	119.07
23		CH115		115.00	6	1.0051	115.59	33		STM115		115.00	6	1.0010	115.11
48		TINAJ115		115.00	6	1.0001	115.02	50		M.O115		115.00	6	1.0003	115.03
52		TOC115		115.00	6	1.0018	115.21	54		LM1115		115.00	6	1.0374	119.30
55		LM2115		115.00	6	1.0376	119.33	61		FFIELD		115.00	9	1.0329	118.78
87		CAL115		115.00	6	1.0318	118.65	88		EST115		115.00	6	1.0333	118.83
92		L.V115		115.00	6	1.0323	118.72	109		STA RITA115		115.00	6	1.0385	119.43
123		MIR115		115.00	7	1.0055	115.63	154		CEMPAN15		115.00	6	1.0344	118.95
191		CHANG115		115.00	6	1.0126	116.45	522		TCATIVÁ	115	115.00	6	1.0378	119.34

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9941	114.32	21		C.BAN115		115.00	6	0.9906	113.92
26		LOC115		115.00	6	0.9920	114.08	30		MAR115		115.00	6	0.9908	113.94
37		SAN115		115.00	6	0.9892	113.76								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ II- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	38.0	16.2	25.0	0.0	1.0200	40.5	0.9202	47.0				1	6



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67	BLM13C	13.800	V3	38.0	16.2	25.0	0.0	1.0200	40.5	0.9202	47.0	1	6
68	BLM13D	13.800	V4	38.0	16.8	25.0	0.0	1.0200	40.7	0.9142	47.0	1	6
90	EST-13L	13.800	E1	16.0	5.5	12.0	-5.0	1.0000	16.9	0.9456	27.0	1	6
94	LV-13.8L	13.800	L1	18.0	5.9	12.0	-5.0	1.0000	18.9	0.9499	27.0	1	6
97	FOR13A	13.800	F1	65.0	-36.4	50.0	-50.0	0.9800	76.0	0.8726	111.0	1	6
98	FOR13B	13.800	F2	65.0	-36.4	50.0	-50.0	0.9800	76.0	0.8726	111.0	1	6
99	FOR13C	13.800	F3	65.0	-36.4	50.0	-50.0	0.9800	76.0	0.8726	111.0	1	6
101	BAY13A	13.800	B1	42.4	21.0	50.0	-25.0	1.0000	47.4	0.8961	96.0	1	6
102	BAY13B	13.800	B2	40.1	20.9	50.0	-25.0	1.0000	45.2	0.8868	96.0	1	6
106	PANAM13A	13.800	M1	15.0	7.8	9.0	0.0	1.0300	16.4	0.8878	20.7	1	6
106	PANAM13A	13.800	M2	15.0	7.8	9.0	0.0	1.0300	16.4	0.8878	20.7	1	6
106	PANAM13A	13.800	M3	15.0	7.8	9.0	0.0	1.0300	16.4	0.8878	20.7	1	6
107	PANAM13B	13.800	M4	15.0	7.8	9.0	0.0	1.0300	16.4	0.8878	20.7	1	6
107	PANAM13B	13.800	M5	15.0	7.8	9.0	0.0	1.0300	16.4	0.8878	20.7	1	6
107	PANAM13B	13.800	M6	15.0	7.8	9.0	0.0	1.0300	16.4	0.8878	20.7	1	6
116	PACORA13	13.800	P1	17.0	5.9	8.8	0.0	1.0300	17.5	0.9446	21.7	1	6
116	PACORA13	13.800	P2	17.0	5.9	8.8	0.0	1.0300	17.5	0.9446	21.7	1	6
116	PACORA13	13.800	P3	17.0	5.9	8.8	0.0	1.0300	17.5	0.9446	21.7	1	6
117	CB250A-1	13.800	C1	115.0	21.6	75.6	0.0	1.0300	113.6	0.9829	143.5	1	6
118	CB250A-2	13.800	C2	115.0	21.6	75.6	0.0	1.0300	113.6	0.9829	143.5	1	6
142	CANJ13A	13.800	C1	37.0	7.5	29.0	-29.0	1.0000	37.8	0.9799	69.0	1	6
143	CANJ13B	13.800	C2	37.0	7.5	29.0	-29.0	1.0000	37.8	0.9799	69.0	1	6
151	GUALACA13.8	13.800	G1	15.0	0.0	10.0	0.0	1.0303	14.6	1.0000	26.7	1	6
156	TABASARAI13	13.800	G1	10.0	0.2	5.7	0.2	1.0399	9.6	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	5.0	-1.2	4.0	-4.0	1.0000	5.2	0.9707	35.3	1	6
193	GEBONYIC	13.800	G2	5.0	-1.2	4.0	-4.0	1.0000	5.2	0.9707	35.3	1	6
193	GEBONYIC	13.800	G3	5.0	-1.2	4.0	-4.0	1.0000	5.2	0.9707	35.3	1	6
204	BJOMIN13	13.800	G1	15.0	0.0	13.0	0.0	1.0371	14.5	1.0000	28.9	1	6
301	CONC13.8	13.800	G1	4.0	0.0	0.0	0.0	0.9618	4.2	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	2.0	0.0	0.0	0.0	0.9618	2.1	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	3.0	0.0	0.0	0.0	0.9826	3.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-28.9	50.0	-50.0	0.9890	76.6	0.9243	118.6	1	6
317	MENDRE13.8	13.800	M1	5.0	0.0	4.0	0.0	1.1109	4.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	9.0	-5.0	10.5	-5.0	1.0255	10.0	0.8742	19.9	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0388	14.4	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0388	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0391	14.4	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0391	14.4	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0073	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0073	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0073	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0073	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.2	1.7	6.6	-6.6	1.0000	8.4	0.9786	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0056	37.0	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0056	37.0	0.9688	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	6.6	18.4	5.8	1.0000	36.6	0.9838	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0084	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0084	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0084	8.5	0.9363	10.9	1	6

SYST



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531 EGIRAL13.8 213.800 G8 8.0 3.0 6.4 3.0 1.0084 8.5 0.9363 10.9
 SUBSYSTEM TOTALS 1314.9 140.1 951.6 -356.8 2112.4

1 6

 PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 CONTINGENCIA PANAMÁ II- SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	23.0	2.5	11.0	0.0	1.0000	23.1	0.9940	29.4			2	7	
129		MIR13D		13.800	G4	37.0	2.5	15.0	0.0	1.0000	37.1	0.9977	44.1			2	7	
140		GAT6A		6.9000	G1	1.7	0.8	2.0	-2.0	1.0000	1.9	0.9031	4.1			2	7	
141		GAT6B		6.9000	G4	3.0	-1.6	3.0	-3.0	1.0000	3.4	0.8780	5.6			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0205	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0296	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0296	17.9	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	24.7	64.5	15.5				152.4					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 23 2008 10:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 CONTINGENCIA PANAMÁ II- SANTA RITA IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.6	19.5	0.0
C.RICA	244.9	569.4	-236.2	0.0	470.8	24.4	358.2	
6	1314.9	1237.1	0.0	0.0	0.0	54.6	23.3	25.0
PANAMA	140.1	310.0	0.0	0.0	520.0	63.1	287.0	
7	116.0	48.0	0.0	0.0	0.0	66.8	1.1	50.0
ACANAL	24.7	12.0	0.0	0.0	0.0	-2.9	15.5	
9	0.0	121.9	0.0	0.0	0.0	-122.0	0.1	-75.0
COLON	0.0	30.5	0.0	0.0	1.1	-38.0	8.6	
TOTALS	6580.2	6458.5	0.0	0.0	0.0	0.0	121.7	0.0
	628.1	1968.9	-847.7	0.0	2070.8	0.0	1577.7	



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AÑO 2012

Caso 3: REGMHTTLA8



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 15:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230	230.00	6	1.0268	236.17	14	PRO230	230.00	6	1.0289	236.66			
85	PTP	230	230.00	6	1.0264	236.07	96	FOR230	230.00	6	1.0297	236.83			
100	BAY	230	230.00	6	1.0254	235.84	115	PACORA23	230.00	6	1.0011	230.25			
144	CANJ	230	230.00	6	1.0258	235.92	145	BJOMIN230	230.00	6	1.0306	237.04			
146	GUALACA	230	230.00	6	1.0270	236.22	147	GUASQ230	230.00	6	1.0255	235.87			
148	VELADERO	230	230.00	6	1.0126	232.89	155	TABASARAI	230.00	6	1.0138	233.16			
190	CHANG	230	230.00	6	1.0344	237.91	306	CHAN1 230	230.00	6	1.0367	238.43			
310	CONCEPCION	230	230.00	6	1.0299	236.87	325	STA RITA230	230.00	6	1.0044	231.01			
345	LORENA	230	230.00	6	1.0278	236.40	6000	FRONTER	230.00	6	1.0288	236.64			

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230	230.00	6	0.9809	225.61	3	PANII230	230.00	6	0.9924	228.25			
5	CHO	230	230.00	6	0.9793	225.25	8	LSA230	230.00	6	0.9902	227.75			
103	COPESA	230	230.00	6	0.9978	229.50	105	PAN-AM23	230.00	6	0.9794	225.27			
511	LGUIAS	230	230.00	6	0.9812	225.68									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 15:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115	115.00	6	1.0077	115.88	4	PANII115	115.00	6	1.0069	115.79			
6	CHO	115	115.00	6	1.0202	117.33	9	LSA115	115.00	6	1.0041	115.47			
12	M.	N115	115.00	6	1.0214	117.46	15	PRO115	115.00	6	1.0271	118.12			
18	CAC	115	115.00	6	1.0072	115.83	20	CH.AZUL	115.00	6	1.0279	118.21			
23	CH	115	115.00	6	1.0056	115.64	33	STM115	115.00	6	1.0054	115.62			
48	TINAJ	115	115.00	6	1.0046	115.53	50	M.O115	115.00	6	1.0048	115.55			
52	TOC	115	115.00	6	1.0035	115.40	54	LM115	115.00	6	1.0283	118.25			
55	LM2	115	115.00	6	1.0286	118.29	61	FFIELD	115.00	9	1.0238	117.74			
87	CAL	115	115.00	6	1.0388	119.46	88	EST115	115.00	6	1.0423	119.87			
92	L.V	115	115.00	6	1.0402	119.62	109	STA RITA115	115.00	6	1.0308	118.54			
123	MIR	115	115.00	7	1.0095	116.09	154	CEMPAN15	115.00	6	1.0214	117.46			
191	CHANG	115	115.00	6	1.0259	117.97	522	TCATIVÁ	115	115.00	6	1.0284	118.27		

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115	115.00	6	0.9966	114.61	21	C.BAN	115	115.00	6	0.9949	114.42		
26	LOC	115	115.00	6	0.9964	114.59	30	MAR	115	115.00	6	0.9954	114.47		
37	SAN	115	115.00	6	0.9934	114.24									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 15:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	35.0	19.9	25.0	0.0	1.0200	39.5	0.8696	47.0			1	6		
67		BLM13C		13.800	V3	35.0	19.9	25.0	0.0	1.0200	39.5	0.8696	47.0			1	6		
68		BLM13D		13.800	V4	35.0	20.8	25.0	0.0	1.0200	39.9	0.8600	47.0			1	6		
90		EST-13L		13.800	E1	22.0	6.1	12.0	-5.0	1.0100	22.6	0.9633	27.0			1	6		
91		EST-13T		13.800	E2	22.0	6.1	12.0	-5.0	1.0100	22.6	0.9633	27.0			1	6		
94		LV-13.8L		13.800	L1	24.0	6.9	12.0	-5.0	1.0100	24.7	0.9609	27.0			1	6		
95		LV-13.8T		13.800	L2	24.0	6.9	12.0	-5.0	1.0100	24.7	0.9609	27.0			1	6		
97		FOR13A		13.800	F1	92.0	4.7	50.0	-50.0	1.0300	89.4	0.9987	111.0			1	6		
98		FOR13B		13.800	F2	92.0	4.7	50.0	-50.0	1.0300	89.4	0.9987	111.0			1	6		
99		FOR13C		13.800	F3	92.0	4.7	50.0	-50.0	1.0300	89.4	0.9987	111.0			1	6		
101		BAY13A		13.800	B1	52.6	28.2	50.0	-25.0	1.0100	59.1	0.8813	96.0			1	6	SYST	
102		BAY13B		13.800	B2	51.5	28.1	50.0	-25.0	1.0100	58.1	0.8775	96.0			1	6		
106		PANAM13A		13.800	M1	15.1	9.0	9.0	0.0	0.9946	17.7	0.8590	20.7			1	6		
106		PANAM13A		13.800	M2	15.1	9.0	9.0	0.0	0.9946	17.7	0.8590	20.7			1	6		
108		BAY13C		13.800	B3	51.5	28.1	50.0	-25.0	1.0100	58.1	0.8775	100.0			1	6		
117		CB250A-1		13.800	C1	90.0	41.5	75.6	0.0	1.0300	96.2	0.9082	143.5			1	6		
118		CB250A-2		13.800	C2	90.0	41.5	75.6	0.0	1.0300	96.2	0.9082	143.5			1	6		
142		CANJ13A		13.800	C1	51.0	17.0	29.0	-29.0	1.0300	52.2	0.9484	69.0			1	6		
143		CANJ13B		13.800	C2	51.0	17.0	29.0	-29.0	1.0300	52.2	0.9484	69.0			1	6		
151		GUALACA13.8		13.800	G1	21.0	-6.4	10.0	-10.0	1.0200	21.5	0.9571	26.7			1	6		
156		TABASARAI13		13.800	G1	14.0	1.9	5.7	0.2	1.0200	13.8	0.9914	20.5			1	6		
156		TABASARAI13		13.800	G2	14.0	1.9	5.7	0.2	1.0200	13.8	0.9914	20.5			1	6		
193		GEBONYIC		13.800	G1	7.0	-0.4	4.0	-4.0	1.0200	6.9	0.9982	35.3			1	6		
193		GEBONYIC		13.800	G2	7.0	-0.4	4.0	-4.0	1.0200	6.9	0.9982	35.3			1	6		
193		GEBONYIC		13.800	G3	7.0	-0.4	4.0	-4.0	1.0200	6.9	0.9982	35.3			1	6		
204		BJOMIN13		13.800	G1	22.0	-3.2	13.0	-13.0	1.0200	21.8	0.9894	28.9			1	6		
204		BJOMIN13		13.800	G2	22.0	-3.2	13.0	-13.0	1.0200	21.8	0.9894	28.9			1	6		
301		CONC13.8		13.800	G1	9.5	0.0	0.0	-5.0	0.9610	9.9	1.0000	13.5			1	6		
302		PASOANCH13.8		13.800	P1	4.4	0.0	0.0	-2.0	0.9611	4.6	1.0000	6.2			1	6		
304		ALGA13.8		13.800	A1	8.0	0.0	0.0	0.0	0.9893	8.1	1.0000	13.5			1	6		
307		CHAN1 A		13.800	G1	100.0	-1.7	50.0	-50.0	1.0300	97.1	0.9998	118.6			1	6		
308		CHAN1 B		13.800	G2	100.0	-1.7	50.0	-50.0	1.0300	97.1	0.9998	118.6			1	6		
317		MENDRE13.8		13.800	M1	8.0	0.0	0.0	0.0	1.1164	7.2	1.0000	35.3			1	6		
317		MENDRE13.8		13.800	M2	8.0	0.0	0.0	0.0	1.1164	7.2	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	14.0	-5.0	10.5	-5.0	1.0224	14.5	0.9417	19.9			1	6		
518		SANTA FE 13		13.800	E1	19.0	1.0	1.0	-1.0	0.9566	19.9	0.9986	100.0			1	6		
SUBSYSTEM TOTALS						1325.6	302.3	821.0	-463.5				2032.8						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 15:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.9	11.0	0.0	1.0000	12.9	0.9736	29.4			2	7	
129		MIR13D		13.800	G4	35.0	2.1	15.0	0.0	1.0000	35.1	0.9982	44.1			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9991	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9991	4.1			2	7	
140		GAT6A		6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9991	4.1			2	7	
141		GAT6B		6.9000	G4	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9783	5.6			2	7	



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141 GAT6B	6.9000	G5	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9783	6.2	2	7
141 GAT6B	6.9000	G6	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9783	6.2	2	7
170 MIR13G	13.8000	M1	17.0	6.8	11.2	6.8	1.0220	17.9	0.9281	23.0	2	7
171 MIR13H	13.8000	M1	17.0	6.8	11.2	6.8	1.0311	17.8	0.9281	23.0	2	7
171 MIR13H	13.8000	M2	17.0	6.8	11.2	6.8	1.0311	17.8	0.9281	23.0	2	7
SUBSYSTEM TOTALS			116.0	22.8	74.5	5.5				173.1		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 15:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 REGMHTTLA8 IN MW/MVAR

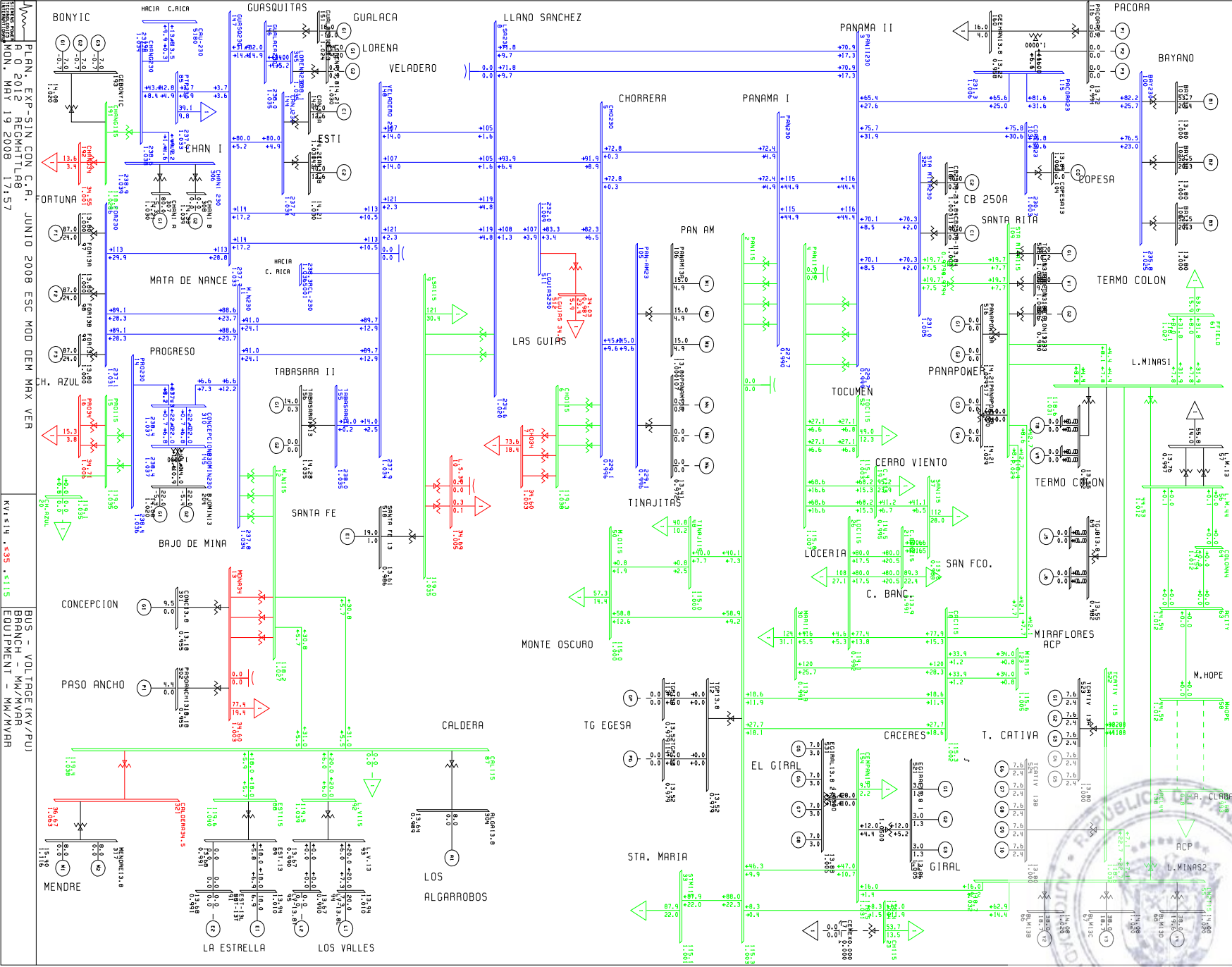
X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C.RICA	248.3	569.4	-237.5	0.0	469.9	25.1	361.2	
6	1325.6	1212.6	0.0	0.0	0.0	51.9	61.1	25.0
PANAMA	302.3	303.9	-121.8	0.0	511.8	63.3	568.6	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	22.8	11.8	0.0	0.0	0.0	-4.9	15.9	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.3	8.4	
TOTALS	6590.8	6430.7	0.0	0.0	0.0	0.0	160.1	0.0
	792.1	1962.0	-970.7	0.0	2061.6	0.0	1862.5	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**

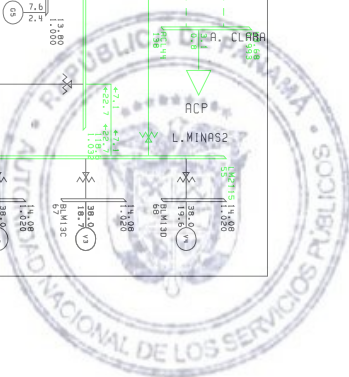




PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MEX VER
 R 0 2012 REGHITL18
 SISTEMA DE TRANSMISION MON. MAY 19 2008 17:57

BUS - VOLTAJE (KV/PV)
 BRANCH - MW/MVA
 EQUIPMENT - MW/MVA

KV 114 *35 *115



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0201	234.63	11	M.N230	230.00	6	1.0337	237.75				
14	PRO230	230.00	6	1.0364	238.38	85	PTP230	230.00	6	1.0334	237.68				
96	FOR230	230.00	6	1.0308	237.09	100	BAY230	230.00	6	1.0252	235.79				
103	COPESA23	230.00	6	1.0032	230.73	115	PACORA23	230.00	6	1.0056	231.28				
144	CANJ230	230.00	6	1.0337	237.74	145	BJOMIN230	230.00	6	1.0366	238.43				
146	GUALACA230	230.00	6	1.0346	237.97	147	GUASQ230	230.00	6	1.0334	237.68				
148	VELADERO 230	230.00	6	1.0345	237.93	155	TABASARAI	230.00	6	1.0350	238.05				
190	CHANG230	230.00	6	1.0375	238.63	306	CHAN1 230	230.00	6	1.0385	238.86				
310	CONCEPCION23	230.00	6	1.0365	238.40	325	STA RITA230	230.00	6	1.0045	231.04				
345	LORENA230	230.00	6	1.0354	238.15	511	LGUIAS230	230.00	6	1.0087	232.00				
6000	FRONTIER	230.00	6	1.0366	238.43										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9901	227.72	3	PANII230	230.00	6	0.9988	229.72				
5	CHO230	230.00	6	0.9959	229.05	105	PAN-AM23	230.00	6	0.9959	229.07				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0029	115.34	4	PANII115	115.00	6	1.0068	115.79				
6	CHO115	115.00	6	1.0378	119.35	9	LSA115	115.00	6	1.0351	119.04				
12	M.N115	115.00	6	1.0275	118.16	15	PRO115	115.00	6	1.0347	118.99				
18	CAC115	115.00	6	1.0025	115.29	20	CH.AZUL	115.00	6	1.0354	119.07				
23	CH115	115.00	6	1.0036	115.42	33	STM115	115.00	6	1.0006	115.07				
50	M.O115	115.00	6	1.0000	115.00	52	TOC115	115.00	6	1.0034	115.40				
54	LM115	115.00	6	1.0310	118.56	55	LM2115	115.00	6	1.0317	118.65				
61	FFIELD	115.00	9	1.0265	118.05	87	CAL115	115.00	6	1.0381	119.38				
88	EST115	115.00	6	1.0400	119.60	92	L.V115	115.00	6	1.0388	119.46				
109	STA RITA115	115.00	6	1.0295	118.39	123	MIR115	115.00	7	1.0053	115.60				
154	CEMPAN15	115.00	6	1.0307	118.53	191	CHANG115	115.00	6	1.0280	118.22				
522	TCATIVÁ	115 115.00	6	1.0316	118.63										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9953	114.46	21	C.BAN115	115.00	6	0.9907	113.93				
26	LOC115	115.00	6	0.9921	114.09	30	MAR115	115.00	6	0.9908	113.94				
37	SAN115	115.00	6	0.9895	113.79	48	TINAJ115	115.00	6	0.9999	114.98				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	18.7	25.0	0.0	1.0200	41.5	0.8968	47.0	1	6
67	BLM13C	13.800	V3	38.0	18.7	25.0	0.0	1.0200	41.5	0.8968	47.0	1	6
68	BLM13D	13.800	V4	38.0	19.6	25.0	0.0	1.0200	41.9	0.8891	47.0	1	6
90	EST-13L	13.800	E1	18.0	6.9	12.0	-5.0	1.0100	19.1	0.9346	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	7.3	12.0	-5.0	1.0100	21.1	0.9388	27.0	1	6
97	FOR13A	13.800	F1	87.0	-24.0	50.0	-50.0	1.0000	90.2	0.9641	111.0	1	6
98	FOR13B	13.800	F2	87.0	-24.0	50.0	-50.0	1.0000	90.2	0.9641	111.0	1	6
99	FOR13C	13.800	F3	87.0	-24.0	50.0	-50.0	1.0000	90.2	0.9641	111.0	1	6
101	BAY13A	13.800	B1	53.7	20.4	50.0	-25.0	1.0000	57.4	0.9349	96.0	1	6
102	BAY13B	13.800	B2	52.5	20.3	50.0	-25.0	1.0000	56.3	0.9327	96.0	1	6
106	PANAM13A	13.800	M1	15.0	4.9	9.0	0.0	1.0000	15.8	0.9504	20.7	1	6
106	PANAM13A	13.800	M2	15.0	4.9	9.0	0.0	1.0000	15.8	0.9504	20.7	1	6
106	PANAM13A	13.800	M3	15.0	4.9	9.0	0.0	1.0000	15.8	0.9504	20.7	1	6
108	BAY13C	13.800	B3	52.5	20.3	50.0	-25.0	1.0000	56.3	0.9327	100.0	1	6
117	CB250A-1	13.800	C1	90.0	0.0	75.6	0.0	1.0027	89.8	1.0000	143.5	1	6
118	CB250A-2	13.800	C2	90.0	0.0	75.6	0.0	1.0027	89.8	1.0000	143.5	1	6
142	CANJ13A	13.800	C1	40.0	12.6	29.0	-29.0	1.0300	40.7	0.9540	69.0	1	6
143	CANJ13B	13.800	C2	40.0	12.6	29.0	-29.0	1.0300	40.7	0.9540	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0238	20.1	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	0.2	5.7	0.2	1.0351	13.5	0.9998	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.7	4.0	-4.0	1.0200	6.9	0.9956	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.7	4.0	-4.0	1.0200	6.9	0.9956	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.7	4.0	-4.0	1.0200	6.9	0.9956	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-5.4	13.0	-13.0	1.0200	22.2	0.9708	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-5.4	13.0	-13.0	1.0200	22.2	0.9708	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9551	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9551	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9887	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-5.3	50.0	-50.0	1.0300	77.8	0.9978	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1157	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1157	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0300	14.4	0.9417	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9862	19.3	0.9986	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.0	1.3	2.8	1.3	1.0046	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0046	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0046	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0046	3.3	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
524	TCATIVÁ 13B	13.800	G10	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9527	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	10.2	18.4	9.2	1.0000	31.7	0.9469	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	9.9	18.4	5.8	1.0000	26.9	0.9299	44.4	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0055	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0055	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0055	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0055	7.6	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1295.4	129.7	889.6	-437.1				2121.5		

SYST



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126	MIR13A			12.000	G1	4.7	0.0	5.0	0.0	1.0654	4.4	1.0000	13.5			2	7	
128	MIR13C			12.000	G3	23.0	2.4	11.0	0.0	1.0000	23.1	0.9946	29.4			2	7	
129	MIR13D			13.800	G4	37.0	2.3	15.0	0.0	1.0000	37.1	0.9981	44.1			2	7	
170	MIR13G			13.800	M1	17.1	6.8	11.2	6.8	1.0210	18.0	0.9289	23.0			2	7	
171	MIR13H			13.800	M1	17.1	6.8	11.2	6.8	1.0301	17.9	0.9289	23.0			2	7	
171	MIR13H			13.800	M2	17.1	6.8	11.2	6.8	1.0301	17.9	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	25.2	64.5	20.5				156.2					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 REGMHTTLA8 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.2	224.5	-98.9	0.0	143.3	-97.5	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	236.7	569.4	-236.5	0.0	471.2	16.7	358.3	
6	1295.4	1212.6	0.0	0.0	0.0	51.3	31.5	25.0
PANAMA	129.7	303.9	-60.6	0.0	525.8	69.4	342.7	
7	116.0	47.1	0.0	0.0	0.0	67.8	1.2	50.0
ACANAL	25.2	11.8	0.0	0.0	0.0	-2.4	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.3	
TOTALS	6560.6	6430.7	0.0	0.0	0.0	0.0	129.9	0.0
	609.9	1962.0	-908.5	0.0	2077.1	0.0	1633.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2012 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA	230	230.00	6	1.0001	230.03	11	M.N	230	230.00	6	1.0187	234.30		
14	PRO	230	230.00	6	1.0245	235.63	85	PTP	230	230.00	6	1.0229	235.27		
96	FOR	230	230.00	6	1.0195	234.49	144	CANJ	230	230.00	6	1.0199	234.57		
145	BJOMI	230	230.00	6	1.0220	235.05	146	GUALACA	230	230.00	6	1.0212	234.86		
147	GUASQ	230	230.00	6	1.0198	234.55	148	VELADERO	230	230.00	6	1.0132	233.04		
155	TABASARAII	230	230.00	6	1.0141	233.24	190	CHANG	230	230.00	6	1.0257	235.91		
306	CHAN1	230	230.00	6	1.0241	235.53	310	CONCEPCION	230	230.00	6	1.0225	235.17		
345	LORENA	230	230.00	6	1.0221	235.08	6000	FRONTER	230	230.00	6	1.0250	235.75		

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230	230.00	6	0.9910	227.92	3	PANII	230	230.00	6	0.9940	228.62		
5	CHO	230	230.00	6	0.9936	228.53	100	BAY	230	230.00	6	0.9975	229.41		
103	COPE	230	230.00	6	0.9950	228.85	105	PAN-AM	230	230.00	6	0.9936	228.53		
115	PACORA	230	230.00	6	0.9953	228.92	325	STA RITA	230	230.00	6	0.9946	228.75		
511	LGUIAS	230	230.00	6	0.9984	229.63									

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2012 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115	115.00	6	1.0095	116.09	4	PANII	115	115.00	6	1.0120	116.38		
6	CHO	115	115.00	6	1.0423	119.87	9	LSA	115	115.00	6	1.0140	116.60		
12	M.N	115	115.00	6	1.0026	115.30	15	PRO	115	115.00	6	1.0244	117.80		
18	CAC	115	115.00	6	1.0094	116.08	19	C.V	115	115.00	6	1.0075	115.86		
20	CH.AZUL	115	115.00	6	1.0251	117.89	21	C.BAN	115	115.00	6	1.0053	115.61		
23	CH	115	115.00	6	1.0055	115.64	26	LOC	115	115.00	6	1.0058	115.66		
30	MAR	115	115.00	6	1.0051	115.58	33	STM	115	115.00	6	1.0086	115.99		
37	SAN	115	115.00	6	1.0049	115.56	48	TINAJ	115	115.00	6	1.0086	115.98		
50	M.O	115	115.00	6	1.0086	115.99	52	TOC	115	115.00	6	1.0107	116.23		
54	LM	115	115.00	6	1.0097	116.12	55	LM2	115	115.00	6	1.0095	116.09		
61	FFIELD	115	115.00	9	1.0079	115.91	87	CAL	115	115.00	6	1.0161	116.85		
88	EST	115	115.00	6	1.0186	117.14	92	L.V	115	115.00	6	1.0170	116.96		
109	STA RITA	115	115.00	6	1.0123	116.42	123	MIR	115	115.00	7	1.0127	116.46		
154	CEMPAN	115	115.00	6	1.0094	116.08	191	CHANG	115	115.00	6	1.0225	117.59		
522	TCATIVÁ	115	115.00	6	1.0096	116.10									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2012 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
90	EST-13L	13.800	E1	18.0	10.1	12.0	-5.0	1.0000	20.7	0.8715	27.0					1	6		
94	LV-13.8L	13.800	L1	20.0	10.7	12.0	-5.0	1.0000	22.7	0.8810	27.0					1	6		
97	FOR13A	13.800	F1	90.2	-13.4	50.0	-50.0	1.0000	91.2	0.9892	111.0					1	6	SYST	
98	FOR13B	13.800	F2	89.0	-13.5	50.0	-50.0	1.0000	90.0	0.9887	111.0					1	6		
117	CB250A-1	13.800	C1	80.0	10.2	75.6	0.0	1.0000	80.6	0.9920	143.5					1	6		
142	CANJ13A	13.800	C1	40.0	9.8	29.0	-29.0	1.0000	41.2	0.9712	69.0					1	6		
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0102	20.4	0.8742	26.7					1	6		
156	TABASARAI13	13.800	G1	14.0	2.9	5.7	0.2	1.0200	14.0	0.9790	20.5					1	6		
193	GEBONYIC	13.800	G1	9.0	-0.7	4.0	-4.0	1.0200	8.9	0.9970	35.3					1	6		
204	BJOMIN13	13.800	G1	22.0	-13.0	13.0	-13.0	1.0034	25.5	0.8609	28.9					1	6		
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9561	9.9	1.0000	13.5					1	6		
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9561	4.6	1.0000	6.2					1	6		
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9677	8.3	1.0000	13.5					1	6		
307	CHAN1 A	13.800	G1	62.0	-21.2	50.0	-50.0	1.0000	65.5	0.9461	118.6					1	6		
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.0937	7.3	1.0000	35.3					1	6		
342	LORENA13.8	13.800	G1	14.0	-1.8	10.5	-5.0	1.0200	13.8	0.9915	19.9					1	6		
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9660	19.7	0.9986	100.0					1	6		
SUBSYSTEM TOTALS						525.2	-28.8	322.8	-228.7			907.0							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:34
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
AÑO 2012 REGMHTTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
170	MIR13G	13.800	M1	15.5	6.8	11.2	6.8	1.0430	16.2	0.9150	23.0					2	7	
171	MIR13H	13.800	M1	15.5	6.8	11.2	6.8	1.0521	16.1	0.9150	23.0					2	7	
171	MIR13H	13.800	M2	15.5	6.8	11.2	6.8	1.0521	16.1	0.9149	23.0					2	7	
SUBSYSTEM TOTALS						46.4	20.5	33.5	20.5			69.1						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 17:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER AREA TOTALS
 AÑO 2012 REGMHTTLA8 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1345.0	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	255.9	569.4	-236.4	0.0	469.3	33.9	358.2	
6	525.2	488.1	0.0	0.0	0.0	20.0	17.1	25.0
PANAMA	-28.8	122.3	182.3	0.0	512.4	12.7	166.3	
7	46.4	18.9	0.0	0.0	0.0	27.4	0.1	50.0
ACANAL	20.5	4.7	0.0	0.0	0.0	11.8	3.9	
9	0.0	48.1	0.0	0.0	0.0	-48.1	0.0	-75.0
COLON	0.0	12.1	0.0	0.0	1.1	-12.3	1.3	
TOTALS	5720.8	5606.7	0.0	0.0	0.0	0.0	114.1	0.0
	466.4	1755.4	-665.5	0.0	2061.7	0.0	1438.2	

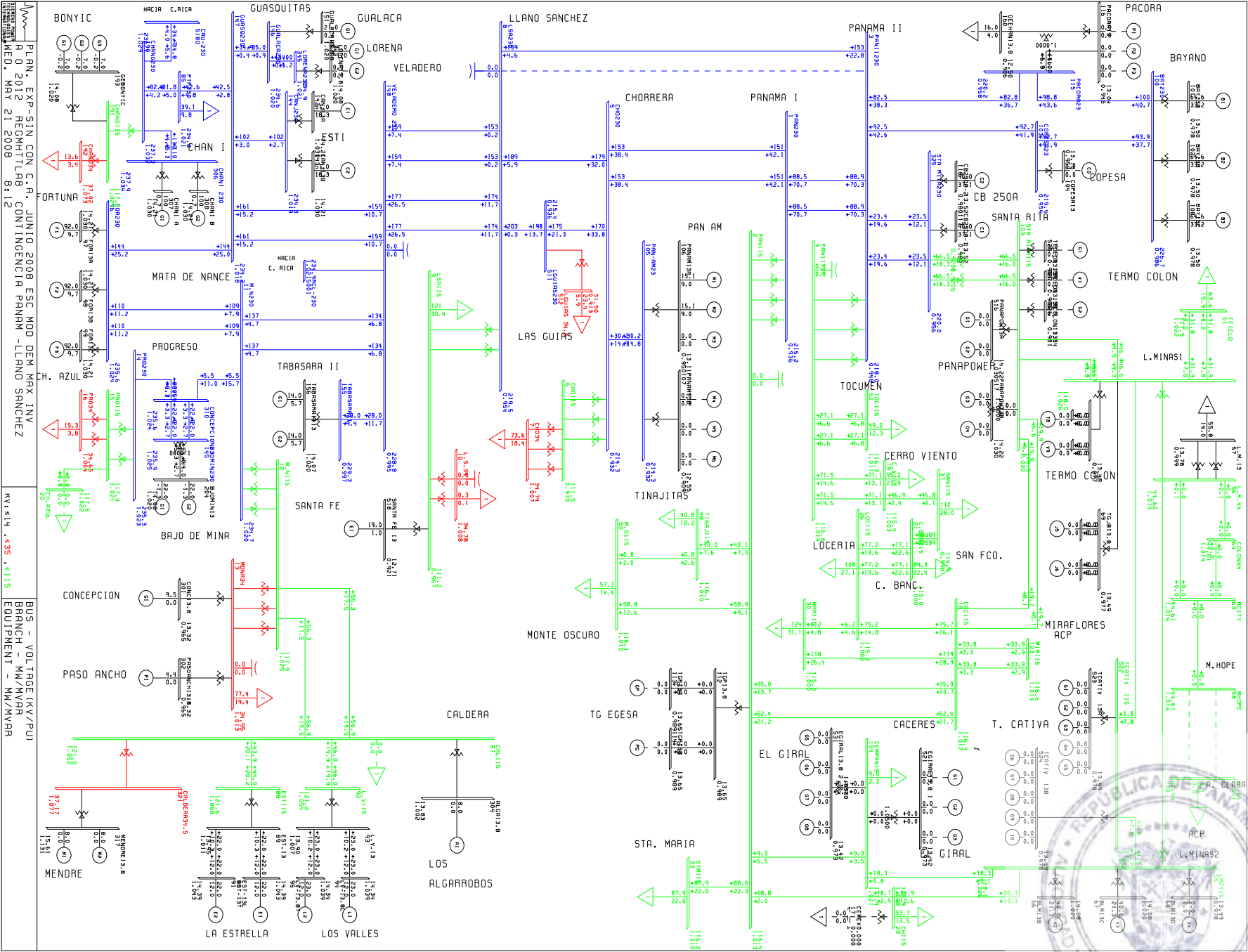


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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Panamá II-Llano Sánchez



de



PLAN. EXP-SIN CON C.A.R. JUNIO 2008 ESC MOD DEB MEX INV
 R 0 2012 REGHITLRS CONTINGENCIA PANAM - LLANO SANCHEZ
 MED. MAY 21 2008 8:12

BUS - VOLTAGE (KV/PU)
 BRANCH - KM/MVAR
 EQUIPMENT - KM/MVAR

RY:514 .435 .5115

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:10
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-LLANO SANCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0205	234.71	14	PRO230	230.00	6	1.0230	235.28				
85	PTP230	230.00	6	1.0207	234.75	96	FOR230	230.00	6	1.0243	235.60				
144	CANJ230	230.00	6	1.0186	234.28	145	BJOMIN230	230.00	6	1.0255	235.86				
146	GUALACA230	230.00	6	1.0202	234.64	147	GUASQ230	230.00	6	1.0183	234.22				
190	CHANG230	230.00	6	1.0316	237.27	306	CHANI 230	230.00	6	1.0342	237.86				
310	CONCEPCION230	230.00	6	1.0242	235.56	345	LORENA230	230.00	6	1.0211	234.86				
6000	FRONTIER	230.00	6	1.0228	235.23										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9359	215.25	3	PANII230	230.00	6	0.9477	217.98				
5	CHO230	230.00	6	0.9318	214.32	8	LSA230	230.00	6	0.9543	219.49				
100	BAY230	230.00	6	0.9857	226.71	103	COPESA23	230.00	6	0.9538	219.37				
105	PAN-AM23	230.00	6	0.9319	214.34	115	PACORA23	230.00	6	0.9575	220.23				
148	VELADERO 230	230.00	6	0.9947	228.77	155	TABASARAI	230.00	6	0.9968	229.27				
325	STA RITA230	230.00	6	0.9563	219.96	511	LGUIAS230	230.00	6	0.9364	215.38				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:10
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-LLANO SANCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0125	116.44	4	PANII115	115.00	6	1.0143	116.64				
12	M.N115	115.00	6	1.0253	117.91	15	PRO115	115.00	6	1.0211	117.43				
18	CAC115	115.00	6	1.0120	116.38	19	C.V115	115.00	6	1.0034	115.39				
20	CH.AZUL	115.00	6	1.0219	117.51	21	C.BAN115	115.00	6	1.0002	115.02				
23	CH115	115.00	6	1.0075	115.87	26	LOC115	115.00	6	1.0016	115.18				
30	MAR115	115.00	6	1.0004	115.04	33	STM115	115.00	6	1.0103	116.18				
48	TINAJ115	115.00	6	1.0095	116.09	50	M.O115	115.00	6	1.0097	116.11				
52	TOC115	115.00	6	1.0109	116.26	54	LM115	115.00	6	1.0264	118.03				
55	LM2115	115.00	6	1.0264	118.04	61	FFIELD	115.00	9	1.0219	117.51				
87	CAL115	115.00	6	1.0522	121.00	88	EST115	115.00	6	1.0578	121.65				
92	L.V115	115.00	6	1.0541	121.22	109	STA RITA115	115.00	6	1.0303	118.49				
123	MIR115	115.00	7	1.0140	116.61	154	CEMPAN15	115.00	6	1.0213	117.44				
191	CHANG115	115.00	6	1.0239	117.75	522	TCATIVÁ 115	115.00	6	1.0264	118.03				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO115	115.00	6	0.9696	111.50	9	LSA115	115.00	6	0.9667	111.17				
37	SAN115	115.00	6	0.9988	114.86										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:10
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-LLANO SANCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	40.0	21.3	25.0	0.0	1.0200	44.4	0.8831	47.0	1	6
67	BLM13C	13.800	V3	40.0	21.3	25.0	0.0	1.0200	44.4	0.8831	47.0	1	6
90	EST-13L	13.800	E1	22.0	12.0	12.0	-5.0	1.0428	24.0	0.8779	27.0	1	6
91	EST-13T	13.800	E2	22.0	12.0	12.0	-5.0	1.0428	24.0	0.8779	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	12.0	12.0	-5.0	1.0391	25.0	0.8866	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	12.0	12.0	-5.0	1.0391	25.0	0.8866	27.0	1	6
97	FOR13A	13.800	F1	92.0	9.7	50.0	-50.0	1.0300	89.8	0.9944	111.0	1	6
98	FOR13B	13.800	F2	92.0	9.7	50.0	-50.0	1.0300	89.8	0.9944	111.0	1	6
99	FOR13C	13.800	F3	92.0	9.7	50.0	-50.0	1.0300	89.8	0.9944	111.0	1	6
101	BAY13A	13.800	B1	64.6	33.2	50.0	-25.0	0.9783	74.2	0.8896	96.0	1	6
102	BAY13B	13.800	B2	64.6	33.2	50.0	-25.0	0.9783	74.2	0.8896	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	0.9498	18.5	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	0.9498	18.5	0.8590	20.7	1	6
108	BAY13C	13.800	B3	64.6	33.2	50.0	-25.0	0.9783	74.2	0.8896	100.0	1	6
117	CB250A-1	13.800	C1	90.0	37.1	75.6	0.0	0.9800	99.3	0.9247	143.5	1	6
118	CB250A-2	13.800	C2	90.0	37.1	75.6	0.0	0.9800	99.3	0.9247	143.5	1	6
142	CANJ13A	13.800	C1	51.0	18.3	29.0	-29.0	1.0300	52.6	0.9415	69.0	1	6
143	CANJ13B	13.800	C2	51.0	18.3	29.0	-29.0	1.0300	52.6	0.9415	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	0.1	10.0	-10.0	1.0200	20.6	1.0000	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	5.7	5.7	0.2	1.0198	14.8	0.9269	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	5.7	5.7	0.2	1.0198	14.8	0.9269	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.2	4.0	-4.0	1.0200	6.9	0.9995	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.2	4.0	-4.0	1.0200	6.9	0.9995	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.2	4.0	-4.0	1.0200	6.9	0.9995	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-1.3	13.0	-13.0	1.0200	21.6	0.9981	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-1.3	13.0	-13.0	1.0200	21.6	0.9981	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9649	9.8	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9649	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	1.0020	8.0	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	0.7	50.0	-50.0	1.0300	97.1	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	0.7	50.0	-50.0	1.0300	97.1	1.0000	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1309	7.1	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1309	7.1	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-1.0	10.5	-5.0	1.0200	13.8	0.9976	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9210	20.7	0.9986	100.0	1	6
SUBSYSTEM TOTALS				1336.9	357.4	796.0	-463.5				1985.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:10
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-LLANO SANCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.4	11.0	0.0	1.0000	12.8	0.9828	29.4			2	7	
129		MIR13D		13.800	G4	35.0	1.2	15.0	0.0	1.0000	35.0	0.9994	44.1			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1			2	7	
140		GAT6A		6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1			2	7	
141		GAT6B		6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9760	5.6			2	7	



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141 GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9760	6.2	2	7
141 GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9760	6.2	2	7
170 MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0242	17.9	0.9281	23.0	2	7
171 MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0332	17.7	0.9281	23.0	2	7
171 MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0332	17.7	0.9281	23.0	2	7
SUBSYSTEM TOTALS			116.0	21.1	74.5	5.5				173.1		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:10
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-LLANO SANCHEZ IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.1	20.1	0.0
C.RICA	257.1	569.4	-237.3	0.0	468.9	32.6	361.3	
6	1336.9	1212.6	0.0	0.0	0.0	51.9	72.4	25.0
PANAMA	357.4	303.9	-184.9	0.0	457.0	57.1	638.2	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	21.1	11.8	0.0	0.0	0.0	-6.5	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.2	
TOTALS	6602.1	6430.7	0.0	0.0	0.0	0.0	171.4	0.0
	854.6	1962.0	-1033.6	0.0	2005.8	0.0	1932.1	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas-Veladero**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0212	234.88	14	PRO230	230.00	6	1.0239	235.49				
85	PTP230	230.00	6	1.0248	235.71	96	FOR230	230.00	6	1.0270	236.21				
100	BAY230	230.00	6	1.0271	236.22	103	COPESA23	230.00	6	1.0002	230.04				
115	PACORA23	230.00	6	1.0033	230.77	144	CANJ230	230.00	6	1.0236	235.44				
145	BJOMIN230	230.00	6	1.0261	236.01	146	GUALACA230	230.00	6	1.0250	235.74				
147	GUASQ230	230.00	6	1.0234	235.38	148	VELADERO 230	230.00	6	1.0030	230.68				
155	TABASARAI	230.00	6	1.0047	231.07	190	CHANG230	230.00	6	1.0333	237.67				
306	CHAN1 230	230.00	6	1.0356	238.20	310	CONCEPCION23	230.00	6	1.0249	235.74				
325	STA RITA230	230.00	6	1.0060	231.39	345	LORENA230	230.00	6	1.0258	235.92				
6000	FRONTER	230.00	6	1.0237	235.46										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9841	226.35	3	PANII230	230.00	6	0.9949	228.83				
5	CHO230	230.00	6	0.9809	225.60	8	LSA230	230.00	6	0.9854	226.63				
105	PAN-AM23	230.00	6	0.9810	225.62	511	LGUIAS230	230.00	6	0.9791	225.19				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0127	116.46	4	PANII115	115.00	6	1.0100	116.15				
6	CHO115	115.00	6	1.0219	117.51	12	M.N115	115.00	6	1.0173	116.99				
15	PRO115	115.00	6	1.0220	117.53	18	CAC115	115.00	6	1.0122	116.40				
19	C.V115	115.00	6	1.0003	115.03	20	CH.AZUL	115.00	6	1.0228	117.62				
23	CH115	115.00	6	1.0092	116.06	26	LOC115	115.00	6	1.0013	115.15				
30	MAR115	115.00	6	1.0003	115.04	33	STM115	115.00	6	1.0105	116.21				
48	TINAJ115	115.00	6	1.0097	116.12	50	M.O115	115.00	6	1.0099	116.13				
52	TOC115	115.00	6	1.0066	115.76	54	LM1115	115.00	6	1.0300	118.45				
55	LM2115	115.00	6	1.0302	118.48	61	FFIELD	115.00	9	1.0255	117.93				
87	CAL115	115.00	6	1.0360	119.15	88	EST115	115.00	6	1.0398	119.58				
92	L.V115	115.00	6	1.0375	119.31	109	STA RITA115	115.00	6	1.0328	118.77				
123	MIR115	115.00	7	1.0142	116.63	154	CEMPAN15	115.00	6	1.0240	117.76				
191	CHANG115	115.00	6	1.0251	117.89	522	TCATIVÁ 115	115.00	6	1.0301	118.46				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
9	LSA115	115.00	6	0.9990	114.89	21	C.BAN115	115.00	6	0.9998	114.98				
37	SAN115	115.00	6	0.9981	114.79										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	35.0	19.2	25.0	0.0	1.0200	39.1	0.8772	47.0	1	6
67	BLM13C	13.800	V3	35.0	19.2	25.0	0.0	1.0200	39.1	0.8772	47.0	1	6
68	BLM13D	13.800	V4	35.0	15.1	25.0	0.0	1.0100	37.7	0.9185	47.0	1	6
90	EST-13L	13.800	E1	22.0	6.9	12.0	-5.0	1.0100	22.8	0.9547	27.0	1	6
91	EST-13T	13.800	E2	22.0	6.9	12.0	-5.0	1.0100	22.8	0.9547	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	7.6	12.0	-5.0	1.0100	24.0	0.9492	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	7.6	12.0	-5.0	1.0100	24.0	0.9492	27.0	1	6
97	FOR13A	13.800	F1	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9969	111.0	1	6
98	FOR13B	13.800	F2	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9969	111.0	1	6
99	FOR13C	13.800	F3	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9969	111.0	1	6
101	BAY13A	13.800	B1	53.7	27.0	50.0	-25.0	1.0100	59.5	0.8931	96.0	1	6
102	BAY13B	13.800	B2	54.4	27.1	50.0	-25.0	1.0100	60.2	0.8951	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	0.9961	17.6	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	0.9961	17.6	0.8590	20.7	1	6
108	BAY13C	13.800	B3	54.4	27.1	50.0	-25.0	1.0100	60.2	0.8951	100.0	1	6
117	CB250A-1	13.800	C1	90.0	38.9	75.6	0.0	1.0300	95.2	0.9178	143.5	1	6
118	CB250A-2	13.800	C2	90.0	38.9	75.6	0.0	1.0300	95.2	0.9178	143.5	1	6
142	CANJ13A	13.800	C1	51.0	17.4	29.0	-29.0	1.0300	52.3	0.9464	69.0	1	6
143	CANJ13B	13.800	C2	51.0	17.4	29.0	-29.0	1.0300	52.3	0.9464	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	-4.4	10.0	-10.0	1.0200	21.0	0.9786	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	3.9	5.7	0.2	1.0200	14.3	0.9628	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	3.9	5.7	0.2	1.0200	14.3	0.9628	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.3	4.0	-4.0	1.0200	6.9	0.9988	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.3	4.0	-4.0	1.0200	6.9	0.9988	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.3	4.0	-4.0	1.0200	6.9	0.9988	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-1.6	13.0	-13.0	1.0200	21.6	0.9974	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-1.6	13.0	-13.0	1.0200	21.6	0.9974	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9570	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9570	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9867	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	-0.7	50.0	-50.0	1.0300	97.1	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	-0.7	50.0	-50.0	1.0300	97.1	1.0000	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1134	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1134	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0203	14.6	0.9417	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9518	20.0	0.9986	100.0	1	6
SUBSYSTEM TOTALS				1330.5	309.7	821.0	-463.5				2032.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHITLA8 CONTINGENCIA GUASQUITAS- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.3	11.0	0.0	1.0000	12.8	0.9832	29.4			2	7	
129		MIR13D		13.800	G4	35.0	1.2	15.0	0.0	1.0000	35.0	0.9994	44.1			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1			2	7	
140		GAT6A		6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9979	4.1			2	7	
141		GAT6B		6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9759	5.6			2	7	



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141	GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9759	6.2	2	7
141	GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9759	6.2	2	7
170	MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0243	17.9	0.9281	23.0	2	7
171	MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0333	17.7	0.9281	23.0	2	7
171	MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0333	17.7	0.9281	23.0	2	7
SUBSYSTEM TOTALS							116.0	21.0	74.5	5.5	173.1		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:22
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.2	20.3	0.0
C.RICA	256.0	569.4	-237.1	0.0	469.0	29.5	363.2	
6	1330.5	1212.6	0.0	0.0	0.0	52.1	65.8	25.0
PANAMA	309.7	303.9	-153.5	0.0	493.1	60.2	592.1	
7	116.0	47.1	0.0	0.0	0.0	67.7	1.3	50.0
ACANAL	21.0	11.8	0.0	0.0	0.0	-6.6	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.3	
TOTALS	6595.8	6430.7	0.0	0.0	0.0	0.0	165.1	0.0
	805.6	1962.0	-1002.1	0.0	2042.1	0.0	1887.8	

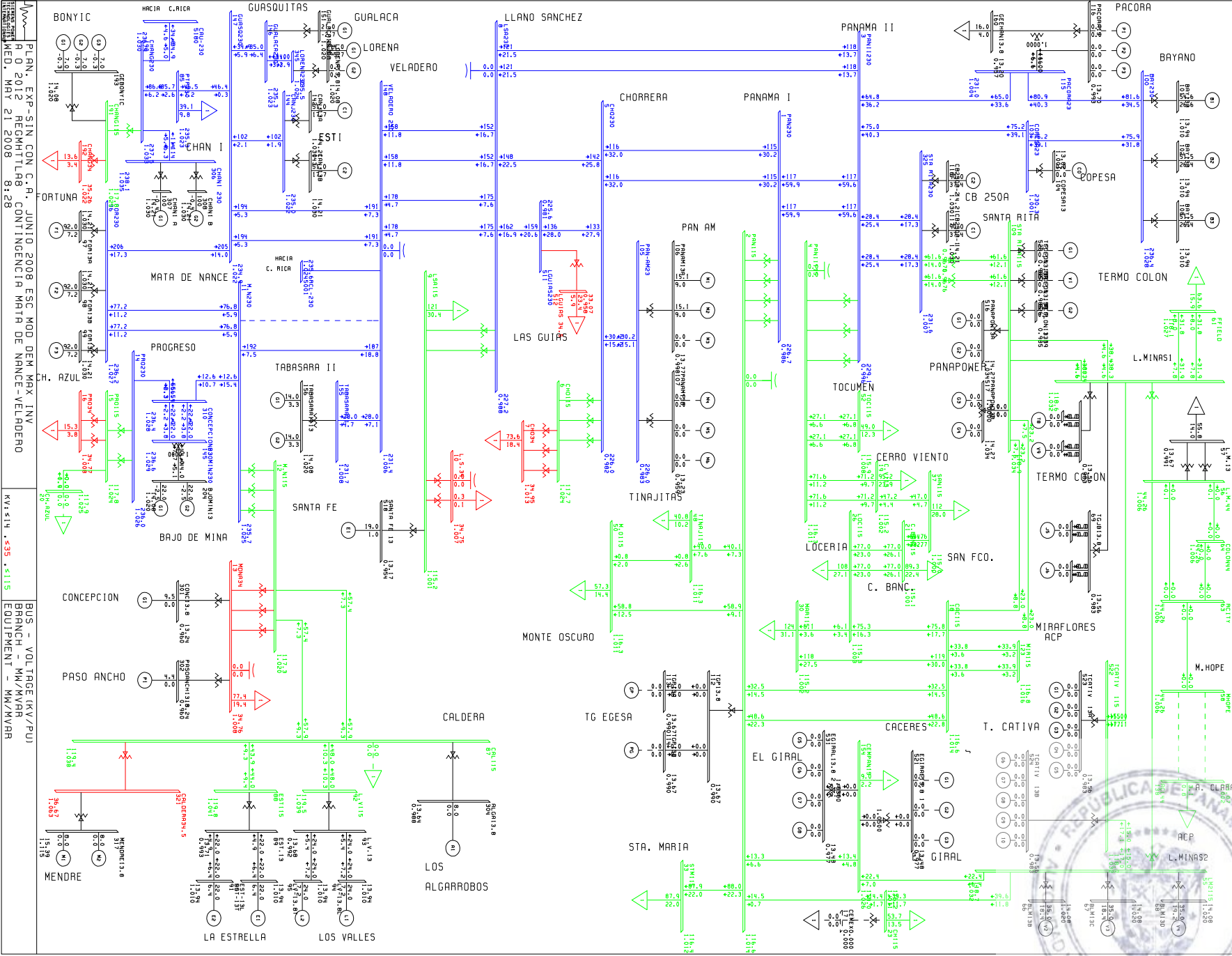


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance-Veladero**

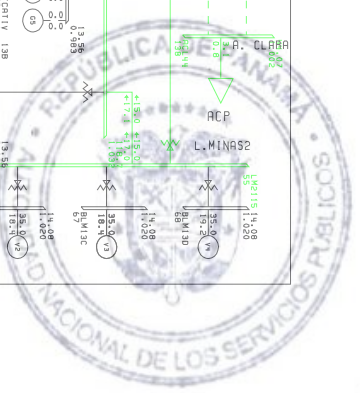


de



PLAN. EXP. SIN CON C.A.R. JUNIO 2008 ESC. MOD. DEM. MAX. INV.
 R.D. 2012 REG. HTL 18
 CONTINGENCIA MATA DE NANCE-VELADERO
 MAY 21 2008
 8:28

BUS - VOLTAGE (KV/PUI)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR
 KW: 114 *35 *1115



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0250	235.74	14	PRO	230		230.00	6	1.0263	236.04
85	PTP	230		230.00	6	1.0231	235.31	96	FOR	230		230.00	6	1.0270	236.22
100	BAY	230		230.00	6	1.0278	236.38	103	COPE	SA23		230.00	6	1.0014	230.32
115	PACORA	23		230.00	6	1.0045	231.03	144	CANJ	230		230.00	6	1.0218	235.01
145	BJOMIN	230		230.00	6	1.0287	236.60	146	GUALACA	230		230.00	6	1.0232	235.33
147	GUASQ	230		230.00	6	1.0215	234.95	148	VELADERO	230		230.00	6	1.0060	231.39
155	TABASARAI	I		230.00	6	1.0076	231.74	190	CHANG	230		230.00	6	1.0328	237.54
306	CHAN1	230		230.00	6	1.0353	238.12	310	CONCEPCION	23		230.00	6	1.0277	236.38
325	STA	RITA230		230.00	6	1.0071	231.63	345	LORENA	230		230.00	6	1.0240	235.53
6000	FRONTER			230.00	6	1.0260	235.98								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9855	226.67	3	PANII	230		230.00	6	0.9962	229.13
5	CHO	230		230.00	6	0.9824	225.96	8	LSA	230		230.00	6	0.9876	227.16
105	PAN-AM	23		230.00	6	0.9825	225.98	511	LGUIAS	230		230.00	6	0.9810	225.64

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0142	116.63	4	PANII	115		115.00	6	1.0113	116.30
6	CHO	115		115.00	6	1.0235	117.70	9	LSA	115		115.00	6	1.0014	115.16
12	M.	N115		115.00	6	1.0200	117.30	15	PRO	115		115.00	6	1.0244	117.81
18	CAC	115		115.00	6	1.0136	116.57	19	C.V	115		115.00	6	1.0017	115.20
20	CH.	AZUL		115.00	6	1.0252	117.90	21	C.	BAN115		115.00	6	1.0013	115.15
23	CH	115		115.00	6	1.0109	116.25	26	LOC	115		115.00	6	1.0028	115.32
30	MAR	115		115.00	6	1.0018	115.21	33	STM	115		115.00	6	1.0120	116.37
48	TINAJ	115		115.00	6	1.0112	116.29	50	M.	O115		115.00	6	1.0113	116.30
52	TOC	115		115.00	6	1.0079	115.91	54	LM	115		115.00	6	1.0317	118.65
55	LM	2115		115.00	6	1.0320	118.68	61	FF	FIELD		115.00	9	1.0273	118.14
87	CAL	115		115.00	6	1.0379	119.35	88	EST	115		115.00	6	1.0415	119.77
92	L.	V115		115.00	6	1.0393	119.51	109	STA	RITA115		115.00	6	1.0343	118.94
123	MIR	115		115.00	7	1.0155	116.79	154	CEMPAN	115		115.00	6	1.0257	117.96
191	CHANG	115		115.00	6	1.0247	117.84	522	TCATIVA	115		115.00	6	1.0319	118.67

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
37	SAN	115		115.00	6	0.9996	114.95								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	35.0	18.4	25.0	0.0	1.0200	38.8	0.8854	47.0	1	6
67	BLM13C	13.800	V3	35.0	18.4	25.0	0.0	1.0200	38.8	0.8854	47.0	1	6
68	BLM13D	13.800	V4	35.0	19.2	25.0	0.0	1.0200	39.1	0.8768	47.0	1	6
90	EST-13L	13.800	E1	22.0	6.4	12.0	-5.0	1.0100	22.7	0.9605	27.0	1	6
91	EST-13T	13.800	E2	22.0	6.4	12.0	-5.0	1.0100	22.7	0.9605	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	7.2	12.0	-5.0	1.0100	24.8	0.9580	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	7.2	12.0	-5.0	1.0100	24.8	0.9580	27.0	1	6
97	FOR13A	13.800	F1	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9970	111.0	1	6
98	FOR13B	13.800	F2	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9970	111.0	1	6
99	FOR13C	13.800	F3	92.0	7.2	50.0	-50.0	1.0300	89.6	0.9970	111.0	1	6
101	BAY13A	13.800	B1	54.6	26.6	50.0	-25.0	1.0100	60.1	0.8992	96.0	1	6
102	BAY13B	13.800	B2	51.5	26.4	50.0	-25.0	1.0100	57.2	0.8900	96.0	1	6
106	PANAM13A	13.800	M1	15.1	9.0	9.0	0.0	0.9975	17.6	0.8590	20.7	1	6
106	PANAM13A	13.800	M2	15.1	9.0	9.0	0.0	0.9975	17.6	0.8590	20.7	1	6
108	BAY13C	13.800	B3	51.5	26.4	50.0	-25.0	1.0100	57.2	0.8900	100.0	1	6
117	CB250A-1	13.800	C1	90.0	37.4	75.6	0.0	1.0300	94.6	0.9236	143.5	1	6
118	CB250A-2	13.800	C2	90.0	37.4	75.6	0.0	1.0300	94.6	0.9236	143.5	1	6
142	CANJ13A	13.800	C1	51.0	17.7	29.0	-29.0	1.0300	52.4	0.9446	69.0	1	6
143	CANJ13B	13.800	C2	51.0	17.7	29.0	-29.0	1.0300	52.4	0.9446	69.0	1	6
151	GUALACA13.8	13.800	G1	21.0	-2.7	10.0	-10.0	1.0200	20.8	0.9916	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	3.3	5.7	0.2	1.0200	14.1	0.9739	20.5	1	6
156	TABASARAI13	13.800	G2	14.0	3.3	5.7	0.2	1.0200	14.1	0.9739	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.3	4.0	-4.0	1.0200	6.9	0.9991	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.3	4.0	-4.0	1.0200	6.9	0.9991	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.3	4.0	-4.0	1.0200	6.9	0.9991	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-2.5	13.0	-13.0	1.0200	21.7	0.9934	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-2.5	13.0	-13.0	1.0200	21.7	0.9934	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9597	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9597	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9884	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	100.0	-0.4	50.0	-50.0	1.0300	97.1	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	100.0	-0.4	50.0	-50.0	1.0300	97.1	1.0000	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1154	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1154	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-3.7	10.5	-5.0	1.0200	14.2	0.9674	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9540	19.9	0.9986	100.0	1	6
SUBSYSTEM TOTALS				1327.7	306.5	821.0	-463.5				2032.8		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2012 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.2	11.0	0.0	1.0000	12.8	0.9856	29.4			2	7	
129		MIR13D		13.800	G4	35.0	0.9	15.0	0.0	1.0000	35.0	0.9997	44.1			2	7	
140		GAT6A		6.9000	G1	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9974	4.1			2	7	
140		GAT6A		6.9000	G2	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9974	4.1			2	7	
140		GAT6A		6.9000	G3	1.9	-0.1	2.0	-2.0	1.0000	1.9	0.9974	4.1			2	7	
141		GAT6B		6.9000	G4	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9752	5.6			2	7	



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141 GAT6B	6.9000	G5	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9752	6.2	2	7
141 GAT6B	6.9000	G6	3.9	-0.9	3.0	-3.0	1.0000	4.0	0.9752	6.2	2	7
170 MIR13G	13.800	M1	17.0	6.8	11.2	6.8	1.0249	17.9	0.9281	23.0	2	7
171 MIR13H	13.800	M1	17.0	6.8	11.2	6.8	1.0340	17.7	0.9281	23.0	2	7
171 MIR13H	13.800	M2	17.0	6.8	11.2	6.8	1.0340	17.7	0.9281	23.0	2	7
SUBSYSTEM TOTALS			116.0	20.5	74.5	5.5				173.1		



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 8:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2012 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1 GUATEMAL	1347.4 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2 SALVADOR	911.8 100.8	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.4	9.8 158.1	0.0
3 HONDURAS	1006.8 55.7	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.8	0.0 -5.3	21.4 261.6	0.0
4 NICA	538.2 32.6	527.1 224.5	0.0 -98.9	0.0 0.0	0.0 143.2	0.0 -97.1	11.1 147.4	0.0
5 C.RICA	1344.9 253.2	1324.8 569.4	0.0 -237.3	0.0 0.0	0.0 469.3	0.1 29.0	20.1 361.4	0.0
6 PANAMA	1327.7 306.5	1212.6 303.9	0.0 -153.9	0.0 0.0	0.0 493.4	51.9 61.4	63.2 588.5	25.0
7 ACANAL	116.0 20.5	47.1 11.8	0.0 0.0	0.0 0.0	0.0 0.0	67.7 -7.1	1.3 15.8	50.0
9 COLON	0.0 0.0	119.5 29.9	0.0 0.0	0.0 0.0	0.0 1.1	-119.6 -37.2	0.1 8.4	-75.0
TOTALS	6592.9 799.0	6430.7 1962.0	0.0 -1002.7	0.0 0.0	0.0 2042.7	0.0 0.0	162.2 1882.5	0.0



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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá –Cemento Panamá



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0154	233.54	11	M.N230	230.00	6	1.0322	237.40				
14	PRO230	230.00	6	1.0352	238.09	85	PTP230	230.00	6	1.0321	237.37				
96	FOR230	230.00	6	1.0296	236.80	100	BAY230	230.00	6	1.0212	234.87				
144	CANJ230	230.00	6	1.0321	237.38	145	BJOMIN230	230.00	6	1.0355	238.16				
146	GUALACA230	230.00	6	1.0331	237.60	147	GUASQ230	230.00	6	1.0318	237.32				
148	VELADERO	230230.00	6	1.0316	237.27	155	TABASARAI	230.00	6	1.0321	237.39				
190	CHANG230	230.00	6	1.0368	238.46	306	CHAN1	230.00	6	1.0378	238.69				
310	CONCEPCION23	230.00	6	1.0352	238.10	345	LORENA230	230.00	6	1.0338	237.78				
511	LGUIAS230	230.00	6	1.0029	230.66	6000	FRONTER	230.00	6	1.0354	238.14				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9819	225.84	3	PANII230	230.00	6	0.9921	228.19				
5	CHO230	230.00	6	0.9888	227.42	103	COPESA23	230.00	6	0.9969	229.30				
105	PAN-AM23	230.00	6	0.9888	227.43	115	PACORA23	230.00	6	0.9997	229.93				
325	STA RITA230	230.00	6	0.9987	229.70										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0048	115.56	4	PANII115	115.00	6	1.0018	115.21				
6	CHO115	115.00	6	1.0302	118.48	9	LSA115	115.00	6	1.0302	118.48				
12	M.N115	115.00	6	1.0262	118.01	15	PRO115	115.00	6	1.0334	118.84				
18	CAC115	115.00	6	1.0044	115.51	20	CH.AZUL	115.00	6	1.0341	118.93				
23	CH115	115.00	6	1.0067	115.77	33	STM115	115.00	6	1.0026	115.30				
48	TINAJ115	115.00	6	1.0018	115.21	50	M.O115	115.00	6	1.0019	115.22				
54	LM115	115.00	6	1.0360	119.14	55	LM2115	115.00	6	1.0371	119.27				
61	FFIELD	115.00	9	1.0316	118.63	87	CAL115	115.00	6	1.0371	119.26				
88	EST115	115.00	6	1.0390	119.49	92	L.V115	115.00	6	1.0378	119.35				
109	STA RITA115	115.00	6	1.0341	118.92	123	MIR115	115.00	7	1.0070	115.81				
154	CEMPAN15	115.00	6	1.0474	120.45	191	CHANG115	115.00	6	1.0275	118.16				
522	TCATIVÁ	115 115.00	6	1.0368	119.23										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9922	114.10	21	C.BAN115	115.00	6	0.9918	114.06				
26	LOC115	115.00	6	0.9933	114.23	30	MAR115	115.00	6	0.9924	114.13				
37	SAN115	115.00	6	0.9901	113.86	52	TOC115	115.00	6	0.9984	114.81				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	16.4	25.0	0.0	1.0200	40.6	0.9183	47.0	1	6
67	BLM13C	13.800	V3	38.0	16.4	25.0	0.0	1.0200	40.6	0.9183	47.0	1	6
68	BLM13D	13.800	V4	38.0	17.1	25.0	0.0	1.0200	40.8	0.9122	47.0	1	6
90	EST-13L	13.800	E1	18.0	7.2	12.0	-5.0	1.0100	19.2	0.9293	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	7.6	12.0	-5.0	1.0100	21.2	0.9340	27.0	1	6
97	FOR13A	13.800	F1	87.0	-22.8	50.0	-50.0	1.0000	89.9	0.9673	111.0	1	6
98	FOR13B	13.800	F2	87.0	-22.8	50.0	-50.0	1.0000	89.9	0.9673	111.0	1	6
99	FOR13C	13.800	F3	87.0	-22.8	50.0	-50.0	1.0000	89.9	0.9673	111.0	1	6
101	BAY13A	13.800	B1	54.6	23.4	50.0	-25.0	1.0000	59.4	0.9188	96.0	1	6
102	BAY13B	13.800	B2	52.5	23.3	50.0	-25.0	1.0000	57.5	0.9141	96.0	1	6
106	PANAM13A	13.800	M1	15.0	5.9	9.0	0.0	1.0000	16.1	0.9302	20.7	1	6
106	PANAM13A	13.800	M2	15.0	5.9	9.0	0.0	1.0000	16.1	0.9302	20.7	1	6
106	PANAM13A	13.800	M3	15.0	5.9	9.0	0.0	1.0000	16.1	0.9302	20.7	1	6
108	BAY13C	13.800	B3	52.5	23.3	50.0	-25.0	1.0000	57.5	0.9141	100.0	1	6
117	CB250A-1	13.800	C1	90.0	4.7	75.6	0.0	1.0000	90.1	0.9987	143.5	1	6
118	CB250A-2	13.800	C2	90.0	4.7	75.6	0.0	1.0000	90.1	0.9987	143.5	1	6
142	CANJ13A	13.800	C1	40.0	12.8	29.0	-29.0	1.0300	40.8	0.9522	69.0	1	6
143	CANJ13B	13.800	C2	40.0	12.8	29.0	-29.0	1.0300	40.8	0.9522	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0222	20.1	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	0.2	5.7	0.2	1.0322	13.6	0.9998	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9963	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9963	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9963	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-5.0	13.0	-13.0	1.0200	22.1	0.9751	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-5.0	13.0	-13.0	1.0200	22.1	0.9751	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9538	10.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9538	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9877	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-4.6	50.0	-50.0	1.0300	77.8	0.9983	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1146	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1146	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0284	14.5	0.9417	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9815	19.4	0.9986	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.0	1.3	2.8	1.3	1.0202	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0202	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0202	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0202	3.2	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9729	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	9.2	18.4	9.2	1.0023	31.3	0.9560	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	7.8	18.4	5.8	1.0000	26.2	0.9545	44.4	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0211	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0211	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0211	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0211	7.5	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1296.2	140.9	889.6	-437.1				2121.5		

SYST



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126		MIR13A		12.000	G1	4.7	0.0	5.0	0.0	1.0664	4.4	1.0000	13.5			2	7	
128		MIR13C		12.000	G3	23.0	2.1	11.0	0.0	1.0000	23.1	0.9957	29.4			2	7	
129		MIR13D		13.800	G4	37.0	1.9	15.0	0.0	1.0000	37.1	0.9986	44.1			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0220	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0311	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0311	17.9	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	24.5	64.5	20.5				156.2					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:21
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ IN MW/MVAR

X-- AREA	--X GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	238.6	569.4	-236.4	0.0	471.0	18.3	358.3	
6	1296.2	1212.6	0.0	0.0	0.0	51.3	32.3	25.0
PANAMA	140.9	303.9	-60.4	0.0	520.3	68.4	349.3	
7	116.0	47.1	0.0	0.0	0.0	67.8	1.2	50.0
ACANAL	24.5	11.8	0.0	0.0	0.0	-3.0	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.3	
TOTALS	6561.5	6430.7	0.0	0.0	0.0	0.0	130.8	0.0
	622.5	1962.0	-908.3	0.0	2071.3	0.0	1640.1	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 5: Contingencia Las Minas 2-Chilibre**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0145	233.33	11	M.N230	230.00	6	1.0319	237.33				
14	PRO230	230.00	6	1.0349	238.03	85	PTP230	230.00	6	1.0318	237.32				
96	FOR230	230.00	6	1.0293	236.75	100	BAY230	230.00	6	1.0204	234.69				
144	CANJ230	230.00	6	1.0318	237.31	145	BJOMIN230	230.00	6	1.0352	238.10				
146	GUALACA230	230.00	6	1.0328	237.53	147	GUASQ230	230.00	6	1.0315	237.25				
148	VELADERO	230230.00	6	1.0311	237.15	155	TABASARAI	230.00	6	1.0316	237.27				
190	CHANG230	230.00	6	1.0366	238.43	306	CHAN1	230.00	6	1.0376	238.66				
310	CONCEPCION23	230.00	6	1.0349	238.04	345	LORENA230	230.00	6	1.0335	237.72				
511	LGUIAS230	230.00	6	1.0017	230.40	6000	FRONTER	230.00	6	1.0351	238.08				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9804	225.48	3	PANII230	230.00	6	0.9909	227.90				
5	CHO230	230.00	6	0.9874	227.10	103	COPESA23	230.00	6	0.9957	229.02				
105	PAN-AM23	230.00	6	0.9875	227.12	115	PACORA23	230.00	6	0.9985	229.67				
325	STA RITA230	230.00	6	0.9982	229.58										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0029	115.33	4	PANII115	115.00	6	1.0004	115.05				
6	CHO115	115.00	6	1.0288	118.31	9	LSA115	115.00	6	1.0293	118.37				
12	M.N115	115.00	6	1.0259	117.98	15	PRO115	115.00	6	1.0331	118.81				
18	CAC115	115.00	6	1.0025	115.29	20	CH.AZUL	115.00	6	1.0339	118.90				
33	STM115	115.00	6	1.0006	115.07	50	M.O115	115.00	6	1.0000	115.00				
54	LM115	115.00	6	1.0363	119.18	55	LM2115	115.00	6	1.0376	119.32				
61	FFIELD	115.00	9	1.0319	118.67	87	CAL115	115.00	6	1.0369	119.24				
88	EST115	115.00	6	1.0388	119.46	92	L.V115	115.00	6	1.0376	119.32				
109	STA RITA115	115.00	6	1.0338	118.89	123	MIR115	115.00	7	1.0053	115.60				
154	CEMPAN15	115.00	6	1.0345	118.97	191	CHANG115	115.00	6	1.0274	118.15				
522	TCATIVÁ	115	115.00	6	1.0372	119.27									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9906	113.92	21	C.BAN115	115.00	6	0.9899	113.84				
23	CH115	115.00	6	0.9831	113.06	26	LOC115	115.00	6	0.9914	114.02				
30	MAR115	115.00	6	0.9905	113.91	37	SAN115	115.00	6	0.9882	113.65				
48	TINAJ115	115.00	6	0.9999	114.98	52	TOC115	115.00	6	0.9970	114.65				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	16.2	25.0	0.0	1.0200	40.5	0.9200	47.0	1	6
67	BLM13C	13.800	V3	38.0	16.2	25.0	0.0	1.0200	40.5	0.9200	47.0	1	6
68	BLM13D	13.800	V4	38.0	16.9	25.0	0.0	1.0200	40.8	0.9140	47.0	1	6
90	EST-13L	13.800	E1	18.0	7.2	12.0	-5.0	1.0100	19.2	0.9283	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	7.7	12.0	-5.0	1.0100	21.2	0.9331	27.0	1	6
97	FOR13A	13.800	F1	87.0	-22.6	50.0	-50.0	1.0000	89.9	0.9678	111.0	1	6
98	FOR13B	13.800	F2	87.0	-22.6	50.0	-50.0	1.0000	89.9	0.9678	111.0	1	6
99	FOR13C	13.800	F3	87.0	-22.6	50.0	-50.0	1.0000	89.9	0.9678	111.0	1	6
101	BAY13A	13.800	B1	55.3	24.1	50.0	-25.0	1.0000	60.3	0.9170	96.0	1	6
102	BAY13B	13.800	B2	52.5	23.9	50.0	-25.0	1.0000	57.7	0.9104	96.0	1	6
106	PANAM13A	13.800	M1	15.0	6.1	9.0	0.0	1.0000	16.2	0.9261	20.7	1	6
106	PANAM13A	13.800	M2	15.0	6.1	9.0	0.0	1.0000	16.2	0.9261	20.7	1	6
106	PANAM13A	13.800	M3	15.0	6.1	9.0	0.0	1.0000	16.2	0.9261	20.7	1	6
108	BAY13C	13.800	B3	52.5	23.9	50.0	-25.0	1.0000	57.7	0.9104	100.0	1	6
117	CB250A-1	13.800	C1	90.0	5.4	75.6	0.0	1.0000	90.2	0.9982	143.5	1	6
118	CB250A-2	13.800	C2	90.0	5.4	75.6	0.0	1.0000	90.2	0.9982	143.5	1	6
142	CANJ13A	13.800	C1	40.0	12.9	29.0	-29.0	1.0300	40.8	0.9518	69.0	1	6
143	CANJ13B	13.800	C2	40.0	12.9	29.0	-29.0	1.0300	40.8	0.9518	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0219	20.1	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	0.2	5.7	0.2	1.0317	13.6	0.9998	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9964	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9964	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9964	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-4.9	13.0	-13.0	1.0200	22.1	0.9759	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-4.9	13.0	-13.0	1.0200	22.1	0.9759	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9536	10.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9536	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9875	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-4.5	50.0	-50.0	1.0300	77.8	0.9984	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1144	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1144	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0281	14.5	0.9417	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9806	19.4	0.9986	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.0	1.3	2.8	1.3	1.0081	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0081	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0081	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0081	3.2	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
524	TCATIVÁ 13B	13.800	G10	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	1.8	6.6	-6.6	1.0000	7.8	0.9742	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	9.2	18.4	9.2	1.0021	31.3	0.9560	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	7.9	18.4	5.8	1.0000	26.2	0.9533	44.4	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0090	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0090	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0090	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0090	7.5	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1297.0	145.1	889.6	-437.1				2121.5		

SYST



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126	MIR13A	12.000	G1	4.7	0.0	5.0	0.0	1.0654	4.4	1.0000	13.5					2	7	
128	MIR13C	12.000	G3	23.0	2.4	11.0	0.0	1.0000	23.1	0.9946	29.4					2	7	
129	MIR13D	13.800	G4	37.0	2.3	15.0	0.0	1.0000	37.1	0.9981	44.1					2	7	
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0210	18.0	0.9289	23.0					2	7	
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0301	17.9	0.9289	23.0					2	7	
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0301	17.9	0.9289	23.0					2	7	
SUBSYSTEM TOTALS						116.0	25.2	64.5	20.5			156.2						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	239.0	569.4	-236.4	0.0	471.0	18.6	358.4	
6	1297.0	1212.6	0.0	0.0	0.0	51.3	33.1	25.0
PANAMA	145.1	303.9	-60.2	0.0	519.9	67.5	353.9	
7	116.0	47.1	0.0	0.0	0.0	67.8	1.2	50.0
ACANAL	25.2	11.8	0.0	0.0	0.0	-2.4	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.3	
TOTALS	6562.2	6430.7	0.0	0.0	0.0	0.0	131.5	0.0
	627.7	1962.0	-908.0	0.0	2071.0	0.0	1644.7	

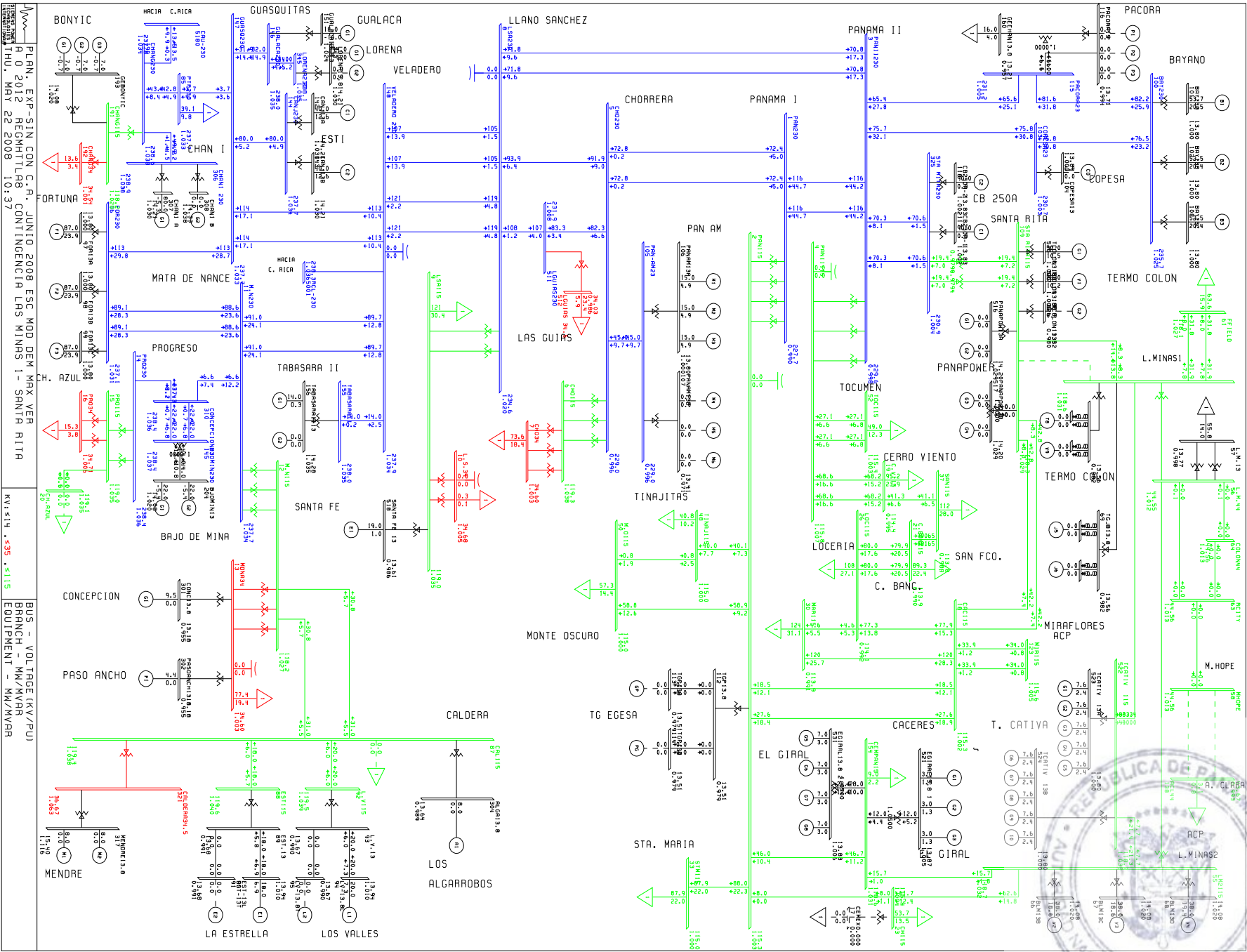


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 6: Contingencia Las Minas 1-Santa Rita**



de



PLAN. EXP. SIN CON C. P. JUNIO 2008 ESC. MOD. DEM. MAX. VER. RITR
 R. O. 2012 RESMHTL18 CONTINGENCIA LAS MINAS I - SANTA RITA
 10/11/08

RY:14 *35 *115
 BUS - VOLTAJE (KV/PU)
 BRNCH - MM/MV
 EQUIPMENT - MM/MV

LA ESTRELLA
 LOS VALLES
 LOS ALGARROBOS
 CALDERA
 MONTE OSCURO
 TIGRESA
 STR. MARIA
 EL GIRAL
 CACERES
 T. CATIVA
 GIRAL
 C. BANG
 LOCIERIA
 SAN FCO.
 MIRAFLORES ACP
 M. HOPE
 A. CLABA
 ACP
 L. MINASI
 TERMO COLON
 L. MINASI
 TERMO COLON
 PANAPOWE
 SANTA RITA
 CB 250A
 PANAMA II
 PANAMA I
 PAN AM
 TINAJITAS
 LAS GUIAS
 CHORRERA
 LLANO SANCHEZ
 GUALACA
 LORENA
 VELADERO
 GURSQUITAS
 HACIA C. RICA
 HACIA C. RICA
 MATA DE NANCE
 PROGRESO
 TABASARA II
 SANTA FE
 BAJO DE MINA
 CONCEPCION
 PASO ANCHO
 MENDRE
 BONYIC
 FORTUNA
 H. AZUL

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:36
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0199	234.59	11	M.N230	230.00	6	1.0336	237.74				
14	PRO230	230.00	6	1.0364	238.37	85	PTP230	230.00	6	1.0333	237.66				
96	FOR230	230.00	6	1.0308	237.08	100	BAY230	230.00	6	1.0250	235.75				
103	COPESA23	230.00	6	1.0029	230.66	115	PACORA23	230.00	6	1.0053	231.22				
144	CANJ230	230.00	6	1.0336	237.73	145	BJOMIN230	230.00	6	1.0366	238.42				
146	GUALACA230	230.00	6	1.0346	237.95	147	GUASQ230	230.00	6	1.0333	237.67				
148	VELADERO	230.00	6	1.0344	237.90	155	TABASARAI	230.00	6	1.0349	238.02				
190	CHANG230	230.00	6	1.0375	238.63	306	CHAN1 230	230.00	6	1.0385	238.85				
310	CONCEPCION23	230.00	6	1.0364	238.38	325	STA RITA230	230.00	6	1.0040	230.93				
345	LORENA230	230.00	6	1.0354	238.13	511	LGUIAS230	230.00	6	1.0085	231.94				
6000	FRONTIER	230.00	6	1.0366	238.42										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9898	227.65	3	PANII230	230.00	6	0.9985	229.65				
5	CHO230	230.00	6	0.9956	228.99	105	PAN-AM23	230.00	6	0.9957	229.01				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:36
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0026	115.30	4	PANII115	115.00	6	1.0065	115.75				
6	CHO115	115.00	6	1.0375	119.32	9	LSA115	115.00	6	1.0349	119.02				
12	M.N115	115.00	6	1.0274	118.16	15	PRO115	115.00	6	1.0346	118.98				
18	CAC115	115.00	6	1.0022	115.25	20	CH.AZUL	115.00	6	1.0354	119.07				
23	CH115	115.00	6	1.0036	115.42	33	STM115	115.00	6	1.0004	115.04				
52	TOC115	115.00	6	1.0031	115.36	54	LM115	115.00	6	1.0314	118.61				
55	LM2115	115.00	6	1.0321	118.70	61	FFIELD	115.00	9	1.0269	118.10				
87	CAL115	115.00	6	1.0381	119.38	88	EST115	115.00	6	1.0399	119.59				
92	L.V115	115.00	6	1.0388	119.46	109	STA RITA115	115.00	6	1.0287	118.30				
123	MIR115	115.00	7	1.0050	115.57	154	CEMPAN15	115.00	6	1.0309	118.56				
191	CHANG115	115.00	6	1.0280	118.22	522	TCATIVÁ	115.00	6	1.0320	118.68				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9950	114.43	21	C.BAN115	115.00	6	0.9905	113.90				
26	LOC115	115.00	6	0.9918	114.06	30	MAR115	115.00	6	0.9905	113.91				
37	SAN115	115.00	6	0.9892	113.75	48	TINAJ115	115.00	6	0.9996	114.95				
50	M.O115	115.00	6	0.9997	114.97										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	18.6	25.0	0.0	1.0200	41.5	0.8984	47.0	1	6
67	BLM13C	13.800	V3	38.0	18.6	25.0	0.0	1.0200	41.5	0.8984	47.0	1	6
68	BLM13D	13.800	V4	38.0	19.4	25.0	0.0	1.0200	41.8	0.8909	47.0	1	6
90	EST-13L	13.800	E1	18.0	6.9	12.0	-5.0	1.0100	19.1	0.9344	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	7.3	12.0	-5.0	1.0100	21.1	0.9386	27.0	1	6
97	FOR13A	13.800	F1	87.0	-23.9	50.0	-50.0	1.0000	90.2	0.9642	111.0	1	6
98	FOR13B	13.800	F2	87.0	-23.9	50.0	-50.0	1.0000	90.2	0.9642	111.0	1	6
99	FOR13C	13.800	F3	87.0	-23.9	50.0	-50.0	1.0000	90.2	0.9642	111.0	1	6
101	BAY13A	13.800	B1	53.7	20.5	50.0	-25.0	1.0000	57.5	0.9341	96.0	1	6
102	BAY13B	13.800	B2	52.5	20.4	50.0	-25.0	1.0000	56.4	0.9319	96.0	1	6
106	PANAM13A	13.800	M1	15.0	4.9	9.0	0.0	1.0000	15.8	0.9497	20.7	1	6
106	PANAM13A	13.800	M2	15.0	4.9	9.0	0.0	1.0000	15.8	0.9497	20.7	1	6
106	PANAM13A	13.800	M3	15.0	4.9	9.0	0.0	1.0000	15.8	0.9497	20.7	1	6
108	BAY13C	13.800	B3	52.5	20.4	50.0	-25.0	1.0000	56.4	0.9319	100.0	1	6
117	CB250A-1	13.800	C1	90.0	0.0	75.6	0.0	1.0022	89.8	1.0000	143.5	1	6
118	CB250A-2	13.800	C2	90.0	0.0	75.6	0.0	1.0022	89.8	1.0000	143.5	1	6
142	CANJ13A	13.800	C1	40.0	12.6	29.0	-29.0	1.0300	40.7	0.9539	69.0	1	6
143	CANJ13B	13.800	C2	40.0	12.6	29.0	-29.0	1.0300	40.7	0.9539	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0237	20.1	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	0.2	5.7	0.2	1.0350	13.5	0.9998	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.7	4.0	-4.0	1.0200	6.9	0.9956	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.7	4.0	-4.0	1.0200	6.9	0.9956	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.7	4.0	-4.0	1.0200	6.9	0.9956	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-5.4	13.0	-13.0	1.0200	22.2	0.9709	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-5.4	13.0	-13.0	1.0200	22.2	0.9709	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9551	9.9	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9551	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9886	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-5.3	50.0	-50.0	1.0300	77.8	0.9978	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1156	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1156	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0300	14.4	0.9417	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9860	19.3	0.9986	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.0	1.3	2.8	1.3	1.0048	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0048	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0048	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0048	3.3	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
524	TCATIVÁ 13B	13.800	G10	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	2.4	6.6	-6.6	1.0000	7.9	0.9544	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	10.5	18.4	9.2	1.0000	31.8	0.9437	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	10.2	18.4	5.8	1.0000	27.0	0.9257	44.4	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0057	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0057	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0057	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0057	7.6	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1295.4	130.1	889.6	-437.1				2121.5		

SYST



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126	MIR13A	12.000	G1	4.7	0.0	5.0	0.0	1.0652	4.4	1.0000	13.5					2	7	
128	MIR13C	12.000	G3	23.0	2.4	11.0	0.0	1.0000	23.1	0.9944	29.4					2	7	
129	MIR13D	13.800	G4	37.0	2.4	15.0	0.0	1.0000	37.1	0.9980	44.1					2	7	
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0209	18.0	0.9289	23.0					2	7	
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0300	17.9	0.9289	23.0					2	7	
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0300	17.9	0.9289	23.0					2	7	
SUBSYSTEM TOTALS						116.0	25.3	64.5	20.5			156.2						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:36
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA IN MW/MVAR

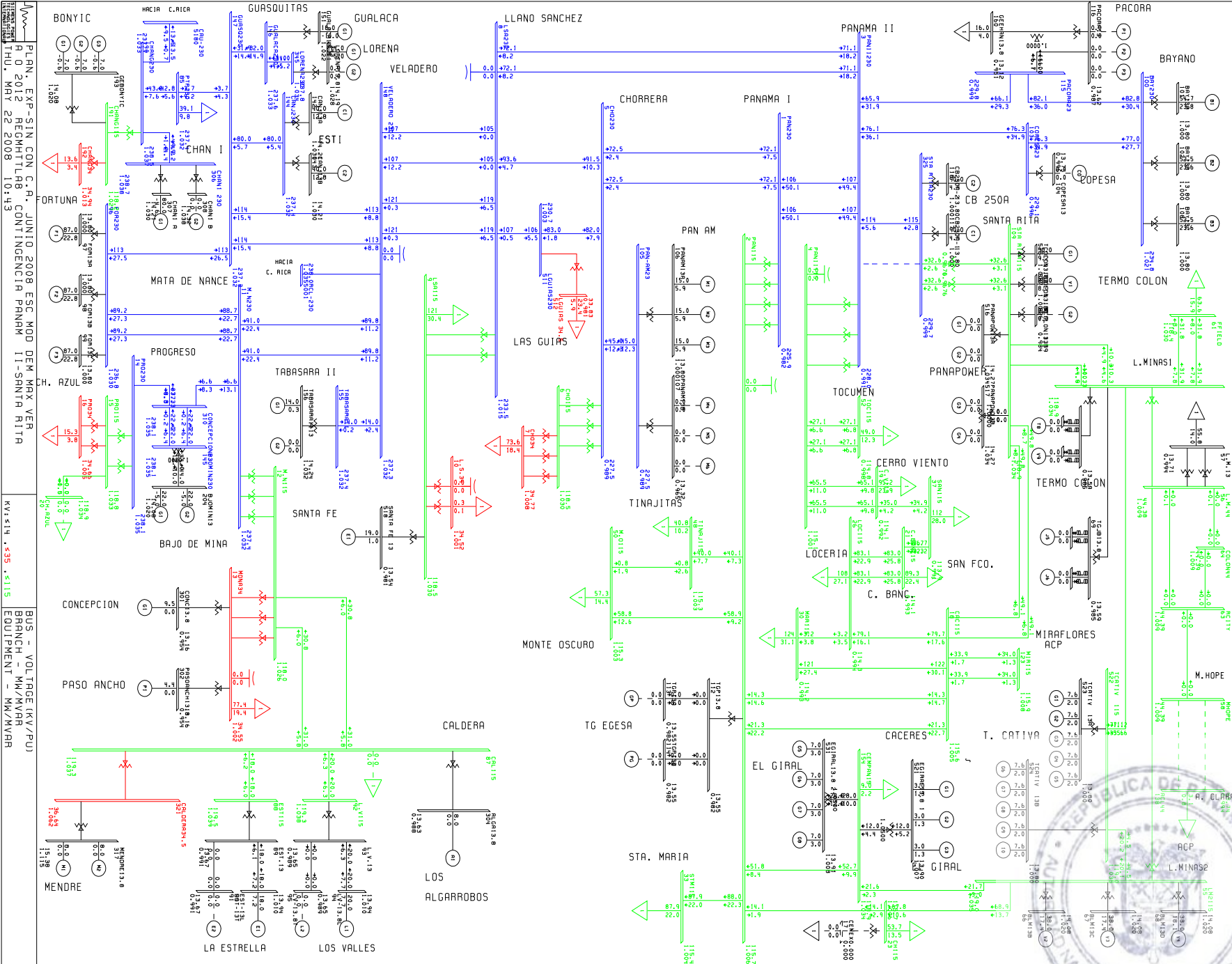
X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.2	224.5	-98.9	0.0	143.3	-97.5	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	236.8	569.4	-236.5	0.0	471.2	16.8	358.3	
6	1295.4	1212.6	0.0	0.0	0.0	51.3	31.5	25.0
PANAMA	130.1	303.9	-60.6	0.0	525.3	69.3	342.8	
7	116.0	47.1	0.0	0.0	0.0	67.8	1.2	50.0
ACANAL	25.3	11.8	0.0	0.0	0.0	-2.3	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.3	
TOTALS	6560.6	6430.7	0.0	0.0	0.0	0.0	129.9	0.0
	610.5	1962.0	-908.5	0.0	2076.6	0.0	1633.7	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 7: Contingencia Panamá II-Santa Rita**

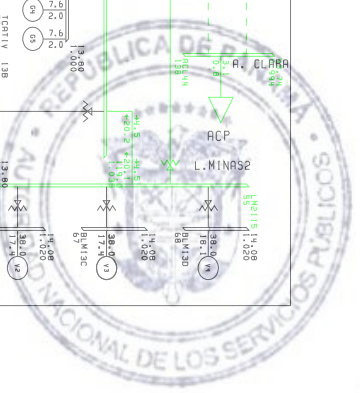




PLAN, EXP-SIN CON C.R. JUNIO 2008 ECC MOD DEM MAX VER
 R. O. 2012 RESMHTL18 CONTINGENCIA PANAM I1-SANTA RITA

BUS - VOLTAGE (KV/VP)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR

KV514 . *35 . 5115



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0152	233.51	11		M.N230		230.00	6	1.0321	237.39
14		PRO230		230.00	6	1.0351	238.08	85		PTP230		230.00	6	1.0320	237.36
96		FOR230		230.00	6	1.0295	236.79	100		BAY230		230.00	6	1.0207	234.77
144		CANJ230		230.00	6	1.0320	237.37	145		BJOMIN230		230.00	6	1.0354	238.15
146		GUALACA230		230.00	6	1.0330	237.59	147		GUASQ230		230.00	6	1.0318	237.31
148		VELADERO	230230.00		6	1.0315	237.25	155		TABASARAI		230.00	6	1.0321	237.37
190		CHANG230		230.00	6	1.0368	238.45	306		CHAN1	230	230.00	6	1.0378	238.69
310		CONCEPCION23	230.00		6	1.0352	238.09	345		LORENA230		230.00	6	1.0338	237.77
511		LGUIAS230		230.00	6	1.0029	230.67	6000		FRONTER		230.00	6	1.0353	238.13

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9822	225.91	3		PANII230		230.00	6	0.9914	228.02
5		CHO230		230.00	6	0.9890	227.47	103		COPESA23		230.00	6	0.9962	229.14
105		PAN-AM23		230.00	6	0.9891	227.49	115		PACORA23		230.00	6	0.9990	229.77
325		STA RITA230		230.00	6	0.9989	229.74								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0058	115.66	4		PANII115		115.00	6	1.0013	115.15
6		CHO115		115.00	6	1.0305	118.51	9		LSA115		115.00	6	1.0301	118.46
12		M.N115		115.00	6	1.0262	118.01	15		PRO115		115.00	6	1.0333	118.83
18		CAC115		115.00	6	1.0053	115.61	20		CH.AZUL		115.00	6	1.0341	118.92
23		CH115		115.00	6	1.0065	115.74	33		STM115		115.00	6	1.0035	115.40
48		TINAJ115		115.00	6	1.0027	115.31	50		M.O115		115.00	6	1.0029	115.33
54		LM1115		115.00	6	1.0343	118.95	55		LM2115		115.00	6	1.0349	119.01
61		FFIELD		115.00	9	1.0299	118.44	87		CAL115		115.00	6	1.0370	119.26
88		EST115		115.00	6	1.0390	119.48	92		L.V115		115.00	6	1.0378	119.34
109		STA RITA115		115.00	6	1.0337	118.88	123		MIR115		115.00	7	1.0079	115.91
154		CEMPAN15		115.00	6	1.0336	118.87	191		CHANG115		115.00	6	1.0275	118.16
522		TCATIVÁ	115	115.00	6	1.0348	119.01								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9921	114.09	21		C.BAN115		115.00	6	0.9925	114.14
26		LOC115		115.00	6	0.9941	114.32	30		MAR115		115.00	6	0.9932	114.22
37		SAN115		115.00	6	0.9908	113.94	52		TOC115		115.00	6	0.9978	114.75

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	17.4	25.0	0.0	1.0200	41.0	0.9096	47.0	1	6
67	BLM13C	13.800	V3	38.0	17.4	25.0	0.0	1.0200	41.0	0.9096	47.0	1	6
68	BLM13D	13.800	V4	38.0	18.1	25.0	0.0	1.0200	41.3	0.9028	47.0	1	6
90	EST-13L	13.800	E1	18.0	7.2	12.0	-5.0	1.0100	19.2	0.9292	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	7.7	12.0	-5.0	1.0100	21.2	0.9339	27.0	1	6
97	FOR13A	13.800	F1	87.0	-22.8	50.0	-50.0	1.0000	89.9	0.9673	111.0	1	6
98	FOR13B	13.800	F2	87.0	-22.8	50.0	-50.0	1.0000	89.9	0.9673	111.0	1	6
99	FOR13C	13.800	F3	87.0	-22.8	50.0	-50.0	1.0000	89.9	0.9673	111.0	1	6
101	BAY13A	13.800	B1	54.7	23.8	50.0	-25.0	1.0000	59.7	0.9172	96.0	1	6
102	BAY13B	13.800	B2	52.5	23.6	50.0	-25.0	1.0000	57.6	0.9120	96.0	1	6
106	PANAM13A	13.800	M1	15.0	5.9	9.0	0.0	1.0000	16.1	0.9309	20.7	1	6
106	PANAM13A	13.800	M2	15.0	5.9	9.0	0.0	1.0000	16.1	0.9309	20.7	1	6
106	PANAM13A	13.800	M3	15.0	5.9	9.0	0.0	1.0000	16.1	0.9309	20.7	1	6
108	BAY13C	13.800	B3	52.5	23.6	50.0	-25.0	1.0000	57.6	0.9120	100.0	1	6
117	CB250A-1	13.800	C1	90.0	4.4	75.6	0.0	1.0000	90.1	0.9988	143.5	1	6
118	CB250A-2	13.800	C2	90.0	4.4	75.6	0.0	1.0000	90.1	0.9988	143.5	1	6
142	CANJ13A	13.800	C1	40.0	12.8	29.0	-29.0	1.0300	40.8	0.9521	69.0	1	6
143	CANJ13B	13.800	C2	40.0	12.8	29.0	-29.0	1.0300	40.8	0.9521	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0222	20.1	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	14.0	0.2	5.7	0.2	1.0321	13.6	0.9998	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9963	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9963	35.3	1	6
193	GEBONYIC	13.800	G3	7.0	-0.6	4.0	-4.0	1.0200	6.9	0.9963	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-5.0	13.0	-13.0	1.0200	22.1	0.9752	28.9	1	6
204	BJOMIN13	13.800	G2	22.0	-5.0	13.0	-13.0	1.0200	22.1	0.9752	28.9	1	6
301	CONC13.8	13.800	G1	9.5	0.0	0.0	-5.0	0.9538	10.0	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	0.0	0.0	-2.0	0.9538	4.6	1.0000	6.2	1	6
304	ALGA13.8	13.800	A1	8.0	0.0	0.0	0.0	0.9877	8.1	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-4.6	50.0	-50.0	1.0300	77.8	0.9984	118.6	1	6
317	MENDRE13.8	13.800	M1	8.0	0.0	0.0	0.0	1.1145	7.2	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.0	0.0	0.0	0.0	1.1145	7.2	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	-5.0	10.5	-5.0	1.0284	14.5	0.9417	19.9	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9813	19.4	0.9986	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.0	1.3	2.8	1.3	1.0074	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0074	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0074	3.2	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0074	3.2	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	2.0	6.6	-6.6	1.0000	7.8	0.9659	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	9.2	18.4	9.2	1.0019	31.3	0.9560	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	8.0	18.4	5.8	1.0000	26.2	0.9527	44.4	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0082	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0082	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0082	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0082	7.6	0.9191	10.9	1	6
SUBSYSTEM TOTALS				1296.4	147.0	889.6	-437.1				2121.5		

SYST



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012 REGMHTTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
126		MIR13A		12.000	G1	4.7	0.0	5.0	0.0	1.0669	4.4	1.0000	13.5			2	7	
128		MIR13C		12.000	G3	23.0	2.0	11.0	0.0	1.0000	23.1	0.9962	29.4			2	7	
129		MIR13D		13.800	G4	37.0	1.7	15.0	0.0	1.0000	37.0	0.9989	44.1			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0224	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0315	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0315	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	24.2	64.5	20.5				156.2					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 REGMHTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA IN MW/MVAR

X-- AREA	--X GENERATION	FROM LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	238.7	569.4	-236.4	0.0	471.0	18.3	358.3	
6	1296.4	1212.6	0.0	0.0	0.0	51.3	32.5	25.0
PANAMA	147.0	303.9	-60.4	0.0	513.7	68.7	348.5	
7	116.0	47.1	0.0	0.0	0.0	67.8	1.2	50.0
ACANAL	24.2	11.8	0.0	0.0	0.0	-3.3	15.8	
9	0.0	119.5	0.0	0.0	0.0	-119.6	0.1	-75.0
COLON	0.0	29.9	0.0	0.0	1.1	-37.1	8.3	
TOTALS	6561.6	6430.7	0.0	0.0	0.0	0.0	130.9	0.0
	628.3	1962.0	-908.3	0.0	2064.7	0.0	1639.3	



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AÑO 2016

Caso 1: REGMHTCB8



de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0167	233.85	14	PRO230	230.00	6	1.0212	234.88				
85	PTP230	230.00	6	1.0122	232.81	96	FOR230	230.00	6	1.0186	234.27				
100	BAY230	230.00	6	1.0217	234.98	144	CANJ230	230.00	6	1.0113	232.59				
145	BJOMIN230	230.00	6	1.0278	236.39	146	GUALACA230	230.00	6	1.0161	233.70				
147	GUASQ230	230.00	6	1.0111	232.55	190	CHANG230	230.00	6	1.0241	235.54				
306	CHAN1 230	230.00	6	1.0263	236.05	310	CONCEPCION230	230.00	6	1.0234	235.38				
325	STA RITA230	230.00	6	1.0053	231.22	341	PRUDENCIA230	230.00	6	1.0240	235.51				
345	LORENA230	230.00	6	1.0213	234.90	6000	FRONTER	230.00	6	1.0209	234.80				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9843	226.40	3	PANII230	230.00	6	0.9924	228.26				
5	CHO230	230.00	6	0.9807	225.56	8	LSA230	230.00	6	0.9885	227.36				
103	COPESA23	230.00	6	0.9973	229.37	105	PAN-AM23	230.00	6	0.9807	225.56				
115	PACORA23	230.00	6	0.9997	229.94	148	VELADERO 230	230.00	6	0.9972	229.37				
155	TABASARAI	230.00	6	0.9988	229.72	511	LGUIAS230	230.00	6	0.9823	225.93				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0129	116.48	4	PANII115	115.00	6	1.0148	116.70				
6	CHO115	115.00	6	1.0190	117.18	9	LSA115	115.00	6	1.0338	118.89				
12	M.N115	115.00	6	1.0215	117.48	15	PRO115	115.00	6	1.0188	117.16				
18	CAC115	115.00	6	1.0122	116.40	19	C.V115	115.00	6	1.0017	115.20				
20	CH.AZUL	115.00	6	1.0195	117.25	23	CH115	115.00	6	1.0067	115.77				
33	STM115	115.00	6	1.0102	116.17	48	TINAJ115	115.00	6	1.0092	116.05				
50	M.O115	115.00	6	1.0093	116.07	52	TOC115	115.00	6	1.0107	116.23				
54	LM1115	115.00	6	1.0294	118.38	55	LM2115	115.00	6	1.0297	118.41				
61	FFIELD	115.00	9	1.0240	117.76	87	CAL115	115.00	6	1.0495	120.69				
88	EST115	115.00	6	1.0551	121.34	92	L.V115	115.00	6	1.0515	120.92				
109	STA RITA115	115.00	6	1.0330	118.79	123	MIR115	115.00	7	1.0148	116.70				
154	CEMPAN15	115.00	6	1.0241	117.77	191	CHANG115	115.00	6	1.0143	116.65				
522	TCATIVÁ	115.00	6	1.0296	118.40										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21	C.BAN115	115.00	6	0.9978	114.75	26	LOC115	115.00	6	0.9995	114.94				
30	MAR115	115.00	6	0.9981	114.79	37	SAN115	115.00	6	0.9962	114.56				



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	38.0	19.7	25.0	0.0	1.0200	41.9	0.8883	47.0			1	6	
67		BLM13C		13.800	V3	38.0	19.7	25.0	0.0	1.0200	41.9	0.8883	47.0			1	6	
68		BLM13D		13.800	V4	38.0	20.5	25.0	0.0	1.0200	42.3	0.8800	47.0			1	6	
90		EST-13L		13.800	E1	22.0	12.0	12.0	-5.0	1.0403	24.1	0.8779	27.0			1	6	
91		EST-13T		13.800	E2	22.0	12.0	12.0	-5.0	1.0403	24.1	0.8779	27.0			1	6	
94		LV-13.8L		13.800	L1	24.0	12.0	12.0	-5.0	1.0365	25.9	0.8944	27.0			1	6	
95		LV-13.8T		13.800	L2	24.0	12.0	12.0	-5.0	1.0365	25.9	0.8944	27.0			1	6	
97		FOR13A		13.800	F1	95.0	10.8	50.0	-50.0	1.0250	93.3	0.9936	111.0			1	6	
98		FOR13B		13.800	F2	95.0	10.8	50.0	-50.0	1.0250	93.3	0.9936	111.0			1	6	
99		FOR13C		13.800	F3	95.0	10.8	50.0	-50.0	1.0250	93.3	0.9936	111.0			1	6	
101		BAY13A		13.800	B1	67.4	38.9	50.0	-25.0	1.0181	76.4	0.8663	96.0			1	6	SYST
102		BAY13B		13.800	B2	67.4	38.9	50.0	-25.0	1.0181	76.4	0.8663	96.0			1	6	
117		CB250A-1		13.800	C1	106.3	41.1	75.6	0.0	1.0300	110.6	0.9326	143.5			1	6	
118		CB250A-2		13.800	C2	106.3	41.1	75.6	0.0	1.0300	110.6	0.9326	143.5			1	6	
142		CANJ13A		13.800	C1	57.0	19.9	29.0	-29.0	1.0200	59.2	0.9439	69.0			1	6	
143		CANJ13B		13.800	C2	57.0	19.9	29.0	-29.0	1.0200	59.2	0.9439	69.0			1	6	
151		GUALACA13.8		13.800	G1	23.2	-5.3	10.0	-10.0	1.0100	23.6	0.9745	26.7			1	6	
156		TABASARAI1313.800		G1	15.5	3.1	5.7	0.2	1.0100	15.7	0.9810	20.5			1	6		
156		TABASARAI1313.800		G2	15.5	3.1	5.7	0.2	1.0100	15.7	0.9810	20.5			1	6		
193		GEBONYIC		13.800	G1	9.0	-0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3			1	6	
193		GEBONYIC		13.800	G2	9.0	-0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3			1	6	
193		GEBONYIC		13.800	G3	9.0	-0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3			1	6	
204		BJOMIN13		13.800	G1	23.0	-5.7	13.0	-13.0	1.0100	23.5	0.9705	28.9			1	6	
204		BJOMIN13		13.800	G2	23.0	-5.7	13.0	-13.0	1.0100	23.5	0.9705	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.0	14.2	26.6	-26.6	1.0100	40.2	0.9368	50.6			1	6	
205		BAITUN13.8		13.800	G2	38.0	14.2	26.6	-26.6	1.0100	40.2	0.9368	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9666	11.1	0.8849	13.5			1	6	
302		PASOANCH13.813.800		P1	4.4	2.0	2.0	-2.0	0.9647	5.0	0.9110	6.2			1	6		
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1265	8.4	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	1.0007	8.2	0.9701	13.5			1	6	
307		CHAN1 A		13.800	G1	105.2	-0.7	50.0	-50.0	1.0200	103.1	1.0000	118.6			1	6	
308		CHAN1 B		13.800	G2	105.2	-0.7	50.0	-50.0	1.0200	103.1	1.0000	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-0.2	10.0	-5.0	1.0100	14.3	0.9999	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-0.2	10.0	-5.0	1.0100	14.3	0.9999	19.9			1	6	
316		MONTE LIRIO		13.800	G1	23.2	-2.7	12.0	-5.0	1.0100	23.2	0.9933	27.0			1	6	
316		MONTE LIRIO		13.800	G2	23.2	-2.7	12.0	-5.0	1.0100	23.2	0.9933	27.0			1	6	
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1260	7.9	1.0000	35.3			1	6	
317		MENDRE13.8		13.800	M2	8.9	0.0	4.0	0.0	1.1260	7.9	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	16.0	0.0	10.5	0.0	1.0208	15.7	1.0000	19.9			1	6	
342		LORENA13.8		13.800	G2	16.0	0.0	10.5	0.0	1.0208	15.7	1.0000	19.9			1	6	
343		PRUDENCIA13813.800		G1	25.3	-5.8	9.8	-9.8	1.0100	25.7	0.9748	33.0			1	6		
343		PRUDENCIA13813.800		G2	25.3	-5.8	9.8	-9.8	1.0100	25.7	0.9748	33.0			1	6		
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	0.9814	4.0	0.9433	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.6	-0.3	6.6	-6.6	0.9800	7.7	0.9994	10.9			1	6	
525		TCOLON 13A		13.800	G1	36.0	9.2	18.4	9.2	1.0003	37.1	0.9689	44.4			1	6	
SUBSYSTEM TOTALS						1620.2	357.8	929.1	-521.3				2146.0					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTCB8

THU, MAY 29 2008 15:49

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	3.2	11.0	0.0	1.0100	12.9	0.9691	29.4			2	7	
129		MIR13D		13.800	G4	35.0	2.5	15.0	0.0	1.0100	34.7	0.9975	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0169	16.8	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0313	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0403	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0403	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	26.2	67.5	20.5				170.3					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTCB8

THU, MAY 29 2008 15:50

AREA TOTALS
 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1			1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
	GUATEMAL		29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2			911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
	SALVADOR		100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3			1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0



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HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.9	224.5	-98.9	0.0	143.2	-96.9	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.1	20.0	0.0
C.RICA	264.3	569.4	-237.2	0.0	468.3	39.2	361.2	
6	1620.2	1447.1	0.0	0.0	0.0	83.7	89.5	25.0
PANAMA	357.8	362.7	-342.9	0.0	552.2	54.0	836.2	
7	116.0	56.2	0.0	0.0	0.0	59.0	0.9	50.0
ACANAL	26.2	14.1	0.0	0.0	0.0	-0.8	12.9	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.5	11.9	
TOTALS	6885.4	6697.4	0.0	0.0	0.0	0.0	188.1	0.0
	867.5	2028.8	-1191.5	0.0	2100.4	0.0	2130.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0048	231.11	8		LSA230		230.00	6	1.0294	236.76
11		M.N230		230.00	6	1.0304	236.98	14		PRO230		230.00	6	1.0337	237.76
85		PTP230		230.00	6	1.0247	235.67	96		FOR230		230.00	6	1.0278	236.40
100		BAY230		230.00	6	1.0290	236.67	103		COPESA23		230.00	6	1.0046	231.05
105		PAN-AM23		230.00	6	1.0049	231.13	115		PACORA23		230.00	6	1.0091	232.09
144		CANJ230		230.00	6	1.0279	236.43	145		BJOMIN230		230.00	6	1.0358	238.23
146		GUALACA230		230.00	6	1.0304	236.99	147		GUASQ230		230.00	6	1.0278	236.39
148		VELADERO	230	230.00	6	1.0339	237.80	155		TABASARAI		230.00	6	1.0342	237.86
190		CHANG230		230.00	6	1.0270	236.20	306		CHAN1 230		230.00	6	1.0267	236.14
310		CONCEPCION23	230	230.00	6	1.0342	237.87	325		STA RITA230		230.00	6	1.0055	231.27
341		PRUDENCIA230	230	230.00	6	1.0345	237.93	345		LORENA230		230.00	6	1.0331	237.61
511		LGUIAS230		230.00	6	1.0197	234.53	6000		FRONTER		230.00	6	1.0340	237.81

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9942	228.67	3		PANII230		230.00	6	1.0000	229.99

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0157	116.81	4		PANII115		115.00	6	1.0095	116.10
6		CHO115		115.00	6	1.0443	120.09	9		LSA115		115.00	6	1.0651	122.49
12		M.N115		115.00	6	1.0233	117.68	15		PRO115		115.00	6	1.0312	118.59
18		CAC115		115.00	6	1.0149	116.72	20		CH.AZUL		115.00	6	1.0320	118.68
23		CH115		115.00	6	1.0101	116.16	26		LOC115		115.00	6	1.0012	115.13
30		MAR115		115.00	6	1.0002	115.02	33		STM115		115.00	6	1.0129	116.49
48		TINAJ115		115.00	6	1.0119	116.37	50		M.O115		115.00	6	1.0121	116.39
52		TOC115		115.00	6	1.0054	115.62	54		LM1115		115.00	6	1.0353	119.06
55		LM2115		115.00	6	1.0356	119.09	61		FFIELD		115.00	9	1.0298	118.43
87		CAL115		115.00	6	1.0330	118.79	88		EST115		115.00	6	1.0344	118.95
92		L.V115		115.00	6	1.0337	118.88	109		STA RITA115		115.00	6	1.0382	119.40
123		MIR115		115.00	7	1.0173	116.99	154		CEMPAN15		115.00	6	1.0361	119.15
191		CHANG115		115.00	6	1.0163	116.88	522		TCATIVÁ	115	115.00	6	1.0357	119.10

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9983	114.81	21		C.BAN115		115.00	6	0.9992	114.91
37		SAN115		115.00	6	0.9970	114.66								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:56
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTCB8

AREA 6 [PANAMA] MACHINE SUMMARY:



Handwritten signature or initials.

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	12.2	25.0	0.0	1.0100	37.6	0.9470	47.0			1	6	
67		BLM13C		13.800	V3	36.0	12.2	25.0	0.0	1.0100	37.6	0.9470	47.0			1	6	
68		BLM13D		13.800	V4	36.0	12.7	25.0	0.0	1.0100	37.8	0.9430	47.0			1	6	
90		EST-13L		13.800	E1	13.0	5.0	12.0	-5.0	1.0000	13.9	0.9322	27.0			1	6	
94		LV-13.8L		13.800	L1	17.6	8.8	12.0	-5.0	1.0100	19.5	0.8951	27.0			1	6	
97		FOR13A		13.800	F1	68.9	-13.9	50.0	-50.0	1.0100	69.6	0.9804	111.0			1	6	
98		FOR13B		13.800	F2	68.9	-13.9	50.0	-50.0	1.0100	69.6	0.9804	111.0			1	6	
99		FOR13C		13.800	F3	68.9	-13.9	50.0	-50.0	1.0100	69.6	0.9804	111.0			1	6	
101		BAY13A		13.800	B1	79.3	19.8	50.0	-25.0	1.0000	81.8	0.9704	96.0			1	6	SYST
102		BAY13B		13.800	B2	79.4	19.8	50.0	-25.0	1.0000	81.8	0.9704	96.0			1	6	
106		PANAM13A		13.800	M1	14.5	5.1	9.0	0.0	1.0100	15.2	0.9440	20.7			1	6	
106		PANAM13A		13.800	M2	14.5	5.1	9.0	0.0	1.0100	15.2	0.9440	20.7			1	6	
106		PANAM13A		13.800	M3	14.5	5.1	9.0	0.0	1.0100	15.2	0.9440	20.7			1	6	
108		BAY13C		13.800	B3	80.9	27.9	50.0	-25.0	1.0100	84.7	0.9452	100.0			1	6	
116		PACORA13		13.800	P1	16.0	3.1	8.8	0.0	1.0100	16.1	0.9821	21.7			1	6	
116		PACORA13		13.800	P2	16.0	3.1	8.8	0.0	1.0100	16.1	0.9821	21.7			1	6	
116		PACORA13		13.800	P3	16.0	3.1	8.8	0.0	1.0100	16.1	0.9821	21.7			1	6	
117		CB250A-1		13.800	C1	106.3	10.4	75.6	0.0	1.0100	105.8	0.9952	143.5			1	6	
118		CB250A-2		13.800	C2	106.3	10.4	75.6	0.0	1.0100	105.8	0.9952	143.5			1	6	
142		CANJ13A		13.800	C1	44.7	11.4	29.0	-29.0	1.0100	45.7	0.9689	69.0			1	6	
143		CANJ13B		13.800	C2	44.7	11.4	29.0	-29.0	1.0100	45.7	0.9689	69.0			1	6	
151		GUALACA13.8		13.800	G1	13.4	-5.0	10.0	-5.0	1.0250	14.0	0.9369	26.7			1	6	
156		TABASARAI13		13.800	G1	3.8	0.2	5.7	0.2	1.0347	3.7	0.9978	20.5			1	6	
193		GEBONYIC		13.800	G1	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9991	35.3			1	6	
193		GEBONYIC		13.800	G2	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9991	35.3			1	6	
193		GEBONYIC		13.800	G3	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9991	35.3			1	6	
204		BJOMIN13		13.800	G1	18.9	-8.9	13.0	-13.0	1.0100	20.7	0.9056	28.9			1	6	
204		BJOMIN13		13.800	G2	18.9	-8.9	13.0	-13.0	1.0100	20.7	0.9056	28.9			1	6	
205		BAITUN13.8		13.800	G1	28.7	10.4	26.6	-26.6	1.0100	30.2	0.9406	50.6			1	6	
205		BAITUN13.8		13.800	G2	28.7	10.4	26.6	-26.6	1.0100	30.2	0.9406	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9647	11.1	0.8849	13.5			1	6	
303		SIND13.8		13.800	G1	4.3	0.0	5.0	0.0	1.1113	3.9	1.0000	13.5			1	6	
307		CHAN1 A		13.800	G1	77.9	-13.2	50.0	-50.0	1.0100	78.2	0.9860	118.6			1	6	
308		CHAN1 B		13.800	G2	77.9	-13.2	50.0	-50.0	1.0100	78.2	0.9860	118.6			1	6	
311		PANDO13.8		13.800	G1	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9865	19.9			1	6	
311		PANDO13.8		13.800	G2	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9865	19.9			1	6	
316		MONTE LIRIO		13.800	G1	18.6	-4.9	12.0	-5.0	1.0100	19.0	0.9671	27.0			1	6	
316		MONTE LIRIO		13.800	G2	18.6	-4.9	12.0	-5.0	1.0100	19.0	0.9671	27.0			1	6	
317		MENDRE13.8		13.800	M1	5.1	0.0	4.0	0.0	1.1111	4.6	1.0000	35.3			1	6	
317		MENDRE13.8		13.800	M2	5.1	0.0	4.0	0.0	1.1111	4.6	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	11.0	-5.0	10.5	-5.0	1.0222	11.8	0.9104	19.9			1	6	
342		LORENA13.8		13.800	G2	11.0	-5.0	10.5	-5.0	1.0222	11.8	0.9104	19.9			1	6	
343		PRUDENCIA138		13.800	G1	15.2	-6.5	9.8	-9.8	1.0200	16.2	0.9187	33.0			1	6	
343		PRUDENCIA138		13.800	G2	15.2	-6.5	9.8	-9.8	1.0200	16.2	0.9187	33.0			1	6	
521		EGIRAL13.8		113.800	G1	2.9	1.3	2.8	1.3	1.0097	3.1	0.9123	4.8			1	6	
521		EGIRAL13.8		113.800	G2	2.9	1.3	2.8	1.3	1.0097	3.1	0.9123	4.8			1	6	
521		EGIRAL13.8		113.800	G3	2.9	1.3	2.8	1.3	1.0097	3.1	0.9123	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	1.0097	3.2	0.9173	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9970	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9970	10.9			1	6	
523		TCATIVÁ 13A		13.800	G3	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9970	10.9			1	6	
523		TCATIVÁ 13A		13.800	G4	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9970	10.9			1	6	
523		TCATIVÁ 13A		13.800	G5	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9970	10.9			1	6	
524		TCATIVÁ 13B		13.800	10	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9146	10.9			1	6	
524		TCATIVÁ 13B		13.800	G6	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9146	10.9			1	6	
524		TCATIVÁ 13B		13.800	G7	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9146	10.9			1	6	
524		TCATIVÁ 13B		13.800	G8	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9146	10.9			1	6	



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524	TCATIVÁ	13B	13.800	G9	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9146	10.9	1	6
525	TCOLON	13A	13.800	G1	36.8	9.2	18.4	9.2	1.0052	37.7	0.9701	44.4	1	6
526	TCOLON	13B	13.800	G2	36.8	11.5	18.4	9.2	1.0100	38.2	0.9543	44.4	1	6
527	TCOLON	13C	13.800	V1	36.8	11.5	18.4	5.8	1.0100	38.2	0.9543	44.4	1	6
531	EGIRAL	13.8	213.800	G5	6.5	3.8	6.4	3.0	1.0100	7.4	0.8647	10.9	1	6
531	EGIRAL	13.8	213.800	G6	6.5	3.8	6.4	3.0	1.0100	7.4	0.8647	10.9	1	6
531	EGIRAL	13.8	213.800	G7	6.5	3.8	6.4	3.0	1.0100	7.4	0.8647	10.9	1	6
SUBSYSTEM TOTALS					1618.2	146.6	1122.4	-570.7				2513.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:56
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 REGMHTCB8

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	2.9	11.0	0.0	1.0100	12.8	0.9746	29.4			2	7	
129		MIR13D		13.800	G4	35.0	2.0	15.0	0.0	1.0100	34.7	0.9983	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0181	16.8	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0324	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0414	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0414	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	25.4	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 15:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTCB8 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	245.2	569.4	-237.8	0.0	470.5	25.3	358.9	
6	1618.2	1486.6	0.0	0.0	0.0	88.8	42.8	25.0
PANAMA	146.6	372.6	-191.1	0.0	577.7	71.0	471.8	
7	116.0	57.7	0.0	0.0	0.0	57.4	0.9	50.0
ACANAL	25.4	14.5	0.0	0.0	0.0	-1.7	12.6	
9	0.0	146.4	0.0	0.0	0.0	-146.6	0.2	-75.0
COLON	0.0	36.7	0.0	0.0	1.1	-48.2	12.6	
TOTALS	6883.4	6742.2	0.0	0.0	0.0	0.0	141.2	0.0
	635.7	2040.0	-1040.4	0.0	2128.2	0.0	1764.3	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2016 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0090	232.08	3	PANII230	230.00	6	1.0110	232.53				
5	CHO230	230.00	6	1.0109	232.51	8	LSA230	230.00	6	1.0095	232.18				
11	M.N230	230.00	6	1.0189	234.34	14	PRO230	230.00	6	1.0261	236.01				
85	PTP230	230.00	6	1.0213	234.90	96	FOR230	230.00	6	1.0186	234.27				
100	BAY230	230.00	6	1.0148	233.39	103	COPESA23	230.00	6	1.0121	232.78				
105	PAN-AM23	230.00	6	1.0109	232.51	115	PACORA23	230.00	6	1.0127	232.93				
144	CANJ230	230.00	6	1.0201	234.61	145	BJOMIN230	230.00	6	1.0246	235.65				
146	GUALACA230	230.00	6	1.0215	234.95	147	GUASQ230	230.00	6	1.0200	234.61				
148	VELADERO 230230.00	6	1.0185	234.26	155	TABASARAI	230.00	6	1.0188	234.33					
190	CHANG230	230.00	6	1.0215	234.95	306	CHAN1 230	230.00	6	1.0194	234.47				
310	CONCEPCION23230.00	6	1.0241	235.54	325	STA RITA230	230.00	6	1.0169	233.89					
341	PRUDENCIA230230.00	6	1.0237	235.46	345	LORENA230	230.00	6	1.0230	235.28					
511	LGUIAS230	230.00	6	1.0117	232.69	6000	FRONTER	230.00	6	1.0267	236.15				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2016 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0019	115.22	4	PANII115	115.00	6	1.0042	115.49				
6	CHO115	115.00	6	1.0597	121.86	9	LSA115	115.00	6	1.0223	117.56				
15	PRO115	115.00	6	1.0258	117.96	18	CAC115	115.00	6	1.0017	115.19				
20	CH.AZUL	115.00	6	1.0265	118.05	23	CH115	115.00	6	1.0029	115.34				
33	STM115	115.00	6	1.0008	115.09	48	TINAJ115	115.00	6	1.0007	115.07				
50	M.O115	115.00	6	1.0007	115.08	52	TOC115	115.00	6	1.0026	115.30				
54	LM1115	115.00	6	1.0165	116.90	55	LM2115	115.00	6	1.0168	116.93				
61	FFIELD	115.00	9	1.0144	116.65	87	CAL115	115.00	6	1.0076	115.87				
88	EST115	115.00	6	1.0092	116.06	92	L.V115	115.00	6	1.0082	115.95				
109	STA RITA115	115.00	6	1.0168	116.93	123	MIR115	115.00	7	1.0014	115.16				
154	CEMPAN15	115.00	6	1.0194	117.23	191	CHANG115	115.00	6	1.0135	116.55				
522	TCATIVÁ	115.00	6	1.0167	116.92										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
12	M.N115	115.00	6	0.9985	114.82	19	C.V115	115.00	6	0.9988	114.86				
21	C.BAN115	115.00	6	0.9965	114.59	26	LOC115	115.00	6	0.9970	114.66				



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30 MAR115 115.00 6 0.9962 114.57 37 SAN115 115.00 6 0.9959 114.53

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2016 REGMHTCB8

AREA 6 [PANAMA] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	31.0	6.3	25.0	0.0	0.9800	32.3	0.9802	47.0			1	6		
67		BLM13C		13.800	V3	31.0	6.3	25.0	0.0	0.9800	32.3	0.9802	47.0			1	6		
90		EST-13L		13.800	E1	12.0	6.2	12.0	-5.0	0.9800	13.8	0.8894	27.0			1	6		
94		LV-13.8L		13.800	L1	17.0	6.7	12.0	-5.0	0.9800	18.6	0.9302	27.0			1	6		
97		FOR13A		13.800	F1	65.9	-33.7	50.0	-50.0	0.9780	75.7	0.8907	111.0			1	6	SYST	
106		PANAM13A		13.800	M1	14.5	0.0	9.0	0.0	0.9839	14.7	1.0000	20.7			1	6		
106		PANAM13A		13.800	M2	14.5	0.0	9.0	0.0	0.9839	14.7	1.0000	20.7			1	6		
116		PACORA13		13.800	P1	16.0	0.0	8.8	0.0	1.0082	15.9	1.0000	21.7			1	6		
117		CB250A-1		13.800	C1	66.0	0.0	75.6	0.0	1.0159	65.0	1.0000	143.5			1	6		
142		CANJ13A		13.800	C1	35.0	5.3	29.0	-29.0	0.9800	36.1	0.9885	69.0			1	6		
151		GUALACA13.8		13.800	G1	10.0	-5.0	10.0	-5.0	1.0161	11.0	0.8944	26.7			1	6		
156		TABASARAI13		13.800	G1	4.0	0.2	5.7	0.2	1.0193	3.9	0.9981	20.5			1	6		
193		GEBONYIC		13.800	G1	8.0	-4.0	4.0	-4.0	1.0007	8.9	0.8944	35.3			1	6		
204		BJOMIN13		13.800	G1	18.0	-7.0	13.0	-7.0	1.0146	19.0	0.9320	28.9			1	6		
205		BAITUN13.8		13.800	G1	28.0	3.8	26.6	-26.6	0.9800	28.8	0.9911	50.6			1	6		
303		SIND13.8		13.800	G1	4.0	0.0	5.0	0.0	1.0846	3.7	1.0000	13.5			1	6		
307		CHAN1 A		13.800	G1	50.0	-26.8	50.0	-50.0	0.9900	57.3	0.8817	118.6			1	6		
311		PANDO13.8		13.800	G1	9.0	-5.0	10.0	-5.0	0.9923	10.4	0.8742	19.9			1	6		
316		MONTE LIRIO		13.800	G1	15.0	-5.0	12.0	-5.0	1.0126	15.6	0.9487	27.0			1	6		
317		MENDRE13.8		13.800	M1	5.0	0.0	4.0	0.0	1.0846	4.6	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	11.0	-5.0	10.5	-5.0	1.0175	11.9	0.9104	19.9			1	6		
343		PRUDENCIAL38		13.800	G1	15.0	-5.0	9.8	-5.0	1.0183	15.5	0.9487	33.0			1	6		
521		EGIRAL13.8		113.800	G1	2.9	1.3	2.8	1.3	0.9941	3.2	0.9123	4.8			1	6		
521		EGIRAL13.8		113.800	G2	2.9	1.3	2.8	1.3	0.9941	3.2	0.9123	4.8			1	6		
521		EGIRAL13.8		113.800	G3	2.9	1.3	2.8	1.3	0.9941	3.2	0.9123	4.8			1	6		
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	0.9941	3.3	0.9173	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.2	2.5	6.6	-6.6	0.9800	7.8	0.9448	10.9			1	6		
523		TCATIVÁ 13A		13.800	G2	7.2	2.5	6.6	-6.6	0.9800	7.8	0.9448	10.9			1	6		
523		TCATIVÁ 13A		13.800	G3	7.2	2.5	6.6	-6.6	0.9800	7.8	0.9448	10.9			1	6		
525		TCOLON 13A		13.800	G1	36.0	9.2	18.4	9.2	0.9851	37.7	0.9688	44.4			1	6		
526		TCOLON 13B		13.800	G2	36.0	9.2	18.4	9.2	0.9851	37.7	0.9688	44.4			1	6		
527		TCOLON 13C		13.800	V1	36.0	6.8	18.4	5.8	0.9800	37.4	0.9825	44.4			1	6		
531		EGIRAL13.8		213.800	G5	6.0	3.0	6.4	3.0	0.9896	6.8	0.8944	10.9			1	6		
531		EGIRAL13.8		213.800	G6	6.0	3.0	6.4	3.0	0.9896	6.8	0.8944	10.9			1	6		
531		EGIRAL13.8		213.800	G7	6.0	3.0	6.4	3.0	0.9896	6.8	0.8944	10.9			1	6		
SUBSYSTEM TOTALS						639.4	-14.7	521.4	-182.6				1181.8						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2016 REGMHTCB8

AREA 7 [ACANAL] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128		MIR13C		12.000	G3	12.6	1.9	11.0	0.0	0.9800	13.0	0.9891	29.4			2	7		
129		MIR13D		13.800	G4	34.0	0.6	15.0	0.0	0.9800	34.7	0.9998	44.1			2	7		
SUBSYSTEM TOTALS						46.6	2.5	26.0	0.0				73.5						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER AREA TOTALS
 AÑO 2016 REGMHTCB8 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1343.8	1324.8	0.0	0.0	0.0	-0.3	19.3	0.0
C.RICA	255.9	569.4	-236.4	0.0	469.4	35.4	357.0	
6	639.4	594.6	0.0	0.0	0.0	36.0	8.7	25.0
PANAMA	-14.7	149.0	183.9	0.0	494.6	34.2	112.8	
7	46.6	23.1	0.0	0.0	0.0	22.9	0.7	50.0
ACANAL	2.5	5.8	0.0	0.0	0.0	-7.8	4.5	
9	0.0	58.6	0.0	0.0	0.0	-58.6	0.0	-75.0
COLON	0.0	14.7	0.0	0.0	1.1	-15.5	2.0	
TOTALS	5834.1	5727.8	0.0	0.0	0.0	0.0	106.2	0.0
	462.5	1785.8	-664.0	0.0	2044.0	0.0	1384.7	

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
 AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
 Contingencia 1: Contingencia Panamá II-Llano Sánchez**



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	21.4	25.0	0.0	1.0200	42.8	0.8714	47.0			1	6		
67		BLM13C		13.800	V3	38.0	21.4	25.0	0.0	1.0200	42.8	0.8714	47.0			1	6		
68		BLM13D		13.800	V4	38.0	22.3	25.0	0.0	1.0200	43.2	0.8621	47.0			1	6		
90		EST-13L		13.800	E1	22.0	12.0	12.0	-5.0	1.0322	24.3	0.8779	27.0			1	6		
91		EST-13T		13.800	E2	22.0	12.0	12.0	-5.0	1.0322	24.3	0.8779	27.0			1	6		
94		LV-13.8L		13.800	L1	24.0	12.0	12.0	-5.0	1.0283	26.1	0.8944	27.0			1	6		
95		LV-13.8T		13.800	L2	24.0	12.0	12.0	-5.0	1.0283	26.1	0.8944	27.0			1	6		
97		FOR13A		13.800	F1	95.0	16.8	50.0	-50.0	1.0250	94.1	0.9848	111.0			1	6		
98		FOR13B		13.800	F2	95.0	16.8	50.0	-50.0	1.0250	94.1	0.9848	111.0			1	6		
99		FOR13C		13.800	F3	95.0	16.8	50.0	-50.0	1.0250	94.1	0.9848	111.0			1	6		
101		BAY13A		13.800	B1	79.6	51.6	50.0	-25.0	1.0181	93.2	0.8391	96.0			1	6	SYST	
102		BAY13B		13.800	B2	67.4	50.0	50.0	-25.0	1.0176	82.5	0.8031	96.0			1	6		
117		CB250A-1		13.800	C1	106.3	62.8	75.6	0.0	1.0300	119.8	0.8610	143.5			1	6		
118		CB250A-2		13.800	C2	106.3	62.8	75.6	0.0	1.0300	119.8	0.8610	143.5			1	6		
142		CANJ13A		13.800	C1	57.0	21.2	29.0	-29.0	1.0200	59.6	0.9372	69.0			1	6		
143		CANJ13B		13.800	C2	57.0	21.2	29.0	-29.0	1.0200	59.6	0.9372	69.0			1	6		
151		GUALACA13.8		13.800	G1	23.2	1.3	10.0	-10.0	1.0100	23.0	0.9985	26.7			1	6		
156		TABASARAI1313.800		G1	15.5	5.7	5.7	5.7	0.2	1.0048	16.5	0.9394	20.5			1	6		
156		TABASARAI1313.800		G2	15.5	5.7	5.7	5.7	0.2	1.0048	16.5	0.9394	20.5			1	6		
193		GEBONYIC		13.800	G1	9.0	0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3			1	6		
193		GEBONYIC		13.800	G2	9.0	0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3			1	6		
193		GEBONYIC		13.800	G3	9.0	0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3			1	6		
204		BJOMIN13		13.800	G1	23.0	-3.9	13.0	-13.0	1.0100	23.1	0.9856	28.9			1	6		
204		BJOMIN13		13.800	G2	23.0	-3.9	13.0	-13.0	1.0100	23.1	0.9856	28.9			1	6		
205		BAITUN13.8		13.800	G1	38.0	16.0	26.6	-26.6	1.0100	40.8	0.9214	50.6			1	6		
205		BAITUN13.8		13.800	G2	38.0	16.0	26.6	-26.6	1.0100	40.8	0.9214	50.6			1	6		
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9578	11.2	0.8849	13.5			1	6		
302		PASOANCH13.813.800		P1	4.4	2.0	2.0	2.0	-2.0	0.9559	5.1	0.9110	6.2			1	6		
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1169	8.5	1.0000	13.5			1	6		
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9923	8.3	0.9701	13.5			1	6		
307		CHAN1 A		13.800	G1	105.2	2.1	50.0	-50.0	1.0200	103.1	0.9998	118.6			1	6		
308		CHAN1 B		13.800	G2	105.2	2.1	50.0	-50.0	1.0200	103.1	0.9998	118.6			1	6		
311		PANDO13.8		13.800	G1	14.4	0.2	10.0	-5.0	1.0100	14.3	0.9999	19.9			1	6		
311		PANDO13.8		13.800	G2	14.4	0.2	10.0	-5.0	1.0100	14.3	0.9999	19.9			1	6		
316		MONTE LIRIO		13.800	G1	23.2	-1.6	12.0	-5.0	1.0100	23.1	0.9976	27.0			1	6		
316		MONTE LIRIO		13.800	G2	23.2	-1.6	12.0	-5.0	1.0100	23.1	0.9976	27.0			1	6		
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1165	8.0	1.0000	35.3			1	6		
317		MENDRE13.8		13.800	M2	8.9	0.0	4.0	0.0	1.1165	8.0	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	16.0	0.0	10.5	0.0	1.0139	15.8	1.0000	19.9			1	6		
342		LORENA13.8		13.800	G2	16.0	0.0	10.5	0.0	1.0139	15.8	1.0000	19.9			1	6		
343		PRUDENCIA13813.800		G1	25.3	-2.7	9.8	9.8	-9.8	1.0100	25.2	0.9943	33.0			1	6		
343		PRUDENCIA13813.800		G2	25.3	-2.7	9.8	9.8	-9.8	1.0100	25.2	0.9943	33.0			1	6		
521		EGIRAL13.8		13.800	G1	3.7	2.1	2.8	1.3	0.9800	4.4	0.8675	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.6	2.0	6.6	-6.6	0.9800	8.0	0.9660	10.9			1	6		
525		TCOLON 13A		13.800	G1	36.0	10.8	18.4	9.2	1.0000	37.6	0.9578	44.4			1	6		
SUBSYSTEM TOTALS						1632.4	490.0	929.1	-521.3				2146.0						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 CONT1 LLANO SANCHEZ-PANAMÁ II

THU, MAY 29 2008 17:38

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9377	29.4			2		
129		MIR13D		13.800	G4	35.0	4.7	15.0	0.0	1.0100	35.0	0.9910	44.1			2		



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130 MIR13F	13.800 G5	17.1	0.0	8.0	0.0	1.0114	16.9	1.0000	27.7	2	7
170 MIR13G	13.800 M1	17.1	6.8	11.2	6.8	1.0258	17.9	0.9289	23.0	2	7
171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0349	17.8	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0349	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	29.8	67.5	20.5				170.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:38
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 CONT1 LLANO SANCHEZ-PANAMÁ II IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.1	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.1	20.0	0.0
C. RICA	274.1	569.4	-236.7	0.0	467.2	46.9	361.7	
6	1632.4	1447.1	0.0	0.0	0.0	83.7	101.7	25.0
PANAMA	490.0	362.7	-332.0	0.0	499.4	42.5	916.2	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	29.8	14.1	0.0	0.0	0.0	2.7	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.5	11.8	
TOTALS	6897.7	6697.4	0.0	0.0	0.0	0.0	200.3	0.0
	1013.4	2028.8	-1180.2	0.0	2046.6	0.0	2211.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas- Veladero



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18	CAC115	115.00	6	1.0036	115.41	20	CH.AZUL	115.00	6	1.0100	116.15
33	STM115	115.00	6	1.0015	115.17	48	TINAJ115	115.00	6	1.0005	115.05
50	M.O115	115.00	6	1.0006	115.07	52	TOC115	115.00	6	1.0019	115.22
54	LM1115	115.00	6	1.0249	117.87	55	LM2115	115.00	6	1.0252	117.90
61	FFIELD	115.00	9	1.0195	117.25	87	CAL115	115.00	6	1.0375	119.32
88	EST115	115.00	6	1.0432	119.97	92	L.V115	115.00	6	1.0395	119.55
109	STA RITA115	115.00	6	1.0281	118.23	123	MIR115	115.00	7	1.0067	115.77
154	CEMPAN15	115.00	6	1.0187	117.15	191	CHANG115	115.00	6	1.0124	116.43
522	TCATIVÁ	115.00	6	1.0251	117.89						

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9929	114.18	21	C.BAN115	115.00	6	0.9890	113.74				
23	CH115	115.00	6	0.9997	114.97	26	LOC115	115.00	6	0.9907	113.93				
30	MAR115	115.00	6	0.9894	113.78	37	SAN115	115.00	6	0.9873	113.54				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 CNT2 GUASQUITAS-VELADERO

THU, MAY 29 2008 17:44

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	38.0	21.6	25.0	0.0	1.0200	42.9	0.8694	47.0	1	6									
67	BLM13C	13.800	V3	38.0	21.6	25.0	0.0	1.0200	42.9	0.8694	47.0	1	6									
68	BLM13D	13.800	V4	38.0	22.6	25.0	0.0	1.0200	43.3	0.8599	47.0	1	6									
90	EST-13L	13.800	E1	22.0	12.0	12.0	-5.0	1.0293	24.3	0.8779	27.0	1	6									
91	EST-13T	13.800	E2	22.0	12.0	12.0	-5.0	1.0293	24.3	0.8779	27.0	1	6									
94	LV-13.8L	13.800	L1	24.0	12.0	12.0	-5.0	1.0254	26.2	0.8944	27.0	1	6									
95	LV-13.8T	13.800	L2	24.0	12.0	12.0	-5.0	1.0254	26.2	0.8944	27.0	1	6									
97	FOR13A	13.800	F1	95.0	16.8	50.0	-50.0	1.0250	94.1	0.9848	111.0	1	6									
98	FOR13B	13.800	F2	95.0	16.8	50.0	-50.0	1.0250	94.1	0.9848	111.0	1	6									
99	FOR13C	13.800	F3	95.0	16.8	50.0	-50.0	1.0250	94.1	0.9848	111.0	1	6									
101	BAY13A	13.800	B1	78.6	44.3	50.0	-25.0	1.0181	88.6	0.8714	96.0	1	6									SYST
102	BAY13B	13.800	B2	67.4	43.2	50.0	-25.0	1.0181	78.6	0.8419	96.0	1	6									
117	CB250A-1	13.800	C1	106.3	48.6	75.6	0.0	1.0300	113.5	0.9092	143.5	1	6									
118	CB250A-2	13.800	C2	106.3	48.6	75.6	0.0	1.0300	113.5	0.9092	143.5	1	6									
142	CANJ13A	13.800	C1	57.0	20.9	29.0	-29.0	1.0200	59.5	0.9389	69.0	1	6									
143	CANJ13B	13.800	C2	57.0	20.9	29.0	-29.0	1.0200	59.5	0.9389	69.0	1	6									
151	GUALACA13.8	13.800	G1	23.2	-0.4	10.0	-10.0	1.0100	23.0	0.9999	26.7	1	6									
156	TABASARAI1313.800	G1	15.5	5.7	5.7	0.2	1.0018	16.5	0.9394	20.5	1	6										
156	TABASARAI1313.800	G2	15.5	5.7	5.7	0.2	1.0018	16.5	0.9394	20.5	1	6										
193	GEBONYIC	13.800	G1	9.0	0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3	1	6									
193	GEBONYIC	13.800	G2	9.0	0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3	1	6									
193	GEBONYIC	13.800	G3	9.0	0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3	1	6									
204	BJOMIN13	13.800	G1	23.0	-3.2	13.0	-13.0	1.0100	23.0	0.9903	28.9	1	6									
204	BJOMIN13	13.800	G2	23.0	-3.2	13.0	-13.0	1.0100	23.0	0.9903	28.9	1	6									
205	BAITUN13.8	13.800	G1	38.0	16.8	26.6	-26.6	1.0100	41.1	0.9147	50.6	1	6									
205	BAITUN13.8	13.800	G2	38.0	16.8	26.6	-26.6	1.0100	41.1	0.9147	50.6	1	6									
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9666	11.1	0.8849	13.5	1	6									
302	PASOANCH13.813.800	P1	4.4	2.0	2.0	-2.0	0.9648	5.0	0.9110	6.2	1	6										
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1135	8.5	1.0000	13.5	1	6									
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9893	8.3	0.9701	13.5	1	6									
307	CHAN1 A	13.800	G1	105.2	1.8	50.0	-50.0	1.0200	103.1	0.9999	118.6	1	6									
308	CHAN1 B	13.800	G2	105.2	1.8	50.0	-50.0	1.0200	103.1	0.9999	118.6	1	6									
311	PANDO13.8	13.800	G1	14.4	0.3	10.0	-5.0	1.0100	14.3	0.9997	19.9	1	6									
311	PANDO13.8	13.800	G2	14.4	0.3	10.0	-5.0	1.0100	14.3	0.9997	19.9	1	6									
316	MONTE LIRIO	13.800	G1	23.2	-1.2	12.0	-5.0	1.0100	23.0	0.9987	27.0	1	6									
316	MONTE LIRIO	13.800	G2	23.2	-1.2	12.0	-5.0	1.0100	23.0	0.9987	27.0	1	6									



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317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1130	8.0	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1130	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0156	15.8	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0156	15.8	1.0000	19.9	1	6
343	PRUDENCIA13813.800	G1	25.3	-3.5	9.8	-9.8	1.0100	25.3	0.9906	33.0	1	6	
343	PRUDENCIA13813.800	G2	25.3	-3.5	9.8	-9.8	1.0100	25.3	0.9906	33.0	1	6	
521	EGIRAL13.8	113.800	G1	3.7	2.1	2.8	1.3	0.9800	4.3	0.8735	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	2.3	6.6	-6.6	0.9800	8.1	0.9566	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	11.2	18.4	9.2	1.0000	37.7	0.9548	44.4	1	6
SUBSYSTEM TOTALS				1631.5	448.5	929.1	-521.3				2146.0		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2016 CNT2 GUASQUITAS-VELADERO

THU, MAY 29 2008 17:44

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.4	11.0	0.0	1.0100	13.2	0.9449	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.3	15.0	0.0	1.0100	34.9	0.9927	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0125	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0270	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0360	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0360	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS										116.0	29.1	67.5	20.5			170.3		



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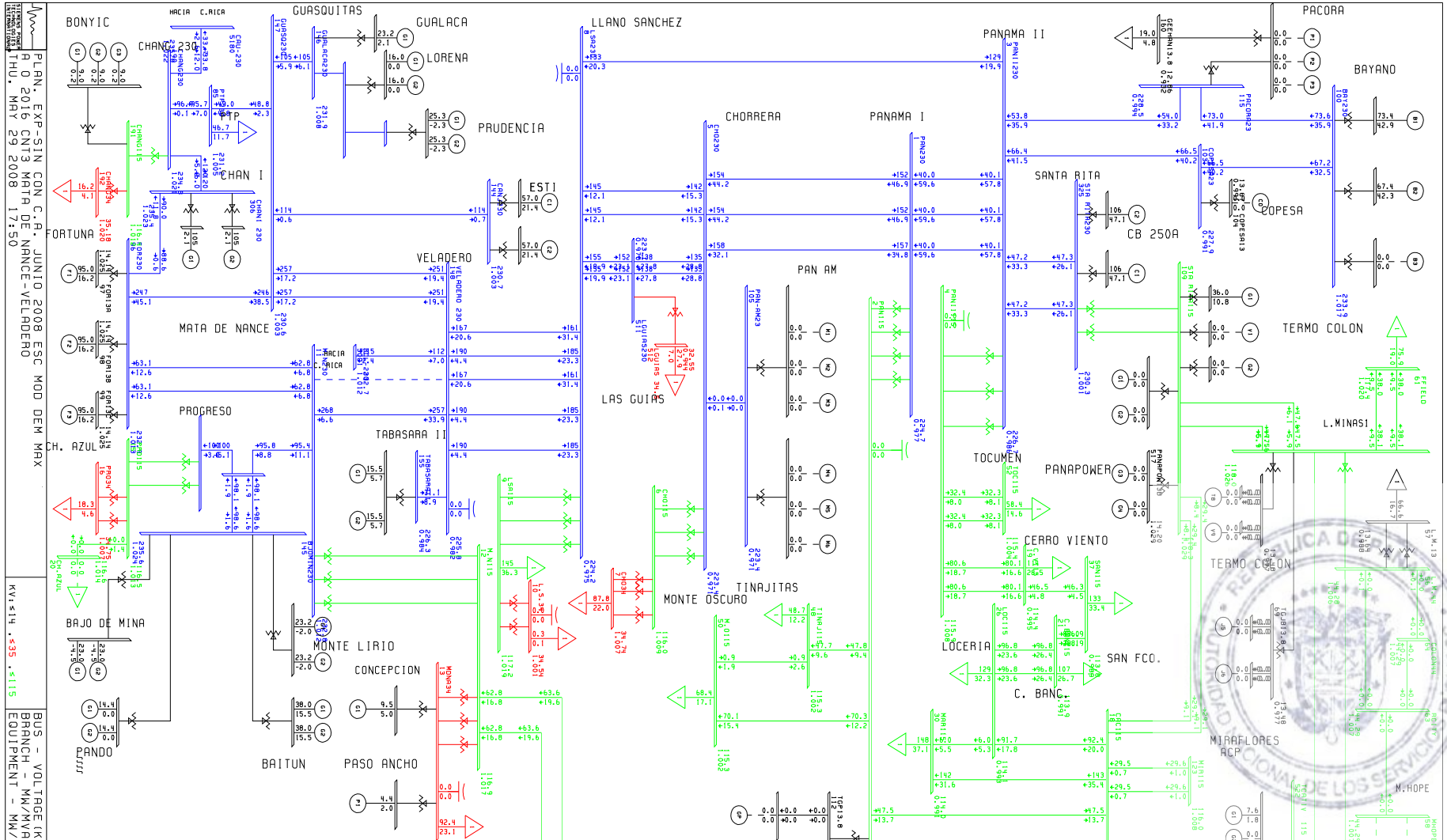
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:47
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 CNT2 GUASQUITAS-VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.9	290.6	-188.3	0.0	302.8	-5.1	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.2	224.5	-98.8	0.0	143.2	-96.6	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.3	20.4	0.0
C.RICA	279.1	569.4	-236.5	0.0	466.6	48.5	364.3	
6	1631.5	1447.1	0.0	0.0	0.0	84.1	100.3	25.0
PANAMA	448.5	362.7	-335.1	0.0	523.4	41.7	902.7	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	29.1	14.1	0.0	0.0	0.0	2.0	13.0	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.6	12.0	
TOTALS	6896.7	6697.4	0.0	0.0	0.0	0.0	199.3	0.0
	976.4	2028.8	-1183.0	0.0	2069.9	0.0	2200.5	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance- Veladero

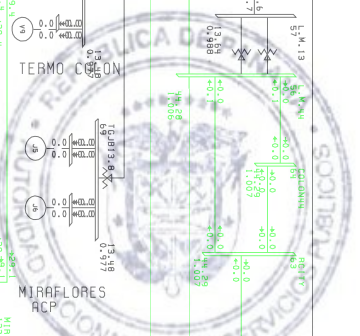


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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX
 R 0 2016 CNT3 MATR DE NANCE-VELADERO
 THU, MAY 29 2008 17:50

BUS - VOLTAGE (K)
 BRANCH - MN/MVA
 EQUIPMENT - MN/MVA
 RY=14. *35. *115



2	PAN115	115.00	6	1.0060	115.69	4	PANII115	115.00	6	1.0078	115.90
6	CHO115	115.00	6	1.0091	116.05	9	LSA115	115.00	6	1.0189	117.17
12	M.N115	115.00	6	1.0167	116.92	15	PRO115	115.00	6	1.0130	116.49
18	CAC115	115.00	6	1.0053	115.61	20	CH.AZUL	115.00	6	1.0137	116.58
23	CH115	115.00	6	1.0012	115.14	33	STM115	115.00	6	1.0033	115.38
48	TINAJ115	115.00	6	1.0022	115.26	50	M.O115	115.00	6	1.0024	115.28
52	TOC115	115.00	6	1.0038	115.43	54	LM115	115.00	6	1.0258	117.97
55	LM2115	115.00	6	1.0261	118.01	61	FFIELD	115.00	9	1.0205	117.35
87	CAL115	115.00	6	1.0447	120.14	88	EST115	115.00	6	1.0504	120.79
92	L.V115	115.00	6	1.0467	120.37	109	STA RITA115	115.00	6	1.0291	118.35
123	MIR115	115.00	7	1.0083	115.96	154	CEMPAN15	115.00	6	1.0198	117.27
191	CHANG115	115.00	6	1.0119	116.37	522	TCATIVÁ 115	115.00	6	1.0260	117.99

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115	0.9947	114.39				21	C.BAN	115	0.9908	113.95			
26	LOC	115	0.9925	114.14				30	MAR	115	0.9912	113.99			
37	SAN	115	0.9892	113.75											

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 CNT3 MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	38.0		21.2	25.0	0.0	1.0200	42.7	0.8733	47.0			1	6		
67	BLM13C	13.800	V3	38.0		21.2	25.0	0.0	1.0200	42.7	0.8733	47.0			1	6		
68	BLM13D	13.800	V4	38.0		22.1	25.0	0.0	1.0200	43.1	0.8641	47.0			1	6		
90	EST-13L	13.800	E1	22.0		12.0	12.0	-5.0	1.0359	24.2	0.8779	27.0			1	6		
91	EST-13T	13.800	E2	22.0		12.0	12.0	-5.0	1.0359	24.2	0.8779	27.0			1	6		
94	LV-13.8L	13.800	L1	24.0		12.0	12.0	-5.0	1.0320	26.0	0.8944	27.0			1	6		
95	LV-13.8T	13.800	L2	24.0		12.0	12.0	-5.0	1.0320	26.0	0.8944	27.0			1	6		
97	FOR13A	13.800	F1	95.0		16.2	50.0	-50.0	1.0250	94.0	0.9858	111.0			1	6		
98	FOR13B	13.800	F2	95.0		16.2	50.0	-50.0	1.0250	94.0	0.9858	111.0			1	6		
99	FOR13C	13.800	F3	95.0		16.2	50.0	-50.0	1.0250	94.0	0.9858	111.0			1	6		
101	BAY13A	13.800	B1	73.4		42.9	50.0	-25.0	1.0181	83.5	0.8635	96.0			1	6		SYST
102	BAY13B	13.800	B2	67.4		42.3	50.0	-25.0	1.0181	78.2	0.8468	96.0			1	6		
117	CB250A-1	13.800	C1	106.3		47.1	75.6	0.0	1.0300	112.8	0.9142	143.5			1	6		
118	CB250A-2	13.800	C2	106.3		47.1	75.6	0.0	1.0300	112.8	0.9142	143.5			1	6		
142	CANJ13A	13.800	C1	57.0		21.4	29.0	-29.0	1.0200	59.7	0.9363	69.0			1	6		
143	CANJ13B	13.800	C2	57.0		21.4	29.0	-29.0	1.0200	59.7	0.9363	69.0			1	6		
151	GUALACA13.8	13.800	G1	23.2		2.1	10.0	-10.0	1.0100	23.1	0.9960	26.7			1	6		
156	TABASARAI11313.800	G1	15.5	5.7		5.7	5.7	0.2	1.0065	16.4	0.9394	20.5			1	6		
156	TABASARAI11313.800	G2	15.5	5.7		5.7	5.7	0.2	1.0065	16.4	0.9394	20.5			1	6		
193	GEBONYIC	13.800	G1	9.0		0.2	4.0	-4.0	1.0100	8.9	0.9998	35.3			1	6		
193	GEBONYIC	13.800	G2	9.0		0.2	4.0	-4.0	1.0100	8.9	0.9998	35.3			1	6		
193	GEBONYIC	13.800	G3	9.0		0.2	4.0	-4.0	1.0100	8.9	0.9998	35.3			1	6		
204	BJOMIN13	13.800	G1	23.0		-4.5	13.0	-13.0	1.0100	23.2	0.9815	28.9			1	6		
204	BJOMIN13	13.800	G2	23.0		-4.5	13.0	-13.0	1.0100	23.2	0.9815	28.9			1	6		
205	BAITUN13.8	13.800	G1	38.0		15.5	26.6	-26.6	1.0100	40.6	0.9262	50.6			1	6		
205	BAITUN13.8	13.800	G2	38.0		15.5	26.6	-26.6	1.0100	40.6	0.9262	50.6			1	6		
301	CONC13.8	13.800	G1	9.5		5.0	5.0	-5.0	0.9618	11.2	0.8849	13.5			1	6		
302	PASOANCH13.813.800	P1	4.4	2.0		2.0	2.0	-2.0	0.9599	5.1	0.9110	6.2			1	6		
303	SIND13.8	13.800	G1	9.5		0.0	5.0	0.0	1.1212	8.5	1.0000	13.5			1	6		
304	ALGA13.8	13.800	A1	8.0		2.0	2.0	0.0	0.9961	8.3	0.9701	13.5			1	6		
307	CHAN1 A	13.800	G1	105.2		2.1	50.0	-50.0	1.0200	103.1	0.9998	118.6			1	6		
308	CHAN1 B	13.800	G2	105.2		2.1	50.0	-50.0	1.0200	103.1	0.9998	118.6			1	6		
311	PAND013.8	13.800	G1	14.4		0.0	10.0	-5.0	1.0100	14.3	1.0000	19.9			1	6		



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311	PANDO	13.8	13.800	G2	14.4	0.0	10.0	-5.0	1.0100	14.3	1.0000	19.9	1	6
316	MONTE LIRIO	13.800	G1	23.2	-2.0	12.0	-5.0	1.0100	23.1	0.9965	27.0	1	6	
316	MONTE LIRIO	13.800	G2	23.2	-2.0	12.0	-5.0	1.0100	23.1	0.9965	27.0	1	6	
317	MENDRE	13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1208	7.9	1.0000	35.3	1	6
317	MENDRE	13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1208	7.9	1.0000	35.3	1	6
342	LORENA	13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0131	15.8	1.0000	19.9	1	6
342	LORENA	13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0131	15.8	1.0000	19.9	1	6
343	PRUDENCIA	13813.800	G1	25.3	-2.3	9.8	-9.8	1.0100	25.1	0.9957	33.0	1	6	
343	PRUDENCIA	13813.800	G2	25.3	-2.3	9.8	-9.8	1.0100	25.1	0.9957	33.0	1	6	
521	EGIRAL	13.8	113.800	G1	3.7	1.8	2.8	1.3	0.9800	4.2	0.8945	4.8	1	6
523	TCATIVÁ	13A	13.800	G1	7.6	1.8	6.6	-6.6	0.9800	7.9	0.9735	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	10.8	18.4	9.2	1.0000	37.6	0.9581	44.4	1	6
SUBSYSTEM TOTALS					1626.2	438.2	929.1	-521.3				2146.0		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:50
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2016 CNT3 MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR	13C		12.000	G3	12.6	4.1	11.0	0.0	1.0100	13.1	0.9504	29.4			2	7	
129	MIR	13D		13.800	G4	35.0	3.9	15.0	0.0	1.0100	34.9	0.9939	44.1			2	7	
130	MIR	13F		13.800	G5	17.1	0.0	8.0	0.0	1.0134	16.9	1.0000	27.7			2	7	
170	MIR	13G		13.800	M1	17.1	6.8	11.2	6.8	1.0278	17.9	0.9289	23.0			2	7	
171	MIR	13H		13.800	M1	17.1	6.8	11.2	6.8	1.0369	17.8	0.9289	23.0			2	7	
171	MIR	13H		13.800	M2	17.1	6.8	11.2	6.8	1.0369	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	28.5	67.5	20.5				170.3					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:50
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS



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AÑO 2016 CNT3 MATA DE NANCE-VELADERO

IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.1	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.1	20.0	0.0
C.RICA	275.1	569.4	-236.7	0.0	467.1	47.6	361.8	
6	1626.2	1447.1	0.0	0.0	0.0	83.7	95.5	25.0
PANAMA	438.2	362.7	-336.8	0.0	525.0	43.2	894.0	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	28.5	14.1	0.0	0.0	0.0	1.4	13.0	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.6	12.0	
TOTALS	6891.5	6697.4	0.0	0.0	0.0	0.0	194.1	0.0
	961.3	2028.8	-1184.9	0.0	2072.0	0.0	2189.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 4: Contingencia Panamá- Cemento Panamá



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55 LM2115	115.00	6	1.0360	119.14	61 FFIELD	115.00	9	1.0299	118.44
87 CAL115	115.00	6	1.0326	118.75	88 EST115	115.00	6	1.0341	118.92
92 L.V115	115.00	6	1.0334	118.84	109 STA RITA115	115.00	6	1.0374	119.30
123 MIR115	115.00	7	1.0141	116.62	154 CEMPAN15	115.00	6	1.0438	120.03
191 CHANG115	115.00	6	1.0162	116.86	522 TCATIVÁ 115	115.00	6	1.0359	119.13

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115	115.00	6	0.9954	114.47	21	C.BAN	115	115.00	6	0.9958	114.52		
26	LOC	115	115.00	6	0.9978	114.75	30	MAR	115	115.00	6	0.9967	114.63		
37	SAN	115	115.00	6	0.9937	114.270									



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	12.0	25.0	0.0	1.0100	37.6	0.9484	47.0			1	6	
67		BLM13C		13.800	V3	36.0	12.0	25.0	0.0	1.0100	37.6	0.9484	47.0			1	6	
68		BLM13D		13.800	V4	36.0	12.5	25.0	0.0	1.0100	37.7	0.9446	47.0			1	6	
90		EST-13L		13.800	E1	13.0	5.2	12.0	-5.0	1.0000	14.0	0.9297	27.0			1	6	
94		LV-13.8L		13.800	L1	17.6	8.9	12.0	-5.0	1.0100	19.5	0.8930	27.0			1	6	
97		FOR13A		13.800	F1	68.9	-13.5	50.0	-50.0	1.0100	69.5	0.9814	111.0			1	6	
98		FOR13B		13.800	F2	68.9	-13.5	50.0	-50.0	1.0100	69.5	0.9814	111.0			1	6	
99		FOR13C		13.800	F3	68.9	-13.5	50.0	-50.0	1.0100	69.5	0.9814	111.0			1	6	
101		BAY13A		13.800	B1	79.9	20.9	50.0	-25.0	1.0000	82.6	0.9675	96.0			1	6	SYST
102		BAY13B		13.800	B2	79.4	20.8	50.0	-25.0	1.0000	82.1	0.9673	96.0			1	6	
106		PANAM13A		13.800	M1	14.5	5.4	9.0	0.0	1.0100	15.3	0.9368	20.7			1	6	
106		PANAM13A		13.800	M2	14.5	5.4	9.0	0.0	1.0100	15.3	0.9368	20.7			1	6	
106		PANAM13A		13.800	M3	14.5	5.4	9.0	0.0	1.0100	15.3	0.9368	20.7			1	6	
108		BAY13C		13.800	B3	80.9	29.0	50.0	-25.0	1.0100	85.1	0.9413	100.0			1	6	
116		PACORA13		13.800	P1	16.0	3.4	8.8	0.0	1.0100	16.2	0.9778	21.7			1	6	
116		PACORA13		13.800	P2	16.0	3.4	8.8	0.0	1.0100	16.2	0.9778	21.7			1	6	
116		PACORA13		13.800	P3	16.0	3.4	8.8	0.0	1.0100	16.2	0.9778	21.7			1	6	
117		CB250A-1		13.800	C1	106.3	12.0	75.6	0.0	1.0100	105.9	0.9937	143.5			1	6	
118		CB250A-2		13.800	C2	106.3	12.0	75.6	0.0	1.0100	105.9	0.9937	143.5			1	6	
142		CANJ13A		13.800	C1	44.7	11.5	29.0	-29.0	1.0100	45.7	0.9684	69.0			1	6	
143		CANJ13B		13.800	C2	44.7	11.5	29.0	-29.0	1.0100	45.7	0.9684	69.0			1	6	
151		GUALACA13.8		13.800	G1	13.4	-5.0	10.0	-5.0	1.0245	14.0	0.9369	26.7			1	6	
156		TABASARAI13		13.800	G1	3.8	0.2	5.7	0.2	1.0336	3.7	0.9978	20.5			1	6	
193		GEBONYIC		13.800	G1	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9991	35.3			1	6	
193		GEBONYIC		13.800	G2	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9991	35.3			1	6	
193		GEBONYIC		13.800	G3	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9991	35.3			1	6	
204		BJOMIN13		13.800	G1	18.9	-8.7	13.0	-13.0	1.0100	20.6	0.9076	28.9			1	6	
204		BJOMIN13		13.800	G2	18.9	-8.7	13.0	-13.0	1.0100	20.6	0.9076	28.9			1	6	
205		BAITUN13.8		13.800	G1	28.7	10.5	26.6	-26.6	1.0100	30.2	0.9394	50.6			1	6	
205		BAITUN13.8		13.800	G2	28.7	10.5	26.6	-26.6	1.0100	30.2	0.9394	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9643	11.1	0.8849	13.5			1	6	
303		SIND13.8		13.800	G1	4.3	0.0	5.0	0.0	1.1109	3.9	1.0000	13.5			1	6	
307		CHAN1 A		13.800	G1	77.9	-13.0	50.0	-50.0	1.0100	78.2	0.9864	118.6			1	6	
308		CHAN1 B		13.800	G2	77.9	-13.0	50.0	-50.0	1.0100	78.2	0.9864	118.6			1	6	
311		PANDO13.8		13.800	G1	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9869	19.9			1	6	
311		PANDO13.8		13.800	G2	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9869	19.9			1	6	
316		MONTE LIRIO		13.800	G1	18.6	-4.8	12.0	-5.0	1.0100	19.0	0.9679	27.0			1	6	
316		MONTE LIRIO		13.800	G2	18.6	-4.8	12.0	-5.0	1.0100	19.0	0.9679	27.0			1	6	
317		MENDRE13.8		13.800	M1	5.1	0.0	4.0	0.0	1.1107	4.6	1.0000	35.3			1	6	
317		MENDRE13.8		13.800	M2	5.1	0.0	4.0	0.0	1.1107	4.6	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	11.0	-5.0	10.5	-5.0	1.0217	11.8	0.9104	19.9			1	6	
342		LORENA13.8		13.800	G2	11.0	-5.0	10.5	-5.0	1.0217	11.8	0.9104	19.9			1	6	
343		PRUDENCIA138		13.800	G1	15.2	-6.3	9.8	-9.8	1.0200	16.1	0.9235	33.0			1	6	
343		PRUDENCIA138		13.800	G2	15.2	-6.3	9.8	-9.8	1.0200	16.1	0.9235	33.0			1	6	
521		EGIRAL13.8		113.800	G1	2.9	1.3	2.8	1.3	1.0169	3.1	0.9123	4.8			1	6	
521		EGIRAL13.8		113.800	G2	2.9	1.3	2.8	1.3	1.0169	3.1	0.9123	4.8			1	6	
521		EGIRAL13.8		113.800	G3	2.9	1.3	2.8	1.3	1.0169	3.1	0.9123	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	1.0169	3.2	0.9173	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9967	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9967	10.9			1	6	
523		TCATIVÁ 13A		13.800	G3	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9967	10.9			1	6	
523		TCATIVÁ 13A		13.800	G4	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9967	10.9			1	6	



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523	TCATIVÁ	13A	13.800	G5	7.2	-0.6	6.6	-6.6	0.9800	7.4	0.9967	10.9	1	6			
524	TCATIVÁ	13B	13.800	10	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9160	10.9	1	6			
524	TCATIVÁ	13B	13.800	G6	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9160	10.9	1	6			
524	TCATIVÁ	13B	13.800	G7	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9160	10.9	1	6			
524	TCATIVÁ	13B	13.800	G8	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9160	10.9	1	6			
524	TCATIVÁ	13B	13.800	G9	7.2	3.2	6.6	-6.6	1.0100	7.8	0.9160	10.9	1	6			
525	TCOLON	13A	13.800	G1	36.8	9.2	18.4	9.2	1.0044	37.8	0.9701	44.4	1	6			
526	TCOLON	13B	13.800	G2	36.8	11.9	18.4	9.2	1.0100	38.3	0.9515	44.4	1	6			
527	TCOLON	13C	13.800	V1	36.8	11.9	18.4	5.8	1.0100	38.3	0.9515	44.4	1	6			
531	EGIRAL13.8	213.800	G5	6.5	3.0	6.4	3.0	1.0123	7.1	0.9080	10.9	1	6				
531	EGIRAL13.8	213.800	G6	6.5	3.0	6.4	3.0	1.0123	7.1	0.9080	10.9	1	6				
531	EGIRAL13.8	213.800	G7	6.5	3.0	6.4	3.0	1.0123	7.1	0.9080	10.9	1	6				
SUBSYSTEM TOTALS													1618.8	155.8	1122.4	-570.7	2513.3

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:52
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 CNT4 PANAMA-CEMENTO PANAMA

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	3.4	11.0	0.0	1.0100	12.9	0.9664	29.4	2	7					
129	MIR13D	13.800	G4	35.0	2.7	15.0	0.0	1.0100	34.8	0.9970	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0163	16.8	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0307	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS													116.0	26.5	67.5	20.5	170.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:53
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 CNT4 PANAMA-CEMENTO PANAMA

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	



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2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	245.9	569.4	-237.8	0.0	470.4	25.8	358.9	
6	1618.8	1486.6	0.0	0.0	0.0	88.8	43.4	25.0
PANAMA	155.8	372.6	-190.1	0.0	573.9	69.4	477.9	
7	116.0	57.7	0.0	0.0	0.0	57.4	0.9	50.0
ACANAL	26.5	14.5	0.0	0.0	0.0	-0.6	12.6	
9	0.0	146.4	0.0	0.0	0.0	-146.6	0.2	-75.0
COLON	0.0	36.7	0.0	0.0	1.1	-48.2	12.6	
TOTALS	6884.0	6742.2	0.0	0.0	0.0	0.0	141.7	0.0
	646.7	2040.0	-1039.4	0.0	2124.4	0.0	1770.5	

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 5: Contingencia Las Minas 2- Chilibre**

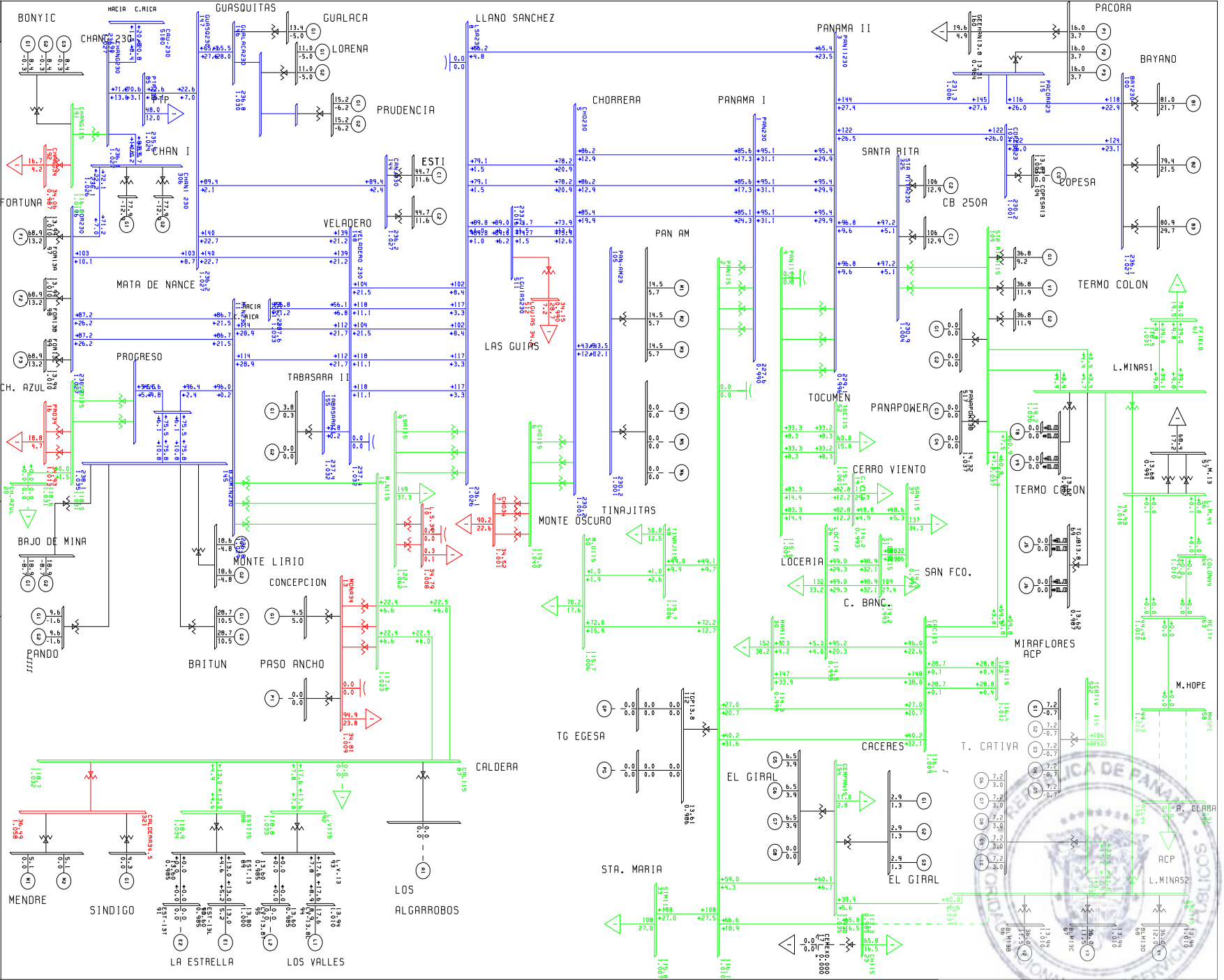


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PLN. EXP. SIN CON. C.R. JUNIO 2008 ESC. MOD. DEM. MAX
 R. O. 2016 CNS. MINIS. E-CHILIBRE
 THU, MAY 29 2008 16:01

KV. 514 - 435 - 5115

BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT5 MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0007	230.16	8		LSA230		230.00	6	1.0264	236.07
11	M.	N230		230.00	6	1.0295	236.77	14		PRO230		230.00	6	1.0331	237.60
85		PTP230		230.00	6	1.0240	235.51	96		FOR230		230.00	6	1.0271	236.24
100		BAY230		230.00	6	1.0267	236.13	103		COPESA23		230.00	6	1.0008	230.17
105		PAN-AM23		230.00	6	1.0008	230.18	115		PACORA23		230.00	6	1.0057	231.32
144		CANJ230		230.00	6	1.0271	236.22	145		BJOMIN230		230.00	6	1.0353	238.11
146		GUALACA230		230.00	6	1.0295	236.79	147		GUASQ230		230.00	6	1.0269	236.19
148		VELADERO	230	230.00	6	1.0320	237.37	155		TABASARAI		230.00	6	1.0323	237.43
190		CHANG230		230.00	6	1.0266	236.12	306		CHAN1	230	230.00	6	1.0264	236.06
310		CONCEPCION	232	230.00	6	1.0336	237.72	325		STA RITA	230	230.00	6	1.0039	230.89
341		PRUDENCIA	230	230.00	6	1.0337	237.75	345		LORENA	230	230.00	6	1.0323	237.42
511		LGUIAS230		230.00	6	1.0162	233.72	6000		FRONTER		230.00	6	1.0333	237.65

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9895	227.59	3		PANII230		230.00	6	0.9959	229.06

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT5 MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0098	116.13	4		PANII115		115.00	6	1.0051	115.58
6		CHO115		115.00	6	1.0398	119.58	9		LSA115		115.00	6	1.0619	122.12
12	M.	N115		115.00	6	1.0225	117.59	15		PRO115		115.00	6	1.0306	118.51
18		CAC115		115.00	6	1.0091	116.05	20		CH.AZUL		115.00	6	1.0313	118.60
33		STM115		115.00	6	1.0071	115.81	48		TINAJ115		115.00	6	1.0060	115.69
50		M.O115		115.00	6	1.0062	115.71	52		TOC115		115.00	6	1.0009	115.10
54		LM1115		115.00	6	1.0363	119.17	55		LM2115		115.00	6	1.0371	119.27
61		FFIELD		115.00	9	1.0308	118.54	87		CAL115		115.00	6	1.0324	118.72
88		EST115		115.00	6	1.0338	118.89	92		L.V115		115.00	6	1.0331	118.81
109		STA RITA	115	115.00	6	1.0374	119.30	123		MIR115		115.00	7	1.0118	116.36
154		COMPAN15		115.00	6	1.0352	119.05	191		CHANG115		115.00	6	1.0161	116.85
522		TCATIVÁ	115	115.00	6	1.0369	119.24								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9934	114.24	21		C.BAN115		115.00	6	0.9934	114.25
23		CH115		115.00	6	0.9854	113.32	26		LOC115		115.00	6	0.9954	114.47
30		MAR115		115.00	6	0.9943	114.35	37		SAN115		115.00	6	0.9913	114.00

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT5 MINAS 2-CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	36.0	11.5	25.0	0.0	1.0100	37.4	0.9522	47.0	1	6
67	BLM13C	13.800	V3	36.0	11.5	25.0	0.0	1.0100	37.4	0.9522	47.0	1	6
68	BLM13D	13.800	V4	36.0	12.0	25.0	0.0	1.0100	37.6	0.9487	47.0	1	6
90	EST-13L	13.800	E1	13.0	5.2	12.0	-5.0	1.0000	14.0	0.9280	27.0	1	6
94	LV-13.8L	13.800	L1	17.6	8.9	12.0	-5.0	1.0100	19.5	0.8914	27.0	1	6
97	FOR13A	13.800	F1	68.9	-13.2	50.0	-50.0	1.0100	69.5	0.9821	111.0	1	6
98	FOR13B	13.800	F2	68.9	-13.2	50.0	-50.0	1.0100	69.5	0.9821	111.0	1	6
99	FOR13C	13.800	F3	68.9	-13.2	50.0	-50.0	1.0100	69.5	0.9821	111.0	1	6
101	BAY13A	13.800	B1	81.0	21.7	50.0	-25.0	1.0000	83.8	0.9659	96.0	1	6
102	BAY13B	13.800	B2	79.4	21.5	50.0	-25.0	1.0000	82.2	0.9651	96.0	1	6
106	PANAM13A	13.800	M1	14.5	5.7	9.0	0.0	1.0100	15.4	0.9316	20.7	1	6
106	PANAM13A	13.800	M2	14.5	5.7	9.0	0.0	1.0100	15.4	0.9316	20.7	1	6
106	PANAM13A	13.800	M3	14.5	5.7	9.0	0.0	1.0100	15.4	0.9316	20.7	1	6
108	BAY13C	13.800	B3	80.9	29.7	50.0	-25.0	1.0100	85.3	0.9387	100.0	1	6
116	PACORA13	13.800	P1	16.0	3.7	8.8	0.0	1.0100	16.3	0.9746	21.7	1	6
116	PACORA13	13.800	P2	16.0	3.7	8.8	0.0	1.0100	16.3	0.9746	21.7	1	6
116	PACORA13	13.800	P3	16.0	3.7	8.8	0.0	1.0100	16.3	0.9746	21.7	1	6
117	CB250A-1	13.800	C1	106.3	12.9	75.6	0.0	1.0100	106.0	0.9928	143.5	1	6
118	CB250A-2	13.800	C2	106.3	12.9	75.6	0.0	1.0100	106.0	0.9928	143.5	1	6
142	CANJ13A	13.800	C1	44.7	11.6	29.0	-29.0	1.0100	45.7	0.9681	69.0	1	6
143	CANJ13B	13.800	C2	44.7	11.6	29.0	-29.0	1.0100	45.7	0.9681	69.0	1	6
151	GUALACA13.8	13.800	G1	13.4	-5.0	10.0	-5.0	1.0241	14.0	0.9369	26.7	1	6
156	TABASARAI13	13.800	G1	3.8	0.2	5.7	0.2	1.0328	3.7	0.9978	20.5	1	6
193	GEBONYIC	13.800	G1	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9992	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9992	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9992	35.3	1	6
204	BJOMIN13	13.800	G1	18.9	-8.7	13.0	-13.0	1.0100	20.6	0.9090	28.9	1	6
204	BJOMIN13	13.800	G2	18.9	-8.7	13.0	-13.0	1.0100	20.6	0.9090	28.9	1	6
205	BAITUN13.8	13.800	G1	28.7	10.5	26.6	-26.6	1.0100	30.3	0.9386	50.6	1	6
205	BAITUN13.8	13.800	G2	28.7	10.5	26.6	-26.6	1.0100	30.3	0.9386	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9640	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.3	0.0	5.0	0.0	1.1106	3.9	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	77.9	-12.9	50.0	-50.0	1.0100	78.2	0.9866	118.6	1	6
308	CHAN1 B	13.800	G2	77.9	-12.9	50.0	-50.0	1.0100	78.2	0.9866	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9872	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9872	19.9	1	6
316	MONTE LIRIO	13.800	G1	18.6	-4.8	12.0	-5.0	1.0100	19.0	0.9685	27.0	1	6
316	MONTE LIRIO	13.800	G2	18.6	-4.8	12.0	-5.0	1.0100	19.0	0.9685	27.0	1	6
317	MENDRE13.8	13.800	M1	5.1	0.0	4.0	0.0	1.1105	4.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.1	0.0	4.0	0.0	1.1105	4.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.0	-5.0	10.5	-5.0	1.0213	11.8	0.9104	19.9	1	6
342	LORENA13.8	13.800	G2	11.0	-5.0	10.5	-5.0	1.0213	11.8	0.9104	19.9	1	6
343	PRUDENCIA13813	13.800	G1	15.2	-6.2	9.8	-9.8	1.0200	16.1	0.9268	33.0	1	6
343	PRUDENCIA13813	13.800	G2	15.2	-6.2	9.8	-9.8	1.0200	16.1	0.9268	33.0	1	6
521	EGIRAL13.8	113.800	G1	2.9	1.3	2.8	1.3	1.0089	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.9	1.3	2.8	1.3	1.0089	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.9	1.3	2.8	1.3	1.0089	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0089	3.2	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.2	-0.7	6.6	-6.6	0.9800	7.4	0.9953	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.2	-0.7	6.6	-6.6	0.9800	7.4	0.9953	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.2	-0.7	6.6	-6.6	0.9800	7.4	0.9953	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.2	-0.7	6.6	-6.6	0.9800	7.4	0.9953	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.2	-0.7	6.6	-6.6	0.9800	7.4	0.9953	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.2	3.0	6.6	-6.6	1.0100	7.7	0.9215	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.2	3.0	6.6	-6.6	1.0100	7.7	0.9215	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.2	3.0	6.6	-6.6	1.0100	7.7	0.9215	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.2	3.0	6.6	-6.6	1.0100	7.7	0.9215	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.2	3.0	6.6	-6.6	1.0100	7.7	0.9215	10.9	1	6

SYST



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525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0044	37.8	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	11.9	18.4	9.2	1.0100	38.3	0.9515	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	11.9	18.4	5.8	1.0100	38.3	0.9515	44.4	1	6
531	EGIRAL13.8	213.800	G5	6.5	3.9	6.4	3.0	1.0100	7.5	0.8570	10.9	1	6
531	EGIRAL13.8	213.800	G6	6.5	3.9	6.4	3.0	1.0100	7.5	0.8570	10.9	1	6
531	EGIRAL13.8	213.800	G7	6.5	3.9	6.4	3.0	1.0100	7.5	0.8570	10.9	1	6
SUBSYSTEM TOTALS				1619.9	163.4	1122.4	-570.7				2513.3		

 PII INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT5 MINAS 2-CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	3.7	11.0	0.0	1.0100	13.0	0.9599	29.4	2	7					
129	MIR13D	13.800	G4	35.0	3.2	15.0	0.0	1.0100	34.8	0.9958	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0151	16.8	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0295	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0385	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0385	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	27.3	67.5	20.5				170.3							

PII INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 17:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 CNT5 MINAS 2-CHILIBRE IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	



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4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C. RICA	246.3	569.4	-237.7	0.0	470.4	26.1	358.9	
6	1619.9	1486.6	0.0	0.0	0.0	88.8	44.5	25.0
PANAMA	163.4	372.6	-189.5	0.0	573.3	68.3	485.3	
7	116.0	57.7	0.0	0.0	0.0	57.4	0.9	50.0
ACANAL	27.3	14.5	0.0	0.0	0.0	0.2	12.7	
9	0.0	146.4	0.0	0.0	0.0	-146.6	0.2	-75.0
COLON	0.0	36.7	0.0	0.0	1.1	-48.1	12.6	
TOTALS	6885.1	6742.2	0.0	0.0	0.0	0.0	142.8	0.0
	655.6	2040.0	-1038.7	0.0	2123.7	0.0	1777.9	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 6: Contingencia Las Minas 1- Santa Rita



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT6 MINAS 1-STA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0002	230.03	5		CHO230		230.00	6	1.0050	231.15
8		LSA230		230.00	6	1.0295	236.79	11		M.N230		230.00	6	1.0304	236.99
14		PRO230		230.00	6	1.0338	237.76	85		PTP230		230.00	6	1.0247	235.68
96		FOR230		230.00	6	1.0279	236.41	100		BAY230		230.00	6	1.0291	236.70
103		COPESA23		230.00	6	1.0047	231.09	105		PAN-AM23		230.00	6	1.0050	231.16
115		PACORA23		230.00	6	1.0092	232.13	144		CANJ230		230.00	6	1.0280	236.43
145		BJOMIN230		230.00	6	1.0358	238.24	146		GUALACA230		230.00	6	1.0304	237.00
147		GUASQ230		230.00	6	1.0278	236.40	148		VELADERO 230		230.00	6	1.0340	237.81
155		TABASARAI		230.00	6	1.0343	237.88	190		CHANG230		230.00	6	1.0270	236.20
306		CHAN1 230		230.00	6	1.0267	236.14	310		CONCEPCION23		230.00	6	1.0342	237.87
325		STA RITA230		230.00	6	1.0059	231.36	341		PRUDENCIA230		230.00	6	1.0345	237.94
345		LORENA230		230.00	6	1.0331	237.62	511		LGUIAS230		230.00	6	1.0198	234.56
6000		FRONTER		230.00	6	1.0340	237.82								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9944	228.70								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:04
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT6 MINAS 1-STA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0159	116.83	4		PANII115		115.00	6	1.0097	116.12
6		CHO115		115.00	6	1.0444	120.11	9		LSA115		115.00	6	1.0653	122.51
12		M.N115		115.00	6	1.0233	117.68	15		PRO115		115.00	6	1.0313	118.60
18		CAC115		115.00	6	1.0151	116.74	20		CH.AZUL		115.00	6	1.0320	118.68
23		CH115		115.00	6	1.0098	116.12	26		LOC115		115.00	6	1.0014	115.16
30		MAR115		115.00	6	1.0003	115.04	33		STM115		115.00	6	1.0131	116.51
48		TINAJ115		115.00	6	1.0121	116.39	50		M.O115		115.00	6	1.0122	116.41
52		TOC115		115.00	6	1.0055	115.64	54		LM1115		115.00	6	1.0341	118.93



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55	LM2115	115.00	6	1.0345	118.97	61	FFIELD	115.00	9	1.0286	118.29
87	CAL115	115.00	6	1.0330	118.79	88	EST115	115.00	6	1.0344	118.96
92	L.V115	115.00	6	1.0338	118.88	109	STA RITA115	115.00	6	1.0391	119.49
123	MIR115	115.00	7	1.0175	117.01	154	CEMPAN15	115.00	6	1.0355	119.08
191	CHANG115	115.00	6	1.0163	116.88	522	TCATIVÁ	115.00	6	1.0345	118.97

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9985	114.83	21	C.BAN115	115.00	6	0.9994	114.93				
37	SAN115	115.00	6	0.9972	114.68										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:04
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT6 MINAS 1--STA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	AREA	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	36.0	12.7	25.0	0.0	1.0100	37.8	0.9430	47.0	1	6						
67	BLM13C	13.800	V3	36.0	12.7	25.0	0.0	1.0100	37.8	0.9430	47.0	1	6						
68	BLM13D	13.800	V4	36.0	13.2	25.0	0.0	1.0100	38.0	0.9388	47.0	1	6						
90	EST-13L	13.800	E1	13.0	5.0	12.0	-5.0	1.0000	13.9	0.9323	27.0	1	6						
94	LV-13.8L	13.800	L1	17.6	8.8	12.0	-5.0	1.0100	19.5	0.8953	27.0	1	6						
97	FOR13A	13.800	F1	68.9	-13.9	50.0	-50.0	1.0100	69.6	0.9803	111.0	1	6						
98	FOR13B	13.800	F2	68.9	-13.9	50.0	-50.0	1.0100	69.6	0.9803	111.0	1	6						
99	FOR13C	13.800	F3	68.9	-13.9	50.0	-50.0	1.0100	69.6	0.9803	111.0	1	6						
101	BAY13A	13.800	B1	79.3	19.7	50.0	-25.0	1.0000	81.7	0.9706	96.0	1	6						SYST
102	BAY13B	13.800	B2	79.4	19.7	50.0	-25.0	1.0000	81.8	0.9706	96.0	1	6						
106	PANAM13A	13.800	M1	14.5	5.0	9.0	0.0	1.0100	15.2	0.9445	20.7	1	6						
106	PANAM13A	13.800	M2	14.5	5.0	9.0	0.0	1.0100	15.2	0.9445	20.7	1	6						
106	PANAM13A	13.800	M3	14.5	5.0	9.0	0.0	1.0100	15.2	0.9445	20.7	1	6						
108	BAY13C	13.800	B3	80.9	27.9	50.0	-25.0	1.0100	84.7	0.9455	100.0	1	6						
116	PACORA13	13.800	P1	16.0	3.0	8.8	0.0	1.0100	16.1	0.9825	21.7	1	6						
116	PACORA13	13.800	P2	16.0	3.0	8.8	0.0	1.0100	16.1	0.9825	21.7	1	6						
116	PACORA13	13.800	P3	16.0	3.0	8.8	0.0	1.0100	16.1	0.9825	21.7	1	6						
117	CB250A-1	13.800	C1	106.3	9.9	75.6	0.0	1.0100	105.7	0.9957	143.5	1	6						
118	CB250A-2	13.800	C2	106.3	9.9	75.6	0.0	1.0100	105.7	0.9957	143.5	1	6						
142	CANJ13A	13.800	C1	44.7	11.4	29.0	-29.0	1.0100	45.7	0.9689	69.0	1	6						
143	CANJ13B	13.800	C2	44.7	11.4	29.0	-29.0	1.0100	45.7	0.9689	69.0	1	6						
151	GUALACA13.8	13.800	G1	13.4	-5.0	10.0	-5.0	1.0250	14.0	0.9369	26.7	1	6						
156	TABASARAI13	13.800	G1	3.8	0.2	5.7	0.2	1.0348	3.7	0.9978	20.5	1	6						
193	GEBONYIC	13.800	G1	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9991	35.3	1	6						
193	GEBONYIC	13.800	G2	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9991	35.3	1	6						
193	GEBONYIC	13.800	G3	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9991	35.3	1	6						
204	BJOMIN13	13.800	G1	18.9	-8.9	13.0	-13.0	1.0100	20.7	0.9055	28.9	1	6						
204	BJOMIN13	13.800	G2	18.9	-8.9	13.0	-13.0	1.0100	20.7	0.9055	28.9	1	6						
205	BAITUN13.8	13.800	G1	28.7	10.3	26.6	-26.6	1.0100	30.2	0.9407	50.6	1	6						
205	BAITUN13.8	13.800	G2	28.7	10.3	26.6	-26.6	1.0100	30.2	0.9407	50.6	1	6						
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9648	11.1	0.8849	13.5	1	6						
303	SIND13.8	13.800	G1	4.3	0.0	5.0	0.0	1.1113	3.9	1.0000	13.5	1	6						
307	CHAN1 A	13.800	G1	77.9	-13.2	50.0	-50.0	1.0100	78.2	0.9860	118.6	1	6						
308	CHAN1 B	13.800	G2	77.9	-13.2	50.0	-50.0	1.0100	78.2	0.9860	118.6	1	6						
311	PANDO13.8	13.800	G1	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9865	19.9	1	6						
311	PANDO13.8	13.800	G2	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9865	19.9	1	6						
316	MONTE LIRIO	13.800	G1	18.6	-4.9	12.0	-5.0	1.0100	19.0	0.9670	27.0	1	6						
316	MONTE LIRIO	13.800	G2	18.6	-4.9	12.0	-5.0	1.0100	19.0	0.9670	27.0	1	6						
317	MENDRE13.8	13.800	M1	5.1	0.0	4.0	0.0	1.1111	4.6	1.0000	35.3	1	6						
317	MENDRE13.8	13.800	M2	5.1	0.0	4.0	0.0	1.1111	4.6	1.0000	35.3	1	6						
342	LORENA13.8	13.800	G1	11.0	-5.0	10.5	-5.0	1.0222	11.8	0.9104	19.9	1	6						



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342	LORENA13.8	13.800	G2	11.0	-5.0	10.5	-5.0	1.0222	11.8	0.9104	19.9	1	6
343	PRUDENCIA13813.800	G1	15.2	-6.5	9.8	-9.8	1.0200	16.2	0.9184	33.0	1	6	
343	PRUDENCIA13813.800	G2	15.2	-6.5	9.8	-9.8	1.0200	16.2	0.9184	33.0	1	6	
521	EGIRAL13.8	113.800	G1	2.9	1.3	2.8	1.3	1.0092	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.9	1.3	2.8	1.3	1.0092	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.9	1.3	2.8	1.3	1.0092	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0092	3.2	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.2	-0.4	6.6	-6.6	0.9800	7.4	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.2	-0.4	6.6	-6.6	0.9800	7.4	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.2	-0.4	6.6	-6.6	0.9800	7.4	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.2	-0.4	6.6	-6.6	0.9800	7.4	0.9983	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.2	-0.4	6.6	-6.6	0.9800	7.4	0.9983	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9081	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9081	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9081	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9081	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9081	10.9	1	6
525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0060	37.7	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	11.1	18.4	9.2	1.0100	38.1	0.9571	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	11.1	18.4	5.8	1.0100	38.1	0.9571	44.4	1	6
531	EGIRAL13.8	213.800	G5	6.5	3.9	6.4	3.0	1.0100	7.5	0.8596	10.9	1	6
531	EGIRAL13.8	213.800	G6	6.5	3.9	6.4	3.0	1.0100	7.5	0.8596	10.9	1	6
531	EGIRAL13.8	213.800	G7	6.5	3.9	6.4	3.0	1.0100	7.5	0.8596	10.9	1	6
SUBSYSTEM TOTALS				1618.2	147.2	1122.4	-570.7				2513.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:04
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT6 MINAS 1-STA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128	MIR13C	12.000	G3	12.6	2.9	11.0	0.0	1.0100	12.8	0.9750	29.4	2	7						
129	MIR13D	13.800	G4	35.0	2.0	15.0	0.0	1.0100	34.7	0.9984	44.1	2	7						
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0182	16.8	1.0000	27.7	2	7						
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0325	17.8	0.9289	23.0	2	7						
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0415	17.7	0.9289	23.0	2	7						
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0415	17.7	0.9289	23.0	2	7						
SUBSYSTEM TOTALS				116.0	25.3	67.5	20.5					170.3							



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:04
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 CNT6 MINAS 1-STA RITA IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	245.2	569.4	-237.8	0.0	470.5	25.2	358.9	
6	1618.2	1486.6	0.0	0.0	0.0	88.8	42.8	25.0
PANAMA	147.2	372.6	-191.2	0.0	577.5	71.2	472.2	
7	116.0	57.7	0.0	0.0	0.0	57.4	0.9	50.0
ACANAL	25.3	14.5	0.0	0.0	0.0	-1.7	12.6	
9	0.0	146.4	0.0	0.0	0.0	-146.6	0.2	-75.0
COLON	0.0	36.7	0.0	0.0	1.1	-48.2	12.6	
TOTALS	6883.4	6742.2	0.0	0.0	0.0	0.0	141.2	0.0
	636.3	2040.0	-1040.4	0.0	2128.0	0.0	1764.7	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 7: Contingencia Santa Rita- Panamá II



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de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT7 STA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0020	230.46	8		LSA230		230.00	6	1.0272	236.27
11	M.	N230		230.00	6	1.0297	236.83	14		PRO230		230.00	6	1.0332	237.65
85		PTP230		230.00	6	1.0242	235.56	96		FOR230		230.00	6	1.0273	236.28
100		BAY230		230.00	6	1.0270	236.20	103		COPESA23		230.00	6	1.0013	230.29
105		PAN-AM23		230.00	6	1.0020	230.47	115		PACORA23		230.00	6	1.0062	231.42
144		CANJ230		230.00	6	1.0273	236.28	145		BJOMIN230		230.00	6	1.0354	238.15
146		GUALACA230		230.00	6	1.0298	236.85	147		GUASQ230		230.00	6	1.0272	236.25
148		VELADERO	230	230.00	6	1.0326	237.49	155		TABASARAI		230.00	6	1.0328	237.56
190		CHANG230		230.00	6	1.0267	236.14	306		CHAN1	230	230.00	6	1.0265	236.09
310		CONCEPCION23	230	230.00	6	1.0337	237.76	325		STA RITA230		230.00	6	1.0048	231.09
341		PRUDENCIA230	230	230.00	6	1.0339	237.80	345		LORENA230		230.00	6	1.0325	237.48
511		LGUIAS230		230.00	6	1.0172	233.96	6000		FRONTER		230.00	6	1.0335	237.70

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9910	227.93	3		PANII230		230.00	6	0.9965	229.19

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT7 STA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0123	116.41	4		PANII115		115.00	6	1.0059	115.68
6		CHO115		115.00	6	1.0412	119.74	9		LSA115		115.00	6	1.0628	122.23
12	M.	N115		115.00	6	1.0227	117.61	15		PRO115		115.00	6	1.0307	118.54
18		CAC115		115.00	6	1.0116	116.33	20		CH.AZUL		115.00	6	1.0315	118.62
23		CH115		115.00	6	1.0074	115.85	33		STM115		115.00	6	1.0095	116.10
48		TINAJ115		115.00	6	1.0085	115.97	50		M.O115		115.00	6	1.0086	115.99
52		TOC115		115.00	6	1.0017	115.20	54		LM1115		115.00	6	1.0345	118.97
55		LM2115		115.00	6	1.0346	118.98	61		FFIELD		115.00	9	1.0290	118.34
87		CAL115		115.00	6	1.0325	118.74	88		EST115		115.00	6	1.0340	118.91
92	L.	V115		115.00	6	1.0333	118.83	109		STA RITA115		115.00	6	1.0375	119.31
123		MIR115		115.00	7	1.0141	116.62	154		CEMPAN15		115.00	6	1.0345	118.97
191		CHANG115		115.00	6	1.0162	116.86	522		TCATIVÁ	115	115.00	6	1.0348	119.00

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9947	114.39	21		C.BAN115		115.00	6	0.9957	114.51
26		LOC115		115.00	6	0.9977	114.73	30		MAR115		115.00	6	0.9967	114.62
37		SAN115		115.00	6	0.9935	114.26								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT7 STA RITA-PANAMA II

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	36.0	12.6	25.0	0.0	1.0100	37.8	0.9436	47.0	1	6
67	BLM13C	13.800	V3	36.0	12.6	25.0	0.0	1.0100	37.8	0.9436	47.0	1	6
68	BLM13D	13.800	V4	36.0	13.1	25.0	0.0	1.0100	37.9	0.9394	47.0	1	6
90	EST-13L	13.800	E1	13.0	5.2	12.0	-5.0	1.0000	14.0	0.9292	27.0	1	6
94	LV-13.8L	13.800	L1	17.6	8.9	12.0	-5.0	1.0100	19.5	0.8925	27.0	1	6
97	FOR13A	13.800	F1	68.9	-13.4	50.0	-50.0	1.0100	69.5	0.9817	111.0	1	6
98	FOR13B	13.800	F2	68.9	-13.4	50.0	-50.0	1.0100	69.5	0.9817	111.0	1	6
99	FOR13C	13.800	F3	68.9	-13.4	50.0	-50.0	1.0100	69.5	0.9817	111.0	1	6
101	BAY13A	13.800	B1	80.6	21.4	50.0	-25.0	1.0000	83.4	0.9665	96.0	1	6
102	BAY13B	13.800	B2	79.4	21.3	50.0	-25.0	1.0000	82.2	0.9659	96.0	1	6
106	PANAM13A	13.800	M1	14.5	5.5	9.0	0.0	1.0100	15.3	0.9355	20.7	1	6
106	PANAM13A	13.800	M2	14.5	5.5	9.0	0.0	1.0100	15.3	0.9355	20.7	1	6
106	PANAM13A	13.800	M3	14.5	5.5	9.0	0.0	1.0100	15.3	0.9355	20.7	1	6
108	BAY13C	13.800	B3	80.9	29.5	50.0	-25.0	1.0100	85.2	0.9396	100.0	1	6
116	PACORA13	13.800	P1	16.0	3.6	8.8	0.0	1.0100	16.2	0.9757	21.7	1	6
116	PACORA13	13.800	P2	16.0	3.6	8.8	0.0	1.0100	16.2	0.9757	21.7	1	6
116	PACORA13	13.800	P3	16.0	3.6	8.8	0.0	1.0100	16.2	0.9757	21.7	1	6
117	CB250A-1	13.800	C1	106.3	11.6	75.6	0.0	1.0100	105.9	0.9941	143.5	1	6
118	CB250A-2	13.800	C2	106.3	11.6	75.6	0.0	1.0100	105.9	0.9941	143.5	1	6
142	CANJ13A	13.800	C1	44.7	11.5	29.0	-29.0	1.0100	45.7	0.9683	69.0	1	6
143	CANJ13B	13.800	C2	44.7	11.5	29.0	-29.0	1.0100	45.7	0.9683	69.0	1	6
151	GUALACA13.8	13.800	G1	13.4	-5.0	10.0	-5.0	1.0243	14.0	0.9369	26.7	1	6
156	TABASARAI13	13.800	G1	3.8	0.2	5.7	0.2	1.0334	3.7	0.9978	20.5	1	6
193	GEBONYIC	13.800	G1	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9992	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9992	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	-0.3	4.0	-4.0	1.0100	8.3	0.9992	35.3	1	6
204	BJOMIN13	13.800	G1	18.9	-8.7	13.0	-13.0	1.0100	20.6	0.9080	28.9	1	6
204	BJOMIN13	13.800	G2	18.9	-8.7	13.0	-13.0	1.0100	20.6	0.9080	28.9	1	6
205	BAITUN13.8	13.800	G1	28.7	10.5	26.6	-26.6	1.0100	30.3	0.9392	50.6	1	6
205	BAITUN13.8	13.800	G2	28.7	10.5	26.6	-26.6	1.0100	30.3	0.9392	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9642	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.3	0.0	5.0	0.0	1.1108	3.9	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	77.9	-13.0	50.0	-50.0	1.0100	78.2	0.9864	118.6	1	6
308	CHAN1 B	13.800	G2	77.9	-13.0	50.0	-50.0	1.0100	78.2	0.9864	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9870	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.6	10.0	-5.0	1.0100	9.6	0.9870	19.9	1	6
316	MONTE LIRIO	13.800	G1	18.6	-4.8	12.0	-5.0	1.0100	19.0	0.9681	27.0	1	6
316	MONTE LIRIO	13.800	G2	18.6	-4.8	12.0	-5.0	1.0100	19.0	0.9681	27.0	1	6
317	MENDRE13.8	13.800	M1	5.1	0.0	4.0	0.0	1.1107	4.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.1	0.0	4.0	0.0	1.1107	4.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.0	-5.0	10.5	-5.0	1.0216	11.8	0.9104	19.9	1	6
342	LORENA13.8	13.800	G2	11.0	-5.0	10.5	-5.0	1.0216	11.8	0.9104	19.9	1	6
343	PRUDENCIA13813	13.800	G1	15.2	-6.3	9.8	-9.8	1.0200	16.1	0.9245	33.0	1	6
343	PRUDENCIA13813	13.800	G2	15.2	-6.3	9.8	-9.8	1.0200	16.1	0.9245	33.0	1	6
521	EGIRAL13.8	113.800	G1	2.9	1.3	2.8	1.3	1.0082	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G2	2.9	1.3	2.8	1.3	1.0082	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G3	2.9	1.3	2.8	1.3	1.0082	3.2	0.9123	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0082	3.2	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.2	-0.5	6.6	-6.6	0.9800	7.4	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.2	-0.5	6.6	-6.6	0.9800	7.4	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.2	-0.5	6.6	-6.6	0.9800	7.4	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.2	-0.5	6.6	-6.6	0.9800	7.4	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.2	-0.5	6.6	-6.6	0.9800	7.4	0.9980	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9096	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9096	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9096	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9096	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.2	3.3	6.6	-6.6	1.0100	7.8	0.9096	10.9	1	6

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525	TCOLON 13A	13.800	G1	36.8	9.2	18.4	9.2	1.0045	37.8	0.9701	44.4	1	6
526	TCOLON 13B	13.800	G2	36.8	11.9	18.4	9.2	1.0100	38.3	0.9518	44.4	1	6
527	TCOLON 13C	13.800	V1	36.8	11.9	18.4	5.8	1.0100	38.3	0.9518	44.4	1	6
531	EGIRAL13.8	213.800	G5	6.5	4.0	6.4	3.0	1.0100	7.6	0.8510	10.9	1	6
531	EGIRAL13.8	213.800	G6	6.5	4.0	6.4	3.0	1.0100	7.6	0.8510	10.9	1	6
531	EGIRAL13.8	213.800	G7	6.5	4.0	6.4	3.0	1.0100	7.6	0.8510	10.9	1	6
SUBSYSTEM TOTALS				1619.5	163.8	1122.4	-570.7				2513.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT7 STA RITA-PANAMA II

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	3.4	11.0	0.0	1.0100	12.9	0.9664	29.4	2	7					
129	MIR13D	13.800	G4	35.0	2.7	15.0	0.0	1.0100	34.8	0.9970	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0164	16.8	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0307	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	26.5	67.5	20.5				170.3							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 18:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 CNT7 STA RITA-PANAMA II

AREA TOTALS										
IN MW/MVAR										
X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	



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4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.4	224.5	-98.9	0.0	143.3	-97.3	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	246.0	569.4	-237.8	0.0	470.4	25.9	358.9	
6	1619.5	1486.6	0.0	0.0	0.0	88.8	44.1	25.0
PANAMA	163.8	372.6	-190.0	0.0	567.0	69.3	478.9	
7	116.0	57.7	0.0	0.0	0.0	57.4	0.9	50.0
ACANAL	26.5	14.5	0.0	0.0	0.0	-0.6	12.6	
9	0.0	146.4	0.0	0.0	0.0	-146.6	0.2	-75.0
COLON	0.0	36.7	0.0	0.0	1.1	-48.2	12.6	
TOTALS	6884.8	6742.2	0.0	0.0	0.0	0.0	142.5	0.0
	654.9	2040.0	-1039.2	0.0	2117.4	0.0	1771.5	



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AÑO 2016

Caso 2: REGMHTGDC8

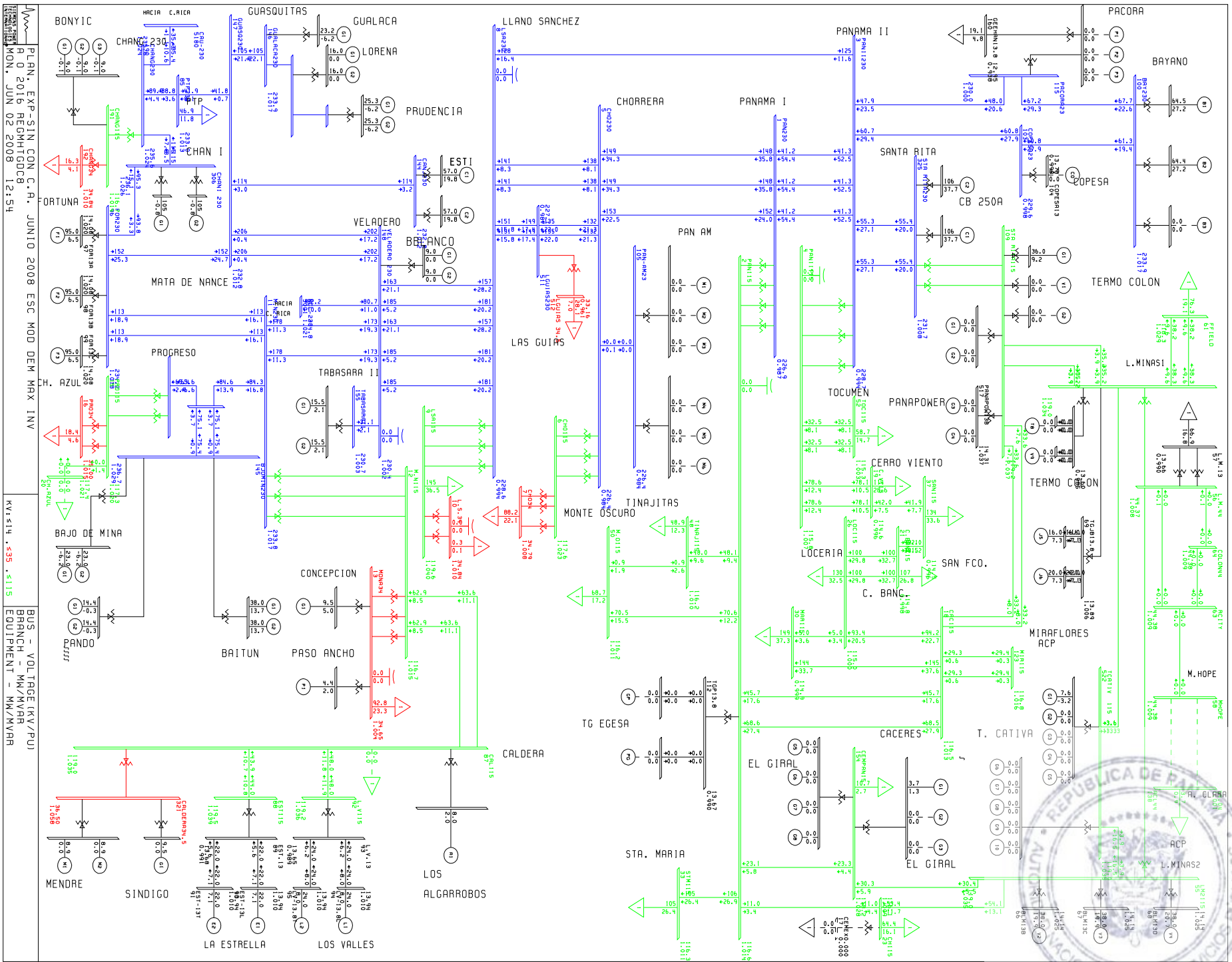


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de



PLAN - EXP-SIN CON C.A.R. JUNIO 2008 ESC MOD DEM MAX INV
 P.O. 2016 RECHMTDC08
 MON. JUN 02 2008 12:54
 KY:514 .535 .5115
 BUS - VOLTAGE (KV/PUI)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0167	233.85	14	PRO230	230.00	6	1.0228	235.25				
85	PTP230	230.00	6	1.0129	232.98	96	FOR230	230.00	6	1.0182	234.18				
100	BAY230	230.00	6	1.0171	233.94	144	CANJ230	230.00	6	1.0122	232.81				
145	BJOMIN230	230.00	6	1.0290	236.68	146	GUALACA230	230.00	6	1.0170	233.90				
147	GUASQ230	230.00	6	1.0120	232.77	148	VELADERO	230230.00	6	1.0016	230.36				
155	TABASARAI	230.00	6	1.0029	230.66	190	CHANG230	230.00	6	1.0243	235.58				
306	CHAN1	230.00	6	1.0264	236.07	310	CONCEPCION23	230.00	6	1.0246	235.66				
325	STA RITA230	230.00	6	1.0075	231.73	341	PRUDENCIA230	230.00	6	1.0248	235.70				
345	LORENA230	230.00	6	1.0222	235.10	6000	FRONTER	230.00	6	1.0226	235.19				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9865	226.90	3	PANII230	230.00	6	0.9944	228.71				
5	CHO230	230.00	6	0.9843	226.39	8	LSA230	230.00	6	0.9941	228.64				
103	COPESA23	230.00	6	0.9983	229.60	105	PAN-AM23	230.00	6	0.9843	226.39				
115	PACORA23	230.00	6	0.9999	229.97	511	LGUIAS230	230.00	6	0.9875	227.12				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0142	116.63	4	PANII115	115.00	6	1.0069	115.79				
6	CHO115	115.00	6	1.0227	117.62	9	LSA115	115.00	6	1.0397	119.57				
12	M.N115	115.00	6	1.0146	116.68	15	PRO115	115.00	6	1.0203	117.34				
18	CAC115	115.00	6	1.0134	116.55	20	CH.AZUL	115.00	6	1.0211	117.43				
23	CH115	115.00	6	1.0094	116.09	33	STM115	115.00	6	1.0115	116.32				
48	TINAJ115	115.00	6	1.0104	116.20	50	M.O115	115.00	6	1.0106	116.22				
52	TOC115	115.00	6	1.0027	115.32	54	LM115	115.00	6	1.0345	118.97				
55	LM2115	115.00	6	1.0346	118.98	61	FFIELD	115.00	9	1.0291	118.35				
87	CAL115	115.00	6	1.0350	119.02	88	EST115	115.00	6	1.0389	119.47				
92	L.V115	115.00	6	1.0365	119.19	109	STA RITA115	115.00	6	1.0368	119.23				
123	MIR115	115.00	7	1.0160	116.83	154	CEMPAN15	115.00	6	1.0279	118.21				
191	CHANG115	115.00	6	1.0144	116.66	522	TCATIVÁ	115 115.00	6	1.0346	118.97				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9962	114.57	21	C.BAN115	115.00	6	0.9979	114.76				
26	LOC115	115.00	6	0.9998	114.98	30	MAR115	115.00	6	0.9989	114.88				
37	SAN115	115.00	6	0.9957	114.50										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	19.9	25.0	0.0	1.0250	41.8	0.8863	47.0	1	6
67	BLM13C	13.800	V3	38.0	19.9	25.0	0.0	1.0250	41.8	0.8863	47.0	1	6
68	BLM13D	13.800	V4	38.0	20.7	25.0	0.0	1.0250	42.2	0.8779	47.0	1	6
70	TGJB13A	13.800	J5	16.0	7.3	20.0	0.0	1.0100	17.4	0.9106	39.4	1	6
71	TGJB13B	13.800	J6	20.0	7.3	20.0	0.0	1.0100	21.1	0.9394	39.4	1	6
90	EST-13L	13.800	E1	22.0	7.1	12.0	-5.0	1.0100	22.9	0.9511	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.1	12.0	-5.0	1.0100	22.9	0.9511	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	8.0	12.0	-5.0	1.0100	25.0	0.9487	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	8.0	12.0	-5.0	1.0100	25.0	0.9487	27.0	1	6
97	FOR13A	13.800	F1	95.0	6.5	50.0	-50.0	1.0200	93.4	0.9977	111.0	1	6
98	FOR13B	13.800	F2	95.0	6.5	50.0	-50.0	1.0200	93.4	0.9977	111.0	1	6
99	FOR13C	13.800	F3	95.0	6.5	50.0	-50.0	1.0200	93.4	0.9977	111.0	1	6
101	BAY13A	13.800	B1	64.5	27.2	50.0	-25.0	1.0000	70.0	0.9212	96.0	1	6
102	BAY13B	13.800	B2	64.4	27.2	50.0	-25.0	1.0000	70.0	0.9211	96.0	1	6
117	CB250A-1	13.800	C1	106.3	37.7	75.6	0.0	1.0300	109.5	0.9423	143.5	1	6
118	CB250A-2	13.800	C2	106.3	37.7	75.6	0.0	1.0300	109.5	0.9423	143.5	1	6
142	CANJ13A	13.800	C1	57.0	19.8	29.0	-29.0	1.0200	59.2	0.9448	69.0	1	6
143	CANJ13B	13.800	C2	57.0	19.8	29.0	-29.0	1.0200	59.2	0.9448	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	0.0	6.1	0.0	1.0014	9.0	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	0.0	6.1	0.0	1.0014	9.0	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	23.2	-6.2	10.0	-10.0	1.0100	23.8	0.9665	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	2.1	5.7	0.2	1.0100	15.5	0.9906	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	2.1	5.7	0.2	1.0100	15.5	0.9906	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	-0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	-0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	-0.1	4.0	-4.0	1.0100	8.9	0.9999	35.3	1	6
204	BJOMIN13	13.800	G1	23.0	-6.2	13.0	-13.0	1.0100	23.6	0.9658	28.9	1	6
204	BJOMIN13	13.800	G2	23.0	-6.2	13.0	-13.0	1.0100	23.6	0.9658	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	13.7	26.6	-26.6	1.0100	40.0	0.9406	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	13.7	26.6	-26.6	1.0100	40.0	0.9406	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9596	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9577	5.1	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1107	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9869	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.2	-0.8	50.0	-50.0	1.0200	103.1	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	105.2	-0.8	50.0	-50.0	1.0200	103.1	1.0000	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	-0.3	10.0	-5.0	1.0100	14.3	0.9997	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	-0.3	10.0	-5.0	1.0100	14.3	0.9997	19.9	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1102	8.0	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1102	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0216	15.7	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0216	15.7	1.0000	19.9	1	6
343	PRUDENCIA138	13.800	G1	25.3	-6.2	9.8	-9.8	1.0100	25.8	0.9715	33.0	1	6
343	PRUDENCIA138	13.800	G2	25.3	-6.2	9.8	-9.8	1.0100	25.8	0.9715	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9850	4.0	0.9433	4.8	1	6
523	TCATIVA 13A	13.800	G1	7.6	-3.2	6.6	-6.6	0.9800	8.4	0.9219	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0039	37.0	0.9689	44.4	1	6
SUBSYSTEM TOTALS				1621.9	308.9	957.4	-511.3				2194.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CON INTERCAMBIOS MOD DEM MAX INV

AREA 7 [ACANAL] MACHINE SUMMARY:
 BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE X T R A N GENTAP ZONE AREA SWING

128 MIR13C 12.000 G3 12.6 3.0 11.0 0.0 1.0100 12.8 0.9720 29.4



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129	MIR13D	13.800	G4	35.0	2.2	15.0	0.0	1.0100	34.7	0.9980	44.1	2	7
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0175	16.8	1.0000	27.7	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0319	17.8	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0409	17.7	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0409	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS							116.0	25.7	67.5	20.5		170.3	



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

X-- AREA	FROM --X GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.8	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C.RICA	262.2	569.4	-237.3	0.0	468.5	37.1	361.5	
6	1621.9	1454.3	0.0	0.0	0.0	84.7	82.9	25.0
PANAMA	308.9	364.5	-342.4	0.0	555.2	56.9	785.2	
7	116.0	56.4	0.0	0.0	0.0	58.7	0.9	50.0
ACANAL	25.7	14.1	0.0	0.0	0.0	-1.2	12.8	
9	0.0	143.3	0.0	0.0	0.0	-143.4	0.2	-75.0
COLON	0.0	35.9	0.0	0.0	1.1	-46.8	12.0	
TOTALS	6887.1	6705.6	0.0	0.0	0.0	0.0	181.6	0.0
	816.0	2030.8	-1191.1	0.0	2103.7	0.0	2080.0	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A. JUNIO 2008 ESC MOD DEM MAX VER

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0180	234.15	11	M.N230	230.00	6	1.0280	236.45				
14	PRO230	230.00	6	1.0318	237.30	85	PTP230	230.00	6	1.0200	234.60				
96	FOR230	230.00	6	1.0258	235.94	100	BAY230	230.00	6	1.0159	233.65				
144	CANJ230	230.00	6	1.0259	235.95	145	BJOMIN230	230.00	6	1.0328	237.56				
146	GUALACA230	230.00	6	1.0279	236.41	147	GUASQ230	230.00	6	1.0258	235.93				
148	VELADERO	230230.00	6	1.0301	236.93	155	TABASARAI	230.00	6	1.0307	237.05				
190	CHANG230	230.00	6	1.0176	234.05	306	CHAN1	230.00	6	1.0159	233.66				
310	CONCEPCION23	230.00	6	1.0319	237.33	341	PRUDENCIA230	230.00	6	1.0308	237.08				
345	LORENA230	230.00	6	1.0299	236.88	511	LGUIAS230	230.00	6	1.0105	232.42				
6000	FRONTER	230.00	6	1.0321	237.38										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9873	227.08	3	PANII230	230.00	6	0.9925	228.28				
5	CHO230	230.00	6	0.9977	229.48	103	COPESA23	230.00	6	0.9965	229.20				
105	PAN-AM23	230.00	6	0.9978	229.50	115	PACORA23	230.00	6	0.9981	229.57				
325	STA RITA230	230.00	6	0.9946	228.75										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A. JUNIO 2008 ESC MOD DEM MAX VER

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0082	115.95	4	PANII115	115.00	6	1.0072	115.82				
6	CHO115	115.00	6	1.0366	119.21	9	LSA115	115.00	6	1.0293	118.37				
12	M.N115	115.00	6	1.0220	117.53	15	PRO115	115.00	6	1.0292	118.36				
18	CAC115	115.00	6	1.0074	115.85	20	CH.AZUL	115.00	6	1.0300	118.45				
23	CH115	115.00	6	1.0002	115.03	33	STM115	115.00	6	1.0055	115.63				
48	TINAJ115	115.00	6	1.0044	115.50	50	M.O115	115.00	6	1.0046	115.52				
52	TOC115	115.00	6	1.0029	115.34	54	LM115	115.00	6	1.0263	118.03				
55	LM2115	115.00	6	1.0261	118.00	61	FFIELD	115.00	9	1.0207	117.38				
87	CAL115	115.00	6	1.0296	118.41	88	EST115	115.00	6	1.0307	118.53				
92	L.V115	115.00	6	1.0300	118.45	109	STA RITA115	115.00	6	1.0272	118.13				
123	MIR115	115.00	7	1.0090	116.04	154	CEMPAN15	115.00	6	1.0269	118.10				
191	CHANG115	115.00	6	1.0043	115.50	522	TCATIVÁ	115.00	6	1.0264	118.04				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9944	114.36	21	C.BAN115	115.00	6	0.9921	114.09				
26	LOC115	115.00	6	0.9939	114.30	30	MAR115	115.00	6	0.9926	114.15				
37	SAN115	115.00	6	0.9902	113.88										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A. JUNIO 2008 ESC MOD DEM MAX VER

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	7.2	25.0	0.0	0.9900	37.1	0.9807	47.0	1	6
67	BLM13C	13.800	V3	36.0	7.2	25.0	0.0	0.9900	37.1	0.9807	47.0	1	6
68	BLM13D	13.800	V4	36.0	7.4	25.0	0.0	0.9900	37.1	0.9795	47.0	1	6
70	TGJB13A	13.800	J5	31.0	5.2	20.0	0.0	0.9900	31.7	0.9863	39.4	1	6
71	TGJB13B	13.800	J6	31.0	5.2	20.0	0.0	0.9900	31.7	0.9863	39.4	1	6
72	BLMCCA	13.800	T8	31.0	6.9	20.0	0.0	0.9900	32.1	0.9763	50.0	1	6
73	BLMCCB	13.800	V9	57.0	7.5	40.0	0.0	0.9900	58.1	0.9915	71.0	1	6
90	EST-13L	13.800	E1	13.0	2.9	12.0	-5.0	0.9900	13.5	0.9752	27.0	1	6
94	LV-13.8L	13.800	L1	15.0	3.2	12.0	-5.0	0.9900	15.5	0.9776	27.0	1	6
97	FOR13A	13.800	F1	65.0	-12.3	50.0	-50.0	1.0100	65.5	0.9826	111.0	1	6
98	FOR13B	13.800	F2	65.0	-12.3	50.0	-50.0	1.0100	65.5	0.9826	111.0	1	6
101	BAY13A	13.800	B1	65.4	28.3	50.0	-25.0	1.0000	71.3	0.9179	96.0	1	6
102	BAY13B	13.800	B2	66.0	28.3	50.0	-25.0	1.0000	71.9	0.9190	96.0	1	6
106	PANAM13A	13.800	M1	14.0	3.1	9.0	0.0	0.9900	14.5	0.9767	20.7	1	6
106	PANAM13A	13.800	M2	14.0	3.1	9.0	0.0	0.9900	14.5	0.9767	20.7	1	6
106	PANAM13A	13.800	M3	14.0	3.1	9.0	0.0	0.9900	14.5	0.9767	20.7	1	6
107	PANAM13B	13.800	M4	14.0	3.1	9.0	0.0	0.9900	14.5	0.9767	20.7	1	6
107	PANAM13B	13.800	M5	14.0	3.1	9.0	0.0	0.9900	14.5	0.9767	20.7	1	6
107	PANAM13B	13.800	M6	14.0	3.1	9.0	0.0	0.9900	14.5	0.9767	20.7	1	6
117	CB250A-1	13.800	C1	115.0	0.0	75.6	0.0	0.9914	116.0	1.0000	143.5	1	6
118	CB250A-2	13.800	C2	115.0	0.0	75.6	0.0	0.9914	116.0	1.0000	143.5	1	6
142	CANJ13A	13.800	C1	40.0	7.2	29.0	-29.0	0.9900	41.1	0.9840	69.0	1	6
143	CANJ13B	13.800	C2	40.0	7.2	29.0	-29.0	0.9900	41.1	0.9840	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	0.0	6.1	0.0	1.0299	8.7	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	0.0	6.1	0.0	1.0299	8.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	15.0	-7.3	10.0	-10.0	1.0200	16.3	0.9001	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0306	15.1	0.9999	20.5	1	6
193	GEBONYIC	13.800	G1	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9569	35.3	1	6
193	GEBONYIC	13.800	G2	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9569	35.3	1	6
204	BJOMIN13	13.800	G1	20.0	-9.1	13.0	-13.0	1.0200	21.6	0.9098	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	5.9	26.6	-26.6	0.9900	38.8	0.9883	50.6	1	6
301	CONC13.8	13.800	G1	7.0	3.0	3.0	-3.0	0.9622	7.9	0.9191	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9616	4.7	0.8944	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1070	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	5.0	2.0	2.0	0.0	0.9818	5.5	0.9285	13.5	1	6
307	CHAN1 A	13.800	G1	95.0	-20.0	50.0	-50.0	0.9900	98.1	0.9785	118.6	1	6
308	CHAN1 B	13.800	G2	95.0	-20.0	50.0	-50.0	0.9900	98.1	0.9785	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9883	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9883	19.9	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1070	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	14.0	0.0	10.5	0.0	1.0298	13.6	1.0000	19.9	1	6
343	PRUDENCIA13	13.800	G1	20.0	-9.8	9.8	-9.8	1.0201	21.8	0.8987	33.0	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0275	14.6	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0275	14.6	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0286	14.6	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	4.4	0.5	12.5	0.5	1.0286	4.3	0.9930	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	1.0009	3.9	0.9433	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0009	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0009	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0009	3.3	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	1.9	6.6	-6.6	0.9900	7.9	0.9711	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9711	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9711	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9711	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9711	10.9	1	6
524	TCATIVÁ 13B	13.800	G10	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9705	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9705	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9705	10.9	1	6

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524	TCATIVÁ	13B	13.800	G8	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9705	10.9	1	6			
524	TCATIVÁ	13B	13.800	G9	7.0	1.7	6.6	-6.6	0.9900	7.3	0.9705	10.9	1	6			
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	0.9949	37.3	0.9689	44.4	1	6			
526	TCOLON	13B	13.800	G2	36.0	9.2	18.4	9.2	0.9949	37.3	0.9688	44.4	1	6			
527	TCOLON	13C	13.800	V1	36.0	6.9	18.4	5.8	0.9900	37.0	0.9823	44.4	1	6			
531	EGIRAL	13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0014	8.5	0.9363	10.9	1	6			
531	EGIRAL	13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0014	8.5	0.9363	10.9	1	6			
531	EGIRAL	13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0014	8.5	0.9363	10.9	1	6			
531	EGIRAL	13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0014	8.5	0.9363	10.9	1	6			
SUBSYSTEM TOTALS													1621.9	117.8	1101.8	-422.2	2379.7

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A. JUNIO 2008 ESC MOD DEM MAX VER

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	1.1	11.0	0.0	0.9900	12.8	0.9963	29.4	2	7					
129	MIR13D	13.800	G4	35.0	0.0	15.0	0.0	0.9917	35.3	1.0000	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0042	17.0	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0187	18.1	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0278	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0278	17.9	0.9289	23.0	2	7					
SUBSYSTEM TOTALS													116.0	21.5	67.5	20.5	170.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:15
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A. JUNIO 2008 ESC MOD DEM MAX VER

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0	
		29.8	349.5	-266.2	0.0	412.9	17.9	341.4		
2	SALVADOR	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0	
		100.8	182.3	-58.1	0.0	219.9	38.4	158.1		
3		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0	



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HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	255.0	569.4	-236.5	0.0	469.8	31.7	360.2	
6	1621.9	1495.9	0.0	0.0	0.0	90.2	35.8	25.0
PANAMA	117.8	374.9	-182.8	0.0	570.2	69.1	426.8	
7	116.0	58.1	0.0	0.0	0.0	57.0	0.9	50.0
ACANAL	21.5	14.6	0.0	0.0	0.0	-5.8	12.8	
9	0.0	147.4	0.0	0.0	0.0	-147.6	0.2	-75.0
COLON	0.0	36.9	0.0	0.0	1.1	-48.7	12.8	
TOTALS	6887.1	6752.8	0.0	0.0	0.0	0.0	134.3	0.0
	613.1	2042.7	-1030.8	0.0	2119.9	0.0	1721.2	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	1.0264	236.07	3		PANII230		230.00	6	1.0301	236.92
5		CHO230		230.00	6	1.0308	237.08	8		LSA230		230.00	6	1.0295	236.77
11		M.N230		230.00	6	1.0381	238.77	14		PRO230		230.00	6	1.0417	239.59
85		PTP230		230.00	6	1.0403	239.28	96		FOR230		230.00	6	1.0398	239.16
100		BAY230		230.00	6	1.0336	237.74	103		COPESA23		230.00	6	1.0311	237.16
105		PAN-AM23		230.00	6	1.0308	237.08	115		PACORA23		230.00	6	1.0314	237.22
144		CANJ230		230.00	6	1.0412	239.48	145		BJOMIN230		230.00	6	1.0415	239.54
146		GUALACA230		230.00	6	1.0425	239.77	147		GUASQ230		230.00	6	1.0412	239.48
148		VELADERO	230	230.00	6	1.0388	238.93	155		TABASARAI		230.00	6	1.0391	239.00
190		CHANG230		230.00	6	1.0360	238.29	306		CHAN1	230	230.00	6	1.0345	237.94
310		CONCEPCION23	230	230.00	6	1.0414	239.52	325		STA RITA230		230.00	6	1.0357	238.21
341		PRUDENCIA230	230	230.00	6	1.0448	240.31	345		LORENA230		230.00	6	1.0441	240.14
511		LGUIAS230		230.00	6	1.0330	237.59	6000		FRONTIER		230.00	6	1.0417	239.59

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
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• NONE *

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0058	115.67	4		PANII115		115.00	6	1.0013	115.15
6		CHO115		115.00	6	1.0807	124.28	9		LSA115		115.00	6	1.0430	119.95
12		M.N115		115.00	6	1.0231	117.66	15		PRO115		115.00	6	1.0414	119.76
18		CAC115		115.00	6	1.0056	115.64	20		CH.AZUL		115.00	6	1.0422	119.85
23		CH115		115.00	6	1.0075	115.86	26		LOC115		115.00	6	1.0002	115.03
33		STM115		115.00	6	1.0047	115.54	48		TINAJ115		115.00	6	1.0046	115.52
50		M.O115		115.00	6	1.0046	115.53	54		LM1115		115.00	6	1.0229	117.63
55		LM2115		115.00	6	1.0229	117.64	61		FFIELD		115.00	9	1.0207	117.38
87		CAL115		115.00	6	1.0278	118.20	88		EST115		115.00	6	1.0283	118.26
92		L.V115		115.00	6	1.0280	118.22	109		STA RITA115		115.00	6	1.0225	117.59
123		MIR115		115.00	7	1.0050	115.58	154		CEMPAN15		115.00	6	1.0210	117.42
191		CHANG115		115.00	6	1.0282	118.24	522		TCATIVÁ	115	115.00	6	1.0230	117.65

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9977	114.73	21		C.BAN115		115.00	6	0.9995	114.94
30		MAR115		115.00	6	0.9998	114.97	37		SAN115		115.00	6	0.9985	114.83
52		TOC115		115.00	6	0.9996	114.96								



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	20.0	3.0	25.0	0.0	0.9800	20.6	0.9888	47.0			1	6	
67		BLM13C		13.800	V3	20.0	3.0	25.0	0.0	0.9800	20.6	0.9888	47.0			1	6	
68		BLM13D		13.800	V4	20.0	3.1	25.0	0.0	0.9800	20.7	0.9880	47.0			1	6	
70		TGJB13A		13.800	J5	11.0	2.8	20.0	0.0	0.9800	11.6	0.9693	39.4			1	6	
73		BLMCCB		13.800	V9	34.0	4.0	40.0	0.0	0.9800	34.9	0.9933	71.0			1	6	
90		EST-13L		13.800	E1	12.0	0.4	12.0	-5.0	0.9800	12.3	0.9993	27.0			1	6	
94		LV-13.8L		13.800	L1	17.0	0.8	12.0	-5.0	0.9800	17.4	0.9990	27.0			1	6	
97		FOR13A		13.800	F1	61.2	-16.5	50.0	-50.0	1.0200	62.1	0.9656	111.0			1	6	SYST
117		CB250A-1		13.800	C1	70.0	0.0	75.6	0.0	1.0347	67.7	1.0000	143.5			1	6	
142		CANJ13A		13.800	C1	35.0	2.0	29.0	-29.0	0.9800	35.8	0.9983	69.0			1	6	
149		BBLANCO13.8		13.800	G1	7.0	0.0	6.1	0.0	1.0387	6.7	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	7.0	0.0	6.1	0.0	1.0387	6.7	1.0000	11.6			1	6	
156		TABASARAI113		13.800	G1	4.0	0.2	5.7	0.2	1.0396	3.9	0.9981	20.5			1	6	
193		GEBONYIC		13.800	G1	7.0	-4.0	4.0	-4.0	1.0157	7.9	0.8682	35.3			1	6	
204		BJOMIN13		13.800	G1	20.0	-5.0	13.0	-5.0	1.0344	19.9	0.9701	28.9			1	6	
304		ALGA13.8		13.800	A1	5.0	1.9	2.0	0.0	0.9800	5.4	0.9368	13.5			1	6	
307		CHANI A		13.800	G1	60.0	-31.4	50.0	-50.0	1.0000	67.7	0.8859	118.6			1	6	
311		PANDO13.8		13.800	G1	10.0	-5.0	10.0	-5.0	1.0095	11.1	0.8944	19.9			1	6	
317		MENDRE13.8		13.800	M1	5.0	0.0	4.0	0.0	1.1066	4.5	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	11.0	0.0	10.5	0.0	1.0440	10.5	1.0000	19.9			1	6	
343		PRUDENCIA138		13.800	G1	15.0	-5.0	9.8	-5.0	1.0395	15.2	0.9487	33.0			1	6	
516		PANAPOW13A		13.800	G1	10.0	0.5	12.5	0.5	1.0234	9.8	0.9986	20.9			1	6	
521		EGIRAL13.8		113.800	G1	1.8	0.4	2.8	0.0	0.9800	1.9	0.9735	4.8			1	6	
521		EGIRAL13.8		113.800	G2	1.8	0.4	2.8	0.0	0.9800	1.9	0.9735	4.8			1	6	
521		EGIRAL13.8		113.800	G3	1.8	0.4	2.8	0.0	0.9800	1.9	0.9735	4.8			1	6	
521		EGIRAL13.8		113.800	G4	1.8	0.4	2.8	0.0	0.9800	1.9	0.9735	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
523		TCATIVÁ 13A		13.800	G3	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
523		TCATIVÁ 13A		13.800	G4	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
523		TCATIVÁ 13A		13.800	G5	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
524		TCATIVÁ 13B		13.800	10	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
524		TCATIVÁ 13B		13.800	G6	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
524		TCATIVÁ 13B		13.800	G7	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
524		TCATIVÁ 13B		13.800	G8	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
524		TCATIVÁ 13B		13.800	G9	5.0	0.8	6.6	-6.6	0.9800	5.2	0.9876	10.9			1	6	
525		TCOLON 13A		13.800	G1	36.0	9.2	18.4	9.2	0.9905	37.5	0.9688	44.4			1	6	
526		TCOLON 13B		13.800	G2	36.0	9.2	18.4	9.2	0.9905	37.5	0.9688	44.4			1	6	
527		TCOLON 13C		13.800	V1	36.0	5.8	18.4	5.8	0.9833	37.1	0.9872	44.4			1	6	
531		EGIRAL13.8		213.800	G5	4.0	0.9	6.4	0.0	0.9800	4.2	0.9738	10.9			1	6	
531		EGIRAL13.8		213.800	G6	4.0	0.9	6.4	0.0	0.9800	4.2	0.9738	10.9			1	6	
531		EGIRAL13.8		213.800	G7	4.0	0.9	6.4	0.0	0.9800	4.2	0.9738	10.9			1	6	
531		EGIRAL13.8		213.800	G8	4.0	0.9	6.4	0.0	0.9800	4.2	0.9738	10.9			1	6	
SUBSYSTEM TOTALS						642.4	-7.5	605.0	-198.6				1303.7					



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AÑO 2016 REGMHTGDC8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128	MIR13C	12.000	G3	12.6	1.3	11.0	0.0	0.9800	12.9	0.9945	29.4					2	7		
129	MIR13D	13.800	G4	34.0	0.0	15.0	0.0	0.9805	34.7	1.0000	44.1					2	7		
SUBSYSTEM TOTALS						46.6	1.3	26.0	0.0		73.5								



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER AREA TOTALS
 AÑO 2016 REGMHTGDC8 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.7	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.1	224.5	-98.9	0.0	143.3	-97.6	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	231.6	569.4	-237.3	0.0	471.9	14.3	357.1	
6	642.4	598.3	0.0	0.0	0.0	35.5	8.5	25.0
PANAMA	-7.5	150.0	188.7	0.0	507.9	57.1	104.6	
7	46.6	23.2	0.0	0.0	0.0	22.7	0.6	50.0
ACANAL	1.3	5.8	0.0	0.0	0.0	-9.0	4.5	
9	0.0	58.9	0.0	0.0	0.0	-59.0	0.0	-75.0
COLON	0.0	14.8	0.0	0.0	1.1	-15.7	2.0	
TOTALS	5838.2	5732.1	0.0	0.0	0.0	0.0	106.1	0.0
	443.5	1786.9	-660.1	0.0	2059.8	0.0	1376.6	

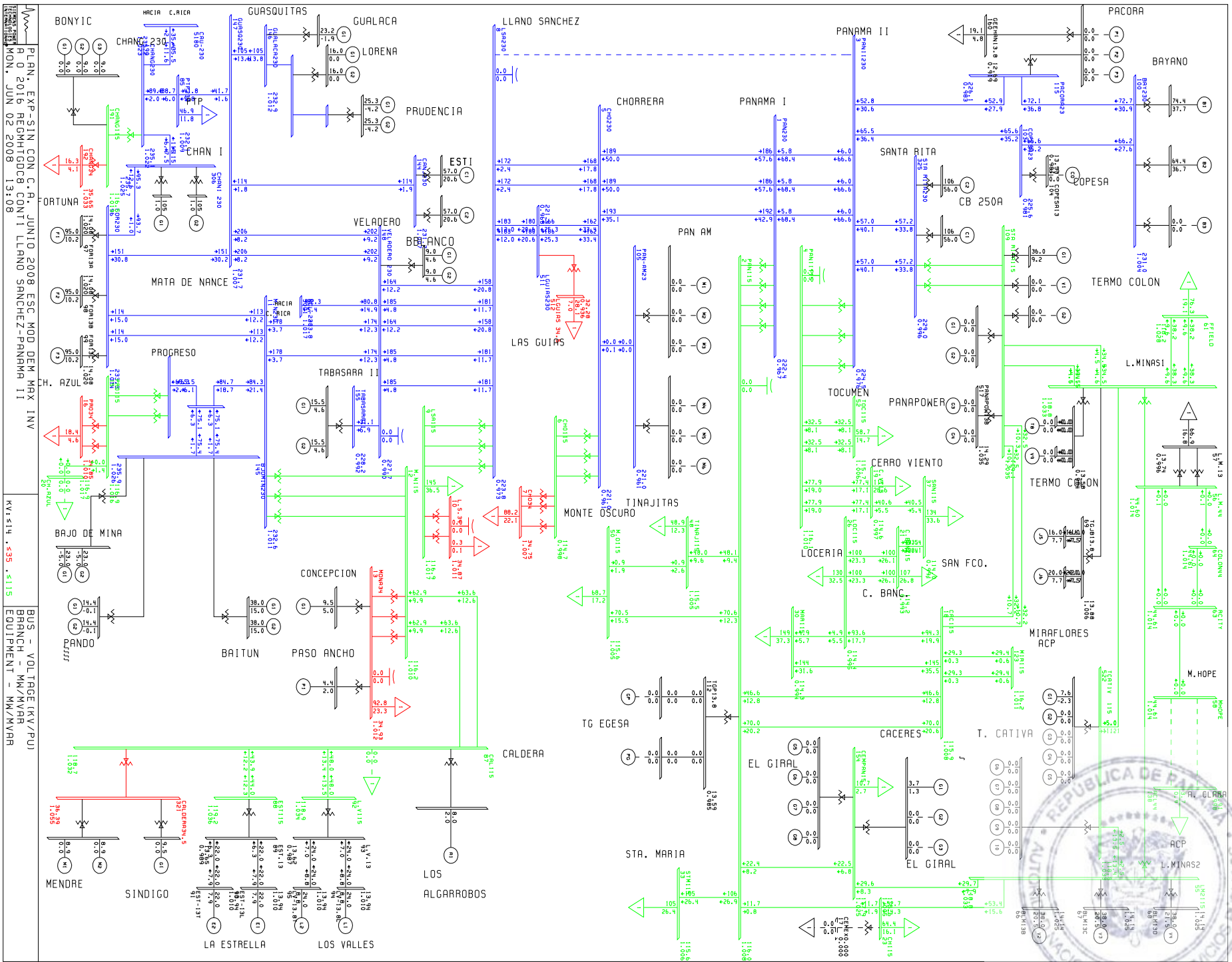


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Llano Sánchez- Panamá II**



de



PLAN - EXP-SIN CON C.A. JUNIO 2008 - ESC. MOD. DEM. MAX. INV.
 P.O. 2016 RECONTRUCO8 - CONTI LLANO SANCHEZ-PANAMA II
 MON. JUN 02 2008 13:08
 KY:514 .435 .4115
 BUS - VOLTAGE (KV/PV)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 12:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT1 LLANO SANCHEZ-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0114	232.62	14	PRO230	230.00	6	1.0186	234.28				
85	PTP230	230.00	6	1.0090	232.08	96	FOR230	230.00	6	1.0141	233.25				
100	BAY230	230.00	6	1.0044	231.02	144	CANJ230	230.00	6	1.0074	231.70				
145	BJOMIN230	230.00	6	1.0257	235.92	146	GUALACA230	230.00	6	1.0124	232.85				
147	GUASQ230	230.00	6	1.0072	231.65	190	CHANG230	230.00	6	1.0223	235.12				
306	CHAN1 230	230.00	6	1.0246	235.66	310	CONCEPCION230	230.00	6	1.0205	234.72				
341	PRUDENCIA230	230.00	6	1.0205	234.72	345	LORENA230	230.00	6	1.0178	234.09				
6000	FRONTER	230.00	6	1.0183	234.22										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9671	222.43	3	PANII230	230.00	6	0.9760	224.48				
5	CHO230	230.00	6	0.9608	220.97	8	LSA230	230.00	6	0.9729	223.76				
103	COPESA23	230.00	6	0.9807	225.56	105	PAN-AM23	230.00	6	0.9608	220.97				
115	PACORA23	230.00	6	0.9830	226.09	148	VELADERO 230	230.00	6	0.9901	227.73				
155	TABASARAI	230.00	6	0.9920	228.17	325	STA RITA230	230.00	6	0.9955	228.97				
511	LGUIAS230	230.00	6	0.9626	221.40										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 12:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT1 LLANO SANCHEZ-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0084	115.96	4	PANII115	115.00	6	1.0098	116.13				
9	LSA115	115.00	6	1.0168	116.94	12	M.N115	115.00	6	1.0102	116.17				
15	PRO115	115.00	6	1.0161	116.85	18	CAC115	115.00	6	1.0077	115.89				
20	CH.AZUL	115.00	6	1.0169	116.94	23	CH115	115.00	6	1.0054	115.62				
33	STM115	115.00	6	1.0056	115.65	48	TINAJ115	115.00	6	1.0046	115.53				
50	M.O115	115.00	6	1.0048	115.55	52	TOC115	115.00	6	1.0057	115.66				
54	LM1115	115.00	6	1.0329	118.79	55	LM2115	115.00	6	1.0331	118.80				
61	FFIELD	115.00	9	1.0276	118.17	87	CAL115	115.00	6	1.0320	118.68				
88	EST115	115.00	6	1.0362	119.17	92	L.V115	115.00	6	1.0336	118.87				
109	STA RITA115	115.00	6	1.0353	119.06	123	MIR115	115.00	7	1.0106	116.22				
154	CEMPAN15	115.00	6	1.0251	117.89	191	CHANG115	115.00	6	1.0131	116.50				
522	TCATIVÁ	115 115.00	6	1.0330	118.80										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO115	115.00	6	0.9976	114.72	19	C.V115	115.00	6	0.9968	114.63				
21	C.BAN115	115.00	6	0.9931	114.21	26	LOC115	115.00	6	0.9948	114.41				
30	MAR115	115.00	6	0.9935	114.25	37	SAN115	115.00	6	0.9914	114.01				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 12:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT1 LLANO SANCHEZ-PANAMA II

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	20.5	25.0	0.0	1.0250	42.1	0.8797	47.0	1	6
67	BLM13C	13.800	V3	38.0	20.5	25.0	0.0	1.0250	42.1	0.8797	47.0	1	6
68	BLM13D	13.800	V4	38.0	21.5	25.0	0.0	1.0250	42.6	0.8708	47.0	1	6
70	TGJB13A	13.800	J5	16.0	7.7	20.0	0.0	1.0100	17.6	0.9019	39.4	1	6
71	TGJB13B	13.800	J6	20.0	7.7	20.0	0.0	1.0100	21.2	0.9332	39.4	1	6
90	EST-13L	13.800	E1	22.0	7.9	12.0	-5.0	1.0100	23.2	0.9408	27.0	1	6
91	EST-13T	13.800	E2	22.0	7.9	12.0	-5.0	1.0100	23.2	0.9408	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	8.8	12.0	-5.0	1.0100	25.3	0.9384	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	8.8	12.0	-5.0	1.0100	25.3	0.9384	27.0	1	6
97	FOR13A	13.800	F1	95.0	10.2	50.0	-50.0	1.0200	93.7	0.9942	111.0	1	6
98	FOR13B	13.800	F2	95.0	10.2	50.0	-50.0	1.0200	93.7	0.9942	111.0	1	6
99	FOR13C	13.800	F3	95.0	10.2	50.0	-50.0	1.0200	93.7	0.9942	111.0	1	6
101	BAY13A	13.800	B1	74.4	37.7	50.0	-25.0	1.0000	83.4	0.8922	96.0	1	6
102	BAY13B	13.800	B2	64.4	36.7	50.0	-25.0	1.0000	74.2	0.8688	96.0	1	6
117	CB250A-1	13.800	C1	106.3	56.0	75.6	0.0	1.0300	116.6	0.8846	143.5	1	6
118	CB250A-2	13.800	C2	106.3	56.0	75.6	0.0	1.0300	116.6	0.8846	143.5	1	6
142	CANJ13A	13.800	C1	57.0	20.6	29.0	-29.0	1.0200	59.4	0.9405	69.0	1	6
143	CANJ13B	13.800	C2	57.0	20.6	29.0	-29.0	1.0200	59.4	0.9405	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	4.6	6.1	0.0	1.0000	10.1	0.8896	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	4.6	6.1	0.0	1.0000	10.1	0.8896	11.6	1	6
151	GUALACA13.8	13.800	G1	23.2	-1.9	10.0	-10.0	1.0100	23.1	0.9966	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	4.6	5.7	0.2	1.0100	16.0	0.9589	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	4.6	5.7	0.2	1.0100	16.0	0.9589	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	0.0	4.0	-4.0	1.0100	8.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	0.0	4.0	-4.0	1.0100	8.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	0.0	4.0	-4.0	1.0100	8.9	1.0000	35.3	1	6
204	BJOMIN13	13.800	G1	23.0	-5.0	13.0	-13.0	1.0100	23.3	0.9774	28.9	1	6
204	BJOMIN13	13.800	G2	23.0	-5.0	13.0	-13.0	1.0100	23.3	0.9774	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	15.0	26.6	-26.6	1.0100	40.4	0.9305	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	15.0	26.6	-26.6	1.0100	40.4	0.9305	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9672	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9654	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1075	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9841	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.2	1.0	50.0	-50.0	1.0200	103.1	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	105.2	1.0	50.0	-50.0	1.0200	103.1	1.0000	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	-0.1	10.0	-5.0	1.0100	14.3	1.0000	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	-0.1	10.0	-5.0	1.0100	14.3	1.0000	19.9	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1070	8.0	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1070	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0172	15.7	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0172	15.7	1.0000	19.9	1	6
343	PRUDENCIA138	13.800	G1	25.3	-4.2	9.8	-9.8	1.0100	25.4	0.9865	33.0	1	6
343	PRUDENCIA138	13.800	G2	25.3	-4.2	9.8	-9.8	1.0100	25.4	0.9865	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9824	4.0	0.9433	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-2.3	6.6	-6.6	0.9800	8.1	0.9576	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0026	37.1	0.9689	44.4	1	6
SUBSYSTEM TOTALS				1631.8	417.0	957.4	-511.3				2194.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 12:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT1 LLANO SANCHEZ-PANAMA II

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	3.8	11.0	0.0	1.0100	13.0	0.9571	29.4				2	



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129	MIR13D	13.800	G4	35.0	3.4	15.0	0.0	1.0100	34.8	0.9953	44.1	2	7
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0146	16.9	1.0000	27.7	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0290	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0380	17.7	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0380	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	27.7	67.5	20.5				170.3		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 12:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 REGMHTGDC8 CONT1 LLANO SANCHEZ-PANAMA II IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1 GUATEMAL	1347.4 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2 SALVADOR	911.8 100.8	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.4	9.8 158.1	0.0
3 HONDURAS	1006.9 55.8	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.8	0.0 -5.2	21.4 261.6	0.0
4 NICA	538.2 33.0	527.1 224.5	0.0 -98.9	0.0 0.0	0.0 143.2	0.0 -96.9	11.1 147.4	0.0
5 C.RICA	1344.9 268.5	1324.8 569.4	0.0 -237.0	0.0 0.0	0.0 467.8	0.1 42.1	20.1 361.8	0.0
6 PANAMA	1631.8 417.0	1454.3 364.5	0.0 -337.4	0.0 0.0	0.0 507.0	84.7 49.7	92.8 847.3	25.0
7 ACANAL	116.0 27.7	56.4 14.1	0.0 0.0	0.0 0.0	0.0 0.0	58.7 0.6	0.9 12.9	50.0
9 COLON	0.0 0.0	143.3 35.9	0.0 0.0	0.0 0.0	0.0 1.1	-143.5 -46.7	0.2 11.9	-75.0
TOTALS	6897.0 932.5	6705.6 2030.8	0.0 -1185.9	0.0 0.0	0.0 2054.8	0.0 0.0	191.5 2142.4	0.0



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas- Veladero**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT2 GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0088	232.03	14	PRO230	230.00	6	1.0161	233.71				
85	PTP230	230.00	6	1.0102	232.35	96	FOR230	230.00	6	1.0140	233.23				
100	BAY230	230.00	6	1.0137	233.16	144	CANJ230	230.00	6	1.0086	231.98				
145	BJOMIN230	230.00	6	1.0240	235.51	146	GUALACA230	230.00	6	1.0135	233.11				
147	GUASQ230	230.00	6	1.0084	231.93	190	CHANG230	230.00	6	1.0225	235.18				
306	CHAN1 230	230.00	6	1.0247	235.69	310	CONCEPCION230	230.00	6	1.0184	234.23				
325	STA RITA230	230.00	6	1.0045	231.04	341	PRUDENCIA230	230.00	6	1.0216	234.97				
345	LORENA230	230.00	6	1.0189	234.34	6000	FRONTER	230.00	6	1.0158	233.63				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9810	225.64	3	PANII230	230.00	6	0.9893	227.54				
5	CHO230	230.00	6	0.9773	224.78	8	LSA230	230.00	6	0.9833	226.15				
103	COPESA23	230.00	6	0.9934	228.49	105	PAN-AM23	230.00	6	0.9773	224.78				
115	PACORA23	230.00	6	0.9952	228.90	148	VELADERO 230	230.00	6	0.9887	227.39				
155	TABASARAI	230.00	6	0.9907	227.85	511	LGUIAS230	230.00	6	0.9781	224.97				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT2 GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0089	116.03	4	PANII115	115.00	6	1.0016	115.18				
6	CHO115	115.00	6	1.0152	116.75	9	LSA115	115.00	6	1.0281	118.23				
12	M.N115	115.00	6	1.0081	115.93	15	PRO115	115.00	6	1.0136	116.57				
18	CAC115	115.00	6	1.0082	115.95	20	CH.AZUL	115.00	6	1.0144	116.66				
23	CH115	115.00	6	1.0052	115.60	33	STM115	115.00	6	1.0062	115.71				
48	TINAJ115	115.00	6	1.0052	115.60	50	M.O115	115.00	6	1.0053	115.61				
54	LM115	115.00	6	1.0318	118.66	55	LM2115	115.00	6	1.0320	118.68				
61	FFIELD	115.00	9	1.0264	118.04	87	CAL115	115.00	6	1.0306	118.52				
88	EST115	115.00	6	1.0349	119.02	92	L.V115	115.00	6	1.0322	118.71				
109	STA RITA115	115.00	6	1.0338	118.88	123	MIR115	115.00	7	1.0110	116.27				
154	CEMPAN15	115.00	6	1.0245	117.81	191	CHANG115	115.00	6	1.0132	116.52				
522	TCATIVÁ	115 115.00	6	1.0319	118.67										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9909	113.95	21	C.BAN115	115.00	6	0.9925	114.14				
26	LOC115	115.00	6	0.9945	114.37	30	MAR115	115.00	6	0.9936	114.26				
37	SAN115	115.00	6	0.9903	113.89	52	TOC115	115.00	6	0.9975	114.71				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT2 GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	21.0	25.0	0.0	1.0250	42.4	0.8750	47.0	1	6
67	BLM13C	13.800	V3	38.0	21.0	25.0	0.0	1.0250	42.4	0.8750	47.0	1	6
68	BLM13D	13.800	V4	38.0	22.0	25.0	0.0	1.0250	42.8	0.8658	47.0	1	6
70	TGJB13A	13.800	J5	16.0	7.9	20.0	0.0	1.0100	17.7	0.8956	39.4	1	6
71	TGJB13B	13.800	J6	20.0	8.0	20.0	0.0	1.0100	21.3	0.9287	39.4	1	6
90	EST-13L	13.800	E1	22.0	8.3	12.0	-5.0	1.0100	23.3	0.9356	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.3	12.0	-5.0	1.0100	23.3	0.9356	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	9.2	12.0	-5.0	1.0100	25.5	0.9331	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	9.2	12.0	-5.0	1.0100	25.5	0.9331	27.0	1	6
97	FOR13A	13.800	F1	95.0	10.3	50.0	-50.0	1.0200	93.7	0.9941	111.0	1	6
98	FOR13B	13.800	F2	95.0	10.3	50.0	-50.0	1.0200	93.7	0.9941	111.0	1	6
99	FOR13C	13.800	F3	95.0	10.3	50.0	-50.0	1.0200	93.7	0.9941	111.0	1	6
101	BAY13A	13.800	B1	73.8	30.6	50.0	-25.0	1.0000	79.9	0.9236	96.0	1	6
102	BAY13B	13.800	B2	64.4	29.8	50.0	-25.0	1.0000	71.0	0.9078	96.0	1	6
117	CB250A-1	13.800	C1	106.3	42.3	75.6	0.0	1.0300	111.0	0.9290	143.5	1	6
118	CB250A-2	13.800	C2	106.3	42.3	75.6	0.0	1.0300	111.0	0.9290	143.5	1	6
142	CANJ13A	13.800	C1	57.0	20.4	29.0	-29.0	1.0200	59.4	0.9416	69.0	1	6
143	CANJ13B	13.800	C2	57.0	20.4	29.0	-29.0	1.0200	59.4	0.9416	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	5.3	6.1	0.0	1.0000	10.4	0.8621	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	5.3	6.1	0.0	1.0000	10.4	0.8621	11.6	1	6
151	GUALACA13.8	13.800	G1	23.2	-3.0	10.0	-10.0	1.0100	23.2	0.9918	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	4.9	5.7	0.2	1.0100	16.1	0.9535	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	4.9	5.7	0.2	1.0100	16.1	0.9535	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	0.0	4.0	-4.0	1.0100	8.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	0.0	4.0	-4.0	1.0100	8.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	0.0	4.0	-4.0	1.0100	8.9	1.0000	35.3	1	6
204	BJOMIN13	13.800	G1	23.0	-4.3	13.0	-13.0	1.0100	23.2	0.9827	28.9	1	6
204	BJOMIN13	13.800	G2	23.0	-4.3	13.0	-13.0	1.0100	23.2	0.9827	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	15.6	26.6	-26.6	1.0100	40.7	0.9249	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	15.6	26.6	-26.6	1.0100	40.7	0.9249	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9651	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9632	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1059	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9827	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.2	0.9	50.0	-50.0	1.0200	103.1	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	105.2	0.9	50.0	-50.0	1.0200	103.1	1.0000	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	0.1	10.0	-5.0	1.0100	14.3	1.0000	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	0.1	10.0	-5.0	1.0100	14.3	1.0000	19.9	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1054	8.0	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1054	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0183	15.7	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0183	15.7	1.0000	19.9	1	6
343	PRUDENCIA138	13.800	G1	25.3	-4.7	9.8	-9.8	1.0100	25.5	0.9832	33.0	1	6
343	PRUDENCIA138	13.800	G2	25.3	-4.7	9.8	-9.8	1.0100	25.5	0.9832	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9818	4.0	0.9433	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-1.6	6.6	-6.6	0.9800	7.9	0.9774	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0011	37.1	0.9689	44.4	1	6
SUBSYSTEM TOTALS				1631.3	382.3	957.4	-511.3				2194.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT2 GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	3.7	11.0	0.0	1.0100	13.0	0.9585	29.4				2	



129	MIR13D	13.800	G4	35.0	3.3	15.0	0.0	1.0100	34.8	0.9955	44.1	2	7
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0149	16.8	1.0000	27.7	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0292	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0383	17.7	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0383	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	27.5	67.5	20.5				170.3		



de

X-- AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL		29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR		100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS		55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4		538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA		33.1	224.5	-98.8	0.0	143.2	-96.8	147.4	
5		1344.9	1324.8	0.0	0.0	0.0	-0.3	20.5	0.0
C.RICA		272.8	569.4	-236.8	0.0	467.4	43.2	364.3	
6		1631.3	1454.3	0.0	0.0	0.0	85.1	91.8	25.0
PANAMA		382.3	364.5	-337.7	0.0	531.4	48.8	837.9	
7		116.0	56.4	0.0	0.0	0.0	58.7	0.9	50.0
ACANAL		27.5	14.1	0.0	0.0	0.0	0.5	12.9	
9		0.0	143.3	0.0	0.0	0.0	-143.5	0.2	-75.0
COLON		0.0	35.9	0.0	0.0	1.1	-46.9	12.1	
TOTALS		6896.5	6705.6	0.0	0.0	0.0	0.0	190.9	0.0
		902.1	2030.8	-1185.8	0.0	2078.6	0.0	2135.8	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO



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Contingencia 3: Contingencia Mata de Nance- Veladero



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT3 MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0136	233.12	14	PRO	230		230.00	6	1.0186	234.28
85	PTP	230		230.00	6	1.0079	231.81	96	FOR	230		230.00	6	1.0140	233.23
100	BAY	230		230.00	6	1.0142	233.28	144	CANJ	230		230.00	6	1.0061	231.41
145	BJOMI	N230		230.00	6	1.0265	236.09	146	GUALACA	230		230.00	6	1.0112	232.57
147	GUASQ	230		230.00	6	1.0059	231.36	190	CHANG	230		230.00	6	1.0218	235.01
306	CHAN1	230		230.00	6	1.0243	235.59	310	CONCEPCION	230		230.00	6	1.0214	234.93
325	STA	RITA230		230.00	6	1.0050	231.15	341	PRUDENCIA	230		230.00	6	1.0194	234.47
345	LORENA	230		230.00	6	1.0166	233.83	6000	FRONTER			230.00	6	1.0180	234.15

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9819	225.84	3	PANII	230		230.00	6	0.9901	227.73
5	CHO	230		230.00	6	0.9784	225.04	8	LSA	230		230.00	6	0.9852	226.60
103	COPE	SA23		230.00	6	0.9942	228.67	105	PAN-AM	23		230.00	6	0.9784	225.04
115	PACOR	A23		230.00	6	0.9960	229.08	148	VELADERO	230		230.00	6	0.9914	228.02
155	TABASA	RAII		230.00	6	0.9932	228.44	511	LGUIAS	230		230.00	6	0.9797	225.34

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT3 MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0098	116.12	4	PANII	115		115.00	6	1.0025	115.28
6	CHO	115		115.00	6	1.0164	116.89	9	LSA	115		115.00	6	1.0302	118.47
12	M.	N115		115.00	6	1.0120	116.38	15	PRO	115		115.00	6	1.0161	116.85
18	CAC	115		115.00	6	1.0091	116.04	20	CH.	AZUL		115.00	6	1.0169	116.94
23	CH	115		115.00	6	1.0059	115.68	33	STM	115		115.00	6	1.0071	115.81
48	TINA	J115		115.00	6	1.0060	115.69	50	M.	O115		115.00	6	1.0062	115.71
54	LM	115		115.00	6	1.0323	118.71	55	LM	2115		115.00	6	1.0324	118.73
61	FF	FIELD		115.00	9	1.0269	118.09	87	CAL	115		115.00	6	1.0332	118.82
88	EST	115		115.00	6	1.0373	119.29	92	L.	V115		115.00	6	1.0348	119.00
109	STA	RITA	115	115.00	6	1.0343	118.94	123	MIR	115		115.00	7	1.0118	116.36
154	CEMPAN	115		115.00	6	1.0250	117.88	191	CHANG	115		115.00	6	1.0127	116.46
522	TCATIVÁ	115		115.00	6	1.0323	118.72								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9918	114.05	21	C.	BAN115		115.00	6	0.9934	114.24
26	LOC	115		115.00	6	0.9954	114.47	30	MAR	115		115.00	6	0.9945	114.36



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37 SAN115 115.00 6 0.9912 113.99 52 TOC115 115.00 6 0.9983 114.81
 PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT3 MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	20.8	25.0	0.0	1.0250	42.3	0.8768	47.0			1	6		
67		BLM13C		13.800	V3	38.0	20.8	25.0	0.0	1.0250	42.3	0.8768	47.0			1	6		
68		BLM13D		13.800	V4	38.0	21.8	25.0	0.0	1.0250	42.7	0.8678	47.0			1	6		
70		TGJB13A		13.800	J5	16.0	7.8	20.0	0.0	1.0100	17.6	0.8981	39.4			1	6		
71		TGJB13B		13.800	J6	20.0	7.9	20.0	0.0	1.0100	21.3	0.9305	39.4			1	6		
90		EST-13L		13.800	E1	22.0	7.6	12.0	-5.0	1.0100	23.0	0.9451	27.0			1	6		
91		EST-13T		13.800	E2	22.0	7.6	12.0	-5.0	1.0100	23.0	0.9451	27.0			1	6		
94		LV-13.8L		13.800	L1	24.0	8.5	12.0	-5.0	1.0100	25.2	0.9426	27.0			1	6		
95		LV-13.8T		13.800	L2	24.0	8.5	12.0	-5.0	1.0100	25.2	0.9426	27.0			1	6		
97		FOR13A		13.800	F1	95.0	10.3	50.0	-50.0	1.0200	93.7	0.9941	111.0			1	6		
98		FOR13B		13.800	F2	95.0	10.3	50.0	-50.0	1.0200	93.7	0.9941	111.0			1	6		
99		FOR13C		13.800	F3	95.0	10.3	50.0	-50.0	1.0200	93.7	0.9941	111.0			1	6		
101		BAY13A		13.800	B1	69.1	29.8	50.0	-25.0	1.0000	75.2	0.9181	96.0			1	6	SYST	
102		BAY13B		13.800	B2	64.4	29.4	50.0	-25.0	1.0000	70.8	0.9098	96.0			1	6		
117		CB250A-1		13.800	C1	106.3	41.6	75.6	0.0	1.0300	110.8	0.9313	143.5			1	6		
118		CB250A-2		13.800	C2	106.3	41.6	75.6	0.0	1.0300	110.8	0.9313	143.5			1	6		
142		CANJ13A		13.800	C1	57.0	20.8	29.0	-29.0	1.0200	59.5	0.9393	69.0			1	6		
143		CANJ13B		13.800	C2	57.0	20.8	29.0	-29.0	1.0200	59.5	0.9393	69.0			1	6		
149		BBLANCO13.8		13.800	G1	9.0	4.0	6.1	0.0	1.0000	9.9	0.9121	11.6			1	6		
149		BBLANCO13.8		13.800	G2	9.0	4.0	6.1	0.0	1.0000	9.9	0.9121	11.6			1	6		
151		GUALACA13.8		13.800	G1	23.2	-0.8	10.0	-10.0	1.0100	23.0	0.9994	26.7			1	6		
156		TABASARAI1313.800		13.800	G1	15.5	4.3	5.7	0.2	1.0100	16.0	0.9633	20.5			1	6		
156		TABASARAI1313.800		13.800	G2	15.5	4.3	5.7	0.2	1.0100	16.0	0.9633	20.5			1	6		
193		GEBONYIC		13.800	G1	9.0	0.1	4.0	-4.0	1.0100	8.9	1.0000	35.3			1	6		
193		GEBONYIC		13.800	G2	9.0	0.1	4.0	-4.0	1.0100	8.9	1.0000	35.3			1	6		
193		GEBONYIC		13.800	G3	9.0	0.1	4.0	-4.0	1.0100	8.9	1.0000	35.3			1	6		
204		BJOMIN13		13.800	G1	23.0	-5.2	13.0	-13.0	1.0100	23.4	0.9750	28.9			1	6		
204		BJOMIN13		13.800	G2	23.0	-5.2	13.0	-13.0	1.0100	23.4	0.9750	28.9			1	6		
205		BAITUN13.8		13.800	G1	38.0	14.7	26.6	-26.6	1.0100	40.3	0.9328	50.6			1	6		
205		BAITUN13.8		13.800	G2	38.0	14.7	26.6	-26.6	1.0100	40.3	0.9328	50.6			1	6		
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9570	11.2	0.8849	13.5			1	6		
302		PASOANCH13.813.800		13.800	P1	4.4	2.0	2.0	-2.0	0.9551	5.1	0.9110	6.2			1	6		
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1088	8.6	1.0000	13.5			1	6		
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9852	8.4	0.9701	13.5			1	6		
307		CHAN1 A		13.800	G1	105.2	1.3	50.0	-50.0	1.0200	103.1	0.9999	118.6			1	6		
308		CHAN1 B		13.800	G2	105.2	1.3	50.0	-50.0	1.0200	103.1	0.9999	118.6			1	6		
311		PANDO13.8		13.800	G1	14.4	-0.1	10.0	-5.0	1.0100	14.3	1.0000	19.9			1	6		
311		PANDO13.8		13.800	G2	14.4	-0.1	10.0	-5.0	1.0100	14.3	1.0000	19.9			1	6		
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1083	8.0	1.0000	35.3			1	6		
317		MENDRE13.8		13.800	M2	8.9	0.0	4.0	0.0	1.1083	8.0	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	16.0	0.0	10.5	0.0	1.0161	15.7	1.0000	19.9			1	6		
342		LORENA13.8		13.800	G2	16.0	0.0	10.5	0.0	1.0161	15.7	1.0000	19.9			1	6		
343		PRUDENCIA13813.800		13.800	G1	25.3	-3.7	9.8	-9.8	1.0100	25.3	0.9895	33.0			1	6		
343		PRUDENCIA13813.800		13.800	G2	25.3	-3.7	9.8	-9.8	1.0100	25.3	0.9895	33.0			1	6		
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	0.9823	4.0	0.9433	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.6	-1.9	6.6	-6.6	0.9800	8.0	0.9702	10.9			1	6		
525		TCOLON 13A		13.800	G1	36.0	9.2	18.4	9.2	1.0016	37.1	0.9689	44.4			1	6		
SUBSYSTEM TOTALS						1626.5	374.0	957.4	-511.3				2194.2						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8 CONT3 MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	3.6	11.0	0.0	1.0100	13.0	0.9609	29.4			2	7	
129		MIR13D		13.800	G4	35.0	3.1	15.0	0.0	1.0100	34.8	0.9960	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0153	16.8	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0297	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0387	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0387	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	27.2	67.5	20.5				170.3					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 REGMHTGDC8 CONT3 MATA DE NANCE-VELADERO IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1			1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
	GUATEMAL		29.8	349.5	-266.2	0.0	412.9	17.9	341.4	



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2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.0	224.5	-98.9	0.0	143.2	-96.8	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C. RICA	270.0	569.4	-236.9	0.0	467.7	43.3	361.9	
6	1626.5	1454.3	0.0	0.0	0.0	84.7	87.4	25.0
PANAMA	374.0	364.5	-338.5	0.0	531.5	49.1	830.3	
7	116.0	56.4	0.0	0.0	0.0	58.7	0.9	50.0
ACANAL	27.2	14.1	0.0	0.0	0.0	0.2	12.9	
9	0.0	143.3	0.0	0.0	0.0	-143.5	0.2	-75.0
COLON	0.0	35.9	0.0	0.0	1.1	-46.9	12.1	
TOTALS	6891.7	6705.6	0.0	0.0	0.0	0.0	186.2	0.0
	890.6	2030.8	-1186.8	0.0	2079.1	0.0	2125.7	

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá- Cemento Panamá**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.CONT4 PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0154	233.55	11	M.N230	230.00	6	1.0272	236.25				
14	PRO230	230.00	6	1.0311	237.16	85	PTP230	230.00	6	1.0194	234.45				
96	FOR230	230.00	6	1.0251	235.78	100	BAY230	230.00	6	1.0132	233.03				
144	CANJ230	230.00	6	1.0251	235.76	145	BJOMIN230	230.00	6	1.0323	237.44				
146	GUALACA230	230.00	6	1.0271	236.23	147	GUASQ230	230.00	6	1.0250	235.75				
148	VELADERO	230230.00	6	1.0285	236.55	155	TABASARAI	230.00	6	1.0290	236.67				
190	CHANG230	230.00	6	1.0173	233.97	306	CHAN1	230	6	1.0156	233.59				
310	CONCEPCION	23230.00	6	1.0313	237.19	341	PRUDENCIA	230230.00	6	1.0300	236.90				
345	LORENA230	230.00	6	1.0291	236.69	511	LGUIAS230	230.00	6	1.0075	231.73				
6000	FRONTER	230.00	6	1.0315	237.23										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9831	226.12	3	PANII230	230.00	6	0.9886	227.39				
5	CHO230	230.00	6	0.9942	228.66	103	COPESA23	230.00	6	0.9928	228.34				
105	PAN-AM23	230.00	6	0.9943	228.68	115	PACORA23	230.00	6	0.9945	228.74				
325	STA RITA230	230.00	6	0.9918	228.12										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.CONT4 PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0035	115.41	4	PANII115	115.00	6	1.0030	115.35				
6	CHO115	115.00	6	1.0328	118.77	9	LSA115	115.00	6	1.0266	118.06				
12	M.N115	115.00	6	1.0212	117.44	15	PRO115	115.00	6	1.0286	118.29				
18	CAC115	115.00	6	1.0027	115.31	20	CH.AZUL	115.00	6	1.0293	118.37				
33	STM115	115.00	6	1.0007	115.09	54	LM115	115.00	6	1.0250	117.87				
55	LM2115	115.00	6	1.0253	117.91	61	FFIELD	115.00	9	1.0194	117.23				
87	CAL115	115.00	6	1.0290	118.34	88	EST115	115.00	6	1.0301	118.46				
92	L.V115	115.00	6	1.0294	118.39	109	STA RITA115	115.00	6	1.0245	117.82				
123	MIR115	115.00	7	1.0045	115.52	154	CEMPAN15	115.00	6	1.0354	119.07				
191	CHANG115	115.00	6	1.0041	115.47	522	TCATIVÁ	115	6	1.0254	117.92				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9901	113.86	21	C.BAN115	115.00	6	0.9874	113.55				
23	CH115	115.00	6	0.9962	114.56	26	LOC115	115.00	6	0.9892	113.76				
30	MAR115	115.00	6	0.9879	113.61	37	SAN115	115.00	6	0.9855	113.34				
48	TINAJ115	115.00	6	0.9997	114.96	50	M.O115	115.00	6	0.9998	114.98				
52	TOC115	115.00	6	0.9988	114.86										



Handwritten signature or initials.

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	7.5	25.0	0.0	0.9900	37.1	0.9790	47.0			1	6	
67		BLM13C		13.800	V3	36.0	7.5	25.0	0.0	0.9900	37.1	0.9790	47.0			1	6	
68		BLM13D		13.800	V4	36.0	7.7	25.0	0.0	0.9900	37.2	0.9777	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	5.5	20.0	0.0	0.9900	31.8	0.9845	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	5.5	20.0	0.0	0.9900	31.8	0.9845	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	7.2	20.0	0.0	0.9900	32.1	0.9740	50.0			1	6	
73		BLMCCB		13.800	V9	57.0	7.8	40.0	0.0	0.9900	58.1	0.9907	71.0			1	6	
90		EST-13L		13.800	E1	13.0	3.1	12.0	-5.0	0.9900	13.5	0.9724	27.0			1	6	
94		LV-13.8L		13.800	L1	15.0	3.4	12.0	-5.0	0.9900	15.5	0.9751	27.0			1	6	
97		FOR13A		13.800	F1	65.0	-11.7	50.0	-50.0	1.0100	65.4	0.9843	111.0			1	6	
98		FOR13B		13.800	F2	65.0	-11.7	50.0	-50.0	1.0100	65.4	0.9843	111.0			1	6	
101		BAY13A		13.800	B1	66.8	30.4	50.0	-25.0	1.0000	73.4	0.9102	96.0			1	6	SYST
102		BAY13B		13.800	B2	66.0	30.3	50.0	-25.0	1.0000	72.7	0.9087	96.0			1	6	
106		PANAM13A		13.800	M1	14.0	3.6	9.0	0.0	0.9900	14.6	0.9690	20.7			1	6	
106		PANAM13A		13.800	M2	14.0	3.6	9.0	0.0	0.9900	14.6	0.9690	20.7			1	6	
106		PANAM13A		13.800	M3	14.0	3.6	9.0	0.0	0.9900	14.6	0.9690	20.7			1	6	
107		PANAM13B		13.800	M4	14.0	3.6	9.0	0.0	0.9900	14.6	0.9690	20.7			1	6	
107		PANAM13B		13.800	M5	14.0	3.6	9.0	0.0	0.9900	14.6	0.9690	20.7			1	6	
107		PANAM13B		13.800	M6	14.0	3.6	9.0	0.0	0.9900	14.6	0.9690	20.7			1	6	
117		CB250A-1		13.800	C1	115.0	1.9	75.6	0.0	0.9900	116.2	0.9999	143.5			1	6	
118		CB250A-2		13.800	C2	115.0	1.9	75.6	0.0	0.9900	116.2	0.9999	143.5			1	6	
142		CANJ13A		13.800	C1	40.0	7.4	29.0	-29.0	0.9900	41.1	0.9835	69.0			1	6	
143		CANJ13B		13.800	C2	40.0	7.4	29.0	-29.0	0.9900	41.1	0.9835	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0283	8.8	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0283	8.8	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	15.0	-6.5	10.0	-10.0	1.0200	16.0	0.9171	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	0.2	5.7	0.2	1.0290	15.1	0.9999	20.5			1	6	
193		GEBONYIC		13.800	G1	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9583	35.3			1	6	
193		GEBONYIC		13.800	G2	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9583	35.3			1	6	
204		BJOMIN13		13.800	G1	20.0	-8.7	13.0	-13.0	1.0200	21.4	0.9163	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.0	6.2	26.6	-26.6	0.9900	38.9	0.9868	50.6			1	6	
301		CONC13.8		13.800	G1	7.0	3.0	3.0	-3.0	0.9614	7.9	0.9191	13.5			1	6	
302		PASOANCH13.8		13.800	P1	4.0	2.0	2.0	-2.0	0.9608	4.7	0.8944	6.2			1	6	
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1064	8.6	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	5.0	2.0	2.0	0.0	0.9813	5.5	0.9285	13.5			1	6	
307		CHAN1 A		13.800	G1	95.0	-19.8	50.0	-50.0	0.9900	98.0	0.9791	118.6			1	6	
308		CHAN1 B		13.800	G2	95.0	-19.8	50.0	-50.0	0.9900	98.0	0.9791	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9887	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9887	19.9			1	6	
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1064	8.0	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	14.0	0.0	10.5	0.0	1.0290	13.6	1.0000	19.9			1	6	
343		PRUDENCIA138		13.800	G1	20.0	-9.8	9.8	-9.8	1.0193	21.8	0.8987	33.0			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0248	14.6	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0248	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G3	15.0	0.5	12.5	0.5	1.0259	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G4	4.4	0.5	12.5	0.5	1.0259	4.4	0.9930	20.9			1	6	
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	1.0088	3.9	0.9433	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	1.0088	3.2	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	1.0088	3.2	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	1.0088	3.2	0.9173	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.6	2.0	6.6	-6.6	0.9900	7.9	0.9672	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9672	10.9			1	6	



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523	TCATIVÁ	13A	13.800	G3	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9672	10.9	1	6
523	TCATIVÁ	13A	13.800	G4	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9672	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9672	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.0	1.9	6.6	-6.6	0.9900	7.3	0.9664	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.0	1.9	6.6	-6.6	0.9900	7.3	0.9664	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.0	1.9	6.6	-6.6	0.9900	7.3	0.9664	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.0	1.9	6.6	-6.6	0.9900	7.3	0.9664	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.0	1.9	6.6	-6.6	0.9900	7.3	0.9664	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	0.9924	37.4	0.9689	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	9.2	18.4	9.2	0.9924	37.4	0.9688	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	8.1	18.4	5.8	0.9900	37.3	0.9757	44.4	1	6
531	EGIRAL	13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0093	8.5	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0093	8.5	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0093	8.5	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0093	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS					1623.3	137.7	1101.8	-422.2				2379.7		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.CONT4 PANAMA-CEMENTO PANAMA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128	MIR13C	12.000	G3	12.6	1.8	11.0	0.0	0.9900	12.9	0.9894	29.4	2	7						
129	MIR13D	13.800	G4	35.0	0.5	15.0	0.0	0.9900	35.4	0.9999	44.1	2	7						
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0013	17.1	1.0000	27.7	2	7						
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0158	18.1	0.9289	23.0	2	7						
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0250	18.0	0.9289	23.0	2	7						
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0250	18.0	0.9289	23.0	2	7						
SUBSYSTEM TOTALS					116.0	22.8	67.5	20.5			170.3								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:31
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTGDC8.CONT4 PANAMA-CEMENTO PANAMA IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1			1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2			911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0



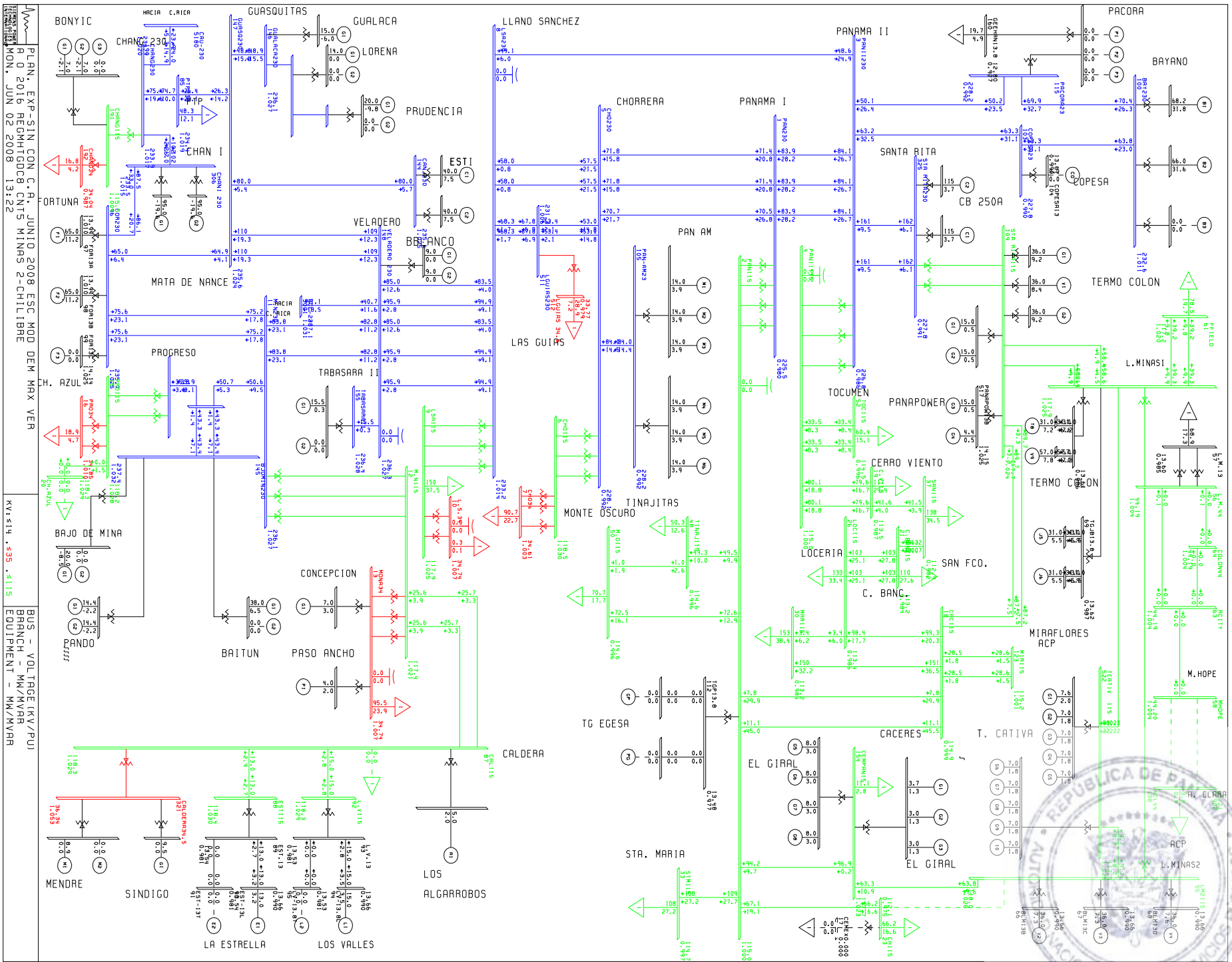
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SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	256.0	569.4	-236.5	0.0	469.7	32.5	360.2	
6	1623.3	1495.9	0.0	0.0	0.0	90.2	37.2	25.0
PANAMA	137.7	374.9	-181.2	0.0	565.6	67.1	442.4	
7	116.0	58.1	0.0	0.0	0.0	57.0	0.9	50.0
ACANAL	22.8	14.6	0.0	0.0	0.0	-4.7	12.9	
9	0.0	147.4	0.0	0.0	0.0	-147.6	0.2	-75.0
COLON	0.0	36.9	0.0	0.0	1.1	-48.7	12.9	
TOTALS	6888.5	6752.8	0.0	0.0	0.0	0.0	135.7	0.0
	635.2	2042.7	-1029.1	0.0	2115.2	0.0	1736.9	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 5: Contingencia Las Minas 2- Chilibre



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PLAN - EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 P.O 2016 RECHMTCD08 CNTS MINAS 2-CHILIBRE
 MON, JUN 02 2008 13:12Z

KY:514 .535 .5115
 BUS - VOLTAGE (KV/PV)
 BRNCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8 CNT5 MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0138	233.17	11	M.N230	230.00	6	1.0266	236.12				
14	PRO230	230.00	6	1.0307	237.06	85	PTP230	230.00	6	1.0189	234.35				
96	FOR230	230.00	6	1.0247	235.68	100	BAY230	230.00	6	1.0115	232.64				
144	CANJ230	230.00	6	1.0245	235.64	145	BJOMIN230	230.00	6	1.0320	237.36				
146	GUALACA230	230.00	6	1.0266	236.11	147	GUASQ230	230.00	6	1.0245	235.63				
148	VELADERO	230230.00	6	1.0274	236.30	155	TABASARAI	230.00	6	1.0280	236.43				
190	CHANG230	230.00	6	1.0171	233.92	306	CHAN1	230	6	1.0154	233.55				
310	CONCEPCION23	230.00	6	1.0308	237.09	341	PRUDENCIA230	230.00	6	1.0295	236.78				
345	LORENA230	230.00	6	1.0286	236.58	511	LGUIAS230	230.00	6	1.0056	231.28				
6000	FRONTER	230.00	6	1.0310	237.14										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9804	225.50	3	PANII230	230.00	6	0.9862	226.82				
5	CHO230	230.00	6	0.9919	228.13	103	COPESA23	230.00	6	0.9904	227.80				
105	PAN-AM23	230.00	6	0.9920	228.15	115	PACORA23	230.00	6	0.9923	228.22				
325	STA RITA230	230.00	6	0.9906	227.84										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8 CNT5 MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0001	115.01	4	PANII115	115.00	6	1.0003	115.04				
6	CHO115	115.00	6	1.0303	118.48	9	LSA115	115.00	6	1.0249	117.86				
12	M.N115	115.00	6	1.0208	117.39	15	PRO115	115.00	6	1.0282	118.24				
20	CH.AZUL	115.00	6	1.0289	118.33	54	LM1115	115.00	6	1.0251	117.89				
55	LM2115	115.00	6	1.0257	117.96	61	FFIELD	115.00	9	1.0196	117.25				
87	CAL115	115.00	6	1.0287	118.30	88	EST115	115.00	6	1.0297	118.42				
92	L.V115	115.00	6	1.0291	118.34	109	STA RITA115	115.00	6	1.0237	117.73				
123	MIR115	115.00	7	1.0013	115.16	154	CEMPAN15	115.00	6	1.0232	117.67				
191	CHANG115	115.00	6	1.0039	115.45	522	TCATIVÁ	115	6	1.0256	117.95				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
18	CAC115	115.00	6	0.9993	114.92	19	C.V115	115.00	6	0.9871	113.52				
21	C.BAN115	115.00	6	0.9840	113.16	23	CH115	115.00	6	0.9752	112.15				
26	LOC115	115.00	6	0.9858	113.37	30	MAR115	115.00	6	0.9845	113.22				
33	STM115	115.00	6	0.9973	114.69	37	SAN115	115.00	6	0.9822	112.95				
48	TINAJ115	115.00	6	0.9962	114.56	50	M.O115	115.00	6	0.9964	114.59				
52	TOC115	115.00	6	0.9961	114.55										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	7.3	25.0	0.0	0.9900	37.1	0.9799	47.0			1	6	
67		BLM13C		13.800	V3	36.0	7.3	25.0	0.0	0.9900	37.1	0.9799	47.0			1	6	
68		BLM13D		13.800	V4	36.0	7.6	25.0	0.0	0.9900	37.2	0.9786	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	5.5	20.0	0.0	0.9900	31.8	0.9847	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	5.5	20.0	0.0	0.9900	31.8	0.9847	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	7.2	20.0	0.0	0.9900	32.1	0.9743	50.0			1	6	
73		BLMCCB		13.800	V9	57.0	7.8	40.0	0.0	0.9900	58.1	0.9908	71.0			1	6	
90		EST-13L		13.800	E1	13.0	3.2	12.0	-5.0	0.9900	13.5	0.9705	27.0			1	6	
94		LV-13.8L		13.800	L1	15.0	3.5	12.0	-5.0	0.9900	15.6	0.9735	27.0			1	6	
97		FOR13A		13.800	F1	65.0	-11.2	50.0	-50.0	1.0100	65.3	0.9854	111.0			1	6	
98		FOR13B		13.800	F2	65.0	-11.2	50.0	-50.0	1.0100	65.3	0.9854	111.0			1	6	
101		BAY13A		13.800	B1	68.2	31.8	50.0	-25.0	1.0000	75.2	0.9062	96.0			1	6	SYST
102		BAY13B		13.800	B2	66.0	31.6	50.0	-25.0	1.0000	73.2	0.9020	96.0			1	6	
106		PANAM13A		13.800	M1	14.0	3.9	9.0	0.0	0.9900	14.7	0.9634	20.7			1	6	
106		PANAM13A		13.800	M2	14.0	3.9	9.0	0.0	0.9900	14.7	0.9634	20.7			1	6	
106		PANAM13A		13.800	M3	14.0	3.9	9.0	0.0	0.9900	14.7	0.9634	20.7			1	6	
107		PANAM13B		13.800	M4	14.0	3.9	9.0	0.0	0.9900	14.7	0.9634	20.7			1	6	
107		PANAM13B		13.800	M5	14.0	3.9	9.0	0.0	0.9900	14.7	0.9634	20.7			1	6	
107		PANAM13B		13.800	M6	14.0	3.9	9.0	0.0	0.9900	14.7	0.9634	20.7			1	6	
117		CB250A-1		13.800	C1	115.0	3.7	75.6	0.0	0.9900	116.2	0.9995	143.5			1	6	
118		CB250A-2		13.800	C2	115.0	3.7	75.6	0.0	0.9900	116.2	0.9995	143.5			1	6	
142		CANJ13A		13.800	C1	40.0	7.5	29.0	-29.0	0.9900	41.1	0.9831	69.0			1	6	
143		CANJ13B		13.800	C2	40.0	7.5	29.0	-29.0	0.9900	41.1	0.9831	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0272	8.8	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0272	8.8	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	15.0	-6.0	10.0	-10.0	1.0200	15.9	0.9277	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	0.2	5.7	0.2	1.0279	15.1	0.9999	20.5			1	6	
193		GEBONYIC		13.800	G1	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9592	35.3			1	6	
193		GEBONYIC		13.800	G2	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9592	35.3			1	6	
204		BJOMIN13		13.800	G1	20.0	-8.5	13.0	-13.0	1.0200	21.3	0.9204	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.0	6.5	26.6	-26.6	0.9900	38.9	0.9857	50.6			1	6	
301		CONC13.8		13.800	G1	7.0	3.0	3.0	-3.0	0.9610	7.9	0.9191	13.5			1	6	
302		PASOANCH13.8		13.800	P1	4.0	2.0	2.0	-2.0	0.9603	4.7	0.8944	6.2			1	6	
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1060	8.6	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	5.0	2.0	2.0	0.0	0.9809	5.5	0.9285	13.5			1	6	
307		CHAN1 A		13.800	G1	95.0	-19.6	50.0	-50.0	0.9900	98.0	0.9795	118.6			1	6	
308		CHAN1 B		13.800	G2	95.0	-19.6	50.0	-50.0	0.9900	98.0	0.9795	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9890	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9890	19.9			1	6	
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1060	8.0	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	14.0	0.0	10.5	0.0	1.0285	13.6	1.0000	19.9			1	6	
343		PRUDENCIA13		13.800	G1	20.0	-9.8	9.8	-9.8	1.0188	21.8	0.8987	33.0			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0240	14.7	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0240	14.7	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G3	15.0	0.5	12.5	0.5	1.0251	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G4	4.4	0.5	12.5	0.5	1.0251	4.4	0.9930	20.9			1	6	
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	0.9974	3.9	0.9433	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	0.9974	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	0.9974	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	0.9974	3.3	0.9173	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.6	2.0	6.6	-6.6	0.9900	7.9	0.9682	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9682	10.9			1	6	
523		TCATIVÁ 13A		13.800	G3	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9682	10.9			1	6	
523		TCATIVÁ 13A		13.800	G4	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9682	10.9			1	6	



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523	TCATIVÁ	13A	13.800	G5	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9682	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9675	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9675	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9675	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9675	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9675	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	0.9916	37.5	0.9689	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	9.2	18.4	9.2	0.9916	37.5	0.9688	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	8.4	18.4	5.8	0.9900	37.3	0.9737	44.4	1	6
531	EGIRAL	13.8	213.800	G5	8.0	3.0	6.4	3.0	0.9980	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G6	8.0	3.0	6.4	3.0	0.9980	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G7	8.0	3.0	6.4	3.0	0.9980	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G8	8.0	3.0	6.4	3.0	0.9980	8.6	0.9363	10.9	1	6
SUBSYSTEM TOTALS					1624.6	147.9	1101.8	-422.2				2379.7		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8 CNT5 MINAS 2-CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	2.3	11.0	0.0	0.9900	12.9	0.9838	29.4	29.4			2	7		
129	MIR13D	13.800	G4	35.0	1.1	15.0	0.0	0.9900	35.4	0.9995	44.1	44.1			2	7		
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	0.9995	17.1	1.0000	27.7	27.7			2	7		
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0141	18.2	0.9289	23.0	23.0			2	7		
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0233	18.0	0.9289	23.0	23.0			2	7		
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0233	18.0	0.9289	23.0	23.0			2	7		
SUBSYSTEM TOTALS					116.0	23.9	67.5	20.5			170.3							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8 CNT5 MINAS 2-CHILIBRE
 AREA TOTALS
 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3			1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0



HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	256.6	569.4	-236.5	0.0	469.6	33.0	360.3	
6	1624.6	1495.9	0.0	0.0	0.0	90.2	38.6	25.0
PANAMA	147.9	374.9	-180.1	0.0	564.4	65.5	452.0	
7	116.0	58.1	0.0	0.0	0.0	57.0	0.9	50.0
ACANAL	23.9	14.6	0.0	0.0	0.0	-3.6	13.0	
9	0.0	147.4	0.0	0.0	0.0	-147.6	0.2	-75.0
COLON	0.0	36.9	0.0	0.0	1.1	-48.7	12.9	
TOTALS	6889.9	6752.8	0.0	0.0	0.0	0.0	137.1	0.0
	647.2	2042.7	-1028.0	0.0	2114.0	0.0	1746.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1 - Santa Rita**



de

PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 REGMHTGDC8.A MINAS 1-STA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0181	234.17	11		M.N230		230.00	6	1.0281	236.45
14		PRO230		230.00	6	1.0318	237.31	85		FTP230		230.00	6	1.0200	234.61
96		FOR230		230.00	6	1.0259	235.95	100		BAY230		230.00	6	1.0160	233.67
144		CANJ230		230.00	6	1.0259	235.96	145		BJOMIN230		230.00	6	1.0329	237.56
146		GUALACA230		230.00	6	1.0279	236.42	147		GUASQ230		230.00	6	1.0258	235.94
148		VELADERO	230	230.00	6	1.0302	236.94	155		TABASARAI		230.00	6	1.0307	237.06
190		CHANG230		230.00	6	1.0176	234.05	306		CHAN1	230	230.00	6	1.0159	233.66
310		CONCEPCION23		230.00	6	1.0319	237.34	341		PRUDENCIA230		230.00	6	1.0308	237.09
345		LORENA230		230.00	6	1.0299	236.88	511		LGUIAS230		230.00	6	1.0106	232.45
6000		FRONTER		230.00	6	1.0321	237.39								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9875	227.12	3		PANII230		230.00	6	0.9927	228.32
5		CHO230		230.00	6	0.9979	229.51	103		COPESA23		230.00	6	0.9967	229.23
105		PAN-AM23		230.00	6	0.9979	229.52	115		PACORA23		230.00	6	0.9983	229.60
325		STA RITA230		230.00	6	0.9949	228.82								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:34
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 REGMHTGDC8.A MINAS 1-STA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0084	115.96	4		PANII115		115.00	6	1.0073	115.84
6		CHO115		115.00	6	1.0367	119.22	9		LSA115		115.00	6	1.0294	118.38
12		M.N115		115.00	6	1.0220	117.53	15		PRO115		115.00	6	1.0293	118.36
18		CAC115		115.00	6	1.0075	115.86	20		CH.AZUL		115.00	6	1.0300	118.45
23		CH115		115.00	6	1.0001	115.01	33		STM115		115.00	6	1.0056	115.64
48		TINAJ115		115.00	6	1.0045	115.52	50		M.O115		115.00	6	1.0047	115.54
52		TOC115		115.00	6	1.0031	115.35	54		LM115		115.00	6	1.0260	117.99
55		LM2115		115.00	6	1.0258	117.97	61		FFIELD		115.00	9	1.0205	117.35
87		CAL115		115.00	6	1.0297	118.41	88		EST115		115.00	6	1.0307	118.53
92		L.V115		115.00	6	1.0301	118.46	109		STA RITA115		115.00	6	1.0277	118.18
123		MIR115		115.00	7	1.0091	116.05	154		CEMPAN15		115.00	6	1.0267	118.07
191		CHANG115		115.00	6	1.0043	115.50	522		TCATIVÁ	115	115.00	6	1.0261	118.00

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9946	114.37	21		C.BAN115		115.00	6	0.9922	114.10
26		LOC115		115.00	6	0.9940	114.32	30		MAR115		115.00	6	0.9928	114.17
37		SAN115		115.00	6	0.9903	113.89								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:34



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A MINAS 1-STA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	7.3	25.0	0.0	0.9900	37.1	0.9800	47.0			1	6	
67		BLM13C		13.800	V3	36.0	7.3	25.0	0.0	0.9900	37.1	0.9800	47.0			1	6	
68		BLM13D		13.800	V4	36.0	7.5	25.0	0.0	0.9900	37.2	0.9788	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	5.3	20.0	0.0	0.9900	31.8	0.9859	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	5.3	20.0	0.0	0.9900	31.8	0.9859	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	6.9	20.0	0.0	0.9900	32.1	0.9759	50.0			1	6	
73		BLMCCB		13.800	V9	57.0	7.6	40.0	0.0	0.9900	58.1	0.9913	71.0			1	6	
90		EST-13L		13.800	E1	13.0	2.9	12.0	-5.0	0.9900	13.5	0.9753	27.0			1	6	
94		LV-13.8L		13.800	L1	15.0	3.2	12.0	-5.0	0.9900	15.5	0.9777	27.0			1	6	
97		FOR13A		13.800	F1	65.0	-12.3	50.0	-50.0	1.0100	65.5	0.9825	111.0			1	6	
98		FOR13B		13.800	F2	65.0	-12.3	50.0	-50.0	1.0100	65.5	0.9825	111.0			1	6	
101		BAY13A		13.800	B1	65.5	28.2	50.0	-25.0	1.0000	71.3	0.9186	96.0			1	6	SYST
102		BAY13B		13.800	B2	66.0	28.2	50.0	-25.0	1.0000	71.8	0.9195	96.0			1	6	
106		PANAM13A		13.800	M1	14.0	3.1	9.0	0.0	0.9900	14.5	0.9770	20.7			1	6	
106		PANAM13A		13.800	M2	14.0	3.1	9.0	0.0	0.9900	14.5	0.9770	20.7			1	6	
106		PANAM13A		13.800	M3	14.0	3.1	9.0	0.0	0.9900	14.5	0.9770	20.7			1	6	
107		PANAM13B		13.800	M4	14.0	3.1	9.0	0.0	0.9900	14.5	0.9770	20.7			1	6	
107		PANAM13B		13.800	M5	14.0	3.1	9.0	0.0	0.9900	14.5	0.9770	20.7			1	6	
107		PANAM13B		13.800	M6	14.0	3.1	9.0	0.0	0.9900	14.5	0.9770	20.7			1	6	
117		CB250A-1		13.800	C1	115.0	0.0	75.6	0.0	0.9917	116.0	1.0000	143.5			1	6	
118		CB250A-2		13.800	C2	115.0	0.0	75.6	0.0	0.9917	116.0	1.0000	143.5			1	6	
142		CANJ13A		13.800	C1	40.0	7.2	29.0	-29.0	0.9900	41.1	0.9840	69.0			1	6	
143		CANJ13B		13.800	C2	40.0	7.2	29.0	-29.0	0.9900	41.1	0.9840	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0300	8.7	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0300	8.7	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	15.0	-7.3	10.0	-10.0	1.0200	16.3	0.8995	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	0.2	5.7	0.2	1.0307	15.1	0.9999	20.5			1	6	
193		GEBONYIC		13.800	G1	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9569	35.3			1	6	
193		GEBONYIC		13.800	G2	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9569	35.3			1	6	
204		BJOMIN13		13.800	G1	20.0	-9.1	13.0	-13.0	1.0200	21.6	0.9096	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.0	5.8	26.6	-26.6	0.9900	38.8	0.9884	50.6			1	6	
301		CONC13.8		13.800	G1	7.0	3.0	3.0	-3.0	0.9622	7.9	0.9191	13.5			1	6	
302		PASOANCH13.8		13.800	P1	4.0	2.0	2.0	-2.0	0.9616	4.7	0.8944	6.2			1	6	
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1070	8.6	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	5.0	2.0	2.0	0.0	0.9818	5.5	0.9285	13.5			1	6	
307		CHAN1 A		13.800	G1	95.0	-20.1	50.0	-50.0	0.9900	98.1	0.9784	118.6			1	6	
308		CHAN1 B		13.800	G2	95.0	-20.1	50.0	-50.0	0.9900	98.1	0.9784	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9882	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9882	19.9			1	6	
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1071	8.0	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	14.0	0.0	10.5	0.0	1.0298	13.6	1.0000	19.9			1	6	
343		PRUDENCIA138		13.800	G1	20.0	-9.8	9.8	-9.8	1.0202	21.8	0.8987	33.0			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0280	14.6	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0280	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G3	15.0	0.5	12.5	0.5	1.0291	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G4	4.4	0.5	12.5	0.5	1.0291	4.3	0.9930	20.9			1	6	
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	1.0007	3.9	0.9433	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	1.0007	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	1.0007	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	1.0007	3.3	0.9173	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.6	1.9	6.6	-6.6	0.9900	7.9	0.9701	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9701	10.9			1	6	
523		TCATIVÁ 13A		13.800	G3	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9701	10.9			1	6	



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523	TCATIVÁ	13A	13.800	G4	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9701	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9701	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9694	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9694	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9694	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9694	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.0	1.8	6.6	-6.6	0.9900	7.3	0.9694	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	0.9953	37.3	0.9689	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	9.2	18.4	9.2	0.9953	37.3	0.9688	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	6.7	18.4	5.8	0.9900	37.0	0.9832	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0012	8.5	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0012	8.5	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0012	8.5	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0012	8.5	0.9363	10.9	1	6	
SUBSYSTEM TOTALS					1622.0	118.2	1101.8	-422.2				2379.7		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8.A MINAS 1-STA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128		MIR13C		12.000	G3	12.6	1.1	11.0	0.0	0.9900	12.8	0.9965	29.4			2	7		
129		MIR13D		13.800	G4	35.0	0.0	15.0	0.0	0.9918	35.3	1.0000	44.1			2	7		
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0043	17.0	1.0000	27.7			2	7		
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0188	18.1	0.9289	23.0			2	7		
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0279	17.9	0.9289	23.0			2	7		
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0279	17.9	0.9289	23.0			2	7		
SUBSYSTEM TOTALS						116.0	21.5	67.5	20.5				170.3						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 8:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTGDC8.A MINAS 1-STA RITA IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	255.0	569.4	-236.5	0.0	469.8	31.7	360.2	
6	1622.0	1495.9	0.0	0.0	0.0	90.2	35.9	25.0
PANAMA	118.2	374.9	-182.8	0.0	569.9	69.1	427.0	
7	116.0	58.1	0.0	0.0	0.0	57.0	0.9	50.0
ACANAL	21.5	14.6	0.0	0.0	0.0	-5.9	12.8	
9	0.0	147.4	0.0	0.0	0.0	-147.6	0.2	-75.0
COLON	0.0	36.9	0.0	0.0	1.1	-48.7	12.9	
TOTALS	6887.2	6752.8	0.0	0.0	0.0	0.0	134.4	0.0
	613.4	2042.7	-1030.8	0.0	2119.7	0.0	1721.3	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 7: Contingencia Santa Rita- Panamá II**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 11:13
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8 CNT 7 STA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0150	233.44	11	M.N230	230.00	6	1.0270	236.21				
14	PRO230	230.00	6	1.0310	237.13	85	PTP230	230.00	6	1.0192	234.42				
96	FOR230	230.00	6	1.0250	235.75	100	BAY230	230.00	6	1.0124	232.84				
144	CANJ230	230.00	6	1.0249	235.73	145	BJOMIN230	230.00	6	1.0322	237.41				
146	GUALACA230	230.00	6	1.0269	236.20	147	GUASQ230	230.00	6	1.0248	235.71				
148	VELADERO	230230.00	6	1.0282	236.48	155	TABASARAI	230.00	6	1.0287	236.60				
190	CHANG230	230.00	6	1.0172	233.96	306	CHAN1	230	6	1.0156	233.58				
310	CONCEPCION	23230.00	6	1.0311	237.16	341	PRUDENCIA	230230.00	6	1.0298	236.86				
345	LORENA230	230.00	6	1.0290	236.66	511	LGUIAS230	230.00	6	1.0070	231.61				
6000	FRONTER	230.00	6	1.0313	237.21										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9825	225.98	3	PANII230	230.00	6	0.9874	227.11				
5	CHO230	230.00	6	0.9936	228.54	103	COPESA23	230.00	6	0.9916	228.08				
105	PAN-AM23	230.00	6	0.9937	228.55	115	PACORA23	230.00	6	0.9934	228.49				
325	STA RITA230	230.00	6	0.9910	227.93										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 11:13
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8 CNT 7 STA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0026	115.30	4	PANII115	115.00	6	1.0017	115.19				
6	CHO115	115.00	6	1.0322	118.70	9	LSA115	115.00	6	1.0261	118.01				
12	M.N115	115.00	6	1.0211	117.43	15	PRO115	115.00	6	1.0285	118.27				
18	CAC115	115.00	6	1.0018	115.20	20	CH.AZUL	115.00	6	1.0292	118.36				
54	LM1115	115.00	6	1.0241	117.77	55	LM2115	115.00	6	1.0237	117.72				
61	FFIELD	115.00	9	1.0185	117.13	87	CAL115	115.00	6	1.0289	118.33				
88	EST115	115.00	6	1.0300	118.45	92	L.V115	115.00	6	1.0293	118.37				
109	STA RITA115	115.00	6	1.0248	117.85	123	MIR115	115.00	7	1.0037	115.42				
154	CEMPAN15	115.00	6	1.0230	117.65	191	CHANG115	115.00	6	1.0040	115.46				
522	TCATIVÁ	115	115.00	6	1.0241	117.77									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9888	113.72	21	C.BAN115	115.00	6	0.9864	113.43				
23	CH115	115.00	6	0.9952	114.45	26	LOC115	115.00	6	0.9882	113.64				
30	MAR115	115.00	6	0.9869	113.49	33	STM115	115.00	6	0.9998	114.98				
37	SAN115	115.00	6	0.9845	113.22	48	TINAJ115	115.00	6	0.9987	114.85				
50	M.O115	115.00	6	0.9989	114.87	52	TOC115	115.00	6	0.9974	114.71				



Handwritten signature or initials.

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	8.2	25.0	0.0	0.9900	37.3	0.9750	47.0			1	6	
67		BLM13C		13.800	V3	36.0	8.2	25.0	0.0	0.9900	37.3	0.9750	47.0			1	6	
68		BLM13D		13.800	V4	36.0	8.5	25.0	0.0	0.9900	37.4	0.9734	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	5.7	20.0	0.0	0.9900	31.8	0.9833	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	5.7	20.0	0.0	0.9900	31.8	0.9833	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	7.4	20.0	0.0	0.9900	32.2	0.9724	50.0			1	6	
73		BLMCCB		13.800	V9	57.0	8.1	40.0	0.0	0.9900	58.1	0.9901	71.0			1	6	
90		EST-13L		13.800	E1	13.0	3.2	12.0	-5.0	0.9900	13.5	0.9719	27.0			1	6	
94		LV-13.8L		13.800	L1	15.0	3.4	12.0	-5.0	0.9900	15.5	0.9747	27.0			1	6	
97		FOR13A		13.800	F1	65.0	-11.5	50.0	-50.0	1.0100	65.4	0.9846	111.0			1	6	
98		FOR13B		13.800	F2	65.0	-11.5	50.0	-50.0	1.0100	65.4	0.9846	111.0			1	6	
101		BAY13A		13.800	B1	69.0	31.2	50.0	-25.0	1.0000	75.7	0.9111	96.0			1	6	SYST
102		BAY13B		13.800	B2	66.0	30.9	50.0	-25.0	1.0000	72.9	0.9055	96.0			1	6	
106		PANAM13A		13.800	M1	14.0	3.6	9.0	0.0	0.9900	14.6	0.9677	20.7			1	6	
106		PANAM13A		13.800	M2	14.0	3.6	9.0	0.0	0.9900	14.6	0.9677	20.7			1	6	
106		PANAM13A		13.800	M3	14.0	3.6	9.0	0.0	0.9900	14.6	0.9677	20.7			1	6	
107		PANAM13B		13.800	M4	14.0	3.6	9.0	0.0	0.9900	14.6	0.9677	20.7			1	6	
107		PANAM13B		13.800	M5	14.0	3.6	9.0	0.0	0.9900	14.6	0.9677	20.7			1	6	
107		PANAM13B		13.800	M6	14.0	3.6	9.0	0.0	0.9900	14.6	0.9677	20.7			1	6	
117		CB250A-1		13.800	C1	115.0	3.1	75.6	0.0	0.9900	116.2	0.9996	143.5			1	6	
118		CB250A-2		13.800	C2	115.0	3.1	75.6	0.0	0.9900	116.2	0.9996	143.5			1	6	
142		CANJ13A		13.800	C1	40.0	7.4	29.0	-29.0	0.9900	41.1	0.9833	69.0			1	6	
143		CANJ13B		13.800	C2	40.0	7.4	29.0	-29.0	0.9900	41.1	0.9833	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0280	8.8	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0280	8.8	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	15.0	-6.4	10.0	-10.0	1.0200	16.0	0.9202	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	0.2	5.7	0.2	1.0287	15.1	0.9999	20.5			1	6	
193		GEBONYIC		13.800	G1	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9586	35.3			1	6	
193		GEBONYIC		13.800	G2	7.0	-2.1	4.0	-4.0	0.9900	7.4	0.9586	35.3			1	6	
204		BJOMIN13		13.800	G1	20.0	-8.7	13.0	-13.0	1.0200	21.4	0.9175	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.0	6.3	26.6	-26.6	0.9900	38.9	0.9865	50.6			1	6	
301		CONC13.8		13.800	G1	7.0	3.0	3.0	-3.0	0.9613	7.9	0.9191	13.5			1	6	
302		PASOANCH13.8		13.800	P1	4.0	2.0	2.0	-2.0	0.9607	4.7	0.8944	6.2			1	6	
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1063	8.6	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	5.0	2.0	2.0	0.0	0.9812	5.5	0.9285	13.5			1	6	
307		CHAN1 A		13.800	G1	95.0	-19.7	50.0	-50.0	0.9900	98.0	0.9792	118.6			1	6	
308		CHAN1 B		13.800	G2	95.0	-19.7	50.0	-50.0	0.9900	98.0	0.9792	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9888	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-2.2	10.0	-5.0	0.9900	14.7	0.9888	19.9			1	6	
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1063	8.0	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	14.0	0.0	10.5	0.0	1.0289	13.6	1.0000	19.9			1	6	
343		PRUDENCIA138		13.800	G1	20.0	-9.8	9.8	-9.8	1.0192	21.8	0.8987	33.0			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0251	14.6	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0251	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G3	15.0	0.5	12.5	0.5	1.0262	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G4	4.4	0.5	12.5	0.5	1.0262	4.4	0.9930	20.9			1	6	
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	0.9972	3.9	0.9433	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	0.9972	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	0.9972	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	0.9972	3.3	0.9173	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.6	2.1	6.6	-6.6	0.9900	7.9	0.9621	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.0	2.0	6.6	-6.6	0.9900	7.3	0.9621	10.9			1	6	



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523	TCATIVÁ	13A	13.800	G3	7.0	2.0	6.6	-6.6	0.9900	7.3	0.9621	10.9	1	6
523	TCATIVÁ	13A	13.800	G4	7.0	2.0	6.6	-6.6	0.9900	7.3	0.9621	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	7.0	2.0	6.6	-6.6	0.9900	7.3	0.9621	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.0	2.0	6.6	-6.6	0.9900	7.4	0.9611	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.0	2.0	6.6	-6.6	0.9900	7.4	0.9611	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.0	2.0	6.6	-6.6	0.9900	7.4	0.9611	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.0	2.0	6.6	-6.6	0.9900	7.4	0.9611	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.0	2.0	6.6	-6.6	0.9900	7.4	0.9611	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	0.9927	37.4	0.9689	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	9.2	18.4	9.2	0.9927	37.4	0.9688	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	7.9	18.4	5.8	0.9900	37.2	0.9765	44.4	1	6
531	EGIRAL	13.8	213.800	G5	8.0	3.0	6.4	3.0	0.9977	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G6	8.0	3.0	6.4	3.0	0.9977	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G7	8.0	3.0	6.4	3.0	0.9977	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G8	8.0	3.0	6.4	3.0	0.9977	8.6	0.9363	10.9	1	6
SUBSYSTEM TOTALS					1625.5	147.2	1101.8	-422.2				2379.7		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 11:13
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 REGMHTGDC8 CNT 7 STA RITA-PANAMA II

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	2.0	11.0	0.0	0.9900	12.9	0.9880	29.4	29.4	2	7				
129	MIR13D	13.800	G4	35.0	0.6	15.0	0.0	0.9900	35.4	0.9998	44.1	44.1	2	7				
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0008	17.1	1.0000	27.7	27.7	2	7				
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0154	18.1	0.9289	23.0	23.0	2	7				
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0245	18.0	0.9289	23.0	23.0	2	7				
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0245	18.0	0.9289	23.0	23.0	2	7				
SUBSYSTEM TOTALS					116.0	23.1	67.5	20.5				170.3						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E FRI, MAY 30 2008 11:14
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
AÑO 2016 REGMHTGDC8 CNT 7 STA RITA-PANAMA II IN MW/MVAR

X--	AREA	--X	GENERATION	FROM TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL	1347.4	1312.2	0.0	0.0	0.0	0.0	0.0	35.2	0.0
		29.8	349.5	-266.2	0.0	412.9	17.9	341.4		
2	SALVADOR	911.8	902.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0
		100.8	182.3	-58.1	0.0	219.9	38.4	158.1		



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3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	256.2	569.4	-236.5	0.0	469.7	32.7	360.2	
6	1625.5	1495.9	0.0	0.0	0.0	90.2	39.4	25.0
PANAMA	147.2	374.9	-180.8	0.0	558.6	66.7	445.0	
7	116.0	58.1	0.0	0.0	0.0	57.0	0.9	50.0
ACANAL	23.1	14.6	0.0	0.0	0.0	-4.4	12.9	
9	0.0	147.4	0.0	0.0	0.0	-147.6	0.2	-75.0
COLON	0.0	36.9	0.0	0.0	1.1	-48.7	12.9	
TOTALS	6890.7	6752.8	0.0	0.0	0.0	0.0	137.9	0.0
	645.2	2042.7	-1028.7	0.0	2108.3	0.0	1739.5	

AÑO 2016

Caso 3: REGMHTTLA8



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:51
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0021	230.49	3	PANII230	230.00	6	1.0088	232.01				
5	CHO230	230.00	6	1.0016	230.37	8	LSA230	230.00	6	1.0087	232.00				
11	M.N230	230.00	6	1.0136	233.14	14	PRO230	230.00	6	1.0206	234.73				
85	PTP230	230.00	6	1.0068	231.56	96	FOR230	230.00	6	1.0111	232.55				
100	BAY230	230.00	6	1.0272	236.26	103	COPESA23	230.00	6	1.0119	232.74				
105	PAN-AM23	230.00	6	1.0016	230.37	115	PACORA23	230.00	6	1.0130	232.98				
144	CANJ230	230.00	6	1.0076	231.75	145	BJOMIN230	230.00	6	1.0245	235.64				
146	GUALACA230	230.00	6	1.0125	232.87	147	GUASQ230	230.00	6	1.0075	231.73				
148	VELADERO 230	230.00	6	1.0072	231.66	155	TABASARAI	230.00	6	1.0082	231.89				
190	CHANG230	230.00	6	1.0150	233.44	306	CHAN1 230	230.00	6	1.0148	233.40				
310	CONCEPCION23	230.00	6	1.0211	234.86	325	STA RITA230	230.00	6	1.0180	234.15				
341	PRUDENCIA230	230.00	6	1.0199	234.59	345	LORENA230	230.00	6	1.0175	234.02				
511	LGUIAS230	230.00	6	1.0046	231.06	540	HV-PETOABRE	230.00	6	1.0129	232.97				
6000	FRONTER	230.00	6	1.0208	234.78										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

• NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:51
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0065	115.75	4	PANII115	115.00	6	1.0076	115.88				
6	CHO115	115.00	6	1.0412	119.74	9	LSA115	115.00	6	1.0499	120.74				
12	M.N115	115.00	6	1.0115	116.33	15	PRO115	115.00	6	1.0181	117.08				
18	CAC115	115.00	6	1.0058	115.67	20	CH.AZUL	115.00	6	1.0189	117.17				
23	CH115	115.00	6	1.0016	115.19	33	STM115	115.00	6	1.0038	115.44				
48	TINAJ115	115.00	6	1.0028	115.32	50	M.O115	115.00	6	1.0030	115.34				
52	TOC115	115.00	6	1.0035	115.41	54	LM115	115.00	6	1.0265	118.05				
55	LM2115	115.00	6	1.0266	118.06	61	FFIELD	115.00	9	1.0211	117.43				
87	CAL115	115.00	6	1.0329	118.78	88	EST115	115.00	6	1.0370	119.25				
92	L.V115	115.00	6	1.0344	118.96	109	STA RITA115	115.00	6	1.0261	118.00				
123	MIR115	115.00	7	1.0088	116.01	154	CEMPAN15	115.00	6	1.0192	117.21				
191	CHANG115	115.00	6	1.0079	115.91	522	TCATIVÁ 115	115.00	6	1.0266	118.06				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9947	114.39	21	C.BAN115	115.00	6	0.9913	114.00				
26	LOC115	115.00	6	0.9930	114.19	30	MAR115	115.00	6	0.9917	114.04				
37	SAN115	115.00	6	0.9895	113.80										



Handwritten signature or mark.

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	21.0	25.0	0.0	1.0200	42.6	0.8754	47.0			1	6		
67		BLM13C		13.800	V3	38.0	21.0	25.0	0.0	1.0200	42.6	0.8754	47.0			1	6		
68		BLM13D		13.800	V4	38.0	21.9	25.0	0.0	1.0200	43.0	0.8663	47.0			1	6		
70		TGJB13A		13.800	J5	31.0	10.5	20.0	0.0	1.0100	32.4	0.9467	39.4			1	6		
71		TGJB13B		13.800	J6	31.0	10.5	20.0	0.0	1.0100	32.4	0.9467	39.4			1	6		
73		BLMCCB		13.800	V9	21.0	10.9	40.0	0.0	1.0000	23.7	0.8872	71.0			1	6		
90		EST-13L		13.800	E1	22.0	7.7	12.0	-5.0	1.0100	23.1	0.9439	27.0			1	6		
91		EST-13T		13.800	E2	22.0	7.7	12.0	-5.0	1.0100	23.1	0.9439	27.0			1	6		
94		LV-13.8L		13.800	L1	23.0	8.5	12.0	-5.0	1.0100	24.3	0.9376	27.0			1	6		
95		LV-13.8T		13.800	L2	23.0	8.5	12.0	-5.0	1.0100	24.3	0.9376	27.0			1	6		
97		FOR13A		13.800	F1	95.0	-5.2	50.0	-50.0	1.0000	95.1	0.9985	111.0			1	6		
98		FOR13B		13.800	F2	95.0	-5.2	50.0	-50.0	1.0000	95.1	0.9985	111.0			1	6		
99		FOR13C		13.800	F3	95.0	-5.2	50.0	-50.0	1.0000	95.1	0.9985	111.0			1	6		
101		BAY13A		13.800	B1	58.6	11.3	50.0	-25.0	0.9900	60.3	0.9818	96.0			1	6	SYST	
102		BAY13B		13.800	B2	58.8	11.4	50.0	-25.0	0.9900	60.5	0.9819	96.0			1	6		
108		BAY13C		13.800	B3	58.8	11.4	50.0	-25.0	0.9900	60.5	0.9819	100.0			1	6		
117		CB250A-1		13.800	C1	75.0	19.9	75.6	0.0	1.0300	75.3	0.9664	143.5			1	6		
118		CB250A-2		13.800	C2	75.0	19.9	75.6	0.0	1.0300	75.3	0.9664	143.5			1	6		
142		CANJ13A		13.800	C1	57.0	17.3	29.0	-29.0	1.0000	59.6	0.9568	69.0			1	6		
143		CANJ13B		13.800	C2	57.0	17.3	29.0	-29.0	1.0000	59.6	0.9568	69.0			1	6		
151		GUALACA13.8		13.800	G1	23.2	-2.0	10.0	-10.0	1.0100	23.1	0.9963	26.7			1	6		
156		TABASARAI13		13.800	G1	15.5	0.9	5.7	0.2	1.0100	15.4	0.9982	20.5			1	6		
156		TABASARAI13		13.800	G2	15.5	0.9	5.7	0.2	1.0100	15.4	0.9982	20.5			1	6		
193		GEBONYIC		13.800	G1	9.0	0.6	4.0	-4.0	1.0100	8.9	0.9978	35.3			1	6		
193		GEBONYIC		13.800	G2	9.0	0.6	4.0	-4.0	1.0100	8.9	0.9978	35.3			1	6		
193		GEBONYIC		13.800	G3	9.0	0.6	4.0	-4.0	1.0100	8.9	0.9978	35.3			1	6		
204		BJOMIN13		13.800	G1	23.0	-11.5	13.0	-13.0	0.9900	26.0	0.8942	28.9			1	6		
204		BJOMIN13		13.800	G2	23.0	-11.5	13.0	-13.0	0.9900	26.0	0.8942	28.9			1	6		
205		BAITUN13.8		13.800	G1	38.0	15.4	26.6	-26.6	1.0100	40.6	0.9267	50.6			1	6		
205		BAITUN13.8		13.800	G2	38.0	15.4	26.6	-26.6	1.0100	40.6	0.9267	50.6			1	6		
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9687	11.1	0.8849	13.5			1	6		
302		PASOANCH13.8		13.800	P1	4.4	2.0	2.0	-2.0	0.9669	5.0	0.9110	6.2			1	6		
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1084	8.6	1.0000	13.5			1	6		
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9849	8.4	0.9701	13.5			1	6		
307		CHAN1 A		13.800	G1	105.2	-8.6	50.0	-50.0	1.0000	105.5	0.9967	118.6			1	6		
308		CHAN1 B		13.800	G2	105.2	-8.6	50.0	-50.0	1.0000	105.5	0.9967	118.6			1	6		
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1079	8.0	1.0000	35.3			1	6		
317		MENDRE13.8		13.800	M2	8.9	0.0	4.0	0.0	1.1079	8.0	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	16.0	0.0	10.5	0.0	1.0169	15.7	1.0000	19.9			1	6		
342		LORENA13.8		13.800	G2	16.0	0.0	10.5	0.0	1.0169	15.7	1.0000	19.9			1	6		
343		PRUDENCIA13813		13.800	G1	25.3	-8.5	9.8	-9.8	1.0000	26.7	0.9484	33.0			1	6		
343		PRUDENCIA13813		13.800	G2	25.3	-8.5	9.8	-9.8	1.0000	26.7	0.9484	33.0			1	6		
518		SANTA FE 13		13.800	E1	19.0	0.3	1.0	-1.0	1.0000	19.0	0.9998	100.0			1	6		
541		PETOABRE		4.2000	1	28.3	1.4	1.4	1.4	1.0138	27.9	0.9988	136.0			1	6		
SUBSYSTEM TOTALS						1605.0	207.6	989.7	-529.9				2477.9						

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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128	MIR13C	12.000	G3	12.6	4.1	11.0	0.0	1.0100	13.1	0.9518	29.4	2	7
129	MIR13D	13.800	G4	35.0	3.8	15.0	0.0	1.0100	34.9	0.9942	44.1	2	7
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0137	16.9	1.0000	27.7	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0281	17.9	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0371	17.8	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0371	17.8	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	28.3	67.5	20.5				170.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:51
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 REGMHTTLA8 IN MW/MVAR

X--	AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
		29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
		100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
		55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	NICA	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
		32.9	224.5	-98.9	0.0	143.2	-96.9	147.4	
5	C.RICA	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
		269.5	569.4	-237.1	0.0	468.0	43.0	362.3	
6	PANAMA	1605.0	1447.1	0.0	0.0	0.0	83.8	74.1	25.0
		207.6	362.7	-326.1	0.0	598.5	48.2	721.3	
7	ACANAL	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
		28.3	14.1	0.0	0.0	0.0	1.2	13.0	
9	COLON	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
		0.0	35.7	0.0	0.0	1.1	-46.6	12.0	
TOTALS		6870.2	6697.4	0.0	0.0	0.0	0.0	172.9	0.0
		724.7	2028.8	-1174.6	0.0	2146.5	0.0	2017.0	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 16:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0041	230.95	8		LSA230		230.00	6	1.0328	237.54
11	M.	N230		230.00	6	1.0453	240.41	14		PRO230		230.00	6	1.0467	240.74
85		PTP230		230.00	6	1.0401	239.22	96		FOR230		230.00	6	1.0427	239.82
100		BAY230		230.00	6	1.0249	235.74	103		COPESA23		230.00	6	1.0032	230.74
105		PAN-AM23		230.00	6	1.0041	230.95	115		PACORA23		230.00	6	1.0053	231.21
144		CANJ230		230.00	6	1.0437	240.06	145		BJOMIN230		230.00	6	1.0498	241.46
146		GUALACA230		230.00	6	1.0459	240.57	147		GUASQ230		230.00	6	1.0436	240.03
148		VELADERO	230	230.00	6	1.0463	240.64	155		TABASARAI		230.00	6	1.0467	240.73
190		CHANG230		230.00	6	1.0395	239.08	306		CHAN1	230	230.00	6	1.0402	239.25
310		CONCEPCION23	230	230.00	6	1.0485	241.16	325		STA RITA230		230.00	6	1.0133	233.06
341		PRUDENCIA230	230	230.00	6	1.0494	241.36	345		LORENA230		230.00	6	1.0482	241.09
511		LGUIAS230		230.00	6	1.0216	234.97	540		HV-PETOABRE		230.00	6	1.0299	236.87
6000		FRONTER		230.00	6	1.0464	240.67								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9934	228.49	3		PANII230		230.00	6	0.9989	229.74

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 16:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0018	115.20	4		PANII115		115.00	6	1.0087	116.01
6		CHO115		115.00	6	1.0440	120.06	9		LSA115		115.00	6	1.0479	120.51
12	M.	N115		115.00	6	1.0381	119.38	15		PRO115		115.00	6	1.0444	120.10
18		CAC115		115.00	6	1.0013	115.14	20		CH.AZUL		115.00	6	1.0451	120.19
23		CH115		115.00	6	1.0013	115.15	52		TOC115		115.00	6	1.0047	115.54
54		LM115		115.00	6	1.0349	119.01	55		LM2115		115.00	6	1.0348	119.00
61		FFIELD		115.00	9	1.0295	118.40	87		CAL115		115.00	6	1.0472	120.43
88		EST115		115.00	6	1.0485	120.58	92		L.V115		115.00	6	1.0477	120.49
109		STA RITA115		115.00	6	1.0339	118.90	123		MIR115		115.00	7	1.0045	115.52
154		CEMPAN15		115.00	6	1.0256	117.94	191		CHANG115		115.00	6	1.0259	117.98
522		TCATIVÁ	115	115.00	6	1.0350	119.03								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9942	114.33	21		C.BAN115		115.00	6	0.9872	113.53
26		LOC115		115.00	6	0.9888	113.71	30		MAR115		115.00	6	0.9872	113.53
33		STM115		115.00	6	0.9991	114.89	37		SAN115		115.00	6	0.9859	113.37
48		TINAJ115		115.00	6	0.9980	114.77	50		M.O115		115.00	6	0.9982	114.79

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 16:57
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	17.4	25.0	0.0	1.0200	41.0	0.9091	47.0	1	6
67	BLM13C	13.800	V3	38.0	17.4	25.0	0.0	1.0200	41.0	0.9091	47.0	1	6
68	BLM13D	13.800	V4	38.0	18.2	25.0	0.0	1.0200	41.3	0.9023	47.0	1	6
70	TGJB13A	13.800	J5	31.0	8.4	20.0	0.0	1.0100	31.8	0.9653	39.4	1	6
71	TGJB13B	13.800	J6	31.0	8.4	20.0	0.0	1.0100	31.8	0.9653	39.4	1	6
72	BLMCCA	13.800	T8	31.0	9.3	20.0	0.0	1.0100	32.1	0.9577	50.0	1	6
73	BLMCCB	13.800	V9	47.0	9.7	40.0	0.0	1.0100	47.5	0.9796	71.0	1	6
90	EST-13L	13.800	E1	18.0	4.2	12.0	-5.0	1.0100	18.3	0.9739	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	4.6	12.0	-5.0	1.0100	20.3	0.9748	27.0	1	6
97	FOR13A	13.800	F1	87.0	-17.1	50.0	-50.0	1.0200	86.9	0.9812	111.0	1	6
98	FOR13B	13.800	F2	87.0	-17.1	50.0	-50.0	1.0200	86.9	0.9812	111.0	1	6
99	FOR13C	13.800	F3	87.0	-17.1	50.0	-50.0	1.0200	86.9	0.9812	111.0	1	6
101	BAY13A	13.800	B1	51.2	20.4	50.0	-25.0	1.0000	55.1	0.9290	96.0	1	6
102	BAY13B	13.800	B2	49.6	20.3	50.0	-25.0	1.0000	53.6	0.9257	96.0	1	6
108	BAY13C	13.800	B3	49.6	20.3	50.0	-25.0	1.0000	53.6	0.9257	100.0	1	6
117	CB250A-1	13.800	C1	115.0	29.6	75.6	0.0	1.0300	115.3	0.9685	143.5	1	6
118	CB250A-2	13.800	C2	115.0	29.6	75.6	0.0	1.0300	115.3	0.9685	143.5	1	6
142	CANJ13A	13.800	C1	40.0	9.2	29.0	-29.0	1.0200	40.2	0.9744	69.0	1	6
143	CANJ13B	13.800	C2	40.0	9.2	29.0	-29.0	1.0200	40.2	0.9744	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0352	19.9	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	8.0	0.2	5.7	0.2	1.0471	7.6	0.9995	20.5	1	6
193	GEBONYIC	13.800	G1	7.5	-2.4	4.0	-4.0	1.0100	7.8	0.9520	35.3	1	6
193	GEBONYIC	13.800	G2	7.5	-2.4	4.0	-4.0	1.0100	7.8	0.9520	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-13.0	13.0	-13.0	1.0318	24.8	0.8609	28.9	1	6
205	BAITUN13.8	13.800	G1	30.0	8.6	26.6	-26.6	1.0100	30.9	0.9613	50.6	1	6
301	CONC13.8	13.800	G1	8.2	5.0	5.0	-5.0	0.9589	10.0	0.8538	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9570	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1266	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	7.8	2.0	2.0	0.0	0.9985	8.0	0.9683	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-17.5	50.0	-50.0	1.0200	70.7	0.9703	118.6	1	6
317	MENDRE13.8	13.800	M1	8.5	0.0	4.0	0.0	1.1266	7.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	13.5	0.0	10.5	0.0	1.0481	12.9	1.0000	19.9	1	6
343	PRUDENCIA13	13.800	G1	25.0	-9.8	9.8	-9.8	1.0388	25.8	0.9315	33.0	1	6
518	SANTA FE 13	13.800	E1	75.0	6.8	50.0	-25.0	1.0000	75.3	0.9959	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9996	3.9	0.9433	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	0.9996	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	0.9996	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	0.9996	3.3	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9982	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9982	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9176	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9176	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9176	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9176	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9176	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	9.2	18.4	9.2	1.0021	31.3	0.9560	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	12.7	18.4	5.8	1.0100	27.8	0.8916	44.4	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0278	92.4	0.9999	136.0	1	6
SUBSYSTEM TOTALS				1562.8	196.9	1024.8	-486.1				2349.4		

SYST



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C			12.000	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9375	29.4			2	7	
129	MIR13D			13.800	G4	35.0	4.7	15.0	0.0	1.0100	35.0	0.9910	44.1			2	7	
130	MIR13F			13.800	G5	17.1	0.0	8.0	0.0	1.0114	16.9	1.0000	27.7			2	7	
170	MIR13G			13.800	M1	17.1	6.8	11.2	6.8	1.0258	17.9	0.9289	23.0			2	7	
171	MIR13H			13.800	M1	17.1	6.8	11.2	6.8	1.0349	17.8	0.9289	23.0			2	7	
171	MIR13H			13.800	M2	17.1	6.8	11.2	6.8	1.0349	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	29.9	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 16:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTTLA8 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.7	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.7	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.3	0.0
HONDURAS	55.5	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	31.9	224.5	-98.9	0.0	143.3	-97.7	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	225.8	569.4	-237.0	0.0	472.5	8.0	357.9	
6	1562.8	1447.1	0.0	0.0	0.0	83.3	32.5	25.0
PANAMA	196.9	362.7	-15.1	0.0	621.4	82.7	388.0	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	29.9	14.1	0.0	0.0	0.0	2.7	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.5	11.9	
TOTALS	6828.1	6697.4	0.0	0.0	0.0	0.0	130.7	0.0
	670.5	2028.8	-863.6	0.0	2174.0	0.0	1679.3	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 14:01
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN INV
 AÑO 2016 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0334	237.69	3	PANII230	230.00	6	1.0350	238.05				
5	CHO230	230.00	6	1.0372	238.55	8	LSA230	230.00	6	1.0355	238.15				
11	M.N230	230.00	6	1.0213	234.90	14	PRO230	230.00	6	1.0316	237.26				
85	PTP230	230.00	6	1.0217	235.00	96	FOR230	230.00	6	1.0172	233.96				
100	BAY230	230.00	6	1.0386	238.87	103	COPESA23	230.00	6	1.0360	238.29				
105	PAN-AM23	230.00	6	1.0372	238.55	115	PACORA23	230.00	6	1.0363	238.35				
144	CANJ230	230.00	6	1.0213	234.89	145	BJOMIN230	230.00	6	1.0320	237.37				
146	GUALACA230	230.00	6	1.0231	235.32	147	GUASQ230	230.00	6	1.0212	234.89				
148	VELADERO	230230.00	6	1.0304	237.00	155	TABASARAI	230.00	6	1.0309	237.10				
190	CHANG230	230.00	6	1.0204	234.69	306	CHAN1 230	230.00	6	1.0173	233.98				
310	CONCEPCION23	230.00	6	1.0298	236.86	325	STA RITA230	230.00	6	1.0353	238.12				
341	PRUDENCIA230	230.00	6	1.0255	235.86	345	LORENA230	230.00	6	1.0248	235.70				
511	LGUIAS230	230.00	6	1.0386	238.87	540	HV-PETOABRE	230.00	6	1.0418	239.62				
6000	FRONTER	230.00	6	1.0320	237.37										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

• NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 14:01
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN INV
 AÑO 2016 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0035	115.40	4	PANII115	115.00	6	1.0050	115.57				
6	CHO115	115.00	6	1.0876	125.07	9	LSA115	115.00	6	1.0488	120.61				
15	PRO115	115.00	6	1.0313	118.59	18	CAC115	115.00	6	1.0033	115.38				
20	CH.AZUL	115.00	6	1.0320	118.68	23	CH115	115.00	6	1.0001	115.01				
33	STM115	115.00	6	1.0024	115.27	48	TINAJ115	115.00	6	1.0023	115.26				
50	M.O115	115.00	6	1.0023	115.27	52	TOC115	115.00	6	1.0034	115.39				
54	LM1115	115.00	6	1.0067	115.77	55	LM2115	115.00	6	1.0070	115.80				
61	FFIELD	115.00	9	1.0046	115.53	109	STA RITA115	115.00	6	1.0075	115.87				
123	MIR115	115.00	7	1.0064	115.73	154	CEMPAN15	115.00	6	1.0057	115.66				
191	CHANG115	115.00	6	1.0156	116.79	522	TCATIVÁ	115 115.00	6	1.0069	115.79				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
12	M.N115	115.00	6	0.9941	114.32	19	C.V115	115.00	6	0.9999	114.99				
21	C.BAN115	115.00	6	0.9981	114.79	26	LOC115	115.00	6	0.9987	114.85				
30	MAR115	115.00	6	0.9980	114.77	37	SAN115	115.00	6	0.9975	114.72				
87	CAL115	115.00	6	0.9972	114.68	88	EST115	115.00	6	0.9973	114.70				
						92	L.V115	115.00	6	0.9973	114.69				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 14:01
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN INV
 AÑO 2016 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66	BLM13B	13.800	V2	27.0	9.3	25.0	0.0	0.9783	29.2	0.9451	47.0					1	6		
67	BLM13C	13.800	V3	27.0	9.3	25.0	0.0	0.9783	29.2	0.9451	47.0					1	6		
90	EST-13L	13.800	E1	17.0	-1.9	12.0	-5.0	0.9420	18.2	0.9940	27.0					1	6		
94	LV-13.8L	13.800	L1	19.0	-1.7	12.0	-5.0	0.9420	20.3	0.9959	27.0					1	6		
97	FOR13A	13.800	F1	82.2	-37.0	50.0	-50.0	0.9710	92.9	0.9118	111.0					1	6	SYST	
98	FOR13B	13.800	F2	81.7	-37.1	50.0	-50.0	0.9710	92.4	0.9108	111.0					1	6		
142	CANJ13A	13.800	C1	38.0	5.6	29.0	-29.0	0.9783	39.3	0.9893	69.0					1	6		
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0122	20.3	0.8742	26.7					1	6		
156	TABASARAI13	13.800	G1	10.0	0.2	5.7	0.2	1.0312	9.7	0.9997	20.5					1	6		
193	GEBONYIC	13.800	G1	7.5	-1.7	4.0	-4.0	1.0100	7.6	0.9747	35.3					1	6		
205	BAITUN13.8	13.800	G1	25.0	5.9	26.6	-26.6	0.9900	25.9	0.9731	50.6					1	6		
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9614	4.2	0.8682	6.2					1	6		
303	SIND13.8	13.800	G1	5.2	0.0	5.0	0.0	1.0732	4.8	1.0000	13.5					1	6		
304	ALGA13.8	13.800	A1	6.5	2.0	2.0	0.0	0.9510	7.2	0.9558	13.5					1	6		
307	CHAN1 A	13.800	G1	70.0	-32.7	50.0	-50.0	0.9800	78.8	0.9062	118.6					1	6		
317	MENDRE13.8	13.800	M1	5.7	0.0	4.0	0.0	1.0732	5.3	1.0000	35.3					1	6		
342	LORENA13.8	13.800	G1	11.5	0.0	10.5	0.0	1.0247	11.2	1.0000	19.9					1	6		
343	PRUDENCIA138	13.800	G1	17.0	-9.8	9.8	-9.8	1.0148	19.3	0.8672	33.0					1	6		
518	SANTA FE 13	13.800	E1	60.0	-1.0	1.0	-1.0	0.9983	60.1	0.9999	100.0					1	6		
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0398	91.4	0.9999	136.0					1	6		
SUBSYSTEM TOTALS						626.9	-97.0	334.9	-240.8			1048.2							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 14:01
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN INV
 Año 2016 REGMHTTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
170	MIR13G	13.800	M1	15.5	6.8	11.2	6.8	1.0357	16.3	0.9150	23.0					2	7		
171	MIR13H	13.800	M1	15.5	6.8	11.2	6.8	1.0450	16.2	0.9150	23.0					2	7		
171	MIR13H	13.800	M2	15.5	6.8	11.2	6.8	1.0450	16.2	0.9149	23.0					2	7		
SUBSYSTEM TOTALS						46.4	20.5	33.5	20.5			69.1							



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, MAY 19 2008 14:02
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN INV AREA TOTALS
 AÑO 2016 REGMHTTLA8 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.2	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.6	19.5	0.0
C.RICA	252.1	569.4	-236.3	0.0	470.0	30.7	358.3	
6	626.9	578.8	0.0	0.0	0.0	32.6	15.4	25.0
PANAMA	-97.0	145.1	189.0	0.0	623.1	19.5	172.5	
7	46.4	22.5	0.0	0.0	0.0	23.9	0.1	50.0
ACANAL	20.5	5.6	0.0	0.0	0.0	11.2	3.7	
9	0.0	57.0	0.0	0.0	0.0	-57.0	0.0	-75.0
COLON	0.0	14.3	0.0	0.0	1.1	-15.1	1.9	
TOTALS	5822.4	5709.9	0.0	0.0	0.0	0.0	112.5	0.0
	394.2	1781.3	-658.8	0.0	2173.1	0.0	1444.8	

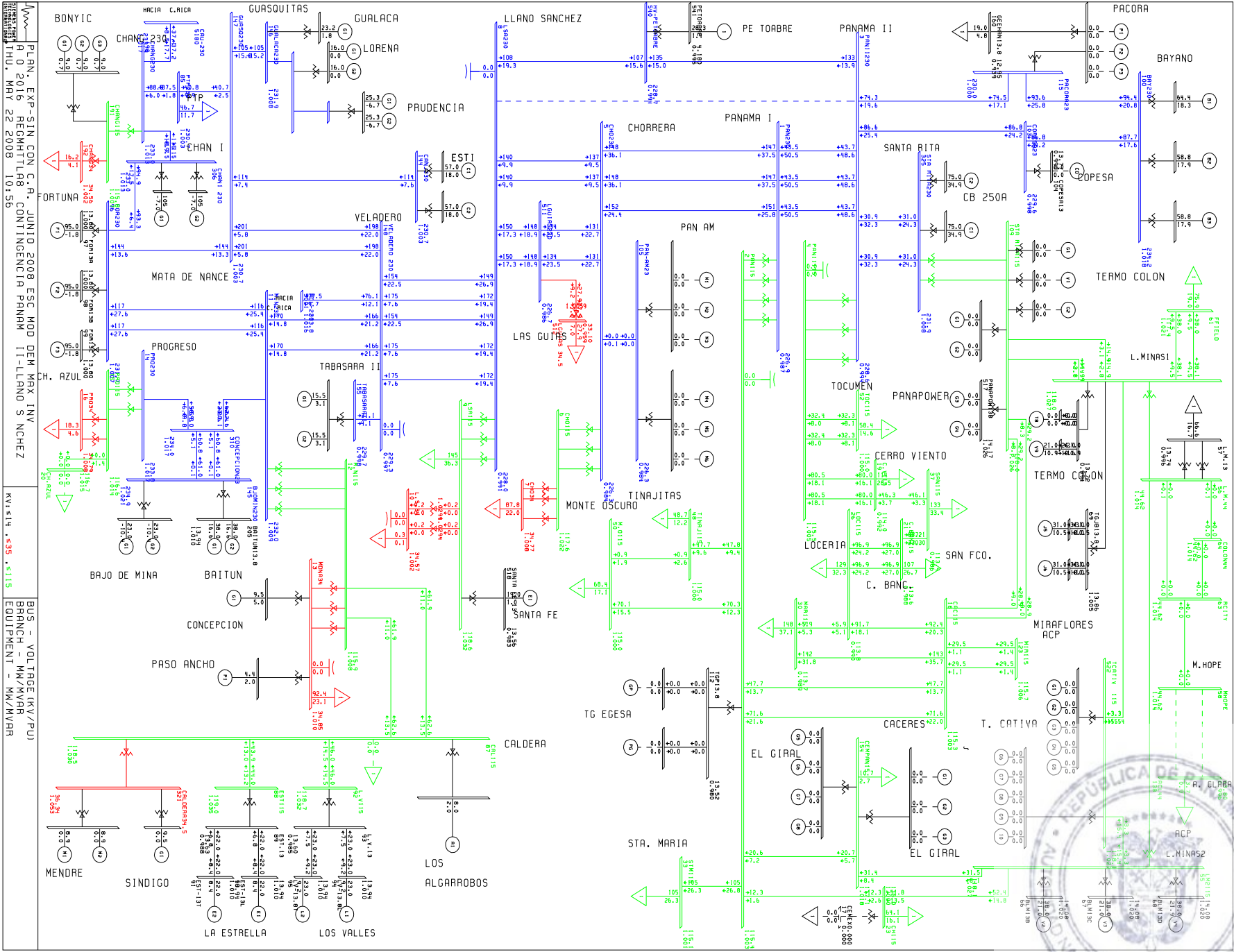


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Panamá II-Llano Sánchez**



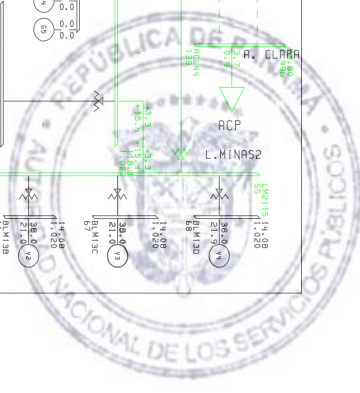
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PLAN. EXP. SIN CON C.A.R. JUNIO 2008 ESC MOD DEM MAX INV
 BRANCH EQUIPMENT - MW/MVAR
 BUS - VOLTAGE (KV/PUI)
 KW: 214, 235, 2115

PLRU, EXP. SIN CON C.A.R. JUNIO 2008 ESC MOD DEM MAX INV
 BRANCH EQUIPMENT - MW/MVAR
 BUS - VOLTAGE (KV/PUI)
 KW: 214, 235, 2115

PLRU, EXP. SIN CON C.A.R. JUNIO 2008 ESC MOD DEM MAX INV
 BRANCH EQUIPMENT - MW/MVAR
 BUS - VOLTAGE (KV/PUI)
 KW: 214, 235, 2115



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0088	232.02	14	PRO	230		230.00	6	1.0167	233.84
85	PTP	230		230.00	6	1.0032	230.75	96	FOR	230		230.00	6	1.0074	231.71
100	BAY	230		230.00	6	1.0184	234.23	144	CANJ	230		230.00	6	1.0032	230.75
145	BJOMIN	230		230.00	6	1.0214	234.92	146	GUALACA	230		230.00	6	1.0083	231.91
147	GUASQ	230		230.00	6	1.0031	230.72	190	CHANG	230		230.00	6	1.0132	233.03
306	CHAN1	230		230.00	6	1.0132	233.03	310	CONCEPCION	230		230.00	6	1.0174	233.99
325	STA RITA	230		230.00	6	1.0082	231.88	341	PRUDENCIA	230		230.00	6	1.0161	233.71
345	LORENA	230		230.00	6	1.0135	233.11	6000	FRONTER			230.00	6	1.0169	233.88

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9866	226.92	3	PANII	230		230.00	6	0.9941	228.64
5	CHO	230		230.00	6	0.9837	226.26	8	LSA	230		230.00	6	0.9914	228.02
103	COPE	SA23		230.00	6	0.9981	229.56	105	PAN-AM	23		230.00	6	0.9837	226.26
115	PACORA	23		230.00	6	0.9999	229.97	148	VELADERO	230		230.00	6	0.9969	229.30
155	TABASARAII			230.00	6	0.9985	229.65	511	LGUIAS	230		230.00	6	0.9857	226.70
540	HV-PETOABRE			230.00	6	0.9943	228.69								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0035	115.40	4	PANII	115		115.00	6	1.0045	115.52
6	CHO	115		115.00	6	1.0222	117.55	9	LSA	115		115.00	6	1.0316	118.63
12	M.	N115		115.00	6	1.0078	115.90	15	PRO	115		115.00	6	1.0142	116.64
18	CAC	115		115.00	6	1.0028	115.33	20	CH.	AZUL		115.00	6	1.0150	116.72
33	STM	115		115.00	6	1.0008	115.09	52	TOC	115		115.00	6	1.0004	115.05
54	LM	115		115.00	6	1.0265	118.05	55	LM	2115		115.00	6	1.0266	118.06
61	FFIELD			115.00	9	1.0211	117.43	87	CAL	115		115.00	6	1.0304	118.49
88	EST	115		115.00	6	1.0348	119.00	92	L.V	115		115.00	6	1.0320	118.68
109	STA RITA	115		115.00	6	1.0265	118.05	123	MIR	115		115.00	7	1.0060	115.69
154	CEMPAN	15		115.00	6	1.0183	117.11	191	CHANG	115		115.00	6	1.0066	115.76
522	TCATIVÁ	115		115.00	6	1.0266	118.06								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115		115.00	6	0.9916	114.03	21	C.BAN	115		115.00	6	0.9882	113.64
23	CH	115		115.00	6	0.9998	114.98	26	LOC	115		115.00	6	0.9899	113.84
30	MAR	115		115.00	6	0.9886	113.69	37	SAN	115		115.00	6	0.9865	113.44
48	TINAJ	115		115.00	6	0.9997	114.97	50	M.O	115		115.00	6	0.9999	114.99

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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Handwritten signature or initials.

66	BLM13B	13.800	V2	38.0	21.0	25.0	0.0	1.0200	42.6	0.8754	47.0	1	6
67	BLM13C	13.800	V3	38.0	21.0	25.0	0.0	1.0200	42.6	0.8754	47.0	1	6
68	BLM13D	13.800	V4	38.0	21.9	25.0	0.0	1.0200	43.0	0.8663	47.0	1	6
70	TGJB13A	13.800	J5	31.0	10.5	20.0	0.0	1.0100	32.4	0.9467	39.4	1	6
71	TGJB13B	13.800	J6	31.0	10.5	20.0	0.0	1.0100	32.4	0.9467	39.4	1	6
73	BLMCCB	13.800	V9	21.0	10.9	40.0	0.0	1.0000	23.7	0.8874	71.0	1	6
90	EST-13L	13.800	E1	22.0	8.4	12.0	-5.0	1.0100	23.3	0.9348	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.4	12.0	-5.0	1.0100	23.3	0.9348	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	9.2	12.0	-5.0	1.0100	24.5	0.9280	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	9.2	12.0	-5.0	1.0100	24.5	0.9280	27.0	1	6
97	FOR13A	13.800	F1	95.0	-1.8	50.0	-50.0	1.0000	95.0	0.9998	111.0	1	6
98	FOR13B	13.800	F2	95.0	-1.8	50.0	-50.0	1.0000	95.0	0.9998	111.0	1	6
99	FOR13C	13.800	F3	95.0	-1.8	50.0	-50.0	1.0000	95.0	0.9998	111.0	1	6
101	BAY13A	13.800	B1	64.4	18.3	50.0	-25.0	0.9900	67.6	0.9617	96.0	1	6
102	BAY13B	13.800	B2	58.8	17.9	50.0	-25.0	0.9900	62.1	0.9568	96.0	1	6
108	BAY13C	13.800	B3	58.8	17.9	50.0	-25.0	0.9900	62.1	0.9568	100.0	1	6
117	CB250A-1	13.800	C1	75.0	34.9	75.6	0.0	1.0300	80.3	0.9066	143.5	1	6
118	CB250A-2	13.800	C2	75.0	34.9	75.6	0.0	1.0300	80.3	0.9066	143.5	1	6
142	CANJ13A	13.800	C1	57.0	18.0	29.0	-29.0	1.0000	59.8	0.9534	69.0	1	6
143	CANJ13B	13.800	C2	57.0	18.0	29.0	-29.0	1.0000	59.8	0.9534	69.0	1	6
151	GUALACA13.8	13.800	G1	23.2	1.8	10.0	-10.0	1.0100	23.1	0.9969	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	3.1	5.7	0.2	1.0100	15.7	0.9802	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	3.1	5.7	0.2	1.0100	15.7	0.9802	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	0.7	4.0	-4.0	1.0100	8.9	0.9967	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	0.7	4.0	-4.0	1.0100	8.9	0.9967	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	0.7	4.0	-4.0	1.0100	8.9	0.9967	35.3	1	6
204	BJOMIN13	13.800	G1	23.0	-10.4	13.0	-13.0	0.9900	25.5	0.9112	28.9	1	6
204	BJOMIN13	13.800	G2	23.0	-10.4	13.0	-13.0	0.9900	25.5	0.9112	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	16.6	26.6	-26.6	1.0100	41.1	0.9164	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	16.6	26.6	-26.6	1.0100	41.1	0.9164	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9650	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9632	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1057	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9825	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.2	-7.0	50.0	-50.0	1.0000	105.4	0.9978	118.6	1	6
308	CHAN1 B	13.800	G2	105.2	-7.0	50.0	-50.0	1.0000	105.4	0.9978	118.6	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1052	8.0	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1052	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0129	15.8	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0129	15.8	1.0000	19.9	1	6
343	PRUDENCIA138	13.800	G1	25.3	-6.7	9.8	-9.8	1.0000	26.2	0.9667	33.0	1	6
343	PRUDENCIA138	13.800	G2	25.3	-6.7	9.8	-9.8	1.0000	26.2	0.9667	33.0	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9828	19.4	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	0.9952	28.4	0.9988	136.0	1	6
SUBSYSTEM TOTALS				1610.7	292.3	989.7	-529.9				2477.9		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:55
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ II-LLANO SÁNCHEZ

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.5	11.0	0.0	1.0100	13.2	0.9426	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.4	15.0	0.0	1.0100	34.9	0.9922	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0122	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0266	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0357	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0357	17.8	0.9289	23.0			2	7	



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0039	230.90	11		M.N230		230.00	6	1.0054	231.24
14		PRO230		230.00	6	1.0137	233.16	85		PTP230		230.00	6	1.0027	230.61
96		FOR230		230.00	6	1.0061	231.40	100		BAY230		230.00	6	1.0244	235.61
103		COPESA23		230.00	6	1.0074	231.69	115		PACORA23		230.00	6	1.0086	231.99
144		CANJ230		230.00	6	1.0022	230.51	145		BJOMIN230		230.00	6	1.0191	234.40
146		GUALACA230		230.00	6	1.0074	231.69	147		GUASQ230		230.00	6	1.0021	230.49
190		CHANG230		230.00	6	1.0127	232.91	306		CHAN1 230		230.00	6	1.0126	232.91
310		CONCEPCION23		230.00	6	1.0146	233.36	325		STA RITA230		230.00	6	1.0151	233.48
341		PRUDENCIA230		230.00	6	1.0152	233.50	345		LORENA230		230.00	6	1.0126	232.90
540		HV-PETOABRE		230.00	6	1.0046	231.05	6000		FRONTER		230.00	6	1.0139	233.19

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9970	229.30	5		CHO230		230.00	6	0.9951	228.88
8		LSA230		230.00	6	0.9990	229.78	105		PAN-AM23		230.00	6	0.9951	228.88
148		VELADERO 230		230.00	6	0.9950	228.86	155		TABASARAI		230.00	6	0.9967	229.24
511		LGUIAS230		230.00	6	0.9962	229.13								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0017	115.19	4		PANII115		115.00	6	1.0027	115.31
6		CHO115		115.00	6	1.0344	118.95	9		LSA115		115.00	6	1.0398	119.58
12		M.N115		115.00	6	1.0052	115.60	15		PRO115		115.00	6	1.0113	116.29
18		CAC115		115.00	6	1.0010	115.12	20		CH.AZUL		115.00	6	1.0120	116.38
54		LM1115		115.00	6	1.0240	117.76	55		LM2115		115.00	6	1.0241	117.77
61		FFIELD		115.00	9	1.0186	117.14	87		CAL115		115.00	6	1.0286	118.29
88		EST115		115.00	6	1.0332	118.82	92		L.V115		115.00	6	1.0304	118.49
109		STA RITA115		115.00	6	1.0233	117.68	123		MIR115		115.00	7	1.0042	115.49
154		CEMPAN15		115.00	6	1.0160	116.84	191		CHANG115		115.00	6	1.0063	115.72
522		TCATIVÁ 115		115.00	6	1.0240	117.76								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9897	113.81	21		C.BAN115		115.00	6	0.9863	113.43
23		CH115		115.00	6	0.9977	114.73	26		LOC115		115.00	6	0.9881	113.63
30		MAR115		115.00	6	0.9867	113.48	33		STM115		115.00	6	0.9989	114.88
37		SAN115		115.00	6	0.9846	113.23	48		TINAJ115		115.00	6	0.9979	114.76
50		M.O115		115.00	6	0.9981	114.78	52		TOC115		115.00	6	0.9986	114.84

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	22.1	25.0	0.0	1.0200	43.1	0.8646	47.0	1	6
67	BLM13C	13.800	V3	38.0	22.1	25.0	0.0	1.0200	43.1	0.8646	47.0	1	6
68	BLM13D	13.800	V4	38.0	23.1	25.0	0.0	1.0200	43.6	0.8548	47.0	1	6
70	TGJB13A	13.800	J5	31.0	11.2	20.0	0.0	1.0100	32.6	0.9405	39.4	1	6
71	TGJB13B	13.800	J6	31.0	11.2	20.0	0.0	1.0100	32.6	0.9405	39.4	1	6
73	BLMCCB	13.800	V9	21.0	12.0	40.0	0.0	1.0000	24.2	0.8675	71.0	1	6
90	EST-13L	13.800	E1	22.0	8.8	12.0	-5.0	1.0100	23.5	0.9283	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.8	12.0	-5.0	1.0100	23.5	0.9283	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	9.7	12.0	-5.0	1.0100	24.7	0.9211	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	9.7	12.0	-5.0	1.0100	24.7	0.9211	27.0	1	6
97	FOR13A	13.800	F1	95.0	-0.6	50.0	-50.0	1.0000	95.0	1.0000	111.0	1	6
98	FOR13B	13.800	F2	95.0	-0.6	50.0	-50.0	1.0000	95.0	1.0000	111.0	1	6
99	FOR13C	13.800	F3	95.0	-0.6	50.0	-50.0	1.0000	95.0	1.0000	111.0	1	6
101	BAY13A	13.800	B1	67.6	14.2	50.0	-25.0	0.9900	69.8	0.9787	96.0	1	6
102	BAY13B	13.800	B2	58.8	13.4	50.0	-25.0	0.9900	61.0	0.9749	96.0	1	6
108	BAY13C	13.800	B3	58.8	13.4	50.0	-25.0	0.9900	61.0	0.9749	100.0	1	6
117	CB250A-1	13.800	C1	75.0	24.3	75.6	0.0	1.0300	76.6	0.9512	143.5	1	6
118	CB250A-2	13.800	C2	75.0	24.3	75.6	0.0	1.0300	76.6	0.9512	143.5	1	6
142	CANJ13A	13.800	C1	57.0	18.2	29.0	-29.0	1.0000	59.8	0.9526	69.0	1	6
143	CANJ13B	13.800	C2	57.0	18.2	29.0	-29.0	1.0000	59.8	0.9526	69.0	1	6
151	GUALACA13.8	13.800	G1	23.2	2.7	10.0	-10.0	1.0100	23.1	0.9932	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	3.5	5.7	0.2	1.0100	15.8	0.9749	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	3.5	5.7	0.2	1.0100	15.8	0.9749	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	0.8	4.0	-4.0	1.0100	8.9	0.9963	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	0.8	4.0	-4.0	1.0100	8.9	0.9963	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	0.8	4.0	-4.0	1.0100	8.9	0.9963	35.3	1	6
204	BJOMIN13	13.800	G1	23.0	-9.6	13.0	-13.0	0.9900	25.2	0.9230	28.9	1	6
204	BJOMIN13	13.800	G2	23.0	-9.6	13.0	-13.0	0.9900	25.2	0.9230	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	17.5	26.6	-26.6	1.0100	41.4	0.9087	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	17.5	26.6	-26.6	1.0100	41.4	0.9087	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9624	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9606	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1038	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9809	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.2	-6.5	50.0	-50.0	1.0000	105.4	0.9981	118.6	1	6
308	CHAN1 B	13.800	G2	105.2	-6.5	50.0	-50.0	1.0000	105.4	0.9981	118.6	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1033	8.1	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1033	8.1	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0120	15.8	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0120	15.8	1.0000	19.9	1	6
343	PRUDENCIA138	13.800	G1	25.3	-6.3	9.8	-9.8	1.0000	26.1	0.9704	33.0	1	6
343	PRUDENCIA138	13.800	G2	25.3	-6.3	9.8	-9.8	1.0000	26.1	0.9704	33.0	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9906	19.2	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	1.0054	28.2	0.9988	136.0	1	6
SUBSYSTEM TOTALS				1613.9	276.9	989.7	-529.9				2477.9		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA GUASQUITAS-VELADERO
 AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	13.800	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9367	29.4	2	7					
129	MIR13D	13.800	G4	35.0	4.8	15.0	0.0	1.0100	35.0	0.9908	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0112	16.9	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0257	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0347	17.8	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0347	17.8	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	30.0	67.5	20.5					170.3						



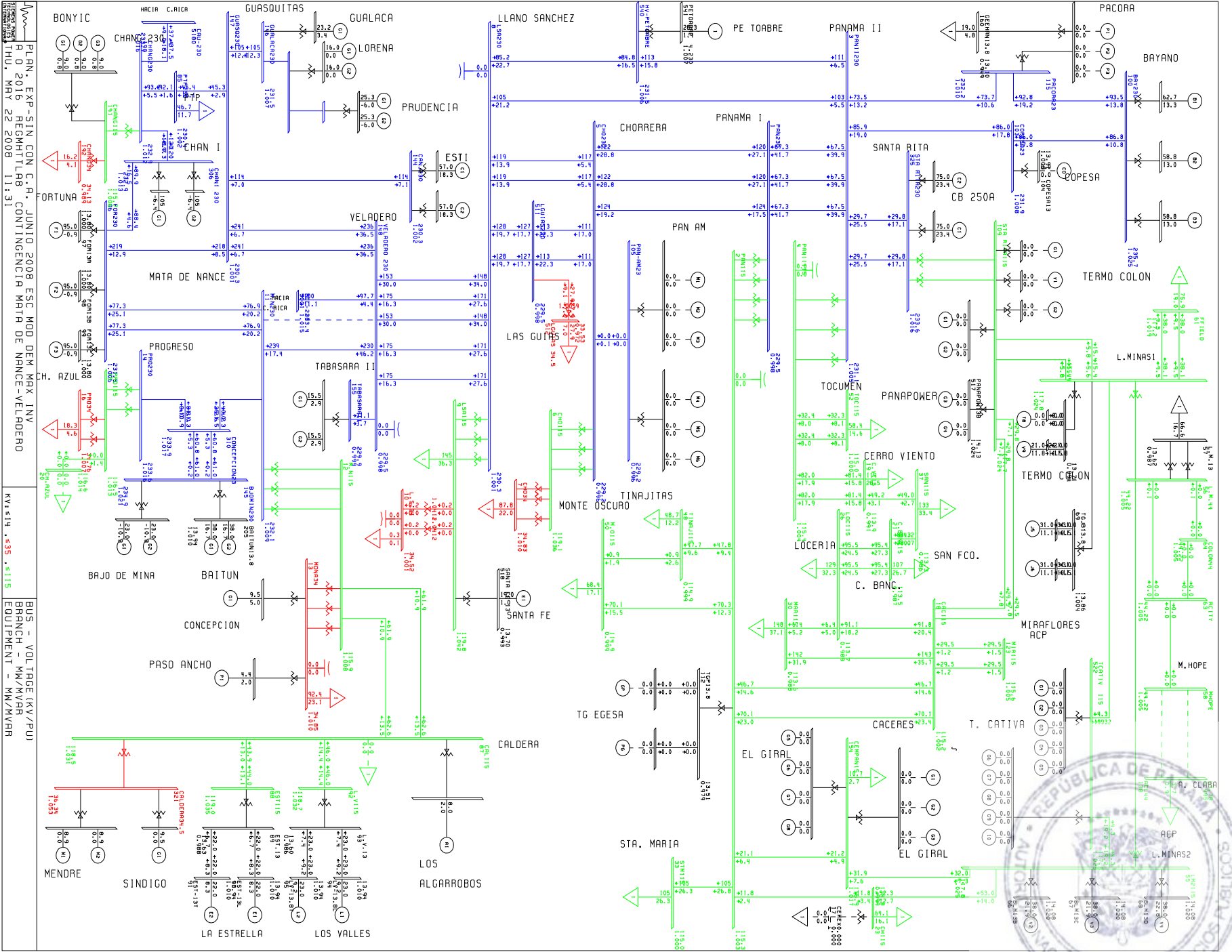
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:26
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 REGMHTTLA8 CONTINGENCIA GUASQUITAS-VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.9	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.2	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	-0.4	20.5	0.0
C.RICA	280.6	569.4	-236.5	0.0	466.9	49.3	365.2	
6	1613.9	1447.1	0.0	0.0	0.0	84.2	82.6	25.0
PANAMA	276.9	362.7	-322.1	0.0	574.4	40.1	770.6	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	30.0	14.1	0.0	0.0	0.0	2.8	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.7	12.0	
TOTALS	6879.2	6697.4	0.0	0.0	0.0	0.0	181.8	0.0
	807.1	2028.8	-1170.1	0.0	2121.1	0.0	2069.4	

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
 AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
 Contingencia 3: Contingencia Mata de Nance-Veladero**



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PLN. EXP. SIN CON C.G. JUNIO 2008 ESC. MOD. DEM. MAX. INV.
 R. D. 2016 REG. N.º 1148 CONTINENCIA MATA DE NANCE-VELHOERO
 THU, MAR 22 2008 11:31

KV: 514, 435, 5115

BUS - VOLTAGE (KV/PV)
 BRNCH - MW/MVAR
 EQUIP. - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0049	231.13	8		LSA230		230.00	6	1.0011	230.26
11	M.	N230		230.00	6	1.0091	232.09	14		PRO230		230.00	6	1.0158	233.63
85		PTP230		230.00	6	1.0017	230.39	96		FOR230		230.00	6	1.0065	231.49
100		BAY230		230.00	6	1.0249	235.74	103		COPESA23		230.00	6	1.0083	231.91
115		PACORA23		230.00	6	1.0095	232.20	144		CANJ230		230.00	6	1.0015	230.35
145		BJOMIN230		230.00	6	1.0212	234.87	146		GUALACA230		230.00	6	1.0067	231.54
147		GUASQ230		230.00	6	1.0014	230.32	190		CHANG230		230.00	6	1.0124	232.85
306		CHAN1 230		230.00	6	1.0126	232.89	310		CONCEPCION23		230.00	6	1.0171	233.93
325		STA RITA230		230.00	6	1.0157	233.62	341		PRUDENCIA230		230.00	6	1.0146	233.35
345		LORENA230		230.00	6	1.0119	232.75	540		HV-PETOABRE		230.00	6	1.0063	231.45
6000		FRONTIER		230.00	6	1.0158	233.63								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9980	229.55	5		CHO230		230.00	6	0.9965	229.19
105		PAN-AM23		230.00	6	0.9965	229.19	148		VELADERO 230		230.00	6	0.9979	229.52
155		TABASARAI		230.00	6	0.9994	229.86	511		LGUIAS230		230.00	6	0.9980	229.53

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0027	115.31	4		PANII115		115.00	6	1.0037	115.43
6		CHO115		115.00	6	1.0358	119.12	9		LSA115		115.00	6	1.0420	119.83
12		M.N115		115.00	6	1.0080	115.92	15		PRO115		115.00	6	1.0133	116.53
18		CAC115		115.00	6	1.0020	115.23	20		CH.AZUL		115.00	6	1.0141	116.62
54		LM1115		115.00	6	1.0245	117.82	55		LM2115		115.00	6	1.0246	117.83
61		FFIELD		115.00	9	1.0191	117.20	87		CAL115		115.00	6	1.0305	118.51
88		EST115		115.00	6	1.0349	119.01	92		L.V115		115.00	6	1.0322	118.70
109		STA RITA115		115.00	6	1.0239	117.75	123		MIR115		115.00	7	1.0052	115.60
154		CEMPAN15		115.00	6	1.0167	116.92	191		CHANG115		115.00	6	1.0061	115.70
522		TCATIVÁ		115.00	6	1.0246	117.83								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9907	113.93	21		C.BAN115		115.00	6	0.9874	113.55
23		CH115		115.00	6	0.9985	114.83	26		LOC115		115.00	6	0.9891	113.75
30		MAR115		115.00	6	0.9878	113.59	33		STM115		115.00	6	1.0000	114.99
37		SAN115		115.00	6	0.9856	113.34	48		TINAJ115		115.00	6	0.9989	114.87
50		M.O115		115.00	6	0.9991	114.89	52		TOC115		115.00	6	0.9996	114.96

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	21.9	25.0	0.0	1.0200	43.0	0.8668	47.0	1	6
67	BLM13C	13.800	V3	38.0	21.9	25.0	0.0	1.0200	43.0	0.8668	47.0	1	6
68	BLM13D	13.800	V4	38.0	22.8	25.0	0.0	1.0200	43.5	0.8572	47.0	1	6
70	TGJB13A	13.800	J5	31.0	11.1	20.0	0.0	1.0100	32.6	0.9418	39.4	1	6
71	TGJB13B	13.800	J6	31.0	11.1	20.0	0.0	1.0100	32.6	0.9418	39.4	1	6
73	BLMCCB	13.800	V9	21.0	11.8	40.0	0.0	1.0000	24.1	0.8716	71.0	1	6
90	EST-13L	13.800	E1	22.0	8.3	12.0	-5.0	1.0100	23.3	0.9354	27.0	1	6
91	EST-13T	13.800	E2	22.0	8.3	12.0	-5.0	1.0100	23.3	0.9354	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	9.2	12.0	-5.0	1.0100	24.5	0.9287	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	9.2	12.0	-5.0	1.0100	24.5	0.9287	27.0	1	6
97	FOR13A	13.800	F1	95.0	-0.9	50.0	-50.0	1.0000	95.0	1.0000	111.0	1	6
98	FOR13B	13.800	F2	95.0	-0.9	50.0	-50.0	1.0000	95.0	1.0000	111.0	1	6
99	FOR13C	13.800	F3	95.0	-0.9	50.0	-50.0	1.0000	95.0	1.0000	111.0	1	6
101	BAY13A	13.800	B1	62.7	13.3	50.0	-25.0	0.9900	64.7	0.9781	96.0	1	6
102	BAY13B	13.800	B2	58.8	13.0	50.0	-25.0	0.9900	60.9	0.9763	96.0	1	6
108	BAY13C	13.800	B3	58.8	13.0	50.0	-25.0	0.9900	60.9	0.9763	100.0	1	6
117	CB250A-1	13.800	C1	75.0	23.4	75.6	0.0	1.0300	76.3	0.9546	143.5	1	6
118	CB250A-2	13.800	C2	75.0	23.4	75.6	0.0	1.0300	76.3	0.9546	143.5	1	6
142	CANJ13A	13.800	C1	57.0	18.3	29.0	-29.0	1.0000	59.9	0.9520	69.0	1	6
143	CANJ13B	13.800	C2	57.0	18.3	29.0	-29.0	1.0000	59.9	0.9520	69.0	1	6
151	GUALACA13.8	13.800	G1	23.2	3.4	10.0	-10.0	1.0100	23.2	0.9896	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	2.9	5.7	0.2	1.0100	15.6	0.9827	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	2.9	5.7	0.2	1.0100	15.6	0.9827	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	0.8	4.0	-4.0	1.0100	8.9	0.9961	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	0.8	4.0	-4.0	1.0100	8.9	0.9961	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	0.8	4.0	-4.0	1.0100	8.9	0.9961	35.3	1	6
204	BJOMIN13	13.800	G1	23.0	-10.3	13.0	-13.0	0.9900	25.5	0.9124	28.9	1	6
204	BJOMIN13	13.800	G2	23.0	-10.3	13.0	-13.0	0.9900	25.5	0.9124	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	16.7	26.6	-26.6	1.0100	41.1	0.9156	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	16.7	26.6	-26.6	1.0100	41.1	0.9156	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9652	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9634	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1058	8.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9827	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	105.2	-6.4	50.0	-50.0	1.0000	105.4	0.9981	118.6	1	6
308	CHAN1 B	13.800	G2	105.2	-6.4	50.0	-50.0	1.0000	105.4	0.9981	118.6	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1054	8.0	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1054	8.0	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0114	15.8	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0114	15.8	1.0000	19.9	1	6
343	PRUDENCIA138	13.800	G1	25.3	-6.0	9.8	-9.8	1.0000	26.0	0.9730	33.0	1	6
343	PRUDENCIA138	13.800	G2	25.3	-6.0	9.8	-9.8	1.0000	26.0	0.9730	33.0	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9927	19.2	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	1.0072	28.1	0.9988	136.0	1	6
SUBSYSTEM TOTALS				1609.0	266.5	989.7	-529.9				2477.9		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	4.6	11.0	0.0	1.0100	13.3	0.9400	29.4	2	7	7		
129	MIR13D	13.800	G4	35.0	4.6	15.0	0.0	1.0100	34.9	0.9916	44.1	2	7	7		
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0118	16.9	1.0000	27.7	2	7	7		
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0262	17.9	0.9289	23.0	2	7	7		
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0352	17.8	0.9289	23.0	2	7	7		
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0352	17.8	0.9289	23.0	2	7	7		



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SUBSYSTEM TOTALS

116.0 29.6 67.5 20.5

170.3

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 REGMHTTLA8 CONTINGENCIA MATA DE NANCE-VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.1	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C.RICA	277.6	569.4	-236.7	0.0	467.2	49.3	362.8	
6	1609.0	1447.1	0.0	0.0	0.0	83.8	78.1	25.0
PANAMA	266.5	362.7	-323.0	0.0	574.8	40.6	761.1	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	29.6	14.1	0.0	0.0	0.0	2.5	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.6	12.0	
TOTALS	6874.3	6697.4	0.0	0.0	0.0	0.0	176.9	0.0
	793.2	2028.8	-1171.1	0.0	2121.9	0.0	2057.4	

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
 AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
 Contingencia 4: Contingencia Panamá –Cemento Panamá**



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ
 BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0292	236.71		
14	PRO230	230.00	6	1.0456	240.50		
96	FOR230	230.00	6	1.0417	239.58		
115	PACORA23	230.00	6	1.0001	230.03		
145	BJOMIN230	230.00	6	1.0489	241.24		
147	GUASQ230	230.00	6	1.0423	239.73		
155	TABASARAI	230.00	6	1.0443	240.19		
306	CHAN1 230	230.00	6	1.0396	239.11		
325	STA RITA230	230.00	6	1.0085	231.95		
345	LORENA230	230.00	6	1.0469	240.79		
540	HV-PETOABRE	230.00	6	1.0256	235.89		
11	M.N230	230.00	6	1.0440	240.11		
85	PTP230	230.00	6	1.0390	238.97		
100	BAY230	230.00	6	1.0214	234.93		
144	CANJ230	230.00	6	1.0424	239.76		
146	GUALACA230	230.00	6	1.0446	240.27		
148	VELADERO 230	230.00	6	1.0439	240.10		
190	CHANG230	230.00	6	1.0389	238.94		
310	CONCEPCION23	230.00	6	1.0474	240.91		
341	PRUDENCIA230	230.00	6	1.0481	241.06		
511	LGUIAS230	230.00	6	1.0170	233.90		
6000	FRONTIER	230.00	6	1.0453	240.43		

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9866	226.93		
5	CHO230	230.00	6	0.9982	229.58		
105	PAN-AM23	230.00	6	0.9982	229.58		
3	PANII230	230.00	6	0.9931	228.41		
103	COPESA23	230.00	6	0.9978	229.49		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0052	115.60		
6	CHO115	115.00	6	1.0376	119.33		
12	M.N115	115.00	6	1.0370	119.25		
18	CAC115	115.00	6	1.0046	115.53		
23	CH115	115.00	6	1.0050	115.57		
48	TINAJ115	115.00	6	1.0014	115.17		
52	TOC115	115.00	6	1.0006	115.07		
55	LM2115	115.00	6	1.0399	119.59		
87	CAL115	115.00	6	1.0463	120.33		
92	L.V115	115.00	6	1.0469	120.39		
123	MIR115	115.00	7	1.0077	115.88		
191	CHANG115	115.00	6	1.0255	117.93		
4	PANII115	115.00	6	1.0047	115.54		
9	LSA115	115.00	6	1.0461	120.30		
15	PRO115	115.00	6	1.0433	119.98		
20	CH.AZUL	115.00	6	1.0441	120.07		
33	STM115	115.00	6	1.0025	115.28		
50	M.O115	115.00	6	1.0016	115.19		
54	LM1115	115.00	6	1.0396	119.55		
61	FFIELD	115.00	9	1.0343	118.94		
88	EST115	115.00	6	1.0477	120.49		
109	STA RITA115	115.00	6	1.0387	119.45		
154	CEMPAN15	115.00	6	1.0412	119.74		
522	TCATIVÁ	115 115.00	6	1.0399	119.59		

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9922	114.10		
26	LOC115	115.00	6	0.9915	114.02		
21	C.BAN115	115.00	6	0.9897	113.82		
30	MAR115	115.00	6	0.9903	113.88		
37	SAN115	115.00	6	0.9879	113.61		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 6 [PANAMA] MACHINE SUMMARY:



Handwritten signature or initials.

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	15.2	25.0	0.0	1.0200	40.1	0.9287	47.0			1	6		
67		BLM13C		13.800	V3	38.0	15.2	25.0	0.0	1.0200	40.1	0.9287	47.0			1	6		
68		BLM13D		13.800	V4	38.0	15.8	25.0	0.0	1.0200	40.3	0.9233	47.0			1	6		
70		TGJB13A		13.800	J5	31.0	7.2	20.0	0.0	1.0100	31.5	0.9742	39.4			1	6		
71		TGJB13B		13.800	J6	31.0	7.2	20.0	0.0	1.0100	31.5	0.9742	39.4			1	6		
72		BLMCCA		13.800	T8	31.0	8.1	20.0	0.0	1.0100	31.7	0.9675	50.0			1	6		
73		BLMCCB		13.800	V9	47.0	8.4	40.0	0.0	1.0100	47.3	0.9843	71.0			1	6		
90		EST-13L		13.800	E1	18.0	4.4	12.0	-5.0	1.0100	18.4	0.9708	27.0			1	6		
94		LV-13.8L		13.800	L1	20.0	4.8	12.0	-5.0	1.0100	20.4	0.9720	27.0			1	6		
97		FOR13A		13.800	F1	87.0	-16.2	50.0	-50.0	1.0200	86.8	0.9832	111.0			1	6		
98		FOR13B		13.800	F2	87.0	-16.2	50.0	-50.0	1.0200	86.8	0.9832	111.0			1	6		
99		FOR13C		13.800	F3	87.0	-16.2	50.0	-50.0	1.0200	86.8	0.9832	111.0			1	6		
101		BAY13A		13.800	B1	51.9	23.0	50.0	-25.0	1.0000	56.8	0.9140	96.0			1	6	SYST	
102		BAY13B		13.800	B2	49.6	22.9	50.0	-25.0	1.0000	54.7	0.9081	96.0			1	6		
108		BAY13C		13.800	B3	49.6	22.9	50.0	-25.0	1.0000	54.7	0.9081	100.0			1	6		
117		CB250A-1		13.800	C1	115.0	36.9	75.6	0.0	1.0300	117.3	0.9521	143.5			1	6		
118		CB250A-2		13.800	C2	115.0	36.9	75.6	0.0	1.0300	117.3	0.9521	143.5			1	6		
142		CANJ13A		13.800	C1	40.0	9.4	29.0	-29.0	1.0200	40.3	0.9733	69.0			1	6		
143		CANJ13B		13.800	C2	40.0	9.4	29.0	-29.0	1.0200	40.3	0.9733	69.0			1	6		
151		GUALACA13.8		13.800	G1	18.0	-10.0	10.0	-10.0	1.0339	19.9	0.8742	26.7			1	6		
156		TABASARAI13		13.800	G1	8.0	0.2	5.7	0.2	1.0447	7.7	0.9995	20.5			1	6		
193		GEBONYIC		13.800	G1	7.5	-2.3	4.0	-4.0	1.0100	7.8	0.9545	35.3			1	6		
193		GEBONYIC		13.800	G2	7.5	-2.3	4.0	-4.0	1.0100	7.8	0.9545	35.3			1	6		
204		BJOMIN13		13.800	G1	22.0	-13.0	13.0	-13.0	1.0308	24.8	0.8609	28.9			1	6		
205		BAITUN13.8		13.800	G1	30.0	9.3	26.6	-26.6	1.0100	31.1	0.9549	50.6			1	6		
301		CONC13.8		13.800	G1	8.2	5.0	5.0	-5.0	0.9578	10.0	0.8538	13.5			1	6		
302		PASOANCH13.8		13.800	P1	3.5	2.0	2.0	-2.0	0.9559	4.2	0.8682	6.2			1	6		
303		SIND13.8		13.800	G1	6.5	0.0	5.0	0.0	1.1257	5.8	1.0000	13.5			1	6		
304		ALGA13.8		13.800	A1	7.8	2.0	2.0	0.0	0.9977	8.0	0.9683	13.5			1	6		
307		CHAN1 A		13.800	G1	70.0	-16.9	50.0	-50.0	1.0200	70.6	0.9722	118.6			1	6		
317		MENDRE13.8		13.800	M1	8.5	0.0	4.0	0.0	1.1256	7.6	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	13.5	0.0	10.5	0.0	1.0468	12.9	1.0000	19.9			1	6		
343		PRUDENCIA138		13.800	G1	25.0	-9.8	9.8	-9.8	1.0375	25.9	0.9315	33.0			1	6		
518		SANTA FE 13		13.800	E1	75.0	12.1	50.0	-25.0	1.0000	76.0	0.9872	100.0			1	6		
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	1.0143	3.9	0.9433	4.8			1	6		
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	1.0143	3.2	0.9173	4.8			1	6		
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	1.0143	3.2	0.9173	4.8			1	6		
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	1.0143	3.2	0.9173	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.6	-1.0	6.6	-6.6	0.9800	7.8	0.9909	10.9			1	6		
523		TCATIVÁ 13A		13.800	G2	7.6	-1.0	6.6	-6.6	0.9800	7.8	0.9909	10.9			1	6		
523		TCATIVÁ 13A		13.800	G3	7.6	-1.0	6.6	-6.6	0.9800	7.8	0.9909	10.9			1	6		
523		TCATIVÁ 13A		13.800	G4	7.6	-1.0	6.6	-6.6	0.9800	7.8	0.9909	10.9			1	6		
523		TCATIVÁ 13A		13.800	G5	7.6	-1.0	6.6	-6.6	0.9800	7.8	0.9909	10.9			1	6		
524		TCATIVÁ 13B		13.800	10	7.6	2.7	6.6	-6.6	1.0100	8.0	0.9421	10.9			1	6		
524		TCATIVÁ 13B		13.800	G6	7.6	2.7	6.6	-6.6	1.0100	8.0	0.9421	10.9			1	6		
524		TCATIVÁ 13B		13.800	G7	7.6	2.7	6.6	-6.6	1.0100	8.0	0.9421	10.9			1	6		
524		TCATIVÁ 13B		13.800	G8	7.6	2.7	6.6	-6.6	1.0100	8.0	0.9421	10.9			1	6		
524		TCATIVÁ 13B		13.800	G9	7.6	2.7	6.6	-6.6	1.0100	8.0	0.9421	10.9			1	6		
525		TCOLON 13A		13.800	G1	30.0	9.2	18.4	9.2	1.0066	31.2	0.9560	44.4			1	6		
527		TCOLON 13C		13.800	V1	25.0	10.5	18.4	5.8	1.0100	26.9	0.9215	44.4			1	6		
541		PETOABRE		4.2000	1	95.0	1.4	1.4	1.4	1.0235	92.8	0.9999	136.0			1	6		
SUBSYSTEM TOTALS						1563.6	210.4	1024.8	-486.1				2349.4						



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AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.2	11.0	0.0	1.0100	13.2	0.9482	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.0	15.0	0.0	1.0100	34.9	0.9934	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0131	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0275	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0365	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0365	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	28.7	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:36
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ-CEMENTO PANAMÁ IN MW/MVAR

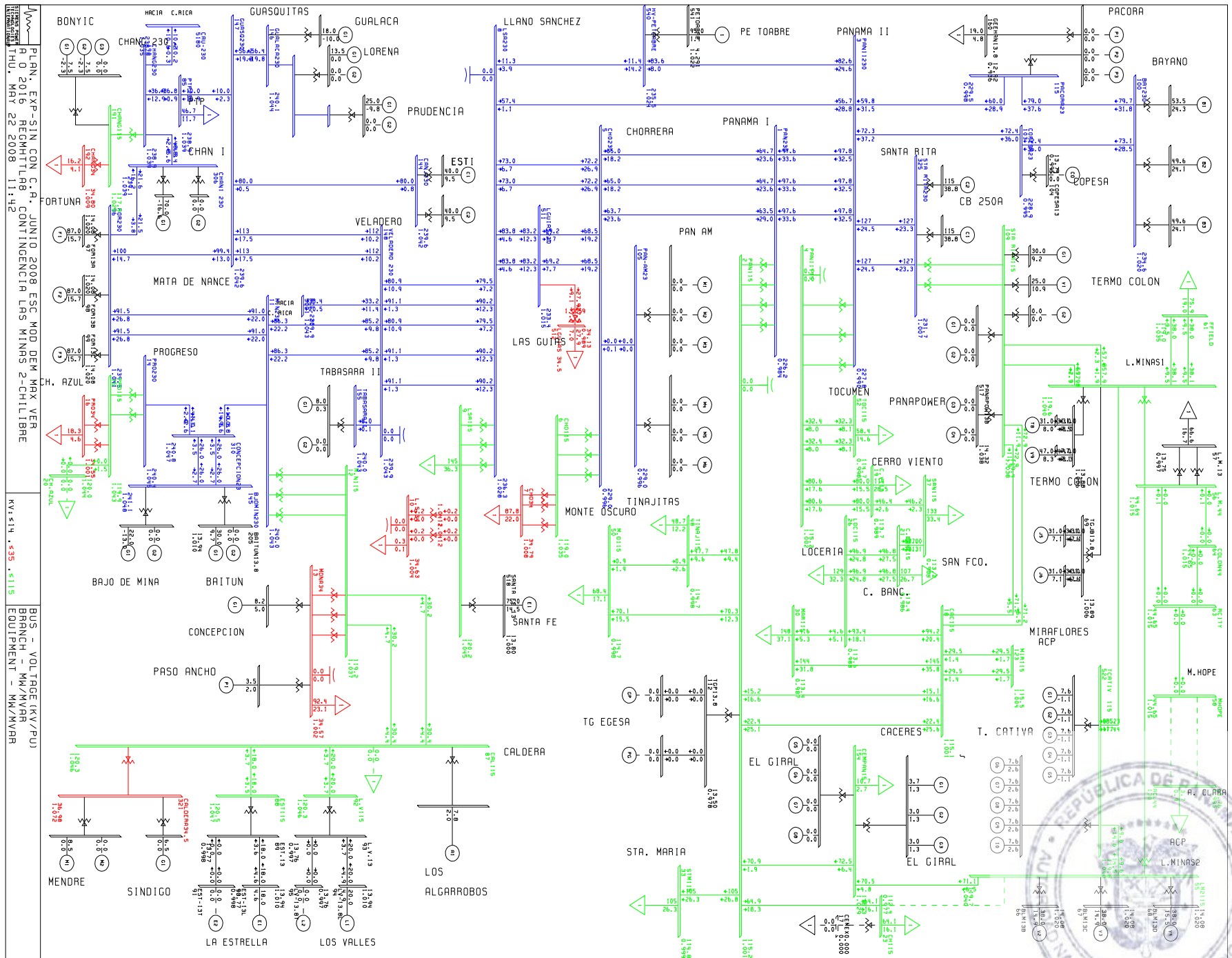
X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.7	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.7	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.3	0.0
HONDURAS	55.5	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.0	224.5	-98.9	0.0	143.3	-97.7	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	227.3	569.4	-236.9	0.0	472.3	9.4	357.9	
6	1563.6	1447.1	0.0	0.0	0.0	83.3	33.2	25.0
PANAMA	210.4	362.7	-15.2	0.0	615.8	82.3	396.5	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	28.7	14.1	0.0	0.0	0.0	1.6	13.0	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.4	11.8	
TOTALS	6828.8	6697.4	0.0	0.0	0.0	0.0	131.4	0.0
	684.5	2028.8	-863.6	0.0	2168.2	0.0	1687.5	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 5: Contingencia Las Minas 2- Chilibre**





PLAN. EXP. SIN CON C. R. JUNIO 2008 ESC. MOD. DEM. MAX. VER.
 R. O. 2016 RESMHTLH8 CONTINGENCIA LAS MINAS 2-CHILEBRE
 THU. MAR. 22 2008 11:42

KV: 114 . 335 . 1115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:40
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0276	236.35	11	M.N230	230.00	6	1.0434	239.98				
14	PRO230	230.00	6	1.0452	240.39	85	PTP230	230.00	6	1.0385	238.86				
96	FOR230	230.00	6	1.0412	239.47	100	BAY230	230.00	6	1.0199	234.57				
144	CANJ230	230.00	6	1.0419	239.63	145	BJOMIN230	230.00	6	1.0484	241.14				
146	GUALACA230	230.00	6	1.0441	240.13	147	GUASQ230	230.00	6	1.0417	239.59				
148	VELADERO	230230.00	6	1.0429	239.86	155	TABASARAI	230.00	6	1.0433	239.95				
190	CHANG230	230.00	6	1.0386	238.87	306	CHAN1	230.00	6	1.0394	239.05				
310	CONCEPCION23	230.00	6	1.0469	240.79	325	STA RITA230	230.00	6	1.0073	231.67				
341	PRUDENCIA230	230.00	6	1.0475	240.92	345	LORENA230	230.00	6	1.0463	240.66				
511	LGUIAS230	230.00	6	1.0149	233.43	540	HV-PETOABRE	230.00	6	1.0237	235.45				
6000	FRONTIER	230.00	6	1.0449	240.32										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9836	226.24	3	PANII230	230.00	6	0.9904	227.80				
5	CHO230	230.00	6	0.9955	228.97	103	COPESA23	230.00	6	0.9953	228.92				
105	PAN-AM23	230.00	6	0.9955	228.97	115	PACORA23	230.00	6	0.9978	229.49				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:40
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0014	115.16	4	PANII115	115.00	6	1.0018	115.20				
6	CHO115	115.00	6	1.0348	119.00	9	LSA115	115.00	6	1.0453	120.20				
12	M.N115	115.00	6	1.0365	119.20	15	PRO115	115.00	6	1.0428	119.92				
18	CAC115	115.00	6	1.0009	115.10	20	CH.AZUL	115.00	6	1.0436	120.01				
54	LM1115	115.00	6	1.0399	119.59	55	LM2115	115.00	6	1.0405	119.66				
61	FFIELD	115.00	9	1.0346	118.98	87	CAL115	115.00	6	1.0460	120.29				
88	EST115	115.00	6	1.0474	120.45	92	L.V115	115.00	6	1.0465	120.35				
109	STA RITA115	115.00	6	1.0380	119.37	123	MIR115	115.00	7	1.0041	115.47				
154	CEMPAN15	115.00	6	1.0288	118.31	191	CHANG115	115.00	6	1.0253	117.91				
522	TCATIVÁ	115.00	6	1.0404	119.64										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9889	113.73	21	C.BAN115	115.00	6	0.9860	113.39				
23	CH115	115.00	6	0.9774	112.40	26	LOC115	115.00	6	0.9878	113.59				
30	MAR115	115.00	6	0.9865	113.45	33	STM115	115.00	6	0.9987	114.85				
37	SAN115	115.00	6	0.9842	113.18	48	TINAJ115	115.00	6	0.9976	114.73				
50	M.O115	115.00	6	0.9978	114.75	52	TOC115	115.00	6	0.9976	114.73				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:40
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 2-CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	14.9	25.0	0.0	1.0200	40.0	0.9309	47.0	1	6
67	BLM13C	13.800	V3	38.0	14.9	25.0	0.0	1.0200	40.0	0.9309	47.0	1	6
68	BLM13D	13.800	V4	38.0	15.5	25.0	0.0	1.0200	40.2	0.9257	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.1	20.0	0.0	1.0100	31.5	0.9748	39.4	1	6
71	TGJB13B	13.800	J6	31.0	7.1	20.0	0.0	1.0100	31.5	0.9748	39.4	1	6
72	BLMCCA	13.800	T8	31.0	8.0	20.0	0.0	1.0100	31.7	0.9681	50.0	1	6
73	BLMCCB	13.800	V9	47.0	8.3	40.0	0.0	1.0100	47.3	0.9846	71.0	1	6
90	EST-13L	13.800	E1	18.0	4.6	12.0	-5.0	1.0100	18.4	0.9694	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	4.9	12.0	-5.0	1.0100	20.4	0.9707	27.0	1	6
97	FOR13A	13.800	F1	87.0	-15.7	50.0	-50.0	1.0200	86.7	0.9841	111.0	1	6
98	FOR13B	13.800	F2	87.0	-15.7	50.0	-50.0	1.0200	86.7	0.9841	111.0	1	6
99	FOR13C	13.800	F3	87.0	-15.7	50.0	-50.0	1.0200	86.7	0.9841	111.0	1	6
101	BAY13A	13.800	B1	53.5	24.3	50.0	-25.0	1.0000	58.8	0.9104	96.0	1	6
102	BAY13B	13.800	B2	49.6	24.1	50.0	-25.0	1.0000	55.2	0.8998	96.0	1	6
108	BAY13C	13.800	B3	49.6	24.1	50.0	-25.0	1.0000	55.2	0.8998	100.0	1	6
117	CB250A-1	13.800	C1	115.0	38.8	75.6	0.0	1.0300	117.8	0.9476	143.5	1	6
118	CB250A-2	13.800	C2	115.0	38.8	75.6	0.0	1.0300	117.8	0.9476	143.5	1	6
142	CANJ13A	13.800	C1	40.0	9.5	29.0	-29.0	1.0200	40.3	0.9727	69.0	1	6
143	CANJ13B	13.800	C2	40.0	9.5	29.0	-29.0	1.0200	40.3	0.9727	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0333	19.9	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	8.0	0.2	5.7	0.2	1.0437	7.7	0.9995	20.5	1	6
193	GEBONYIC	13.800	G1	7.5	-2.3	4.0	-4.0	1.0100	7.8	0.9557	35.3	1	6
193	GEBONYIC	13.800	G2	7.5	-2.3	4.0	-4.0	1.0100	7.8	0.9557	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-13.0	13.0	-13.0	1.0304	24.8	0.8609	28.9	1	6
205	BAITUN13.8	13.800	G1	30.0	9.7	26.6	-26.6	1.0100	31.2	0.9518	50.6	1	6
301	CONC13.8	13.800	G1	8.2	5.0	5.0	-5.0	0.9573	10.0	0.8538	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9555	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1253	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	7.8	2.0	2.0	0.0	0.9973	8.0	0.9683	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-16.6	50.0	-50.0	1.0200	70.5	0.9730	118.6	1	6
317	MENDRE13.8	13.800	M1	8.5	0.0	4.0	0.0	1.1252	7.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	13.5	0.0	10.5	0.0	1.0462	12.9	1.0000	19.9	1	6
343	PRUDENCIA13	13.800	G1	25.0	-9.8	9.8	-9.8	1.0369	25.9	0.9315	33.0	1	6
518	SANTA FE 13	13.800	E1	75.0	14.5	50.0	-25.0	1.0000	76.4	0.9819	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	1.0026	3.9	0.9433	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	1.0026	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	1.0026	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0026	3.3	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-1.1	6.6	-6.6	0.9800	7.8	0.9899	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	-1.1	6.6	-6.6	0.9800	7.8	0.9899	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	-1.1	6.6	-6.6	0.9800	7.8	0.9899	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	-1.1	6.6	-6.6	0.9800	7.8	0.9899	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	-1.1	6.6	-6.6	0.9800	7.8	0.9899	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	2.6	6.6	-6.6	1.0100	7.9	0.9443	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	2.6	6.6	-6.6	1.0100	7.9	0.9443	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	2.6	6.6	-6.6	1.0100	7.9	0.9443	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	2.6	6.6	-6.6	1.0100	7.9	0.9443	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	2.6	6.6	-6.6	1.0100	7.9	0.9443	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	9.2	18.4	9.2	1.0060	31.2	0.9560	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	10.9	18.4	5.8	1.0100	27.0	0.9172	44.4	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0216	93.0	0.9999	136.0	1	6
SUBSYSTEM TOTALS				1565.2	221.1	1024.8	-486.1				2349.4		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:40
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 2-CHILIBRE



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9362	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.8	15.0	0.0	1.0100	35.0	0.9907	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0112	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0256	18.0	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0347	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0347	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	30.0	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:41
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 2-CHILIBRE IN MW/MVAR

X-- AREA	--X GENERATION	FROM LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.7	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.7	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.3	0.0
HONDURAS	55.5	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.0	224.5	-98.9	0.0	143.3	-97.7	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	228.1	569.4	-236.9	0.0	472.3	9.9	357.9	
6	1565.2	1447.1	0.0	0.0	0.0	83.3	34.8	25.0
PANAMA	221.1	362.7	-15.0	0.0	614.4	80.5	407.4	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	30.0	14.1	0.0	0.0	0.0	2.8	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.4	11.8	
TOTALS	6830.4	6697.4	0.0	0.0	0.0	0.0	133.0	0.0
	697.2	2028.8	-863.5	0.0	2166.7	0.0	1698.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1-Santa Rita**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0040	230.92	8		LSA230		230.00	6	1.0327	237.52
11	M.	N230		230.00	6	1.0452	240.40	14		PRO230		230.00	6	1.0467	240.74
85		PTP230		230.00	6	1.0401	239.21	96		FOR230		230.00	6	1.0427	239.81
100		BAY230		230.00	6	1.0248	235.71	103		COPESA23		230.00	6	1.0031	230.71
105		PAN-AM23		230.00	6	1.0040	230.92	115		PACORA23		230.00	6	1.0051	231.18
144		CANJ230		230.00	6	1.0437	240.05	145		BJOMIN230		230.00	6	1.0498	241.46
146		GUALACA230		230.00	6	1.0459	240.56	147		GUASQ230		230.00	6	1.0436	240.02
148		VELADERO	230	230.00	6	1.0462	240.63	155		TABASARAI		230.00	6	1.0466	240.72
190		CHANG230		230.00	6	1.0395	239.08	306		CHAN1	230	230.00	6	1.0402	239.25
310		CONCEPCION23	230	230.00	6	1.0485	241.15	325		STA RITA230		230.00	6	1.0131	233.01
341		PRUDENCIA230	230	230.00	6	1.0494	241.35	345		LORENA230		230.00	6	1.0482	241.08
511		LGUIAS230		230.00	6	1.0215	234.95	540		HV-PETOABRE		230.00	6	1.0298	236.84
6000		FRONTER		230.00	6	1.0464	240.67								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9933	228.45	3		PANII230		230.00	6	0.9987	229.70

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0016	115.18	4		PANII115		115.00	6	1.0086	115.99
6		CHO115		115.00	6	1.0438	120.04	9		LSA115		115.00	6	1.0479	120.51
12	M.	N115		115.00	6	1.0380	119.37	15		PRO115		115.00	6	1.0443	120.10
18		CAC115		115.00	6	1.0011	115.12	20		CH.AZUL		115.00	6	1.0451	120.19
23		CH115		115.00	6	1.0012	115.14	52		TOC115		115.00	6	1.0045	115.52
54		LM115		115.00	6	1.0351	119.03	55		LM2115		115.00	6	1.0349	119.02
61		FFIELD		115.00	9	1.0297	118.42	87		CAL115		115.00	6	1.0472	120.42
88		EST115		115.00	6	1.0485	120.58	92		L.V115		115.00	6	1.0477	120.48
109		STA RITA115		115.00	6	1.0335	118.85	123		MIR115		115.00	7	1.0043	115.49
154		CEMPAN15		115.00	6	1.0256	117.94	191		CHANG115		115.00	6	1.0259	117.98
522		TCATIVÁ	115	115.00	6	1.0352	119.05								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9940	114.31	21		C.BAN115		115.00	6	0.9870	113.51
26		LOC115		115.00	6	0.9886	113.69	30		MAR115		115.00	6	0.9870	113.51
33		STM115		115.00	6	0.9989	114.87	37		SAN115		115.00	6	0.9857	113.35
48		TINAJ115		115.00	6	0.9978	114.75	50		M.O115		115.00	6	0.9980	114.77

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	17.3	25.0	0.0	1.0200	41.0	0.9097	47.0	1	6
67	BLM13C	13.800	V3	38.0	17.3	25.0	0.0	1.0200	41.0	0.9097	47.0	1	6
68	BLM13D	13.800	V4	38.0	18.1	25.0	0.0	1.0200	41.3	0.9030	47.0	1	6
70	TGJB13A	13.800	J5	31.0	8.3	20.0	0.0	1.0100	31.8	0.9657	39.4	1	6
71	TGJB13B	13.800	J6	31.0	8.3	20.0	0.0	1.0100	31.8	0.9657	39.4	1	6
72	BLMCCA	13.800	T8	31.0	9.3	20.0	0.0	1.0100	32.0	0.9581	50.0	1	6
73	BLMCCB	13.800	V9	47.0	9.6	40.0	0.0	1.0100	47.5	0.9798	71.0	1	6
90	EST-13L	13.800	E1	18.0	4.2	12.0	-5.0	1.0100	18.3	0.9738	27.0	1	6
94	LV-13.8L	13.800	L1	20.0	4.6	12.0	-5.0	1.0100	20.3	0.9747	27.0	1	6
97	FOR13A	13.800	F1	87.0	-17.1	50.0	-50.0	1.0200	86.9	0.9812	111.0	1	6
98	FOR13B	13.800	F2	87.0	-17.1	50.0	-50.0	1.0200	86.9	0.9812	111.0	1	6
99	FOR13C	13.800	F3	87.0	-17.1	50.0	-50.0	1.0200	86.9	0.9812	111.0	1	6
101	BAY13A	13.800	B1	51.3	20.5	50.0	-25.0	1.0000	55.3	0.9289	96.0	1	6
102	BAY13B	13.800	B2	49.6	20.4	50.0	-25.0	1.0000	53.7	0.9252	96.0	1	6
108	BAY13C	13.800	B3	49.6	20.4	50.0	-25.0	1.0000	53.7	0.9252	100.0	1	6
117	CB250A-1	13.800	C1	115.0	29.9	75.6	0.0	1.0300	115.4	0.9678	143.5	1	6
118	CB250A-2	13.800	C2	115.0	29.9	75.6	0.0	1.0300	115.4	0.9678	143.5	1	6
142	CANJ13A	13.800	C1	40.0	9.2	29.0	-29.0	1.0200	40.2	0.9744	69.0	1	6
143	CANJ13B	13.800	C2	40.0	9.2	29.0	-29.0	1.0200	40.2	0.9744	69.0	1	6
151	GUALACA13.8	13.800	G1	18.0	-10.0	10.0	-10.0	1.0352	19.9	0.8742	26.7	1	6
156	TABASARAI13	13.800	G1	8.0	0.2	5.7	0.2	1.0470	7.6	0.9995	20.5	1	6
193	GEBONYIC	13.800	G1	7.5	-2.4	4.0	-4.0	1.0100	7.8	0.9521	35.3	1	6
193	GEBONYIC	13.800	G2	7.5	-2.4	4.0	-4.0	1.0100	7.8	0.9521	35.3	1	6
204	BJOMIN13	13.800	G1	22.0	-13.0	13.0	-13.0	1.0318	24.8	0.8609	28.9	1	6
205	BAITUN13.8	13.800	G1	30.0	8.6	26.6	-26.6	1.0100	30.9	0.9612	50.6	1	6
301	CONC13.8	13.800	G1	8.2	5.0	5.0	-5.0	0.9588	10.0	0.8538	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9570	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1266	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	7.8	2.0	2.0	0.0	0.9985	8.0	0.9683	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-17.5	50.0	-50.0	1.0200	70.7	0.9703	118.6	1	6
317	MENDRE13.8	13.800	M1	8.5	0.0	4.0	0.0	1.1265	7.5	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	13.5	0.0	10.5	0.0	1.0481	12.9	1.0000	19.9	1	6
343	PRUDENCIA13	13.800	G1	25.0	-9.8	9.8	-9.8	1.0388	25.8	0.9315	33.0	1	6
518	SANTA FE 13	13.800	E1	75.0	6.9	50.0	-25.0	1.0000	75.3	0.9957	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9996	3.9	0.9433	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.0	1.3	2.8	1.3	0.9996	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.0	1.3	2.8	1.3	0.9996	3.3	0.9173	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	0.9996	3.3	0.9173	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9980	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	-0.5	6.6	-6.6	0.9800	7.7	0.9980	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9186	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9186	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9186	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9186	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	3.3	6.6	-6.6	1.0100	8.2	0.9186	10.9	1	6
525	TCOLON 13A	13.800	G1	30.0	9.2	18.4	9.2	1.0018	31.3	0.9560	44.4	1	6
527	TCOLON 13C	13.800	V1	25.0	12.9	18.4	5.8	1.0100	27.8	0.8889	44.4	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0277	92.5	0.9999	136.0	1	6
SUBSYSTEM TOTALS				1563.0	197.6	1024.8	-486.1				2349.4		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA



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AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9369	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.8	15.0	0.0	1.0100	35.0	0.9908	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0113	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0257	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0348	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0348	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	29.9	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA IN MW/MVAR

X-- AREA	FROM --X GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.7	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.7	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.3	0.0
HONDURAS	55.5	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	31.9	224.5	-98.9	0.0	143.3	-97.7	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	225.8	569.4	-237.0	0.0	472.5	8.1	357.9	
6	1563.0	1447.1	0.0	0.0	0.0	83.3	32.6	25.0
PANAMA	197.6	362.7	-15.0	0.0	621.0	82.6	388.4	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	29.9	14.1	0.0	0.0	0.0	2.8	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.5	11.9	
TOTALS	6828.2	6697.4	0.0	0.0	0.0	0.0	130.8	0.0
	671.3	2028.8	-863.6	0.0	2173.6	0.0	1679.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 7: Contingencia Panamá II-Santa Rita**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA	230	230.00	6	1.0274	236.31	11	M.N	230	230.00	6	1.0433	239.97		
14	PRO	230	230.00	6	1.0451	240.38	85	PTP	230	230.00	6	1.0385	238.85		
96	FOR	230	230.00	6	1.0412	239.46	100	BAY	230	230.00	6	1.0192	234.42		
144	CANJ	230	230.00	6	1.0418	239.61	145	BJOMIN	230	230.00	6	1.0484	241.13		
146	GUALACA	230	230.00	6	1.0440	240.12	147	GUASQ	230	230.00	6	1.0416	239.58		
148	VELADERO	230	230.00	6	1.0428	239.84	155	TABASARAI	230	230.00	6	1.0432	239.93		
190	CHANG	230	230.00	6	1.0386	238.87	306	CHAN1	230	230.00	6	1.0393	239.05		
310	CONCEPCION	230	230.00	6	1.0469	240.78	325	STA RITA	230	230.00	6	1.0101	232.33		
341	PRUDENCIA	230	230.00	6	1.0474	240.91	345	LORENA	230	230.00	6	1.0463	240.64		
511	LGUIAS	230	230.00	6	1.0149	233.42	540	HV-PETOABRE	230	230.00	6	1.0232	235.35		
6000	FRONTER	230	230.00	6	1.0448	240.31									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230	230.00	6	0.9838	226.27	3	PANII	230	230.00	6	0.9893	227.54		
5	CHO	230	230.00	6	0.9956	228.98	103	COPESA	230	230.00	6	0.9943	228.68		
105	PAN-AM	230	230.00	6	0.9956	228.98	115	PACORA	230	230.00	6	0.9968	229.26		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:51
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115	115.00	6	1.0029	115.33	4	PANII	115	115.00	6	1.0010	115.11		
6	CHO	115	115.00	6	1.0349	119.01	9	LSA	115	115.00	6	1.0452	120.20		
12	M.N	115	115.00	6	1.0365	119.19	15	PRO	115	115.00	6	1.0428	119.92		
18	CAC	115	115.00	6	1.0023	115.27	20	CH.AZUL	115	115.00	6	1.0435	120.01		
23	CH	115	115.00	6	1.0029	115.33	33	STM	115	115.00	6	1.0001	115.02		
54	LM	115	115.00	6	1.0383	119.41	55	LM2	115	115.00	6	1.0380	119.37		
61	FFIELD	115	115.00	9	1.0330	118.80	87	CAL	115	115.00	6	1.0459	120.28		
88	EST	115	115.00	6	1.0474	120.45	92	L.V	115	115.00	6	1.0465	120.34		
109	STA RITA	115	115.00	6	1.0390	119.48	123	MIR	115	115.00	7	1.0055	115.63		
154	CEMPAN	115	115.00	6	1.0279	118.20	191	CHANG	115	115.00	6	1.0252	117.90		
522	TCATIVÁ	115	115.00	6	1.0384	119.41									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115	115.00	6	0.9888	113.72	21	C.BAN	115	115.00	6	0.9872	113.53		
26	LOC	115	115.00	6	0.9890	113.73	30	MAR	115	115.00	6	0.9879	113.60		
37	SAN	115	115.00	6	0.9853	113.31	48	TINAJ	115	115.00	6	0.9991	114.90		
50	M.O	115	115.00	6	0.9993	114.92	52	TOC	115	115.00	6	0.9969	114.64		



Handwritten signature or initials.

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	16.0	25.0	0.0	1.0200	40.4	0.9216	47.0			1	6		
67		BLM13C		13.800	V3	38.0	16.0	25.0	0.0	1.0200	40.4	0.9216	47.0			1	6		
68		BLM13D		13.800	V4	38.0	16.7	25.0	0.0	1.0200	40.7	0.9158	47.0			1	6		
70		TGJB13A		13.800	J5	31.0	7.5	20.0	0.0	1.0100	31.6	0.9720	39.4			1	6		
71		TGJB13B		13.800	J6	31.0	7.5	20.0	0.0	1.0100	31.6	0.9720	39.4			1	6		
72		BLMCCA		13.800	T8	31.0	8.4	20.0	0.0	1.0100	31.8	0.9650	50.0			1	6		
73		BLMCCB		13.800	V9	47.0	8.8	40.0	0.0	1.0100	47.3	0.9831	71.0			1	6		
90		EST-13L		13.800	E1	18.0	4.6	12.0	-5.0	1.0100	18.4	0.9693	27.0			1	6		
94		LV-13.8L		13.800	L1	20.0	5.0	12.0	-5.0	1.0100	20.4	0.9706	27.0			1	6		
97		FOR13A		13.800	F1	87.0	-15.7	50.0	-50.0	1.0200	86.7	0.9841	111.0			1	6		
98		FOR13B		13.800	F2	87.0	-15.7	50.0	-50.0	1.0200	86.7	0.9841	111.0			1	6		
99		FOR13C		13.800	F3	87.0	-15.7	50.0	-50.0	1.0200	86.7	0.9841	111.0			1	6		
101		BAY13A		13.800	B1	53.5	24.8	50.0	-25.0	1.0000	59.0	0.9070	96.0			1	6	SYST	
102		BAY13B		13.800	B2	49.6	24.6	50.0	-25.0	1.0000	55.4	0.8962	96.0			1	6		
108		BAY13C		13.800	B3	49.6	24.6	50.0	-25.0	1.0000	55.4	0.8962	100.0			1	6		
117		CB250A-1		13.800	C1	115.0	34.4	75.6	0.0	1.0300	116.6	0.9579	143.5			1	6		
118		CB250A-2		13.800	C2	115.0	34.4	75.6	0.0	1.0300	116.6	0.9579	143.5			1	6		
142		CANJ13A		13.800	C1	40.0	9.5	29.0	-29.0	1.0200	40.3	0.9727	69.0			1	6		
143		CANJ13B		13.800	C2	40.0	9.5	29.0	-29.0	1.0200	40.3	0.9727	69.0			1	6		
151		GUALACA13.8		13.800	G1	18.0	-10.0	10.0	-10.0	1.0333	19.9	0.8742	26.7			1	6		
156		TABASARAI13		13.800	G1	8.0	0.2	5.7	0.2	1.0436	7.7	0.9995	20.5			1	6		
193		GEBONYIC		13.800	G1	7.5	-2.3	4.0	-4.0	1.0100	7.8	0.9558	35.3			1	6		
193		GEBONYIC		13.800	G2	7.5	-2.3	4.0	-4.0	1.0100	7.8	0.9558	35.3			1	6		
204		BJOMIN13		13.800	G1	22.0	-13.0	13.0	-13.0	1.0303	24.8	0.8609	28.9			1	6		
205		BAITUN13.8		13.800	G1	30.0	9.7	26.6	-26.6	1.0100	31.2	0.9515	50.6			1	6		
301		CONC13.8		13.800	G1	8.2	5.0	5.0	-5.0	0.9573	10.0	0.8538	13.5			1	6		
302		PASOANCH13.8		13.800	P1	3.5	2.0	2.0	-2.0	0.9554	4.2	0.8682	6.2			1	6		
303		SIND13.8		13.800	G1	6.5	0.0	5.0	0.0	1.1253	5.8	1.0000	13.5			1	6		
304		ALGA13.8		13.800	A1	7.8	2.0	2.0	0.0	0.9973	8.0	0.9683	13.5			1	6		
307		CHAN1 A		13.800	G1	70.0	-16.6	50.0	-50.0	1.0200	70.5	0.9731	118.6			1	6		
317		MENDRE13.8		13.800	M1	8.5	0.0	4.0	0.0	1.1252	7.6	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	13.5	0.0	10.5	0.0	1.0462	12.9	1.0000	19.9			1	6		
343		PRUDENCIA138		13.800	G1	25.0	-9.8	9.8	-9.8	1.0368	25.9	0.9315	33.0			1	6		
518		SANTA FE 13		13.800	E1	75.0	14.7	50.0	-25.0	1.0000	76.4	0.9814	100.0			1	6		
521		EGIRAL13.8		113.800	G1	3.7	1.3	2.8	1.3	1.0017	3.9	0.9433	4.8			1	6		
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	1.0017	3.3	0.9173	4.8			1	6		
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	1.0017	3.3	0.9173	4.8			1	6		
521		EGIRAL13.8		113.800	G4	3.0	1.3	2.8	1.3	1.0017	3.3	0.9173	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.6	-0.8	6.6	-6.6	0.9800	7.8	0.9938	10.9			1	6		
523		TCATIVÁ 13A		13.800	G2	7.6	-0.8	6.6	-6.6	0.9800	7.8	0.9938	10.9			1	6		
523		TCATIVÁ 13A		13.800	G3	7.6	-0.8	6.6	-6.6	0.9800	7.8	0.9938	10.9			1	6		
523		TCATIVÁ 13A		13.800	G4	7.6	-0.8	6.6	-6.6	0.9800	7.8	0.9938	10.9			1	6		
523		TCATIVÁ 13A		13.800	G5	7.6	-0.8	6.6	-6.6	0.9800	7.8	0.9938	10.9			1	6		
524		TCATIVÁ 13B		13.800	10	7.6	2.9	6.6	-6.6	1.0100	8.0	0.9347	10.9			1	6		
524		TCATIVÁ 13B		13.800	G6	7.6	2.9	6.6	-6.6	1.0100	8.0	0.9347	10.9			1	6		
524		TCATIVÁ 13B		13.800	G7	7.6	2.9	6.6	-6.6	1.0100	8.0	0.9347	10.9			1	6		
524		TCATIVÁ 13B		13.800	G8	7.6	2.9	6.6	-6.6	1.0100	8.0	0.9347	10.9			1	6		
524		TCATIVÁ 13B		13.800	G9	7.6	2.9	6.6	-6.6	1.0100	8.0	0.9347	10.9			1	6		
525		TCOLON 13A		13.800	G1	30.0	9.2	18.4	9.2	1.0069	31.2	0.9560	44.4			1	6		
527		TCOLON 13C		13.800	V1	25.0	10.4	18.4	5.8	1.0100	26.8	0.9233	44.4			1	6		
541		PETOABRE		4.2000	1	95.0	1.4	1.4	1.4	1.0211	93.0	0.9999	136.0			1	6		
SUBSYSTEM TOTALS						1565.1	221.3	1024.8	-486.1				2349.4						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHITLA8 CONTINGENCIA PANAMÁ II-SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.5	11.0	0.0	1.0100	13.3	0.9410	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.5	15.0	0.0	1.0100	34.9	0.9918	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0119	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0263	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0354	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0354	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS									116.0		29.5		67.5		20.5			170.3



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 11:51
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTLA8 CONTINGENCIA PANAMÁ II-SANTA RITA IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.7	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.3	0.0
HONDURAS	55.5	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.0	224.5	-98.9	0.0	143.3	-97.7	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	228.1	569.4	-236.9	0.0	472.3	10.0	357.9	
6	1565.1	1447.1	0.0	0.0	0.0	83.3	34.8	25.0
PANAMA	221.3	362.7	-15.1	0.0	607.3	80.9	400.1	
7	116.0	56.2	0.0	0.0	0.0	58.9	0.9	50.0
ACANAL	29.5	14.1	0.0	0.0	0.0	2.4	13.1	
9	0.0	142.5	0.0	0.0	0.0	-142.7	0.2	-75.0
COLON	0.0	35.7	0.0	0.0	1.1	-46.4	11.8	
TOTALS	6830.4	6697.4	0.0	0.0	0.0	0.0	133.0	0.0
	696.9	2028.8	-863.5	0.0	2159.6	0.0	1691.3	



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AÑO 2021

Caso 1: REGMHTCB8

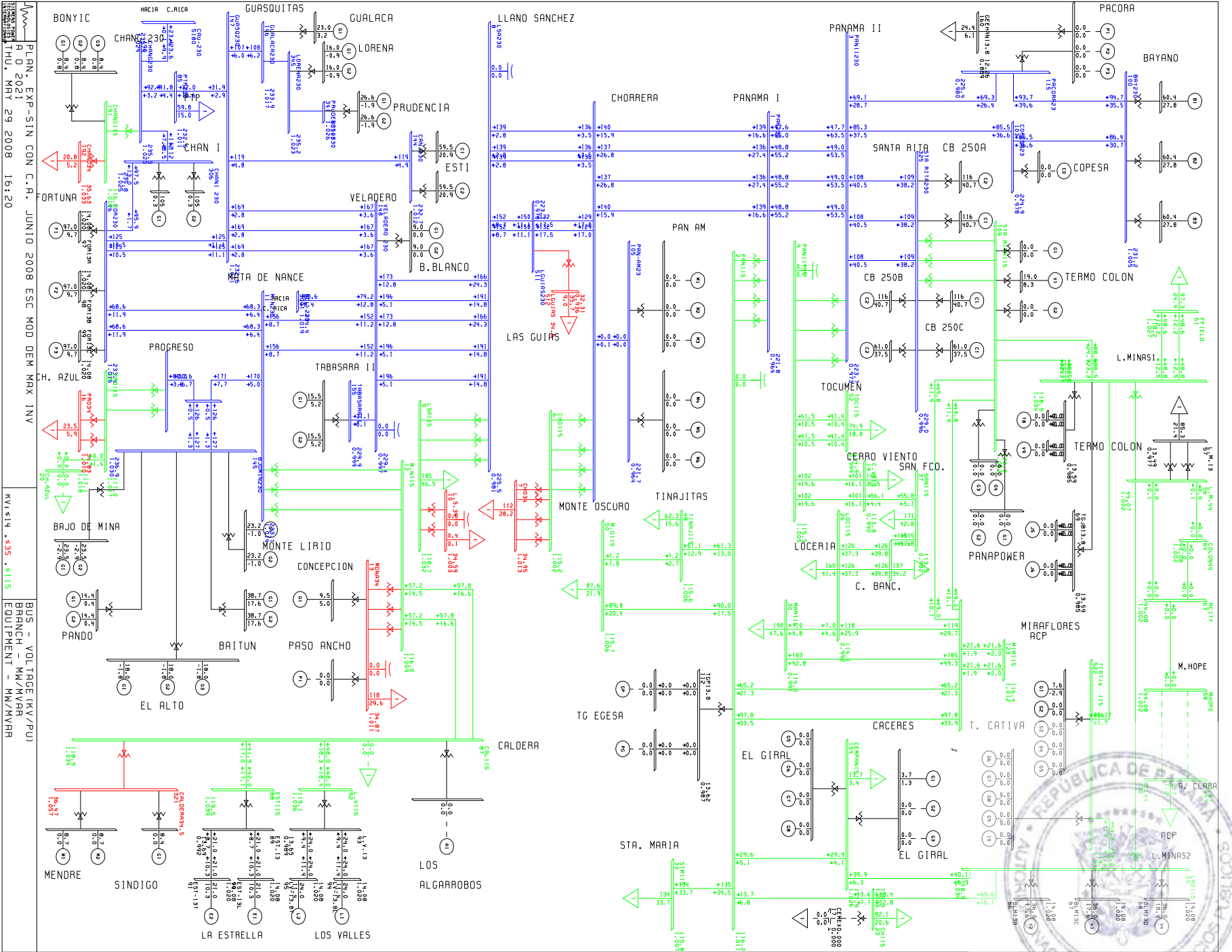


de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:19
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0136	233.13	14	PRO	230		230.00	6	1.0208	234.78
85	PTP	230		230.00	6	1.0107	232.46	96	FOR	230		230.00	6	1.0150	233.44
100	BAY	230		230.00	6	1.0051	231.18	144	CANJ	230		230.00	6	1.0115	232.66
145	BJOMIN	230		230.00	6	1.0299	236.87	146	GUALACA	230		230.00	6	1.0169	233.89
147	GUASQ	230		230.00	6	1.0114	232.62	190	CHANG	230		230.00	6	1.0232	235.34
306	CHAN1	230		230.00	6	1.0253	235.82	310	CONCEPCION	230		230.00	6	1.0231	235.32
341	PRUDENCIA	230		230.00	6	1.0256	235.90	345	LORENA	230		230.00	6	1.0226	235.19
6000	FRONTER	230		230.00	6	1.0206	234.74								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9643	221.79	3	PANII	230		230.00	6	0.9727	223.72
5	CHO	230		230.00	6	0.9641	221.74	8	LSA	230		230.00	6	0.9805	225.52
103	COPESA	230		230.00	6	0.9779	224.93	105	PAN-AM	230		230.00	6	0.9641	221.74
115	PACORA	230		230.00	6	0.9800	225.41	148	VELADERO	230		230.00	6	0.9974	229.40
155	TABASARAI	230		230.00	6	0.9995	229.88	325	STA RITA	230		230.00	6	0.9959	229.05
511	LGUIAS	230		230.00	6	0.9701	223.13								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:19
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0105	116.21	4	PANII	115		115.00	6	1.0048	115.55
6	CHO	115		115.00	6	1.0019	115.22	9	LSA	115		115.00	6	1.0324	118.73
12	M.	N115		115.00	6	1.0089	116.03	15	PRO	115		115.00	6	1.0172	116.98
18	CAC	115		115.00	6	1.0096	116.10	20	CH.	AZUL		115.00	6	1.0180	117.07
23	CH	115		115.00	6	1.0029	115.33	33	STM	115		115.00	6	1.0071	115.81
48	TINAJ	115		115.00	6	1.0056	115.65	50	M.	O115		115.00	6	1.0058	115.67
54	LM	115		115.00	6	1.0343	118.95	55	LM	2115		115.00	6	1.0339	118.90
61	FFIELD	115		115.00	9	1.0274	118.15	87	CAL	115		115.00	6	1.0337	118.87
88	EST	115		115.00	6	1.0387	119.46	92	L.	V115		115.00	6	1.0356	119.10
109	STA RITA	115		115.00	6	1.0431	119.96	123	MIR	115		115.00	7	1.0122	116.41
154	CEMPAN	115		115.00	6	1.0256	117.95	191	CHANG	115		115.00	6	1.0155	116.79
522	TCATIVÁ	115		115.00	6	1.0341	118.92								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9898	113.83	21	C.	BAN115		115.00	6	0.9897	113.81
26	LOC	115		115.00	6	0.9922	114.10	30	MAR	115		115.00	6	0.9909	113.95
37	SAN	115		115.00	6	0.9870	113.51	52	TOC	115		115.00	6	0.9995	114.94

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:19
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTCB8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	17.6	25.0	0.0	1.0200	39.3	0.8981	47.0	1	6
67	BLM13C	13.800	V3	36.0	17.6	25.0	0.0	1.0200	39.3	0.8981	47.0	1	6
68	BLM13D	13.800	V4	36.0	18.4	25.0	0.0	1.0200	39.6	0.8905	47.0	1	6
90	EST-13L	13.800	E1	21.0	10.3	12.0	-5.0	1.0200	22.9	0.8982	27.0	1	6
91	EST-13T	13.800	E2	21.0	10.3	12.0	-5.0	1.0200	22.9	0.8982	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	11.4	12.0	-5.0	1.0200	26.1	0.9029	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	11.4	12.0	-5.0	1.0200	26.1	0.9029	27.0	1	6
97	FOR13A	13.800	F1	97.0	9.7	50.0	-50.0	1.0200	95.6	0.9950	111.0	1	6
98	FOR13B	13.800	F2	97.0	9.7	50.0	-50.0	1.0200	95.6	0.9950	111.0	1	6
99	FOR13C	13.800	F3	97.0	9.7	50.0	-50.0	1.0200	95.6	0.9950	111.0	1	6
101	BAY13A	13.800	B1	60.4	27.8	50.0	-25.0	0.9900	67.1	0.9081	96.0	1	6
102	BAY13B	13.800	B2	60.4	27.8	50.0	-25.0	0.9900	67.1	0.9082	96.0	1	6
108	BAY13C	13.800	B3	60.4	27.8	50.0	-25.0	0.9900	67.1	0.9082	100.0	1	6
117	CB250A-1	13.800	C1	115.9	40.7	75.6	0.0	1.0200	120.4	0.9435	143.5	1	6
118	CB250A-2	13.800	C2	115.9	40.7	75.6	0.0	1.0200	120.4	0.9435	143.5	1	6
119	CB250B-1	13.800	C1	115.9	40.7	75.6	0.0	1.0200	120.4	0.9435	143.5	1	6
120	CB250B-2	13.800	C2	115.9	40.7	75.6	0.0	1.0200	120.4	0.9435	143.5	1	6
121	CB250C-1	13.800	C1	61.0	37.5	75.6	0.0	1.0200	70.2	0.8521	143.5	1	6
122	CB250C-2	13.800	C2	61.0	37.5	75.6	0.0	1.0200	70.2	0.8521	143.5	1	6
142	CANJ13A	13.800	C1	59.5	20.9	29.0	-29.0	1.0200	61.8	0.9437	69.0	1	6
143	CANJ13B	13.800	C2	59.5	20.9	29.0	-29.0	1.0200	61.8	0.9437	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	0.0	6.1	0.0	0.9972	9.0	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	0.0	6.1	0.0	0.9972	9.0	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	23.0	3.2	10.0	-10.0	1.0200	22.8	0.9907	26.7	1	6
156	TABASARAI1313.800	13.800	G1	15.5	5.2	5.7	0.2	1.0200	16.1	0.9480	20.5	1	6
156	TABASARAI1313.800	13.800	G2	15.5	5.2	5.7	0.2	1.0200	16.1	0.9480	20.5	1	6
193	GEBONYIC	13.800	G1	8.4	0.8	4.0	-4.0	1.0200	8.3	0.9954	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.8	4.0	-4.0	1.0200	8.3	0.9954	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.8	4.0	-4.0	1.0200	8.3	0.9954	35.3	1	6
204	BJOMIN13	13.800	G1	23.5	-2.9	13.0	-13.0	1.0200	23.2	0.9927	28.9	1	6
204	BJOMIN13	13.800	G2	23.5	-2.9	13.0	-13.0	1.0200	23.2	0.9927	28.9	1	6
205	BAITUN13.8	13.800	G1	38.7	17.6	26.6	-26.6	1.0200	41.7	0.9107	50.6	1	6
205	BAITUN13.8	13.800	G2	38.7	17.6	26.6	-26.6	1.0200	41.7	0.9107	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9658	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1097	7.5	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	18.0	-1.8	12.0	-5.0	1.0200	17.7	0.9953	20.6	1	6
305	ELALTO13.8	13.800	G2	18.0	-1.8	12.0	-5.0	1.0200	17.7	0.9953	20.6	1	6
305	ELALTO13.8	13.800	G3	18.0	-1.8	12.0	-5.0	1.0200	17.7	0.9953	20.6	1	6
307	CHAN1 A	13.800	G1	105.0	0.3	50.0	-50.0	1.0200	102.9	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	0.3	50.0	-50.0	1.0200	102.9	1.0000	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	0.4	10.0	-5.0	1.0200	14.1	0.9996	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	0.4	10.0	-5.0	1.0200	14.1	0.9996	19.9	1	6
316	MONTE LIRIO	13.800	G1	23.2	-1.0	12.0	-5.0	1.0200	22.8	0.9991	27.0	1	6
316	MONTE LIRIO	13.800	G2	23.2	-1.0	12.0	-5.0	1.0200	22.8	0.9991	27.0	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1092	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1092	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-0.9	10.5	-5.0	1.0200	15.7	0.9983	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	-0.9	10.5	-5.0	1.0200	15.7	0.9983	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	26.6	-1.9	9.8	-9.8	1.0200	26.1	0.9975	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	26.6	-1.9	9.8	-9.8	1.0200	26.1	0.9975	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9829	4.0	0.9433	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-2.9	6.6	-6.6	0.9800	8.3	0.9327	10.9	1	6
527	TCOLON 13C	13.800	V1	19.0	8.3	18.4	5.8	1.0100	20.5	0.9172	44.4	1	6
SUBSYSTEM TOTALS				2086.4	534.6	1325.7	-572.7				2885.4		

SYST



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTCB8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	5.5	11.0	0.0	1.0200	13.5	0.9155	29.4			2	7	
129		MIR13D		13.800	G4	35.0	6.0	15.0	0.0	1.0200	34.8	0.9855	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.6	8.0	0.0	1.0200	16.8	0.9993	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0330	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0420	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0420	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS									116.0	32.7	67.5	20.5			170.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:19
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTCB8 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	



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4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.8	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C. RICA	263.3	569.4	-237.6	0.0	468.4	40.5	359.5	
6	2086.4	1853.5	0.0	0.0	0.0	139.3	93.5	25.0
PANAMA	534.6	464.5	-371.6	0.0	571.8	66.4	947.0	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	32.7	18.0	0.0	0.0	0.0	3.7	10.9	
9	0.0	182.6	0.0	0.0	0.0	-182.9	0.3	-75.0
COLON	0.0	45.8	0.0	0.0	1.1	-64.7	20.0	
TOTALS	7351.6	7159.6	0.0	0.0	0.0	0.0	192.0	0.0
	1049.7	2144.6	-1220.7	0.0	2120.1	0.0	2245.8	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2021 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0076	231.76	8		LSA230		230.00	6	1.0413	239.49
11	M.	N230		230.00	6	1.0348	238.00	14		PRO230		230.00	6	1.0362	238.32
85		PTP230		230.00	6	1.0276	236.34	96		FOR230		230.00	6	1.0323	237.42
100		BAY230		230.00	6	1.0172	233.95	103		COPESA23		230.00	6	1.0001	230.03
105		PAN-AM23		230.00	6	1.0077	231.78	115		PACORA23		230.00	6	1.0039	230.89
144		CANJ230		230.00	6	1.0337	237.75	145		BJOMIN230		230.00	6	1.0376	238.64
146		GUALACA230		230.00	6	1.0364	238.37	147		GUASQ230		230.00	6	1.0336	237.72
148		VELADERO	230	230.00	6	1.0428	239.84	155		TABASARAI		230.00	6	1.0432	239.94
190		CHANG230		230.00	6	1.0282	236.50	306		CHAN1	230	230.00	6	1.0281	236.46
310		CONCEPCION23	230.00	6	1.0368	238.46	325		STA RITA230		230.00	6	1.0016	230.36	
341		PRUDENCIA230	230.00	6	1.0410	239.43	345		LORENA230		230.00	6	1.0394	239.06	
511		LGUIAS230		230.00	6	1.0274	236.31	6000		FRONTER		230.00	6	1.0366	238.41

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9932	228.44	3		PANII230		230.00	6	0.9967	229.23

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0124	116.43	4		PANII115		115.00	6	1.0151	116.74
6		CHO115		115.00	6	1.0480	120.53	9		LSA115		115.00	6	1.0986	126.34
12	M.	N115		115.00	6	1.0232	117.67	15		PRO115		115.00	6	1.0326	118.75
18		CAC115		115.00	6	1.0113	116.30	20		CH.AZUL		115.00	6	1.0334	118.84
23		CH115		115.00	6	1.0008	115.09	33		STM115		115.00	6	1.0089	116.02
48		TINAJ115		115.00	6	1.0074	115.85	50		M.O115		115.00	6	1.0076	115.87
52		TOC115		115.00	6	1.0098	116.12	54		LM1115		115.00	6	1.0295	118.39
55		LM2115		115.00	6	1.0293	118.37	61		FFIELD		115.00	9	1.0224	117.58
87		CAL115		115.00	6	1.0369	119.24	88		EST115		115.00	6	1.0402	119.62
92	L.	V115		115.00	6	1.0377	119.33	109		STA RITA115		115.00	6	1.0346	118.98
123		MIR115		115.00	7	1.0131	116.50	154		CEMPAN15		115.00	6	1.0275	118.17
191		CHANG115		115.00	6	1.0158	116.82	522		TCATIVÁ	115	115.00	6	1.0296	118.41

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9976	114.72	21		C.BAN115		115.00	6	0.9922	114.10
26		LOC115		115.00	6	0.9944	114.36	30		MAR115		115.00	6	0.9926	114.15
37		SAN115		115.00	6	0.9900	113.84								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTCB8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	14.9	25.0	0.0	1.0100	38.6	0.9237	47.0	1	6
67	BLM13C	13.800	V3	36.0	14.9	25.0	0.0	1.0100	38.6	0.9237	47.0	1	6
68	BLM13D	13.800	V4	36.0	15.6	25.0	0.0	1.0100	38.8	0.9179	47.0	1	6
90	EST-13L	13.800	E1	14.1	6.3	12.0	-5.0	1.0100	15.3	0.9135	27.0	1	6
91	EST-13T	13.800	E2	14.1	6.3	12.0	-5.0	1.0100	15.3	0.9135	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	8.1	12.0	-5.0	1.0100	26.2	0.9525	27.0	1	6
97	FOR13A	13.800	F1	68.4	-18.0	50.0	-50.0	1.0100	70.0	0.9672	111.0	1	6
98	FOR13B	13.800	F2	68.4	-18.0	50.0	-50.0	1.0100	70.0	0.9672	111.0	1	6
99	FOR13C	13.800	F3	68.4	-18.0	50.0	-50.0	1.0100	70.0	0.9672	111.0	1	6
101	BAY13A	13.800	B1	81.6	20.9	50.0	-25.0	0.9900	85.1	0.9687	96.0	1	6
102	BAY13B	13.800	B2	81.6	20.9	50.0	-25.0	0.9900	85.1	0.9687	96.0	1	6
106	PANAM13A	13.800	M1	14.5	6.4	9.0	0.0	1.0100	15.7	0.9154	20.7	1	6
106	PANAM13A	13.800	M2	14.5	6.4	9.0	0.0	1.0100	15.7	0.9154	20.7	1	6
107	PANAM13B	13.800	M4	14.5	6.5	9.0	0.0	1.0100	15.7	0.9132	20.7	1	6
107	PANAM13B	13.800	M5	14.0	6.2	9.0	0.0	1.0100	15.2	0.9132	20.7	1	6
116	PACORA13	13.800	P1	15.2	5.1	8.8	0.0	1.0100	15.9	0.9490	21.7	1	6
116	PACORA13	13.800	P2	15.2	5.1	8.8	0.0	1.0100	15.9	0.9490	21.7	1	6
116	PACORA13	13.800	P3	15.2	5.1	8.8	0.0	1.0100	15.9	0.9490	21.7	1	6
117	CB250A-1	13.800	C1	115.0	17.0	75.6	0.0	1.0100	115.1	0.9893	143.5	1	6
118	CB250A-2	13.800	C2	115.0	17.0	75.6	0.0	1.0100	115.1	0.9893	143.5	1	6
119	CB250B-1	13.800	C1	115.0	2.2	75.6	0.0	1.0000	115.0	0.9998	143.5	1	6
120	CB250B-2	13.800	C2	115.0	2.2	75.6	0.0	1.0000	115.0	0.9998	143.5	1	6
121	CB250C-1	13.800	C1	115.0	2.2	75.6	0.0	1.0000	115.0	0.9998	143.5	1	6
122	CB250C-2	13.800	C2	115.0	2.2	75.6	0.0	1.0000	115.0	0.9998	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.1	29.0	-29.0	1.0100	44.0	0.9739	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.1	29.0	-29.0	1.0100	44.0	0.9739	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0428	4.6	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0310	14.8	0.9447	26.7	1	6
156	TABASARAI13.8	13.800	G1	9.6	0.2	5.7	0.2	1.0436	9.2	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9991	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9991	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9991	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.6	13.0	-13.0	1.0100	18.2	0.8522	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.6	13.0	-13.0	1.0100	18.2	0.8522	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9594	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9594	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9668	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1151	4.0	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0306	14.4	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	77.3	-14.6	50.0	-50.0	1.0100	77.9	0.9827	118.6	1	6
308	CHAN1 B	13.800	G2	77.3	-14.6	50.0	-50.0	1.0100	77.9	0.9827	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9840	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9840	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0130	14.3	0.9386	27.0	1	6
316	MONTE LIRIO	13.800	G2	13.6	-5.0	12.0	-5.0	1.0130	14.3	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.1149	5.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.2	0.0	4.0	0.0	1.1149	5.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0285	11.8	0.9118	19.9	1	6
342	LORENA13.8	13.800	G2	11.1	-5.0	10.5	-5.0	1.0285	11.8	0.9118	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	19.2	-9.8	9.8	-9.8	1.0193	21.1	0.8910	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	19.2	-9.8	9.8	-9.8	1.0193	21.1	0.8910	33.0	1	6
516	PANAPOWL13A	13.800	G1	12.4	0.5	12.5	0.5	1.0354	12.0	0.9991	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.2	1.3	2.8	1.3	1.0014	3.4	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.2	1.3	2.8	1.3	1.0014	3.4	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.2	1.3	2.8	1.3	1.0014	3.4	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.2	1.3	2.8	1.3	1.0014	3.4	0.9263	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.3	0.1	6.6	-6.6	0.9800	7.5	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.3	0.1	6.6	-6.6	0.9800	7.5	0.9998	10.9	1	6

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523	TCATIVÁ	13A	13.800	G3	7.3	0.1	6.6	-6.6	0.9800	7.5	0.9998	10.9	1	6
523	TCATIVÁ	13A	13.800	G4	7.3	0.1	6.6	-6.6	0.9800	7.5	0.9998	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	7.3	0.1	6.6	-6.6	0.9800	7.5	0.9998	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8816	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8816	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8816	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8816	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8816	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	1.0019	37.1	0.9688	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	13.1	18.4	9.2	1.0100	37.9	0.9396	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	13.1	18.4	5.8	1.0100	37.9	0.9396	44.4	1	6
531	EGIRAL	13.8	213.800	G5	8.0	3.0	6.4	3.0	0.9910	8.6	0.9363	10.9	1	6
531	EGIRAL	13.8	213.800	G6	8.0	3.0	6.4	3.0	0.9910	8.6	0.9363	10.9	1	6
SUBSYSTEM TOTALS					2087.1	148.0	1420.1	-558.2				3077.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTCB8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	4.1	11.0	0.0	1.0100	13.1	0.9504	29.4	29.4				2	7	
129	MIR13D	13.800	G4	35.0	3.9	15.0	0.0	1.0100	34.9	0.9939	44.1	44.1				2	7	
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0135	16.9	1.0000	27.7	27.7				2	7	
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0279	17.9	0.9289	23.0	23.0				2	7	
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0369	17.8	0.9289	23.0	23.0				2	7	
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0369	17.8	0.9289	23.0	23.0				2	7	
SUBSYSTEM TOTALS										116.0	28.5	67.5	20.5					170.3

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTCB8

X--	AREA	--X	GENERATION	TO	TO BUS	TO LINE	FROM	TO	LOSSES	DESIRED
				LOAD	SHUNT	SHUNT	CHARGING	NET INT		NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	



4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	241.2	569.4	-237.4	0.0	471.0	21.9	358.3	
6	2087.1	1893.7	0.0	0.0	0.0	144.8	48.6	25.0
PANAMA	148.0	474.6	-391.5	0.0	611.9	91.9	584.8	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	28.5	18.4	0.0	0.0	0.0	-0.7	10.7	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.8	0.0	0.0	1.1	-66.6	20.9	
TOTALS	7352.3	7205.3	0.0	0.0	0.0	0.0	147.0	0.0
	636.0	2156.1	-1240.4	0.0	2162.9	0.0	1883.2	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0049	231.12	8		LSA230		230.00	6	1.0117	232.70
11	M.	N230		230.00	6	1.0236	235.42	14		PRO230		230.00	6	1.0316	237.27
85		PTP230		230.00	6	1.0230	235.28	96		FOR230		230.00	6	1.0204	234.69
100		BAY230		230.00	6	1.0023	230.52	105		PAN-AM23		230.00	6	1.0049	231.13
115		PACORA23		230.00	6	1.0004	230.09	144		CANJ230		230.00	6	1.0219	235.03
145		BJOMIN230		230.00	6	1.0333	237.66	146		GUALACA230		230.00	6	1.0236	235.43
147		GUASQ230		230.00	6	1.0218	235.02	148		VELADERO 230		230.00	6	1.0220	235.06
155		TABASARAI		230.00	6	1.0224	235.16	190		CHANG230		230.00	6	1.0247	235.67
306		CHAN1 230		230.00	6	1.0234	235.39	310		CONCEPCION23		230.00	6	1.0309	237.11
325		STA RITA230		230.00	6	1.0014	230.32	341		PRUDENCIA230		230.00	6	1.0260	235.98
345		LORENA230		230.00	6	1.0252	235.79	511		LGUIAS230		230.00	6	1.0111	232.54
6000		FRONTER		230.00	6	1.0318	237.32								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9974	229.41	3		PANII230		230.00	6	0.9984	229.64
103		COPESA23		230.00	6	0.9995	229.89								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTCB8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0111	116.27	4		PANII115		115.00	6	1.0046	115.53
6		CHO115		115.00	6	1.0536	121.16	9		LSA115		115.00	6	1.0230	117.64
12	M.	N115		115.00	6	1.0054	115.62	15		PRO115		115.00	6	1.0309	118.55
18		CAC115		115.00	6	1.0107	116.23	19		C.V115		115.00	6	1.0001	115.01
20		CH.AZUL		115.00	6	1.0316	118.64	21		C.BAN115		115.00	6	1.0028	115.32
23		CH115		115.00	6	1.0091	116.04	26		LOC115		115.00	6	1.0038	115.44
30		MAR115		115.00	6	1.0033	115.38	33		STM115		115.00	6	1.0097	116.11
37		SAN115		115.00	6	1.0015	115.17	48		TINAJ115		115.00	6	1.0094	116.08
50		M.O115		115.00	6	1.0095	116.09	52		TOC115		115.00	6	1.0025	115.29
54		LM1115		115.00	6	1.0217	117.50	55		LM2115		115.00	6	1.0219	117.51
61		FFIELD		115.00	9	1.0189	117.18	87		CAL115		115.00	6	1.0169	116.94
88		EST115		115.00	6	1.0186	117.14	92		L.V115		115.00	6	1.0178	117.05
109		STA RITA115		115.00	6	1.0230	117.65	123		MIR115		115.00	7	1.0107	116.23
154		CEMPAN15		115.00	6	1.0216	117.49	191		CHANG115		115.00	6	1.0159	116.83
522		TCATIVÁ		115.00	6	1.0218	117.50								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTCB8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	



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66	BLM13B	13.800	V2	31.0	13.1	17.0	0.0	1.0000	33.7	0.9206	47.0	1	6
67	BLM13C	13.800	V3	31.0	13.1	17.0	0.0	1.0000	33.7	0.9206	47.0	1	6
90	EST-13L	13.800	E1	14.1	6.6	12.0	-5.0	0.9900	15.7	0.9045	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	10.9	12.0	-5.0	1.0000	27.4	0.9181	27.0	1	6
97	FOR13A	13.800	F1	78.8	-32.6	50.0	-50.0	0.9800	87.0	0.9241	111.0	1	6
98	FOR13B	13.800	F2	78.8	-32.6	50.0	-50.0	0.9800	87.0	0.9242	111.0	1	6
106	PANAM13A	13.800	M1	14.5	4.4	9.0	0.0	0.9900	15.3	0.9575	20.7	1	6
107	PANAM13B	13.800	M4	14.5	4.4	9.0	0.0	0.9900	15.3	0.9575	20.7	1	6
116	PACORA13	13.800	P1	15.2	3.1	8.8	0.0	1.0000	15.5	0.9800	21.7	1	6
117	CB250A-1	13.800	C1	91.5	0.8	75.6	0.0	1.0000	91.5	1.0000	143.5	1	6
121	CB250C-1	13.800	C1	91.5	0.8	75.6	0.0	1.0000	91.5	1.0000	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.4	29.0	-29.0	1.0000	44.5	0.9725	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0220	4.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0181	15.0	0.9447	26.7	1	6
156	TABASARAI13	13.800	G1	9.6	0.2	5.7	0.2	1.0228	9.4	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	-4.0	4.0	-4.0	1.0032	8.9	0.8944	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	0.0	13.0	0.0	1.0331	15.2	1.0000	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	13.2	26.6	-26.6	1.0000	37.0	0.9341	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9680	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.0944	4.1	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0263	14.5	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	60.0	-20.7	50.0	-50.0	1.0000	63.5	0.9452	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-5.0	10.0	-5.0	1.0011	10.8	0.8871	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0216	14.2	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.0944	5.7	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0197	11.9	0.9118	19.9	1	6
343	PRUDENCIA138	13.800	G1	19.2	-9.8	9.8	-9.8	1.0153	21.2	0.8910	33.0	1	6
516	PANAPOW13A	13.800	G1	12.4	0.5	12.5	0.5	1.0238	12.1	0.9991	20.9	1	6
525	TCOLON 13A	13.800	G1	36.0	13.5	18.4	9.2	1.0000	38.4	0.9363	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	0.9854	8.7	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	0.9854	8.7	0.9363	10.9	1	6
SUBSYSTEM TOTALS				828.6	-18.4	592.4	-243.4				1351.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTCB8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	11.4	3.8	11.0	0.0	1.0000	12.0	0.9479	29.4			2	7	
129		MIR13D		13.800	G4	35.0	3.3	15.0	0.0	1.0000	35.2	0.9956	44.1			2	7	
SUBSYSTEM TOTALS						46.4	7.1	26.0	0.0				73.5					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:30
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTCB8

X--	AREA	--X	GENERATION	FROM	TO	TO BUS	TO LINE	FROM	TO	DESIRE
				CHARGING	NET INT	SHUNT	SHUNT	NET INT	LOSSES	NET INT
1			1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
	GUATEMAL		29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2			911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
	SALVADOR		100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.5	224.5	-98.9	0.0	143.3	-97.3	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.8	19.4	0.0
C.RICA	249.5	569.4	-236.8	0.0	470.1	29.7	357.4	
6	828.6	756.6	0.0	0.0	0.0	57.4	14.6	25.0
PANAMA	-18.4	189.6	185.4	0.0	614.2	41.8	179.0	
7	46.4	29.4	0.0	0.0	0.0	16.4	0.7	50.0
ACANAL	7.1	7.4	0.0	0.0	0.0	-4.3	4.1	
9	0.0	74.5	0.0	0.0	0.0	-74.6	0.1	-75.0
COLON	0.0	18.7	0.0	0.0	1.1	-20.8	3.2	
TOTALS	6024.2	5912.0	0.0	0.0	0.0	0.0	112.2	0.0
	456.8	1832.0	-662.9	0.0	2164.3	0.0	1452.0	

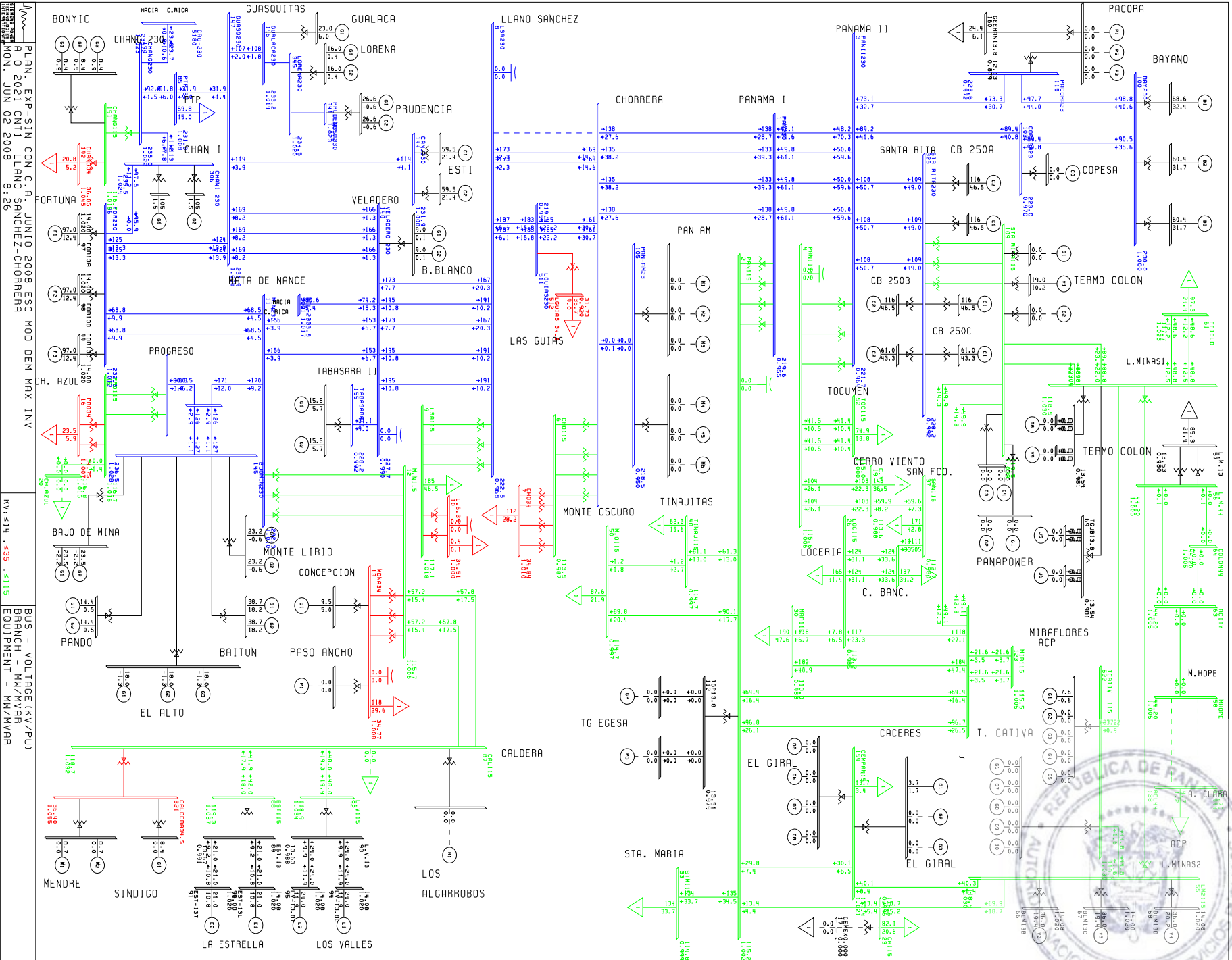


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Llano Sánchez-Chorrera**



de



PLN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2021 CNT1 LLANO SANCHEZ-CHORRERA 8:26

KV:115, 235, 1115

BUS - VOLTAGE (KV/PU)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:25
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT1 LLANO SANCHEZ-CHORRERA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0101	232.32	14	PRO	230		230.00	6	1.0182	234.19
85	PTP	230		230.00	6	1.0080	231.85	96	FOR	230		230.00	6	1.0121	232.78
144	CANJ	230		230.00	6	1.0083	231.90	145	BJOMIN	230		230.00	6	1.0281	236.47
146	GUALACA	230		230.00	6	1.0139	233.19	147	GUASQ	230		230.00	6	1.0081	231.86
190	CHANG	230		230.00	6	1.0219	235.03	306	CHANI	230		230.00	6	1.0240	235.53
310	CONCEPCION	230		230.00	6	1.0207	234.77	341	PRUDENCIA	230		230.00	6	1.0229	235.27
345	LORENA	230		230.00	6	1.0198	234.55	6000	FRONTIER	230		230.00	6	1.0180	234.14

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9546	219.56	3	PANII	230		230.00	6	0.9639	221.70
5	CHO	230		230.00	6	0.9500	218.49	8	LSA	230		230.00	6	0.9676	222.54
100	BAY	230		230.00	6	0.9999	229.97	103	COPESA	230		230.00	6	0.9697	223.03
105	PAN-AM	230		230.00	6	0.9500	218.49	115	PACORA	230		230.00	6	0.9722	223.60
148	VELADERO	230		230.00	6	0.9900	227.70	155	TABASARAI	230		230.00	6	0.9922	228.21
325	STA RITA	230		230.00	6	0.9920	228.16	511	LGUIAS	230		230.00	6	0.9539	219.41

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:25
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT1 LLANO SANCHEZ-CHORRERA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0021	115.24	4	PANII	115		115.00	6	1.0056	115.64
9	LSA	115		115.00	6	1.0182	117.09	12	M.N	115		115.00	6	1.0062	115.71
15	PRO	115		115.00	6	1.0147	116.69	18	CAC	115		115.00	6	1.0013	115.15
20	CH.	AZUL		115.00	6	1.0154	116.77	52	TOC	115		115.00	6	1.0003	115.03
54	LM	115		115.00	6	1.0303	118.49	55	LM2	115		115.00	6	1.0300	118.45
61	FF	FIELD		115.00	9	1.0234	117.69	87	CAL	115		115.00	6	1.0319	118.66
88	EST	115		115.00	6	1.0371	119.27	92	L.V	115		115.00	6	1.0339	118.89
109	STA RITA	115		115.00	6	1.0389	119.47	123	MIR	115		115.00	7	1.0046	115.52
154	CEMPAN	115		115.00	6	1.0205	117.36	191	CHANG	115		115.00	6	1.0146	116.68
522	TCATIVÁ	115		115.00	6	1.0302	118.47								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO	115		115.00	6	0.9868	113.48	19	C.V	115		115.00	6	0.9880	113.62
21	C.BAN	115		115.00	6	0.9823	112.97	23	CH	115		115.00	6	0.9962	114.56
26	LOC	115		115.00	6	0.9845	113.22	30	MAR	115		115.00	6	0.9828	113.03
33	STM	115		115.00	6	0.9986	114.84	37	SAN	115		115.00	6	0.9802	112.72
48	TINAJ	115		115.00	6	0.9972	114.67	50	M.O	115		115.00	6	0.9974	114.70

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:25
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT1 LLANO SANCHEZ-CHORRERA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	36.0	19.4	25.0	0.0	1.0200	40.1	0.8807	47.0	1	6
67	BLM13C	13.800	V3	36.0	19.4	25.0	0.0	1.0200	40.1	0.8807	47.0	1	6
68	BLM13D	13.800	V4	36.0	20.2	25.0	0.0	1.0200	40.5	0.8719	47.0	1	6
90	EST-13L	13.800	E1	21.0	10.8	12.0	-5.0	1.0200	23.1	0.8899	27.0	1	6
91	EST-13T	13.800	E2	21.0	10.8	12.0	-5.0	1.0200	23.1	0.8899	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	11.9	12.0	-5.0	1.0200	26.3	0.8952	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	11.9	12.0	-5.0	1.0200	26.3	0.8952	27.0	1	6
97	FOR13A	13.800	F1	97.0	12.4	50.0	-50.0	1.0200	95.9	0.9920	111.0	1	6
98	FOR13B	13.800	F2	97.0	12.4	50.0	-50.0	1.0200	95.9	0.9920	111.0	1	6
99	FOR13C	13.800	F3	97.0	12.4	50.0	-50.0	1.0200	95.9	0.9920	111.0	1	6
101	BAY13A	13.800	B1	68.6	32.4	50.0	-25.0	0.9900	76.6	0.9040	96.0	1	6
102	BAY13B	13.800	B2	60.4	31.7	50.0	-25.0	0.9900	68.9	0.8854	96.0	1	6
108	BAY13C	13.800	B3	60.4	31.7	50.0	-25.0	0.9900	68.9	0.8854	100.0	1	6
117	CB250A-1	13.800	C1	115.9	46.5	75.6	0.0	1.0200	122.4	0.9280	143.5	1	6
118	CB250A-2	13.800	C2	115.9	46.5	75.6	0.0	1.0200	122.4	0.9280	143.5	1	6
119	CB250B-1	13.800	C1	115.9	46.5	75.6	0.0	1.0200	122.4	0.9280	143.5	1	6
120	CB250B-2	13.800	C2	115.9	46.5	75.6	0.0	1.0200	122.4	0.9280	143.5	1	6
121	CB250C-1	13.800	C1	61.0	43.3	75.6	0.0	1.0200	73.3	0.8157	143.5	1	6
122	CB250C-2	13.800	C2	61.0	43.3	75.6	0.0	1.0200	73.3	0.8157	143.5	1	6
142	CANJ13A	13.800	C1	59.5	21.4	29.0	-29.0	1.0200	62.0	0.9409	69.0	1	6
143	CANJ13B	13.800	C2	59.5	21.4	29.0	-29.0	1.0200	62.0	0.9409	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	0.1	6.1	0.0	0.9900	9.1	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	0.1	6.1	0.0	0.9900	9.1	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	23.0	6.0	10.0	-10.0	1.0200	23.3	0.9677	26.7	1	6
156	TABASARAI1313.800	13.800	G1	15.5	5.7	5.7	0.2	1.0148	16.3	0.9394	20.5	1	6
156	TABASARAI1313.800	13.800	G2	15.5	5.7	5.7	0.2	1.0148	16.3	0.9394	20.5	1	6
193	GEBONYIC	13.800	G1	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9942	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9942	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9942	35.3	1	6
204	BJOMIN13	13.800	G1	23.5	-2.2	13.0	-13.0	1.0200	23.1	0.9955	28.9	1	6
204	BJOMIN13	13.800	G2	23.5	-2.2	13.0	-13.0	1.0200	23.1	0.9955	28.9	1	6
205	BAITUN13.8	13.800	G1	38.7	18.2	26.6	-26.6	1.0200	41.9	0.9048	50.6	1	6
205	BAITUN13.8	13.800	G2	38.7	18.2	26.6	-26.6	1.0200	41.9	0.9048	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9629	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1077	7.6	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	18.0	-1.3	12.0	-5.0	1.0200	17.7	0.9973	20.6	1	6
305	ELALTO13.8	13.800	G2	18.0	-1.3	12.0	-5.0	1.0200	17.7	0.9973	20.6	1	6
305	ELALTO13.8	13.800	G3	18.0	-1.3	12.0	-5.0	1.0200	17.7	0.9973	20.6	1	6
307	CHAN1 A	13.800	G1	105.0	1.5	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	1.5	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	0.5	10.0	-5.0	1.0200	14.1	0.9993	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	0.5	10.0	-5.0	1.0200	14.1	0.9993	19.9	1	6
316	MONTE LIRIO	13.800	G1	23.2	-0.6	12.0	-5.0	1.0200	22.8	0.9997	27.0	1	6
316	MONTE LIRIO	13.800	G2	23.2	-0.6	12.0	-5.0	1.0200	22.8	0.9997	27.0	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1072	7.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1072	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.4	10.5	-5.0	1.0200	15.7	0.9997	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.4	10.5	-5.0	1.0200	15.7	0.9997	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	26.6	-0.6	9.8	-9.8	1.0200	26.1	0.9997	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	26.6	-0.6	9.8	-9.8	1.0200	26.1	0.9997	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.7	2.8	1.3	0.9800	4.2	0.9086	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-0.6	6.6	-6.6	0.9800	7.8	0.9966	10.9	1	6
527	TCOLON 13C	13.800	V1	19.0	10.2	18.4	5.8	1.0100	21.3	0.8818	44.4	1	6
SUBSYSTEM TOTALS				2094.6	619.6	1325.7	-572.7				2885.4		

SYST



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT1 LLANO SANCHEZ-CHORRERA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	6.4	11.0	0.0	1.0200	13.8	0.8925	29.4	2	7					
129	MIR13D	13.800	G4	35.0	7.3	15.0	0.0	1.0200	35.1	0.9790	44.1	2	7					
130	MIR13F	13.800	G5	17.1	2.1	8.0	0.0	1.0200	16.9	0.9926	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0299	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0389	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0389	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS						116.0	36.2	67.5	20.5			170.3						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:25
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 CNT1 LLANO SANCHEZ-CHORRERA IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	



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4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.9	224.5	-98.9	0.0	143.2	-96.9	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	267.3	569.4	-237.4	0.0	467.9	43.6	359.7	
6	2094.6	1853.5	0.0	0.0	0.0	139.4	101.7	25.0
PANAMA	619.6	464.5	-366.3	0.0	538.1	59.7	999.7	
7	116.0	71.9	0.0	0.0	0.0	43.1	0.9	50.0
ACANAL	36.2	18.0	0.0	0.0	0.0	7.1	11.1	
9	0.0	182.6	0.0	0.0	0.0	-182.9	0.3	-75.0
COLON	0.0	45.8	0.0	0.0	1.1	-64.6	19.9	
TOTALS	7359.8	7159.6	0.0	0.0	0.0	0.0	200.2	0.0
	1142.5	2144.6	-1215.1	0.0	2085.9	0.0	2298.9	



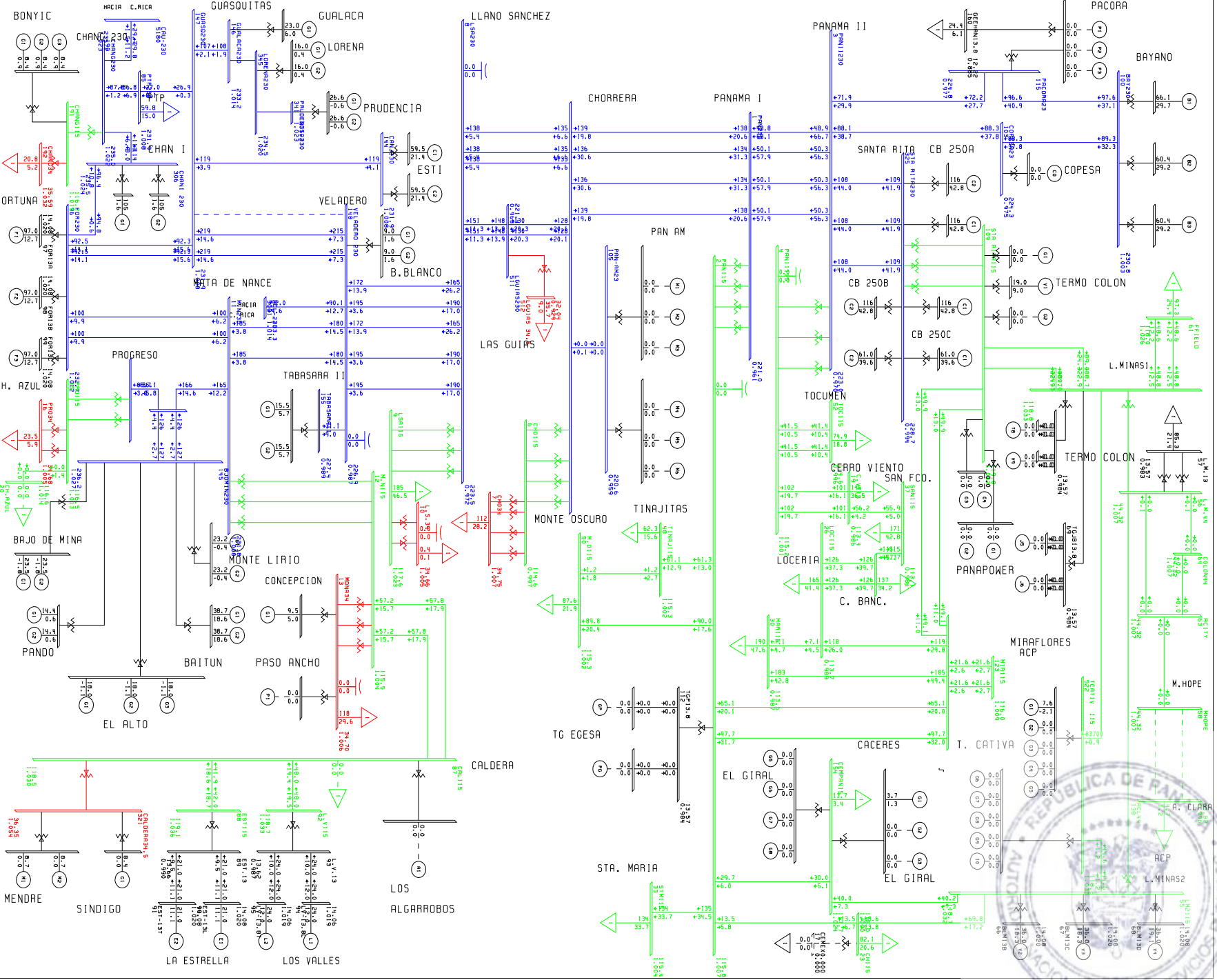
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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas-Veladero



de

PLN. EXP-SIN CON C.R.- JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2021 CNTZ GUASQUITAS-VELADERO
 MON. JUN 02 2008 8:30
 KY:K14. *35. *115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT2 GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0080	231.84	14	PRO230	230.00	6	1.0163	233.76				
85	PTP230	230.00	6	1.0081	231.87	96	FOR230	230.00	6	1.0118	232.70				
100	BAY230	230.00	6	1.0033	230.76	144	CANJ230	230.00	6	1.0083	231.90				
145	BJOMIN230	230.00	6	1.0270	236.21	146	GUALACA230	230.00	6	1.0139	233.19				
147	GUASQ230	230.00	6	1.0081	231.86	190	CHANG230	230.00	6	1.0218	235.01				
306	CHAN1 230	230.00	6	1.0240	235.51	310	CONCEPCION230	230.00	6	1.0192	234.41				
341	PRUDENCIA230	230.00	6	1.0229	235.27	345	LORENA230	230.00	6	1.0198	234.54				
6000	FRONTER	230.00	6	1.0160	233.69										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9608	220.98	3	PANII230	230.00	6	0.9696	223.01				
5	CHO230	230.00	6	0.9591	220.59	8	LSA230	230.00	6	0.9716	223.48				
103	COPESA23	230.00	6	0.9750	224.26	105	PAN-AM23	230.00	6	0.9591	220.59				
115	PACORA23	230.00	6	0.9773	224.77	148	VELADERO 230	230.00	6	0.9866	226.93				
155	TABASARAI	230.00	6	0.9888	227.43	325	STA RITA230	230.00	6	0.9945	228.73				
511	LGUIAS230	230.00	6	0.9628	221.43										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT2 GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0071	115.82	4	PANII115	115.00	6	1.0014	115.17				
9	LSA115	115.00	6	1.0227	117.61	12	M.N115	115.00	6	1.0044	115.51				
15	PRO115	115.00	6	1.0128	116.47	18	CAC115	115.00	6	1.0062	115.71				
20	CH.AZUL	115.00	6	1.0135	116.55	23	CH115	115.00	6	1.0002	115.03				
33	STM115	115.00	6	1.0037	115.42	48	TINAJ115	115.00	6	1.0022	115.25				
50	M.O115	115.00	6	1.0024	115.28	54	LM115	115.00	6	1.0328	118.77				
55	LM2115	115.00	6	1.0324	118.73	61	FFIELD	115.00	9	1.0259	117.98				
87	CAL115	115.00	6	1.0305	118.51	88	EST115	115.00	6	1.0359	119.13				
92	L.V115	115.00	6	1.0325	118.74	109	STA RITA115	115.00	6	1.0415	119.78				
123	MIR115	115.00	7	1.0091	116.05	154	CEMPAN15	115.00	6	1.0236	117.71				
191	CHANG115	115.00	6	1.0145	116.67	522	TCATIVÁ	115 115.00	6	1.0326	118.75				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO115	115.00	6	0.9965	114.60	19	C.V115	115.00	6	0.9864	113.44				
21	C.BAN115	115.00	6	0.9862	113.42	26	LOC115	115.00	6	0.9887	113.70				
30	MAR115	115.00	6	0.9874	113.55	37	SAN115	115.00	6	0.9836	113.11				
52	TOC115	115.00	6	0.9961	114.56										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:29
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT2 GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	18.3	25.0	0.0	1.0200	39.6	0.8915	47.0	1	6
67	BLM13C	13.800	V3	36.0	18.3	25.0	0.0	1.0200	39.6	0.8915	47.0	1	6
68	BLM13D	13.800	V4	36.0	19.1	25.0	0.0	1.0200	40.0	0.8834	47.0	1	6
90	EST-13L	13.800	E1	21.0	11.1	12.0	-5.0	1.0200	23.3	0.8835	27.0	1	6
91	EST-13T	13.800	E2	21.0	11.1	12.0	-5.0	1.0200	23.3	0.8835	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	12.0	12.0	-5.0	1.0189	26.3	0.8944	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	12.0	12.0	-5.0	1.0189	26.3	0.8944	27.0	1	6
97	FOR13A	13.800	F1	97.0	12.7	50.0	-50.0	1.0200	95.9	0.9916	111.0	1	6
98	FOR13B	13.800	F2	97.0	12.7	50.0	-50.0	1.0200	95.9	0.9916	111.0	1	6
99	FOR13C	13.800	F3	97.0	12.7	50.0	-50.0	1.0200	95.9	0.9916	111.0	1	6
101	BAY13A	13.800	B1	66.1	29.7	50.0	-25.0	0.9900	73.2	0.9124	96.0	1	6
102	BAY13B	13.800	B2	60.4	29.2	50.0	-25.0	0.9900	67.7	0.9004	96.0	1	6
108	BAY13C	13.800	B3	60.4	29.2	50.0	-25.0	0.9900	67.7	0.9004	100.0	1	6
117	CB250A-1	13.800	C1	115.9	42.8	75.6	0.0	1.0200	121.1	0.9380	143.5	1	6
118	CB250A-2	13.800	C2	115.9	42.8	75.6	0.0	1.0200	121.1	0.9380	143.5	1	6
119	CB250B-1	13.800	C1	115.9	42.8	75.6	0.0	1.0200	121.1	0.9380	143.5	1	6
120	CB250B-2	13.800	C2	115.9	42.8	75.6	0.0	1.0200	121.1	0.9380	143.5	1	6
121	CB250C-1	13.800	C1	61.0	39.6	75.6	0.0	1.0200	71.3	0.8390	143.5	1	6
122	CB250C-2	13.800	C2	61.0	39.6	75.6	0.0	1.0200	71.3	0.8390	143.5	1	6
142	CANJ13A	13.800	C1	59.5	21.4	29.0	-29.0	1.0200	62.0	0.9409	69.0	1	6
143	CANJ13B	13.800	C2	59.5	21.4	29.0	-29.0	1.0200	62.0	0.9409	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	1.6	6.1	0.0	0.9900	9.2	0.9843	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	1.6	6.1	0.0	0.9900	9.2	0.9843	11.6	1	6
151	GUALACA13.8	13.800	G1	23.0	6.0	10.0	-10.0	1.0200	23.3	0.9675	26.7	1	6
156	TABASARAI1313.800	13.800	G1	15.5	5.7	5.7	0.2	1.0115	16.3	0.9394	20.5	1	6
156	TABASARAI1313.800	13.800	G2	15.5	5.7	5.7	0.2	1.0115	16.3	0.9394	20.5	1	6
193	GEBONYIC	13.800	G1	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9941	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9941	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9941	35.3	1	6
204	BJOMIN13	13.800	G1	23.5	-1.8	13.0	-13.0	1.0200	23.1	0.9970	28.9	1	6
204	BJOMIN13	13.800	G2	23.5	-1.8	13.0	-13.0	1.0200	23.1	0.9970	28.9	1	6
205	BAITUN13.8	13.800	G1	38.7	18.6	26.6	-26.6	1.0200	42.1	0.9009	50.6	1	6
205	BAITUN13.8	13.800	G2	38.7	18.6	26.6	-26.6	1.0200	42.1	0.9009	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9611	11.2	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1062	7.6	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	18.0	-1.1	12.0	-5.0	1.0200	17.7	0.9983	20.6	1	6
305	ELALTO13.8	13.800	G2	18.0	-1.1	12.0	-5.0	1.0200	17.7	0.9983	20.6	1	6
305	ELALTO13.8	13.800	G3	18.0	-1.1	12.0	-5.0	1.0200	17.7	0.9983	20.6	1	6
307	CHAN1 A	13.800	G1	105.0	1.6	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
308	CHAN1 B	13.800	G2	105.0	1.6	50.0	-50.0	1.0200	103.0	0.9999	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	0.6	10.0	-5.0	1.0200	14.1	0.9990	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	0.6	10.0	-5.0	1.0200	14.1	0.9990	19.9	1	6
316	MONTE LIRIO	13.800	G1	23.2	-0.4	12.0	-5.0	1.0200	22.8	0.9999	27.0	1	6
316	MONTE LIRIO	13.800	G2	23.2	-0.4	12.0	-5.0	1.0200	22.8	0.9999	27.0	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1057	7.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1057	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.4	10.5	-5.0	1.0200	15.7	0.9997	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.4	10.5	-5.0	1.0200	15.7	0.9997	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	26.6	-0.6	9.8	-9.8	1.0200	26.1	0.9997	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	26.6	-0.6	9.8	-9.8	1.0200	26.1	0.9997	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9810	4.0	0.9433	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	-2.1	6.6	-6.6	0.9800	8.0	0.9652	10.9	1	6
527	TCOLON 13C	13.800	V1	19.0	9.0	18.4	5.8	1.0100	20.8	0.9043	44.4	1	6
SUBSYSTEM TOTALS				2092.1	591.5	1325.7	-572.7				2885.4		

SYST



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT2 GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	5.9	11.0	0.0	1.0200	13.6	0.9063	29.4			2	7	
129		MIR13D		13.800	G4	35.0	6.5	15.0	0.0	1.0200	34.9	0.9830	44.1			2	7	
130		MIR13F		13.800	G5	17.1	1.2	8.0	0.0	1.0200	16.8	0.9974	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0317	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0407	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0407	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	34.1	67.5	20.5				170.3					



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X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.0	224.5	-98.8	0.0	143.2	-96.8	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.2	19.9	0.0
C.RICA	270.5	569.4	-237.3	0.0	467.6	45.1	360.8	
6	2092.1	1853.5	0.0	0.0	0.0	139.5	99.1	25.0
PANAMA	591.5	464.5	-367.6	0.0	549.7	60.0	984.2	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	34.1	18.0	0.0	0.0	0.0	5.1	11.0	
9	0.0	182.6	0.0	0.0	0.0	-182.9	0.3	-75.0
COLON	0.0	45.8	0.0	0.0	1.1	-64.5	19.8	
TOTALS	7357.4	7159.6	0.0	0.0	0.0	0.0	197.8	0.0
	1115.5	2144.6	-1216.3	0.0	2097.2	0.0	2284.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO



de

Contingencia 3: Contingencia Mata de Nance-Veladero



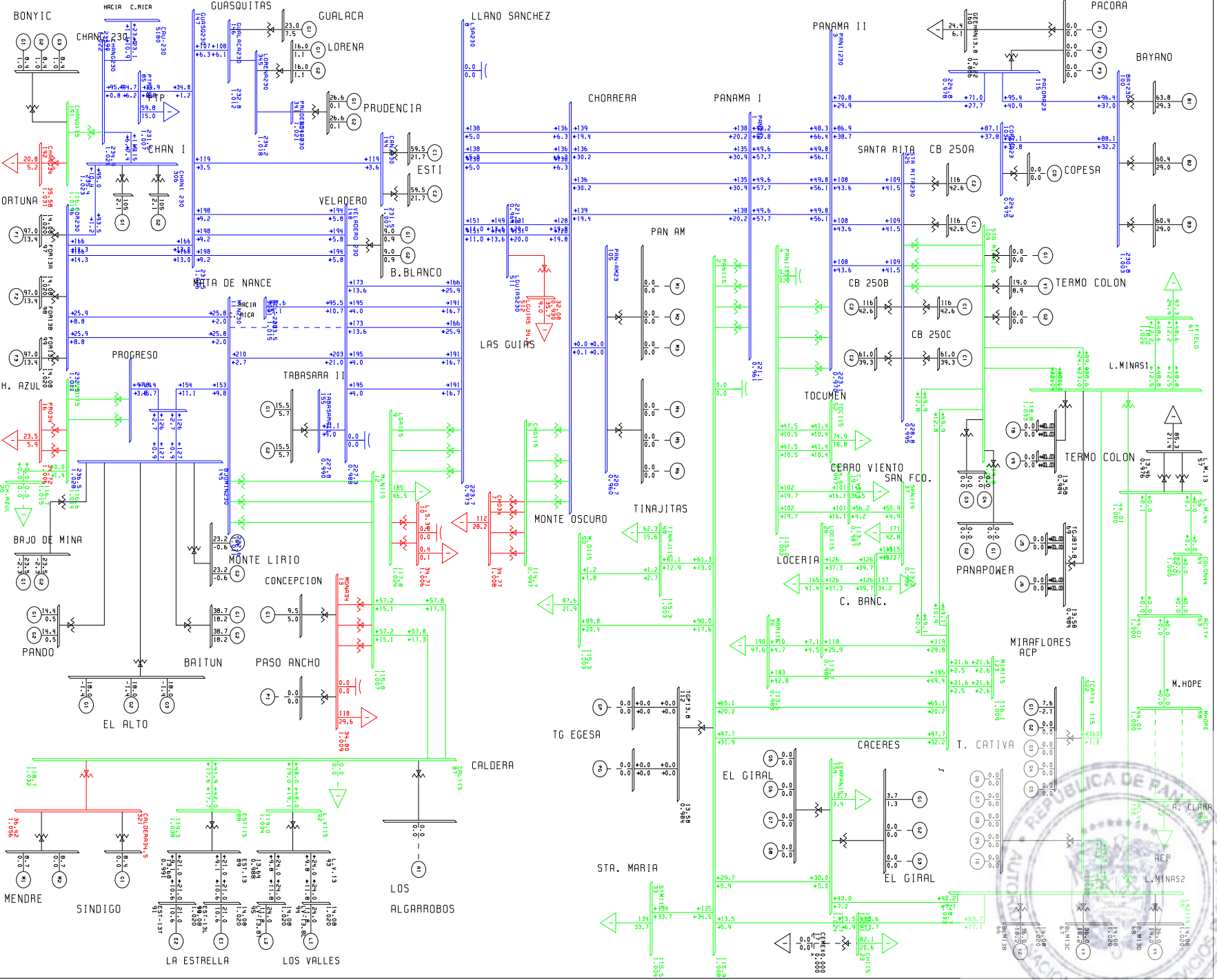
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PLAN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2021 CNTS MATR DE NANCE-VELADERO
 MON. JUN 02 2008 8:33
 KV:114. *35. *115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



Handwritten signature or initials.

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT3 MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230			230.00	6	1.0111	232.56	14	PRO230			230.00	6	1.0176	234.05
85	PTP230			230.00	6	1.0065	231.50	96	FOR230			230.00	6	1.0110	232.53
100	BAY230			230.00	6	1.0035	230.80	144	CANJ230			230.00	6	1.0065	231.50
145	BJOMIN230			230.00	6	1.0283	236.50	146	GUALACA230			230.00	6	1.0123	232.82
147	GUASQ230			230.00	6	1.0063	231.45	190	CHANG230			230.00	6	1.0211	234.86
306	CHAN1 230			230.00	6	1.0234	235.39	310	CONCEPCION230			230.00	6	1.0209	234.82
341	PRUDENCIA230			230.00	6	1.0215	234.94	345	LORENA230			230.00	6	1.0183	234.20
6000	FRONTER			230.00	6	1.0172	233.95								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230			230.00	6	0.9612	221.07	3	PANII230			230.00	6	0.9699	223.09
5	CHO230			230.00	6	0.9596	220.72	8	LSA230			230.00	6	0.9728	223.74
103	COPESA23			230.00	6	0.9754	224.33	105	PAN-AM23			230.00	6	0.9596	220.72
115	TACORA23			230.00	6	0.9776	224.84	148	VELADERO 230			230.00	6	0.9882	227.29
155	PABASARAI			230.00	6	0.9904	227.79	325	STA RITA230			230.00	6	0.9946	228.76
511	LGUIAS230			230.00	6	0.9636	221.64								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT3 MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115			115.00	6	1.0075	115.86	4	PANII115			115.00	6	1.0018	115.21
9	LSA115			115.00	6	1.0239	117.75	12	M.N115			115.00	6	1.0070	115.81
15	PRO115			115.00	6	1.0141	116.62	18	CAC115			115.00	6	1.0066	115.76
20	CH.AZUL			115.00	6	1.0148	116.70	23	CH115			115.00	6	1.0005	115.06
33	STM115			115.00	6	1.0040	115.46	48	TINAJ115			115.00	6	1.0026	115.30
50	M.O115			115.00	6	1.0028	115.32	54	LM1115			115.00	6	1.0329	118.79
55	LM2115			115.00	6	1.0325	118.74	61	FFIELD			115.00	9	1.0260	117.99
87	CAL115			115.00	6	1.0324	118.73	88	EST115			115.00	6	1.0376	119.32
92	L.V115			115.00	6	1.0344	118.96	109	STA RITA115			115.00	6	1.0417	119.79
123	MIR115			115.00	7	1.0095	116.09	154	CEMPAN15			115.00	6	1.0238	117.73
191	CHANG115			115.00	6	1.0141	116.62	522	TCATIVÁ 115			115.00	6	1.0327	118.77



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BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6		CHO115		115.00	6	0.9972	114.67	19		C.V115		115.00	6	0.9868	113.48
21		C.BAN115		115.00	6	0.9866	113.46	26		LOC115		115.00	6	0.9891	113.74
30		MAR115		115.00	6	0.9878	113.60	37		SAN115		115.00	6	0.9840	113.15
52		TOC115		115.00	6	0.9965	114.60								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT3 MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	18.2	25.0	0.0	1.0200	39.6	0.8921	47.0			1	6	
67		BLM13C		13.800	V3	36.0	18.2	25.0	0.0	1.0200	39.6	0.8921	47.0			1	6	
68		BLM13D		13.800	V4	36.0	19.0	25.0	0.0	1.0200	39.9	0.8840	47.0			1	6	
90		EST-13L		13.800	E1	21.0	10.6	12.0	-5.0	1.0200	23.1	0.8924	27.0			1	6	
91		EST-13T		13.800	E2	21.0	10.6	12.0	-5.0	1.0200	23.1	0.8924	27.0			1	6	
94		LV-13.8L		13.800	L1	24.0	11.8	12.0	-5.0	1.0200	26.2	0.8975	27.0			1	6	
95		LV-13.8T		13.800	L2	24.0	11.8	12.0	-5.0	1.0200	26.2	0.8975	27.0			1	6	
97		FOR13A		13.800	F1	97.0	13.4	50.0	-50.0	1.0200	96.0	0.9906	111.0			1	6	
98		FOR13B		13.800	F2	97.0	13.4	50.0	-50.0	1.0200	96.0	0.9906	111.0			1	6	
99		FOR13C		13.800	F3	97.0	13.4	50.0	-50.0	1.0200	96.0	0.9906	111.0			1	6	
101		BAY13A		13.800	B1	63.8	29.3	50.0	-25.0	0.9900	70.9	0.9087	96.0			1	6	SYST
102		BAY13B		13.800	B2	60.4	29.0	50.0	-25.0	0.9900	67.7	0.9012	96.0			1	6	
108		BAY13C		13.800	B3	60.4	29.0	50.0	-25.0	0.9900	67.7	0.9012	100.0			1	6	
117		CB250A-1		13.800	C1	115.9	42.6	75.6	0.0	1.0200	121.1	0.9386	143.5			1	6	
118		CB250A-2		13.800	C2	115.9	42.6	75.6	0.0	1.0200	121.1	0.9386	143.5			1	6	
119		CB250B-1		13.800	C1	115.9	42.6	75.6	0.0	1.0200	121.1	0.9386	143.5			1	6	
120		CB250B-2		13.800	C2	115.9	42.6	75.6	0.0	1.0200	121.1	0.9386	143.5			1	6	
121		CB250C-1		13.800	C1	61.0	39.3	75.6	0.0	1.0200	71.2	0.8405	143.5			1	6	
122		CB250C-2		13.800	C2	61.0	39.3	75.6	0.0	1.0200	71.2	0.8405	143.5			1	6	
142		CANJ13A		13.800	C1	59.5	21.7	29.0	-29.0	1.0200	62.1	0.9393	69.0			1	6	
143		CANJ13B		13.800	C2	59.5	21.7	29.0	-29.0	1.0200	62.1	0.9393	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.9	6.1	0.0	0.9900	9.1	0.9950	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.9	6.1	0.0	0.9900	9.1	0.9950	11.6			1	6	
151		GUALACA13.8		13.800	G1	23.0	7.5	10.0	-10.0	1.0200	23.7	0.9505	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	5.7	5.7	0.2	1.0130	16.3	0.9394	20.5			1	6	
156		TABASARAI13		13.800	G2	15.5	5.7	5.7	0.2	1.0130	16.3	0.9394	20.5			1	6	
193		GEBONYIC		13.800	G1	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9934	35.3			1	6	
193		GEBONYIC		13.800	G2	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9934	35.3			1	6	
193		GEBONYIC		13.800	G3	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9934	35.3			1	6	
204		BJOMIN13		13.800	G1	23.5	-2.3	13.0	-13.0	1.0200	23.1	0.9953	28.9			1	6	
204		BJOMIN13		13.800	G2	23.5	-2.3	13.0	-13.0	1.0200	23.1	0.9953	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.7	18.2	26.6	-26.6	1.0200	41.9	0.9053	50.6			1	6	
205		BAITUN13.8		13.800	G2	38.7	18.2	26.6	-26.6	1.0200	41.9	0.9053	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9638	11.1	0.8849	13.5			1	6	
303		SIND13.8		13.800	G1	8.4	0.0	5.0	0.0	1.1083	7.6	1.0000	13.5			1	6	
305		ELALTO13.8		13.800	G1	18.0	-1.4	12.0	-5.0	1.0200	17.7	0.9971	20.6			1	6	
305		ELALTO13.8		13.800	G2	18.0	-1.4	12.0	-5.0	1.0200	17.7	0.9971	20.6			1	6	
305		ELALTO13.8		13.800	G3	18.0	-1.4	12.0	-5.0	1.0200	17.7	0.9971	20.6			1	6	
307		CHANI A		13.800	G1	105.0	2.1	50.0	-50.0	1.0200	103.0	0.9998	118.6			1	6	
308		CHANI B		13.800	G2	105.0	2.1	50.0	-50.0	1.0200	103.0	0.9998	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	0.5	10.0	-5.0	1.0200	14.1	0.9993	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	0.5	10.0	-5.0	1.0200	14.1	0.9993	19.9			1	6	
316		MONTE LIRIO		13.800	G1	23.2	-0.6	12.0	-5.0	1.0200	22.8	0.9996	27.0			1	6	



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316 MONTE LIRIO	13.800	G2	23.2	-0.6	12.0	-5.0	1.0200	22.8	0.9996	27.0	1	6
317 MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1078	7.9	1.0000	35.3	1	6
317 MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1078	7.9	1.0000	35.3	1	6
342 LORENA13.8	13.800	G1	16.0	1.1	10.5	-5.0	1.0200	15.7	0.9977	19.9	1	6
342 LORENA13.8	13.800	G2	16.0	1.1	10.5	-5.0	1.0200	15.7	0.9977	19.9	1	6
343 PRUDENCIA13813.800	13.800	G1	26.6	0.1	9.8	-9.8	1.0200	26.1	1.0000	33.0	1	6
343 PRUDENCIA13813.800	13.800	G2	26.6	0.1	9.8	-9.8	1.0200	26.1	1.0000	33.0	1	6
521 EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9812	4.0	0.9433	4.8	1	6
523 TCATIVÁ 13A	13.800	G1	7.6	-2.1	6.6	-6.6	0.9800	8.0	0.9628	10.9	1	6
527 TCOLON 13C	13.800	V1	19.0	8.9	18.4	5.8	1.0100	20.8	0.9055	44.4	1	6
SUBSYSTEM TOTALS			2089.8	590.9	1325.7	-572.7				2885.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 CNT3 MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C			12.000	G3	12.6	5.8	11.0	0.0	1.0200	13.6	0.9073	29.4			2	7	
129	MIR13D			13.800	G4	35.0	6.5	15.0	0.0	1.0200	34.9	0.9833	44.1			2	7	
130	MIR13F			13.800	G5	17.1	1.2	8.0	0.0	1.0200	16.8	0.9977	27.7			2	7	
170	MIR13G			13.800	M1	17.1	6.8	11.2	6.8	1.0319	17.8	0.9289	23.0			2	7	
171	MIR13H			13.800	M1	17.1	6.8	11.2	6.8	1.0409	17.7	0.9289	23.0			2	7	
171	MIR13H			13.800	M2	17.1	6.8	11.2	6.8	1.0409	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS									116.0	33.9	67.5	20.5			170.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 CNT3 MATA DE NANCE-VELADERO IN MW/MVAR

X--	AREA	--X	FROM	TO	TO BUS	TO LINE	FROM	TO	LOSSES	DESIRED
			GENERATION	LOAD	SHUNT	SHUNT	CHARGING	NET INT		NET INT
1			1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2			911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	



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3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.0	224.5	-98.9	0.0	143.2	-96.8	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	269.5	569.4	-237.3	0.0	467.7	45.4	359.7	
6	2089.8	1853.5	0.0	0.0	0.0	139.3	97.0	25.0
PANAMA	590.9	464.5	-368.1	0.0	549.1	60.1	983.4	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	33.9	18.0	0.0	0.0	0.0	5.0	11.0	
9	0.0	182.6	0.0	0.0	0.0	-182.9	0.3	-75.0
COLON	0.0	45.8	0.0	0.0	1.1	-64.8	20.1	
TOTALS	7355.1	7159.6	0.0	0.0	0.0	0.0	195.5	0.0
	1113.6	2144.6	-1216.8	0.0	2096.7	0.0	2282.6	



de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá – Cemento Panamá**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT4 PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0058	231.33	8		LSA230		230.00	6	1.0399	239.17
11	M.	N230		230.00	6	1.0343	237.89	14		PRO230		230.00	6	1.0358	238.24
85		PTP230		230.00	6	1.0272	236.25	96		FOR230		230.00	6	1.0319	237.33
100		BAY230		230.00	6	1.0159	233.66	105		PAN-AM23		230.00	6	1.0059	231.35
115		PACORA23		230.00	6	1.0022	230.51	144		CANJ230		230.00	6	1.0332	237.64
145		BJOMIN230		230.00	6	1.0373	238.57	146		GUALACA230		230.00	6	1.0359	238.26
147		GUASQ230		230.00	6	1.0331	237.61	148		VELADERO 230		230.00	6	1.0419	239.64
155		TABASARAI		230.00	6	1.0424	239.74	190		CHANG230		230.00	6	1.0280	236.45
306		CHAN1 230		230.00	6	1.0279	236.42	310		CONCEPCION23		230.00	6	1.0365	238.38
325		STA RITA230		230.00	6	1.0008	230.19	341		PRUDENCIA230		230.00	6	1.0405	239.31
345		LORENA230		230.00	6	1.0389	238.94	511		LGUIAS230		230.00	6	1.0258	235.94
6000		FRONTER		230.00	6	1.0362	238.33								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9911	227.95	3		PANII230		230.00	6	0.9948	228.79
103		COPESA23		230.00	6	0.9983	229.61								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT4 PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0099	116.14	4		PANII115		115.00	6	1.0130	116.50
6		CHO115		115.00	6	1.0460	120.30	9		LSA115		115.00	6	1.0971	126.16
12	M.	N115		115.00	6	1.0228	117.63	15		PRO115		115.00	6	1.0322	118.71
18		CAC115		115.00	6	1.0088	116.01	20		CH.AZUL		115.00	6	1.0330	118.79
33		STM115		115.00	6	1.0064	115.73	48		TINAJ115		115.00	6	1.0049	115.56
50		M.O115		115.00	6	1.0051	115.59	52		TOC115		115.00	6	1.0077	115.88
54		LM1115		115.00	6	1.0296	118.40	55		LM2115		115.00	6	1.0299	118.44
61		FFIELD		115.00	9	1.0225	117.59	87		CAL115		115.00	6	1.0366	119.21
88		EST115		115.00	6	1.0400	119.60	92		L.V115		115.00	6	1.0374	119.30
109		STA RITA115		115.00	6	1.0338	118.89	123		MIR115		115.00	7	1.0108	116.24
154		CEMPAN15		115.00	6	1.0352	119.04	191		CHANG115		115.00	6	1.0157	116.81
522		TCATIVÁ		115 115.00	6	1.0299	118.44								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9953	114.46	21		C.BAN115		115.00	6	0.9897	113.81
23		CH115		115.00	6	0.9990	114.88	26		LOC115		115.00	6	0.9919	114.07
30		MAR115		115.00	6	0.9901	113.87	37		SAN115		115.00	6	0.9875	113.56

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT4 PANAMA-CEMENTO PANAMA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	14.7	25.0	0.0	1.0100	38.5	0.9258	47.0	1	6
67	BLM13C	13.800	V3	36.0	14.7	25.0	0.0	1.0100	38.5	0.9258	47.0	1	6
68	BLM13D	13.800	V4	36.0	15.3	25.0	0.0	1.0100	38.7	0.9202	47.0	1	6
90	EST-13L	13.800	E1	14.1	6.4	12.0	-5.0	1.0100	15.3	0.9117	27.0	1	6
91	EST-13T	13.800	E2	14.1	6.4	12.0	-5.0	1.0100	15.3	0.9117	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	8.1	12.0	-5.0	1.0100	26.2	0.9516	27.0	1	6
97	FOR13A	13.800	F1	68.4	-17.6	50.0	-50.0	1.0100	69.9	0.9685	111.0	1	6
98	FOR13B	13.800	F2	68.4	-17.6	50.0	-50.0	1.0100	69.9	0.9685	111.0	1	6
99	FOR13C	13.800	F3	68.4	-17.6	50.0	-50.0	1.0100	69.9	0.9685	111.0	1	6
101	BAY13A	13.800	B1	82.3	21.9	50.0	-25.0	0.9900	86.0	0.9663	96.0	1	6
102	BAY13B	13.800	B2	81.6	21.8	50.0	-25.0	0.9900	85.3	0.9660	96.0	1	6
106	PANAM13A	13.800	M1	14.5	6.8	9.0	0.0	1.0100	15.8	0.9060	20.7	1	6
106	PANAM13A	13.800	M2	14.5	6.8	9.0	0.0	1.0100	15.8	0.9060	20.7	1	6
107	PANAM13B	13.800	M4	14.5	6.9	9.0	0.0	1.0100	15.9	0.9036	20.7	1	6
107	PANAM13B	13.800	M5	14.0	6.6	9.0	0.0	1.0100	15.3	0.9036	20.7	1	6
116	PACORA13	13.800	P1	15.2	5.3	8.8	0.0	1.0100	16.0	0.9434	21.7	1	6
116	PACORA13	13.800	P2	15.2	5.3	8.8	0.0	1.0100	16.0	0.9434	21.7	1	6
116	PACORA13	13.800	P3	15.2	5.3	8.8	0.0	1.0100	16.0	0.9434	21.7	1	6
117	CB250A-1	13.800	C1	115.0	18.1	75.6	0.0	1.0100	115.3	0.9879	143.5	1	6
118	CB250A-2	13.800	C2	115.0	18.1	75.6	0.0	1.0100	115.3	0.9879	143.5	1	6
119	CB250B-1	13.800	C1	115.0	3.3	75.6	0.0	1.0000	115.0	0.9996	143.5	1	6
120	CB250B-2	13.800	C2	115.0	3.3	75.6	0.0	1.0000	115.0	0.9996	143.5	1	6
121	CB250C-1	13.800	C1	115.0	3.3	75.6	0.0	1.0000	115.0	0.9996	143.5	1	6
122	CB250C-2	13.800	C2	115.0	3.3	75.6	0.0	1.0000	115.0	0.9996	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.2	29.0	-29.0	1.0100	44.0	0.9735	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.2	29.0	-29.0	1.0100	44.0	0.9735	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0419	4.6	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0305	14.8	0.9447	26.7	1	6
156	TABASARAI13.8	13.800	G1	9.6	0.2	5.7	0.2	1.0427	9.2	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9992	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9992	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9992	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.5	13.0	-13.0	1.0100	18.2	0.8547	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.5	13.0	-13.0	1.0100	18.2	0.8547	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.3	26.6	-26.6	1.0100	35.7	0.9586	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.3	26.6	-26.6	1.0100	35.7	0.9586	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9664	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1148	4.0	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0303	14.4	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	77.3	-14.4	50.0	-50.0	1.0100	77.9	0.9831	118.6	1	6
308	CHAN1 B	13.800	G2	77.3	-14.4	50.0	-50.0	1.0100	77.9	0.9831	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9844	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9844	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0127	14.3	0.9386	27.0	1	6
316	MONTE LIRIO	13.800	G2	13.6	-5.0	12.0	-5.0	1.0127	14.3	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.1146	5.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.2	0.0	4.0	0.0	1.1146	5.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0280	11.8	0.9118	19.9	1	6
342	LORENA13.8	13.800	G2	11.1	-5.0	10.5	-5.0	1.0280	11.8	0.9118	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	19.2	-9.8	9.8	-9.8	1.0188	21.1	0.8910	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	19.2	-9.8	9.8	-9.8	1.0188	21.1	0.8910	33.0	1	6
516	PANAPOWL3A	13.800	G1	12.4	0.5	12.5	0.5	1.0346	12.0	0.9991	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.2	1.3	2.8	1.3	1.0086	3.4	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.2	1.3	2.8	1.3	1.0086	3.4	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.2	1.3	2.8	1.3	1.0086	3.4	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.2	1.3	2.8	1.3	1.0086	3.4	0.9263	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.3	0.1	6.6	-6.6	0.9800	7.4	0.9999	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.3	0.1	6.6	-6.6	0.9800	7.4	0.9999	10.9	1	6

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523	TCATIVÁ	13A	13.800	G3	7.3	0.1	6.6	-6.6	0.9800	7.4	0.9999	10.9	1	6
523	TCATIVÁ	13A	13.800	G4	7.3	0.1	6.6	-6.6	0.9800	7.4	0.9999	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	7.3	0.1	6.6	-6.6	0.9800	7.4	0.9999	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8835	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8835	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8835	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8835	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.3	3.9	6.6	-6.6	1.0100	8.2	0.8835	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	1.0011	37.1	0.9688	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	13.5	18.4	9.2	1.0100	38.1	0.9366	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	13.5	18.4	5.8	1.0100	38.1	0.9366	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	0.9982	8.6	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	0.9982	8.6	0.9363	10.9	1	6	
SUBSYSTEM TOTALS					2087.7	160.9	1420.1	-558.2				3077.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT4 PANAMA-CEMENTO PANAMA

AREA 7 [ACANAL] MACHINE SUMMARY:														
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N
128		MIR13C		12.000	G3	12.6	4.5	11.0	0.0	1.0100	13.2	0.9428	29.4	GENTAP ZONE AREA SWING
129		MIR13D		13.800	G4	35.0	4.4	15.0	0.0	1.0100	34.9	0.9922	44.1	2 7
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0122	16.9	1.0000	27.7	2 7
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0266	17.9	0.9289	23.0	2 7
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0357	17.8	0.9289	23.0	2 7
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0357	17.8	0.9289	23.0	2 7
SUBSYSTEM TOTALS						116.0	29.3	67.5	20.5				170.3	



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 CNT4 PANAMA-CEMENTO PANAMA IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	241.7	569.4	-237.4	0.0	470.9	22.3	358.3	
6	2087.7	1893.7	0.0	0.0	0.0	144.8	49.2	25.0
PANAMA	160.9	474.6	-390.0	0.0	608.4	90.7	594.1	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	29.3	18.4	0.0	0.0	0.0	0.1	10.8	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.8	0.0	0.0	1.1	-66.6	20.9	
TOTALS	7353.0	7205.3	0.0	0.0	0.0	0.0	147.6	0.0
	650.3	2156.1	-1238.8	0.0	2159.4	0.0	1892.4	

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
 AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO**



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Contingencia 5: Contingencia Las Minas 2 – Chilibre



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT5 MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0031	230.72	8		LSA230		230.00	6	1.0379	238.72
11	M.	N230		230.00	6	1.0336	237.74	14		PRO230		230.00	6	1.0353	238.12
85		PTP230		230.00	6	1.0266	236.12	96		FOR230		230.00	6	1.0313	237.19
100		BAY230		230.00	6	1.0142	233.26	105		PAN-AM23		230.00	6	1.0032	230.75
144		CANJ230		230.00	6	1.0325	237.47	145		BJOMIN230		230.00	6	1.0369	238.48
146		GUALACA230		230.00	6	1.0352	238.10	147		GUASQ230		230.00	6	1.0324	237.44
148		VELADERO 230		230.00	6	1.0407	239.36	155		TABASARAI		230.00	6	1.0411	239.46
190		CHANG230		230.00	6	1.0278	236.38	306		CHAN1 230		230.00	6	1.0276	236.36
310		CONCEPCION23		230.00	6	1.0360	238.27	341		PRUDENCIA230		230.00	6	1.0398	239.15
345		LORENA230		230.00	6	1.0382	238.78	511		LGUIAS230		230.00	6	1.0235	235.41
6000		FRONTIER		230.00	6	1.0357	238.22								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9881	227.26	3		PANII230		230.00	6	0.9921	228.18
103		COPESA23		230.00	6	0.9958	229.03	115		PACORA23		230.00	6	1.0000	229.99
325		STA RITA230		230.00	6	0.9999	229.99								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT5 MINAS 2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0058	115.67	4		PANII115		115.00	6	1.0100	116.15
6		CHO115		115.00	6	1.0432	119.97	9		LSA115		115.00	6	1.0949	125.92
12	M.	N115		115.00	6	1.0223	117.57	15		PRO115		115.00	6	1.0317	118.65
18		CAC115		115.00	6	1.0048	115.55	20		CH.AZUL		115.00	6	1.0325	118.74
33		STM115		115.00	6	1.0023	115.26	48		TINAJ115		115.00	6	1.0008	115.09
50		M.O115		115.00	6	1.0010	115.11	52		TOC115		115.00	6	1.0046	115.53
54		LM115		115.00	6	1.0305	118.50	55		LM2115		115.00	6	1.0311	118.57
61		FFIELD		115.00	9	1.0234	117.69	87		CAL115		115.00	6	1.0362	119.17
88		EST115		115.00	6	1.0396	119.56	92		L.V115		115.00	6	1.0370	119.26
109		STA RITA115		115.00	6	1.0334	118.84	123		MIR115		115.00	7	1.0069	115.80
154		CEMPAN15		115.00	6	1.0262	118.01	191		CHANG115		115.00	6	1.0155	116.78
522		TCATIVÁ		115 115.00	6	1.0310	118.56								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9919	114.07	21		C.BAN115		115.00	6	0.9856	113.35
23		CH115		115.00	6	0.9738	111.98	26		LOC115		115.00	6	0.9879	113.60
30		MAR115		115.00	6	0.9860	113.39	37		SAN115		115.00	6	0.9835	113.10

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT5 MINAS 2-CHILIBRE

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	36.0	14.2	25.0	0.0	1.0100	38.3	0.9304	47.0	1	6
67	BLM13C	13.800	V3	36.0	14.2	25.0	0.0	1.0100	38.3	0.9304	47.0	1	6
68	BLM13D	13.800	V4	36.0	14.8	25.0	0.0	1.0100	38.5	0.9251	47.0	1	6
90	EST-13L	13.800	E1	14.1	6.5	12.0	-5.0	1.0100	15.4	0.9092	27.0	1	6
91	EST-13T	13.800	E2	14.1	6.5	12.0	-5.0	1.0100	15.4	0.9092	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	8.3	12.0	-5.0	1.0100	26.3	0.9503	27.0	1	6
97	FOR13A	13.800	F1	68.4	-17.0	50.0	-50.0	1.0100	69.8	0.9703	111.0	1	6
98	FOR13B	13.800	F2	68.4	-17.0	50.0	-50.0	1.0100	69.8	0.9703	111.0	1	6
99	FOR13C	13.800	F3	68.4	-17.0	50.0	-50.0	1.0100	69.8	0.9703	111.0	1	6
101	BAY13A	13.800	B1	84.2	23.4	50.0	-25.0	0.9900	88.3	0.9633	96.0	1	6
102	BAY13B	13.800	B2	81.6	23.2	50.0	-25.0	0.9900	85.7	0.9620	96.0	1	6
106	PANAM13A	13.800	M1	14.5	7.3	9.0	0.0	1.0100	16.1	0.8922	20.7	1	6
106	PANAM13A	13.800	M2	14.5	7.3	9.0	0.0	1.0100	16.1	0.8922	20.7	1	6
107	PANAM13B	13.800	M4	14.5	7.5	9.0	0.0	1.0100	16.1	0.8894	20.7	1	6
107	PANAM13B	13.800	M5	14.0	7.2	9.0	0.0	1.0100	15.6	0.8894	20.7	1	6
116	PACORA13	13.800	P1	15.2	5.8	8.8	0.0	1.0100	16.1	0.9351	21.7	1	6
116	PACORA13	13.800	P2	15.2	5.8	8.8	0.0	1.0100	16.1	0.9351	21.7	1	6
116	PACORA13	13.800	P3	15.2	5.8	8.8	0.0	1.0100	16.1	0.9351	21.7	1	6
117	CB250A-1	13.800	C1	115.0	19.4	75.6	0.0	1.0100	115.5	0.9861	143.5	1	6
118	CB250A-2	13.800	C2	115.0	19.4	75.6	0.0	1.0100	115.5	0.9861	143.5	1	6
119	CB250B-1	13.800	C1	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
120	CB250B-2	13.800	C2	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
121	CB250C-1	13.800	C1	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
122	CB250C-2	13.800	C2	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.3	29.0	-29.0	1.0100	44.1	0.9730	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.3	29.0	-29.0	1.0100	44.1	0.9730	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0407	4.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0298	14.8	0.9447	26.7	1	6
156	TABASARAI13.8	13.800	G1	9.6	0.2	5.7	0.2	1.0415	9.2	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9993	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9993	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9993	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.4	13.0	-13.0	1.0100	18.1	0.8583	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.4	13.0	-13.0	1.0100	18.1	0.8583	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.4	26.6	-26.6	1.0100	35.8	0.9574	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.4	26.6	-26.6	1.0100	35.8	0.9574	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9658	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1144	4.0	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0299	14.4	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	77.3	-14.2	50.0	-50.0	1.0100	77.8	0.9836	118.6	1	6
308	CHAN1 B	13.800	G2	77.3	-14.2	50.0	-50.0	1.0100	77.8	0.9836	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9850	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9850	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0123	14.3	0.9386	27.0	1	6
316	MONTE LIRIO	13.800	G2	13.6	-5.0	12.0	-5.0	1.0123	14.3	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.1141	5.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.2	0.0	4.0	0.0	1.1141	5.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0273	11.9	0.9118	19.9	1	6
342	LORENA13.8	13.800	G2	11.1	-5.0	10.5	-5.0	1.0273	11.9	0.9118	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	19.2	-9.8	9.8	-9.8	1.0181	21.1	0.8910	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	19.2	-9.8	9.8	-9.8	1.0181	21.1	0.8910	33.0	1	6
516	PANAPOWL13A	13.800	G1	12.4	0.5	12.5	0.5	1.0342	12.0	0.9991	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.2	1.3	2.8	1.3	1.0001	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.2	1.3	2.8	1.3	1.0001	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.2	1.3	2.8	1.3	1.0001	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.2	1.3	2.8	1.3	1.0001	3.5	0.9263	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.3	0.0	6.6	-6.6	0.9800	7.4	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.3	0.0	6.6	-6.6	0.9800	7.4	1.0000	10.9	1	6

SYST



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X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	242.5	569.4	-237.3	0.0	470.9	23.0	358.3	
6	2089.7	1893.7	0.0	0.0	0.0	144.8	51.1	25.0
PANAMA	176.4	474.6	-387.7	0.0	607.0	88.7	607.7	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	30.7	18.4	0.0	0.0	0.0	1.4	10.8	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.8	0.0	0.0	1.1	-66.5	20.9	
TOTALS	7354.9	7205.3	0.0	0.0	0.0	0.0	149.5	0.0
	667.9	2156.1	-1236.5	0.0	2157.8	0.0	1906.2	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008



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AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1 – Santa Rita



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT6 MINAS1-STA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0077	231.76	8		LSA230		230.00	6	1.0413	239.49
11	M.	N230		230.00	6	1.0348	238.00	14		PRO230		230.00	6	1.0362	238.32
85		PTP230		230.00	6	1.0276	236.34	96		FOR230		230.00	6	1.0323	237.42
100		BAY230		230.00	6	1.0172	233.96	103		COPESA23		230.00	6	1.0002	230.04
105		PAN-AM23		230.00	6	1.0078	231.78	115		PACORA23		230.00	6	1.0039	230.90
144		CANJ230		230.00	6	1.0337	237.75	145		BJOMIN230		230.00	6	1.0376	238.64
146		GUALACA230		230.00	6	1.0364	238.37	147		GUASQ230		230.00	6	1.0336	237.72
148		VELADERO	230	230.00	6	1.0428	239.84	155		TABASARAI		230.00	6	1.0432	239.94
190		CHANG230		230.00	6	1.0282	236.50	306		CHAN1	230	230.00	6	1.0281	236.46
310		CONCEPCION23	230	230.00	6	1.0368	238.47	325		STA RITA230		230.00	6	1.0019	230.43
341		PRUDENCIA230	230	230.00	6	1.0410	239.43	345		LORENA230		230.00	6	1.0394	239.06
511		LGUIAS230		230.00	6	1.0274	236.31	6000		FRONTER		230.00	6	1.0366	238.41

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9932	228.45	3		PANII230		230.00	6	0.9967	229.24

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT6 MINAS1-STA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0125	116.43	4		PANII115		115.00	6	1.0152	116.74
6		CHO115		115.00	6	1.0481	120.53	9		LSA115		115.00	6	1.0986	126.34
12	M.	N115		115.00	6	1.0232	117.67	15		PRO115		115.00	6	1.0326	118.75
18		CAC115		115.00	6	1.0113	116.30	20		CH.AZUL		115.00	6	1.0334	118.84
23		CH115		115.00	6	1.0001	115.01	33		STM115		115.00	6	1.0089	116.03
48		TINAJ115		115.00	6	1.0074	115.85	50		M.O115		115.00	6	1.0077	115.88
52		TOC115		115.00	6	1.0098	116.13	54		LM1115		115.00	6	1.0271	118.12
55		LM2115		115.00	6	1.0271	118.11	61		FFIELD		115.00	9	1.0200	117.30
87		CAL115		115.00	6	1.0369	119.24	88		EST115		115.00	6	1.0402	119.63
92	L.	V115		115.00	6	1.0377	119.33	109		STA RITA115		115.00	6	1.0355	119.08
123		MIR115		115.00	7	1.0131	116.51	154		CEMPAN15		115.00	6	1.0262	118.01
191		CHANG115		115.00	6	1.0158	116.82	522		TCATIVÁ	115	115.00	6	1.0273	118.14

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9976	114.72	21		C.BAN115		115.00	6	0.9922	114.10
26		LOC115		115.00	6	0.9945	114.36	30		MAR115		115.00	6	0.9927	114.16
37		SAN115		115.00	6	0.9900	113.85								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT6 MINAS1-STA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	36.0	15.9	25.0	0.0	1.0100	39.0	0.9147	47.0	1	6
67	BLM13C	13.800	V3	36.0	15.9	25.0	0.0	1.0100	39.0	0.9147	47.0	1	6
68	BLM13D	13.800	V4	36.0	16.6	25.0	0.0	1.0100	39.2	0.9082	47.0	1	6
90	EST-13L	13.800	E1	14.1	6.3	12.0	-5.0	1.0100	15.3	0.9135	27.0	1	6
91	EST-13T	13.800	E2	14.1	6.3	12.0	-5.0	1.0100	15.3	0.9135	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	8.1	12.0	-5.0	1.0100	26.2	0.9525	27.0	1	6
97	FOR13A	13.800	F1	68.4	-18.0	50.0	-50.0	1.0100	70.0	0.9672	111.0	1	6
98	FOR13B	13.800	F2	68.4	-18.0	50.0	-50.0	1.0100	70.0	0.9672	111.0	1	6
99	FOR13C	13.800	F3	68.4	-18.0	50.0	-50.0	1.0100	70.0	0.9672	111.0	1	6
101	BAY13A	13.800	B1	81.7	20.9	50.0	-25.0	0.9900	85.2	0.9688	96.0	1	6
102	BAY13B	13.800	B2	81.6	20.9	50.0	-25.0	0.9900	85.1	0.9688	96.0	1	6
106	PANAM13A	13.800	M1	14.5	6.4	9.0	0.0	1.0100	15.7	0.9155	20.7	1	6
106	PANAM13A	13.800	M2	14.5	6.4	9.0	0.0	1.0100	15.7	0.9155	20.7	1	6
107	PANAM13B	13.800	M4	14.5	6.5	9.0	0.0	1.0100	15.7	0.9133	20.7	1	6
107	PANAM13B	13.800	M5	14.0	6.2	9.0	0.0	1.0100	15.2	0.9133	20.7	1	6
116	PACORA13	13.800	P1	15.2	5.0	8.8	0.0	1.0100	15.9	0.9491	21.7	1	6
116	PACORA13	13.800	P2	15.2	5.0	8.8	0.0	1.0100	15.9	0.9491	21.7	1	6
116	PACORA13	13.800	P3	15.2	5.0	8.8	0.0	1.0100	15.9	0.9491	21.7	1	6
117	CB250A-1	13.800	C1	115.0	16.5	75.6	0.0	1.0100	115.0	0.9898	143.5	1	6
118	CB250A-2	13.800	C2	115.0	16.5	75.6	0.0	1.0100	115.0	0.9898	143.5	1	6
119	CB250B-1	13.800	C1	115.0	1.8	75.6	0.0	1.0000	115.0	0.9999	143.5	1	6
120	CB250B-2	13.800	C2	115.0	1.8	75.6	0.0	1.0000	115.0	0.9999	143.5	1	6
121	CB250C-1	13.800	C1	115.0	1.8	75.6	0.0	1.0000	115.0	0.9999	143.5	1	6
122	CB250C-2	13.800	C2	115.0	1.8	75.6	0.0	1.0000	115.0	0.9999	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.1	29.0	-29.0	1.0100	44.0	0.9739	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.1	29.0	-29.0	1.0100	44.0	0.9739	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0428	4.6	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0310	14.8	0.9447	26.7	1	6
156	TABASARAI13.8	13.800	G1	9.6	0.2	5.7	0.2	1.0436	9.2	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9991	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9991	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9991	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.6	13.0	-13.0	1.0100	18.2	0.8522	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.6	13.0	-13.0	1.0100	18.2	0.8522	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9594	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9594	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9668	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1151	4.0	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0306	14.4	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	77.3	-14.6	50.0	-50.0	1.0100	77.9	0.9827	118.6	1	6
308	CHAN1 B	13.800	G2	77.3	-14.6	50.0	-50.0	1.0100	77.9	0.9827	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9840	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9840	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0130	14.3	0.9386	27.0	1	6
316	MONTE LIRIO	13.800	G2	13.6	-5.0	12.0	-5.0	1.0130	14.3	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.1149	5.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.2	0.0	4.0	0.0	1.1149	5.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0285	11.8	0.9118	19.9	1	6
342	LORENA13.8	13.800	G2	11.1	-5.0	10.5	-5.0	1.0285	11.8	0.9118	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	19.2	-9.8	9.8	-9.8	1.0193	21.1	0.8910	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	19.2	-9.8	9.8	-9.8	1.0193	21.1	0.8910	33.0	1	6
516	PANAPOWL13A	13.800	G1	12.4	0.5	12.5	0.5	1.0363	12.0	0.9991	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.2	1.3	2.8	1.3	1.0002	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.2	1.3	2.8	1.3	1.0002	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.2	1.3	2.8	1.3	1.0002	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.2	1.3	2.8	1.3	1.0002	3.5	0.9263	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.3	0.4	6.6	-6.6	0.9800	7.5	0.9984	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.3	0.4	6.6	-6.6	0.9800	7.5	0.9984	10.9	1	6

SYST



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523	TCATIVÁ	13A	13.800	G3	7.3	0.4	6.6	-6.6	0.9800	7.5	0.9984	10.9	1	6
523	TCATIVÁ	13A	13.800	G4	7.3	0.4	6.6	-6.6	0.9800	7.5	0.9984	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	7.3	0.4	6.6	-6.6	0.9800	7.5	0.9984	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.3	4.2	6.6	-6.6	1.0100	8.3	0.8674	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.3	4.2	6.6	-6.6	1.0100	8.3	0.8674	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.3	4.2	6.6	-6.6	1.0100	8.3	0.8674	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.3	4.2	6.6	-6.6	1.0100	8.3	0.8674	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.3	4.2	6.6	-6.6	1.0100	8.3	0.8674	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	1.0027	37.1	0.9688	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	12.7	18.4	9.2	1.0100	37.8	0.9430	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	12.7	18.4	5.8	1.0100	37.8	0.9430	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.1	6.4	3.0	0.9900	8.7	0.9341	10.9	1	6	
531	EGIRAL13.8	213.800	G6	8.0	3.1	6.4	3.0	0.9900	8.7	0.9341	10.9	1	6	
SUBSYSTEM TOTALS					2087.2	150.4	1420.1	-558.2				3077.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT6 MINAS1-STA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.1	11.0	0.0	1.0100	13.1	0.9506	29.4			2	7	
129		MIR13D		13.800	G4	35.0	3.9	15.0	0.0	1.0100	34.9	0.9939	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0135	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0279	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0369	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0369	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	28.5	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 CNT6 MINAS1-STA RITA

8:51
 AREA TOTALS
 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	241.2	569.4	-237.4	0.0	471.0	21.9	358.3	
6	2087.2	1893.7	0.0	0.0	0.0	144.8	48.7	25.0
PANAMA	150.4	474.6	-391.5	0.0	611.6	91.8	587.1	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	28.5	18.4	0.0	0.0	0.0	-0.7	10.7	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.8	0.0	0.0	1.1	-66.4	20.8	
TOTALS	7352.4	7205.3	0.0	0.0	0.0	0.0	147.1	0.0
	638.3	2156.1	-1240.4	0.0	2162.6	0.0	1885.2	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO



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Contingencia 7: Contingencia Panamá II – Santa Rita



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 STA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0043	231.00	8		LSA230		230.00	6	1.0388	238.92
11	M.	N230		230.00	6	1.0339	237.81	14		PRO230		230.00	6	1.0355	238.17
85		PTP230		230.00	6	1.0269	236.18	96		FOR230		230.00	6	1.0315	237.25
100		BAY230		230.00	6	1.0145	233.34	105		PAN-AM23		230.00	6	1.0044	231.02
115		PACORA23		230.00	6	1.0004	230.10	144		CANJ230		230.00	6	1.0328	237.55
145		BJOMIN230		230.00	6	1.0370	238.52	146		GUALACA230		230.00	6	1.0355	238.17
147		GUASQ230		230.00	6	1.0327	237.52	148		VELADERO 230		230.00	6	1.0413	239.49
155		TABASARAI		230.00	6	1.0417	239.59	190		CHANG230		230.00	6	1.0279	236.41
306		CHAN1 230		230.00	6	1.0277	236.38	310		CONCEPCION23		230.00	6	1.0362	238.32
341		PRUDENCIA230		230.00	6	1.0401	239.22	345		LORENA230		230.00	6	1.0385	238.85
511		LGUIAS230		230.00	6	1.0246	235.65	6000		FRONTIER		230.00	6	1.0360	238.27

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9894	227.57	3		PANII230		230.00	6	0.9927	228.31
103		COPESA23		230.00	6	0.9963	229.15	325		STA RITA230		230.00	6	0.9999	229.98

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 STA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0081	115.93	4		PANII115		115.00	6	1.0108	116.24
6		CHO115		115.00	6	1.0445	120.12	9		LSA115		115.00	6	1.0959	126.03
12	M.	N115		115.00	6	1.0226	117.59	15		PRO115		115.00	6	1.0320	118.68
18		CAC115		115.00	6	1.0070	115.80	20		CH.AZUL		115.00	6	1.0327	118.76
33		STM115		115.00	6	1.0045	115.52	48		TINAJ115		115.00	6	1.0030	115.35
50		M.O115		115.00	6	1.0032	115.37	52		TOC115		115.00	6	1.0054	115.63
54		LM1115		115.00	6	1.0279	118.21	55		LM2115		115.00	6	1.0276	118.17
61		FFIELD		115.00	9	1.0208	117.40	87		CAL115		115.00	6	1.0364	119.19
88		EST115		115.00	6	1.0398	119.57	92		L.V115		115.00	6	1.0372	119.28
109		STA RITA115		115.00	6	1.0331	118.80	123		MIR115		115.00	7	1.0090	116.04
154		CEMPAN15		115.00	6	1.0249	117.86	191		CHANG115		115.00	6	1.0156	116.79
522		TCATIVÁ		115.00	6	1.0280	118.22								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9932	114.22	21		C.BAN115		115.00	6	0.9877	113.59
23		CH115		115.00	6	0.9970	114.65	26		LOC115		115.00	6	0.9900	113.85
30		MAR115		115.00	6	0.9882	113.64	37		SAN115		115.00	6	0.9855	113.33

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 STA RITA-PANAMA II

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	36.0	15.7	25.0	0.0	1.0100	38.9	0.9167	47.0	1	6
67	BLM13C	13.800	V3	36.0	15.7	25.0	0.0	1.0100	38.9	0.9167	47.0	1	6
68	BLM13D	13.800	V4	36.0	16.4	25.0	0.0	1.0100	39.2	0.9104	47.0	1	6
90	EST-13L	13.800	E1	14.1	6.4	12.0	-5.0	1.0100	15.3	0.9104	27.0	1	6
91	EST-13T	13.800	E2	14.1	6.4	12.0	-5.0	1.0100	15.3	0.9104	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	8.2	12.0	-5.0	1.0100	26.2	0.9509	27.0	1	6
97	FOR13A	13.800	F1	68.4	-17.3	50.0	-50.0	1.0100	69.9	0.9695	111.0	1	6
98	FOR13B	13.800	F2	68.4	-17.3	50.0	-50.0	1.0100	69.9	0.9695	111.0	1	6
99	FOR13C	13.800	F3	68.4	-17.3	50.0	-50.0	1.0100	69.9	0.9695	111.0	1	6
101	BAY13A	13.800	B1	85.1	23.3	50.0	-25.0	0.9900	89.1	0.9646	96.0	1	6
102	BAY13B	13.800	B2	81.6	22.9	50.0	-25.0	0.9900	85.6	0.9629	96.0	1	6
106	PANAM13A	13.800	M1	14.5	7.1	9.0	0.0	1.0100	16.0	0.8985	20.7	1	6
106	PANAM13A	13.800	M2	14.5	7.1	9.0	0.0	1.0100	16.0	0.8985	20.7	1	6
107	PANAM13B	13.800	M4	14.5	7.2	9.0	0.0	1.0100	16.0	0.8959	20.7	1	6
107	PANAM13B	13.800	M5	14.0	6.9	9.0	0.0	1.0100	15.5	0.8959	20.7	1	6
116	PACORA13	13.800	P1	15.2	5.7	8.8	0.0	1.0100	16.1	0.9369	21.7	1	6
116	PACORA13	13.800	P2	15.2	5.7	8.8	0.0	1.0100	16.1	0.9369	21.7	1	6
116	PACORA13	13.800	P3	15.2	5.7	8.8	0.0	1.0100	16.1	0.9369	21.7	1	6
117	CB250A-1	13.800	C1	115.0	19.4	75.6	0.0	1.0100	115.5	0.9861	143.5	1	6
118	CB250A-2	13.800	C2	115.0	19.4	75.6	0.0	1.0100	115.5	0.9861	143.5	1	6
119	CB250B-1	13.800	C1	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
120	CB250B-2	13.800	C2	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
121	CB250C-1	13.800	C1	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
122	CB250C-2	13.800	C2	115.0	4.6	75.6	0.0	1.0000	115.1	0.9992	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.2	29.0	-29.0	1.0100	44.1	0.9732	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.2	29.0	-29.0	1.0100	44.1	0.9732	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0413	4.6	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0301	14.8	0.9447	26.7	1	6
156	TABASARAI13.8	13.800	G1	9.6	0.2	5.7	0.2	1.0420	9.2	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9992	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9992	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.3	4.0	-4.0	1.0100	7.9	0.9992	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.5	13.0	-13.0	1.0100	18.1	0.8567	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.5	13.0	-13.0	1.0100	18.1	0.8567	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.4	26.6	-26.6	1.0100	35.8	0.9579	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.4	26.6	-26.6	1.0100	35.8	0.9579	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9661	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1146	4.0	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0301	14.4	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	77.3	-14.3	50.0	-50.0	1.0100	77.8	0.9834	118.6	1	6
308	CHAN1 B	13.800	G2	77.3	-14.3	50.0	-50.0	1.0100	77.8	0.9834	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9848	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9848	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0125	14.3	0.9386	27.0	1	6
316	MONTE LIRIO	13.800	G2	13.6	-5.0	12.0	-5.0	1.0125	14.3	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.1143	5.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.2	0.0	4.0	0.0	1.1143	5.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0276	11.8	0.9118	19.9	1	6
342	LORENA13.8	13.800	G2	11.1	-5.0	10.5	-5.0	1.0276	11.8	0.9118	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	19.2	-9.8	9.8	-9.8	1.0184	21.1	0.8910	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	19.2	-9.8	9.8	-9.8	1.0184	21.1	0.8910	33.0	1	6
516	PANAPOWL13A	13.800	G1	12.4	0.5	12.5	0.5	1.0338	12.0	0.9991	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.2	1.3	2.8	1.3	0.9990	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.2	1.3	2.8	1.3	0.9990	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.2	1.3	2.8	1.3	0.9990	3.5	0.9263	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.2	1.3	2.8	1.3	0.9990	3.5	0.9263	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.3	0.3	6.6	-6.6	0.9800	7.5	0.9989	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.3	0.3	6.6	-6.6	0.9800	7.5	0.9989	10.9	1	6

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523	TCATIVÁ	13A	13.800	G3	7.3	0.3	6.6	-6.6	0.9800	7.5	0.9989	10.9	1	6			
523	TCATIVÁ	13A	13.800	G4	7.3	0.3	6.6	-6.6	0.9800	7.5	0.9989	10.9	1	6			
523	TCATIVÁ	13A	13.800	G5	7.3	0.3	6.6	-6.6	0.9800	7.5	0.9989	10.9	1	6			
524	TCATIVÁ	13B	13.800	10	7.3	4.1	6.6	-6.6	1.0100	8.3	0.8715	10.9	1	6			
524	TCATIVÁ	13B	13.800	G6	7.3	4.1	6.6	-6.6	1.0100	8.3	0.8715	10.9	1	6			
524	TCATIVÁ	13B	13.800	G7	7.3	4.1	6.6	-6.6	1.0100	8.3	0.8715	10.9	1	6			
524	TCATIVÁ	13B	13.800	G8	7.3	4.1	6.6	-6.6	1.0100	8.3	0.8715	10.9	1	6			
524	TCATIVÁ	13B	13.800	G9	7.3	4.1	6.6	-6.6	1.0100	8.3	0.8715	10.9	1	6			
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	1.0004	37.1	0.9688	44.4	1	6			
526	TCOLON	13B	13.800	G2	36.0	13.8	18.4	9.2	1.0100	38.2	0.9336	44.4	1	6			
527	TCOLON	13C	13.800	V1	36.0	13.8	18.4	5.8	1.0100	38.2	0.9336	44.4	1	6			
531	EGIRAL13.8	213.800	G5	8.0	3.3	6.4	3.0	0.9900	8.8	0.9228	10.9	1	6				
531	EGIRAL13.8	213.800	G6	8.0	3.3	6.4	3.0	0.9900	8.8	0.9228	10.9	1	6				
SUBSYSTEM TOTALS													2090.6	182.2	1420.1	-558.2	3077.3

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 8:53
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 STA RITA-PANAMA II

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9368	29.4			2	7	
129		MIR13D		13.800	G4	35.0	4.8	15.0	0.0	1.0100	35.0	0.9908	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0113	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0257	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0347	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0347	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS													116.0	29.9	67.5	20.5	170.3	



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 STA RITA-PANAMA II

8:53
 AREA TOTALS
 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.5	19.6	0.0
C.RICA	242.1	569.4	-237.4	0.0	470.9	22.7	358.3	
6	2090.6	1893.7	0.0	0.0	0.0	144.8	52.0	25.0
PANAMA	182.2	474.6	-388.7	0.0	600.8	89.8	607.2	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	29.9	18.4	0.0	0.0	0.0	0.7	10.8	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.8	0.0	0.0	1.1	-66.7	21.0	
TOTALS	7355.8	7205.3	0.0	0.0	0.0	0.0	150.4	0.0
	672.7	2156.1	-1237.5	0.0	2151.7	0.0	1905.7	

AÑO 2021



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Caso 2: REGMHTGDC8



de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0096	232.21	14	PRO	230		230.00	6	1.0176	234.06
85	PTP	230		230.00	6	1.0074	231.69	96	FOR	230		230.00	6	1.0115	232.64
144	CANJ	230		230.00	6	1.0076	231.74	145	BJOMIN	230		230.00	6	1.0279	236.41
146	GUALACA	230		230.00	6	1.0132	233.04	147	GUASQ	230		230.00	6	1.0074	231.69
190	CHANG	230		230.00	6	1.0215	234.94	306	CHANI	230		230.00	6	1.0237	235.46
310	CONCEPCION	230		230.00	6	1.0203	234.66	341	PRUDENCIA	230		230.00	6	1.0223	235.13
345	LORENA	230		230.00	6	1.0191	234.40	6000	FRONTIER	230		230.00	6	1.0174	234.00

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9475	217.92	3	PANII	230		230.00	6	0.9559	219.86
5	CHO	230		230.00	6	0.9470	217.82	8	LSA	230		230.00	6	0.9656	222.09
100	BAY	230		230.00	6	0.9947	228.79	103	COPE	230		230.00	6	0.9622	221.30
105	PAN-AM	230		230.00	6	0.9470	217.82	115	PACORA	230		230.00	6	0.9650	221.96
148	VELADERO	230		230.00	6	0.9883	227.32	155	TABASARAII	230		230.00	6	0.9906	227.83
325	STA RITA	230		230.00	6	0.9781	224.97	511	LGUIAS	230		230.00	6	0.9538	219.37

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0060	115.68	4	PANII	115		115.00	6	1.0096	116.11
9	LSA	115		115.00	6	1.0161	116.85	12	M.N	115		115.00	6	1.0071	115.82
15	PRO	115		115.00	6	1.0141	116.62	18	CAC	115		115.00	6	1.0051	115.58
20	CH.	AZUL		115.00	6	1.0148	116.71	33	STM	115		115.00	6	1.0025	115.29
48	TINAJ	115		115.00	6	1.0010	115.12	50	M.O	115		115.00	6	1.0012	115.14
52	TOC	115		115.00	6	1.0044	115.51	54	LM	115		115.00	6	1.0269	118.09
55	LM	2115		115.00	6	1.0251	117.88	61	FFIELD	115		115.00	9	1.0200	117.30
87	CAL	115		115.00	6	1.0334	118.84	88	EST	115		115.00	6	1.0385	119.43
92	L.V	115		115.00	6	1.0354	119.07	109	STA RITA	115		115.00	6	1.0361	119.15
123	MIR	115		115.00	7	1.0080	115.92	154	CEMPAN	115		115.00	6	1.0172	116.98
191	CHANG	115		115.00	6	1.0143	116.65	522	TCATIVÁ	115		115.00	6	1.0260	117.99

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO	115		115.00	6	0.9837	113.13	19	C.V	115		115.00	6	0.9921	114.10
21	C.BAN	115		115.00	6	0.9863	113.42	23	CH	115		115.00	6	0.9965	114.60
26	LOC	115		115.00	6	0.9885	113.68	30	MAR	115		115.00	6	0.9868	113.48
37	SAN	115		115.00	6	0.9842	113.18								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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70	TGJB13A	13.800	J5	31.0	13.2	20.0	0.0	1.0200	33.0	0.9197	39.4	1	6			
71	TGJB13B	13.800	J6	31.0	13.2	20.0	0.0	1.0200	33.0	0.9197	39.4	1	6			
73	BLMCCB	13.800	V9	45.0	22.2	40.0	0.0	1.0200	49.2	0.8971	71.0	1	6			
90	EST-13L	13.800	E1	21.0	10.3	12.0	-5.0	1.0200	23.0	0.8970	27.0	1	6			
91	EST-13T	13.800	E2	21.0	10.3	12.0	-5.0	1.0200	23.0	0.8970	27.0	1	6			
94	LV-13.8L	13.800	L1	24.0	11.5	12.0	-5.0	1.0200	26.1	0.9018	27.0	1	6			
95	LV-13.8T	13.800	L2	24.0	11.5	12.0	-5.0	1.0200	26.1	0.9018	27.0	1	6			
97	FOR13A	13.800	F1	95.0	12.7	50.0	-50.0	1.0200	94.0	0.9911	111.0	1	6			
98	FOR13B	13.800	F2	95.0	12.7	50.0	-50.0	1.0200	94.0	0.9911	111.0	1	6			
99	FOR13C	13.800	F3	95.0	12.7	50.0	-50.0	1.0200	94.0	0.9911	111.0	1	6			
101	BAY13A	13.800	B1	53.2	34.9	50.0	-25.0	0.9900	64.3	0.8359	96.0	1	6			
102	BAY13B	13.800	B2	57.7	35.3	50.0	-25.0	0.9900	68.3	0.8532	96.0	1	6			
108	BAY13C	13.800	B3	57.7	35.3	50.0	-25.0	0.9900	68.3	0.8532	100.0	1	6			
117	CB250A-1	13.800	C1	115.9	67.4	75.6	0.0	1.0200	131.4	0.8645	143.5	1	6			
118	CB250A-2	13.800	C2	115.9	67.4	75.6	0.0	1.0200	131.4	0.8645	143.5	1	6			
142	CANJ13A	13.800	C1	57.0	20.6	29.0	-29.0	1.0200	59.4	0.9406	69.0	1	6			
143	CANJ13B	13.800	C2	57.0	20.6	29.0	-29.0	1.0200	59.4	0.9406	69.0	1	6			
149	BBLANCO13.8	13.800	G1	9.0	0.8	6.1	0.0	0.9900	9.1	0.9957	11.6	1	6			
149	BBLANCO13.8	13.800	G2	9.0	0.8	6.1	0.0	0.9900	9.1	0.9957	11.6	1	6			
151	GUALACA13.8	13.800	G1	23.0	6.6	10.0	-10.0	1.0200	23.5	0.9610	26.7	1	6			
156	TABASARAI13	13.800	G1	15.5	5.7	5.7	0.2	1.0132	16.3	0.9394	20.5	1	6			
156	TABASARAI13	13.800	G2	15.5	5.7	5.7	0.2	1.0132	16.3	0.9394	20.5	1	6			
187	CCGN250-A1	13.800	C1	71.0	22.7	50.0	0.0	1.0000	74.5	0.9524	84.0	1	6			
188	CCGN250-A2	13.800	C2	71.0	22.7	50.0	0.0	1.0000	74.5	0.9524	84.0	1	6			
189	CCGN250-A3	13.800	C3	95.0	25.0	40.0	0.0	1.0000	98.2	0.9672	105.3	1	6			
193	GEBONYIC	13.800	G1	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9938	35.3	1	6			
193	GEBONYIC	13.800	G2	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9938	35.3	1	6			
193	GEBONYIC	13.800	G3	8.4	0.9	4.0	-4.0	1.0200	8.3	0.9938	35.3	1	6			
194	CCGN250-B1	13.800	C1	71.0	22.7	50.0	0.0	1.0000	74.5	0.9524	84.0	1	6			
195	CCGN250-B2	13.800	C2	71.0	22.7	50.0	0.0	1.0000	74.5	0.9524	84.0	1	6			
204	BJOMIN13	13.800	G1	24.0	-2.1	13.0	-13.0	1.0200	23.6	0.9962	28.9	1	6			
204	BJOMIN13	13.800	G2	24.0	-2.1	13.0	-13.0	1.0200	23.6	0.9962	28.9	1	6			
205	BAITUN13.8	13.800	G1	40.0	18.5	26.6	-26.6	1.0200	43.2	0.9080	50.6	1	6			
205	BAITUN13.8	13.800	G2	40.0	18.5	26.6	-26.6	1.0200	43.2	0.9080	50.6	1	6			
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9668	11.1	0.8849	13.5	1	6			
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9650	5.0	0.9110	6.2	1	6			
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1094	7.5	1.0000	13.5	1	6			
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9854	8.4	0.9701	13.5	1	6			
305	ELALTO13.8	13.800	G1	19.0	-1.2	12.0	-5.0	1.0200	18.7	0.9980	20.6	1	6			
305	ELALTO13.8	13.800	G2	19.0	-1.2	12.0	-5.0	1.0200	18.7	0.9980	20.6	1	6			
305	ELALTO13.8	13.800	G3	19.0	-1.2	12.0	-5.0	1.0200	18.7	0.9980	20.6	1	6			
307	CHAN1 A	13.800	G1	109.0	2.3	50.0	-50.0	1.0200	106.9	0.9998	118.6	1	6			
308	CHAN1 B	13.800	G2	109.0	2.3	50.0	-50.0	1.0200	106.9	0.9998	118.6	1	6			
311	PANDO13.8	13.800	G1	15.0	0.7	10.0	-5.0	1.0200	14.7	0.9990	19.9	1	6			
311	PANDO13.8	13.800	G2	15.0	0.7	10.0	-5.0	1.0200	14.7	0.9990	19.9	1	6			
316	MONTE LIRIO	13.800	G1	24.0	-0.5	12.0	-5.0	1.0200	23.5	0.9998	27.0	1	6			
316	MONTE LIRIO	13.800	G2	24.0	-0.5	12.0	-5.0	1.0200	23.5	0.9998	27.0	1	6			
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1089	7.8	1.0000	35.3	1	6			
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1089	7.8	1.0000	35.3	1	6			
342	LORENA13.8	13.800	G1	16.0	0.7	10.5	-5.0	1.0200	15.7	0.9991	19.9	1	6			
342	LORENA13.8	13.800	G2	16.0	0.7	10.5	-5.0	1.0200	15.7	0.9991	19.9	1	6			
343	PRUDENCIA138	13.800	G1	26.6	-0.3	9.8	-9.8	1.0200	26.1	0.9999	33.0	1	6			
343	PRUDENCIA138	13.800	G2	26.6	-0.3	9.8	-9.8	1.0200	26.1	0.9999	33.0	1	6			
SUBSYSTEM TOTALS												2086.6	593.9	1244.6	-575.3	2721.1

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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	6.0	11.0	0.0	1.0200	13.7	0.9033	29.4	2	7					
129	MIR13D	13.800	G4	35.0	6.7	15.0	0.0	1.0200	34.9	0.9821	44.1	2	7					
130	MIR13F	13.800	G5	17.1	1.4	8.0	0.0	1.0200	16.8	0.9965	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0313	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0403	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0403	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS						116.0	34.6	67.5	20.5			170.3						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:42
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTGDC8 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	



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4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.0	224.5	-98.9	0.0	143.2	-96.9	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	268.5	569.4	-237.4	0.0	467.8	44.5	359.8	
6	2086.6	1849.0	0.0	0.0	0.0	138.7	98.9	25.0
PANAMA	593.9	463.4	-367.7	0.0	560.1	60.0	998.2	
7	116.0	71.8	0.0	0.0	0.0	43.3	0.9	50.0
ACANAL	34.6	18.0	0.0	0.0	0.0	5.6	11.0	
9	0.0	182.1	0.0	0.0	0.0	-182.5	0.3	-75.0
COLON	0.0	45.6	0.0	0.0	1.1	-64.3	19.8	
TOTALS	7351.8	7154.4	0.0	0.0	0.0	0.0	197.4	0.0
	1116.3	2143.3	-1216.5	0.0	2107.8	0.0	2297.2	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0233	235.37	11	M.N230	230.00	6	1.0304	237.00				
14	PRO230	230.00	6	1.0343	237.89	85	PTP230	230.00	6	1.0260	235.97				
96	FOR230	230.00	6	1.0294	236.76	144	CANJ230	230.00	6	1.0302	236.94				
145	BJOMIN230	230.00	6	1.0374	238.60	146	GUALACA230	230.00	6	1.0336	237.74				
147	GUASQ230	230.00	6	1.0300	236.91	148	VELADERO 230	230.00	6	1.0344	237.91				
155	TABASARAI	230.00	6	1.0350	238.06	190	CHANG230	230.00	6	1.0294	236.76				
306	CHAN1 230	230.00	6	1.0298	236.84	310	CONCEPCION23	230.00	6	1.0351	238.08				
341	PRUDENCIA230	230.00	6	1.0401	239.22	345	LORENA230	230.00	6	1.0376	238.66				
511	LGUIAS230	230.00	6	1.0082	231.90	6000	FRONTER	230.00	6	1.0347	237.97				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9735	223.90	3	PANII230	230.00	6	0.9783	225.01				
5	CHO230	230.00	6	0.9865	226.91	100	BAY230	230.00	6	0.9987	229.71				
103	COPESA23	230.00	6	0.9818	225.82	105	PAN-AM23	230.00	6	0.9865	226.91				
115	PACORA23	230.00	6	0.9824	225.94	325	STA RITA230	230.00	6	0.9950	228.84				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0136	116.56	4	PANII115	115.00	6	1.0055	115.63				
6	CHO115	115.00	6	1.0256	117.94	9	LSA115	115.00	6	1.0664	122.64				
12	M.N115	115.00	6	1.0149	116.72	15	PRO115	115.00	6	1.0307	118.54				
18	CAC115	115.00	6	1.0125	116.44	20	CH.AZUL	115.00	6	1.0315	118.62				
23	CH115	115.00	6	1.0060	115.69	33	STM115	115.00	6	1.0101	116.16				
48	TINAJ115	115.00	6	1.0086	115.99	50	M.O115	115.00	6	1.0088	116.01				
52	TOC115	115.00	6	1.0001	115.01	54	LM1115	115.00	6	1.0439	120.04				
55	LM2115	115.00	6	1.0432	119.96	61	FFIELD	115.00	9	1.0369	119.24				
87	CAL115	115.00	6	1.0259	117.97	88	EST115	115.00	6	1.0272	118.12				
92	L.V115	115.00	6	1.0268	118.09	109	STA RITA115	115.00	6	1.0480	120.52				
123	MIR115	115.00	7	1.0142	116.64	154	CEMPAN15	115.00	6	1.0395	119.54				
191	CHANG115	115.00	6	1.0167	116.92	522	TCATIVÁ 115	115.00	6	1.0437	120.03				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9909	113.95	21	C.BAN115	115.00	6	0.9920	114.08				
26	LOC115	115.00	6	0.9945	114.37	30	MAR115	115.00	6	0.9933	114.23				
37	SAN115	115.00	6	0.9892	113.75										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	9.1	25.0	0.0	1.0100	38.7	0.9725	47.0	1	6
67	BLM13C	13.800	V3	38.0	9.1	25.0	0.0	1.0100	38.7	0.9725	47.0	1	6
68	BLM13D	13.800	V4	38.0	9.4	25.0	0.0	1.0100	38.8	0.9707	47.0	1	6
70	TGJB13A	13.800	J5	31.0	6.1	20.0	0.0	1.0100	31.3	0.9814	39.4	1	6
71	TGJB13B	13.800	J6	31.0	6.1	20.0	0.0	1.0100	31.3	0.9814	39.4	1	6
72	BLMCCA	13.800	T8	31.0	7.0	20.0	0.0	1.0100	31.5	0.9755	50.0	1	6
73	BLMCCB	13.800	V9	47.0	7.3	40.0	0.0	1.0100	47.1	0.9881	71.0	1	6
90	EST-13L	13.800	E1	15.0	4.1	12.0	-5.0	0.9900	15.7	0.9645	27.0	1	6
94	LV-13.8L	13.800	L1	25.0	11.4	12.0	-5.0	1.0100	27.2	0.9099	27.0	1	6
97	FOR13A	13.800	F1	68.0	-15.4	50.0	-50.0	1.0100	69.0	0.9754	111.0	1	6
98	FOR13B	13.800	F2	68.0	-15.4	50.0	-50.0	1.0100	69.0	0.9754	111.0	1	6
99	FOR13C	13.800	F3	68.0	-15.4	50.0	-50.0	1.0100	69.0	0.9754	111.0	1	6
101	BAY13A	13.800	B1	54.2	24.1	50.0	-25.0	0.9800	60.5	0.9136	96.0	1	6
102	BAY13B	13.800	B2	54.2	24.1	50.0	-25.0	0.9800	60.5	0.9136	96.0	1	6
117	CB250A-1	13.800	C1	115.9	26.9	75.6	0.0	1.0100	117.8	0.9741	143.5	1	6
118	CB250A-2	13.800	C2	115.9	26.9	75.6	0.0	1.0100	117.8	0.9741	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.7	29.0	-29.0	1.0100	44.2	0.9710	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.7	29.0	-29.0	1.0100	44.2	0.9710	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0343	4.6	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	4.8	0.0	6.1	0.0	1.0343	4.6	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0282	14.8	0.9447	26.7	1	6
156	TABASARAI1313.800	13.800	G1	9.6	0.2	5.7	0.2	1.0353	9.3	0.9997	20.5	1	6
156	TABASARAI1313.800	13.800	G2	9.6	0.2	5.7	0.2	1.0353	9.3	0.9997	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	16.6	50.0	0.0	1.0100	72.2	0.9738	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	16.6	50.0	0.0	1.0100	72.2	0.9738	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	18.8	40.0	0.0	1.0100	95.9	0.9810	105.3	1	6
193	GEBONYIC	13.800	G1	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9985	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9985	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9985	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	16.6	50.0	0.0	1.0100	72.2	0.9738	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	16.6	50.0	0.0	1.0100	72.2	0.9738	84.0	1	6
196	CCGN250-B3	13.800	C3	95.0	18.8	40.0	0.0	1.0100	95.9	0.9810	105.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.4	13.0	-13.0	1.0105	18.1	0.8580	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.4	13.0	-13.0	1.0105	18.1	0.8580	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9589	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9589	50.6	1	6
301	CONC13.8	13.800	G1	2.5	0.0	0.0	-5.0	0.9642	2.6	1.0000	13.5	1	6
302	PASOANCH13.813.800	13.800	P1	4.3	2.0	2.0	-2.0	0.9654	4.9	0.9067	6.2	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1031	4.1	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	2.5	0.0	0.0	0.0	0.9770	2.6	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	8.0	0.0	12.0	0.0	1.0371	7.7	1.0000	20.6	1	6
305	ELALTO13.8	13.800	G2	8.0	0.0	12.0	0.0	1.0371	7.7	1.0000	20.6	1	6
307	CHANI A	13.800	G1	77.0	-16.3	50.0	-50.0	1.0100	77.9	0.9784	118.6	1	6
311	PANDO13.8	13.800	G1	15.0	-3.9	10.0	-5.0	1.0100	15.3	0.9683	19.9	1	6
316	MONTE LIRIO	13.800	G1	27.0	-5.0	12.0	-5.0	1.0244	26.8	0.9833	27.0	1	6
317	MENDRE13.8	13.800	M1	6.5	0.0	4.0	0.0	1.1028	5.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.5	0.0	4.0	0.0	1.1028	5.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.5	-5.0	10.5	-5.0	1.0267	12.2	0.9171	19.9	1	6
342	LORENA13.8	13.800	G2	11.5	-5.0	10.5	-5.0	1.0267	12.2	0.9171	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	26.6	-9.8	9.8	-9.8	1.0176	27.8	0.9388	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	26.6	-9.8	9.8	-9.8	1.0176	27.8	0.9388	33.0	1	6
516	PANAPOW13A	13.800	G1	12.0	0.5	12.5	0.5	1.0490	11.5	0.9990	20.9	1	6
516	PANAPOW13A	13.800	G2	12.0	0.5	12.5	0.5	1.0490	11.5	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G3	12.0	0.5	12.5	0.5	1.0490	11.5	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G4	12.0	0.5	12.5	0.5	1.0490	11.5	0.9990	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0123	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0123	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0123	3.7	0.9373	4.8	1	6

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521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0123	3.7	0.9373	4.8	1	6
523	TCATIVÁ	13A 13.800	G1	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ	13A 13.800	G2	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ	13A 13.800	G3	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ	13A 13.800	G4	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ	13A 13.800	G5	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ	13B 13.800	10	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ	13B 13.800	G6	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ	13B 13.800	G7	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ	13B 13.800	G8	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ	13B 13.800	G9	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
525	TCOLON	13A 13.800	G1	36.0	9.2	18.4	9.2	1.0145	36.6	0.9689	44.4	1	6
526	TCOLON	13B 13.800	G2	36.0	9.2	18.4	9.2	1.0145	36.6	0.9689	44.4	1	6
527	TCOLON	13C 13.800	V1	36.0	7.0	18.4	5.8	1.0100	36.3	0.9815	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0132	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0132	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0132	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0132	8.4	0.9363	10.9	1	6
SUBSYSTEM TOTALS				2086.6	261.3	1422.4	-482.3				3066.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:43
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	4.0	11.0	0.0	1.0100	13.1	0.9541	29.4	2	7					
129	MIR13D	13.800	G4	35.0	3.6	15.0	0.0	1.0100	34.8	0.9947	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0141	16.9	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0285	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0375	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0375	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	28.1	67.5	20.5				170.3							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:44
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8

AREA TOTALS IN MW/MVAR										
X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	



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4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	242.2	569.4	-237.3	0.0	470.8	23.8	357.1	
6	2086.6	1893.6	0.0	0.0	0.0	144.5	48.5	25.0
PANAMA	261.3	474.6	-285.8	0.0	599.1	90.3	581.4	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	28.1	18.4	0.0	0.0	0.0	-1.1	10.7	
9	0.0	186.5	0.0	0.0	0.0	-186.8	0.3	-75.0
COLON	0.0	46.7	0.0	0.0	1.1	-66.5	20.9	
TOTALS	7351.8	7205.2	0.0	0.0	0.0	0.0	146.7	0.0
	750.0	2156.0	-1134.6	0.0	2150.0	0.0	1878.5	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0167	233.84	14	PRO	230		230.00	6	1.0260	235.97
85	PTP	230		230.00	6	1.0170	233.92	96	FOR	230		230.00	6	1.0153	233.52
144	CANJ	230		230.00	6	1.0158	233.64	145	BJOMIN	230		230.00	6	1.0275	236.33
146	GUALACA	230		230.00	6	1.0176	234.04	147	GUASQ	230		230.00	6	1.0158	233.63
148	VELADERO	230		230.00	6	1.0130	232.98	155	TABASARAI	230		230.00	6	1.0134	233.08
190	CHANG	230		230.00	6	1.0191	234.39	306	CHAN1	230		230.00	6	1.0173	233.99
310	CONCEPCION	230		230.00	6	1.0249	235.72	341	PRUDENCIA	230		230.00	6	1.0200	234.60
345	LORENA	230		230.00	6	1.0191	234.40	6000	FRONTER	230		230.00	6	1.0263	236.06

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9814	225.72	3	PANII	230		230.00	6	0.9824	225.95
5	CHO	230		230.00	6	0.9892	227.53	8	LSA	230		230.00	6	1.0000	229.99
100	BAY	230		230.00	6	0.9856	226.69	103	COPESA	230		230.00	6	0.9834	226.18
105	PAN-AM	230		230.00	6	0.9892	227.53	115	PACORA	230		230.00	6	0.9833	226.17
325	STA RITA	230		230.00	6	0.9864	226.86	511	LGUIAS	230		230.00	6	0.9977	229.47

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0062	115.71	4	PANII	115		115.00	6	1.0001	115.02
6	CHO	115		115.00	6	1.0370	119.26	9	LSA	115		115.00	6	1.0107	116.23
15	PRO	115		115.00	6	1.0252	117.90	18	CAC	115		115.00	6	1.0057	115.66
20	CH.	AZUL		115.00	6	1.0260	117.99	23	CH	115		115.00	6	1.0040	115.46
33	STM	115		115.00	6	1.0048	115.55	48	TINAJ	115		115.00	6	1.0045	115.51
50	M.	O115		115.00	6	1.0046	115.52	54	LM	115		115.00	6	1.0180	117.07
55	LM	2115		115.00	6	1.0173	116.99	61	FFIELD	115		115.00	9	1.0153	116.75
87	CAL	115		115.00	6	1.0096	116.10	88	EST	115		115.00	6	1.0118	116.36
92	L.	V115		115.00	6	1.0105	116.21	109	STA RITA	115		115.00	6	1.0187	117.15
123	MIR	115		115.00	7	1.0054	115.62	154	CEMPAN	115		115.00	6	1.0168	116.93
191	CHANG	115		115.00	6	1.0103	116.19	522	TCATIVÁ	115		115.00	6	1.0177	117.03

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
12	M.	N115		115.00	6	0.9975	114.71	19	C.	V115		115.00	6	0.9955	114.48
21	C.	BAN115		115.00	6	0.9978	114.75	26	LOC	115		115.00	6	0.9989	114.87
30	MAR	115		115.00	6	0.9983	114.81	37	SAN	115		115.00	6	0.9966	114.61
52	TOC	115		115.00	6	0.9980	114.77								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTGDC8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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70	TGJB13A	13.800	J5	31.0	7.3	20.0	0.0	0.9900	32.2	0.9735	39.4	1	6
71	TGJB13B	13.800	J6	31.0	7.3	20.0	0.0	0.9900	32.2	0.9735	39.4	1	6
72	BLMCCA	13.800	T8	31.0	8.1	20.0	0.0	0.9900	32.4	0.9675	50.0	1	6
73	BLMCCB	13.800	V9	45.0	8.4	40.0	0.0	0.9900	46.2	0.9830	71.0	1	6
90	EST-13L	13.800	E1	15.0	8.8	12.0	-5.0	0.9900	17.5	0.8636	27.0	1	6
94	LV-13.8L	13.800	L1	25.0	9.8	12.0	-5.0	0.9900	27.1	0.9308	27.0	1	6
97	FOR13A	13.800	F1	60.4	-20.8	50.0	-50.0	0.9900	64.6	0.9457	111.0	1	6
98	FOR13B	13.800	F2	65.0	-20.5	50.0	-50.0	0.9900	68.8	0.9539	111.0	1	6
117	CB250A-1	13.800	C1	91.5	8.2	75.6	0.0	0.9900	92.8	0.9960	143.5	1	6
142	CANJ13A	13.800	C1	43.3	9.8	29.0	-29.0	0.9900	44.8	0.9756	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0129	4.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0121	15.1	0.9447	26.7	1	6
156	TABASARAI13	13.800	G1	9.6	0.2	5.7	0.2	1.0137	9.5	0.9997	20.5	1	6
189	CCGN250-A3	13.800	C3	91.5	8.0	40.0	0.0	0.9900	92.8	0.9962	105.3	1	6
193	GEBONYIC	13.800	G1	8.0	-4.0	4.0	-4.0	0.9975	9.0	0.8944	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	0.0	13.0	0.0	1.0273	15.3	1.0000	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	9.6	26.6	-26.6	0.9900	36.3	0.9633	50.6	1	6
301	CONC13.8	13.800	G1	2.5	0.0	0.0	-5.0	0.9540	2.6	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.3	2.0	2.0	-2.0	0.9553	5.0	0.9067	6.2	1	6
303	SIND13.8	13.800	G1	3.0	0.0	5.0	0.0	1.0868	2.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	2.0	0.0	0.0	0.0	0.9615	2.1	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	8.0	0.0	12.0	0.0	1.0273	7.8	1.0000	20.6	1	6
305	ELALTO13.8	13.800	G2	8.0	0.0	12.0	0.0	1.0273	7.8	1.0000	20.6	1	6
307	CHAN1 A	13.800	G1	60.0	-24.2	50.0	-50.0	0.9900	65.3	0.9274	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-5.0	10.0	-5.0	0.9951	10.9	0.8869	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-5.0	12.0	-5.0	1.0157	14.3	0.9386	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.0867	5.7	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0137	12.0	0.9118	19.9	1	6
343	PRUDENCIA138	13.800	G1	19.2	-9.8	9.8	-9.8	1.0092	21.3	0.8914	33.0	1	6
523	TCATIVÁ 13A	13.800	G1	6.2	0.0	0.0	-6.6	0.9690	6.4	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	6.2	0.0	0.0	-6.6	0.9690	6.4	1.0000	10.9	1	6
526	TCOLON 13B	13.800	G2	36.0	10.7	18.4	9.2	0.9900	37.9	0.9587	44.4	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	0.9809	8.7	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	0.9809	8.7	0.9363	10.9	1	6
SUBSYSTEM TOTALS				828.7	5.0	592.5	-254.1				1397.1		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTGDC8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	11.4	3.1	11.0	0.0	0.9900	11.9	0.9643	29.4			2	7	
129		MIR13D		13.800	G4	35.0	2.2	15.0	0.0	0.9900	35.4	0.9980	44.1			2	7	
SUBSYSTEM TOTALS						46.4	5.4	26.0	0.0				73.5					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 29 2008 16:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER AREA TOTALS
 AÑO 2021 REGMHTGDC8 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.8	19.3	0.0
C.RICA	259.1	569.4	-236.3	0.0	469.2	37.5	357.7	
6	828.7	757.4	0.0	0.0	0.0	57.5	13.8	25.0
PANAMA	5.0	189.8	182.0	0.0	585.0	35.6	182.6	
7	46.4	29.4	0.0	0.0	0.0	16.3	0.7	50.0
ACANAL	5.4	7.4	0.0	0.0	0.0	-6.2	4.1	
9	0.0	74.6	0.0	0.0	0.0	-74.7	0.1	-75.0
COLON	0.0	18.7	0.0	0.0	1.1	-20.8	3.2	
TOTALS	6024.4	5913.0	0.0	0.0	0.0	0.0	111.4	0.0
	488.4	1832.2	-665.8	0.0	2134.1	0.0	1456.1	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Llano Sánchez – Chorrera**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT1 LLANO SANCHEZ-CHORRERA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0060	231.38	14	PRO	230		230.00	6	1.0151	233.46
85	PTP	230		230.00	6	1.0046	231.06	96	FOR	230		230.00	6	1.0085	231.96
144	CANJ	230		230.00	6	1.0042	230.97	145	BJOMIN	230		230.00	6	1.0261	236.00
146	GUALACA	230		230.00	6	1.0101	232.33	147	GUASQ	230		230.00	6	1.0040	230.92
190	CHANG	230		230.00	6	1.0201	234.61	306	CHANI	230		230.00	6	1.0225	235.17
310	CONCEPCION	23230		230.00	6	1.0178	234.10	341	PRUDENCIA	230230		230.00	6	1.0195	234.50
345	LORENA	230		230.00	6	1.0163	233.74	6000	FRONTIER	230		230.00	6	1.0148	233.39

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9348	215.01	3	PANII	230		230.00	6	0.9446	217.27
5	CHO	230		230.00	6	0.9299	213.89	8	LSA	230		230.00	6	0.9512	218.78
100	BAY	230		230.00	6	0.9880	227.25	103	COPE	SA23		230.00	6	0.9516	218.86
105	PAN-AM	23		230.00	6	0.9299	213.89	115	PACORA	23		230.00	6	0.9550	219.64
148	VELADERO	230230		230.00	6	0.9808	225.59	155	TABASARAII	230		230.00	6	0.9830	226.10
325	STA RITA	230		230.00	6	0.9716	223.47	511	LGUIAS	230		230.00	6	0.9352	215.09

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT1 LLANO SANCHEZ-CHORRERA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0060	115.69	4	PANII	115		115.00	6	1.0101	116.16
9	LSA	115		115.00	6	1.0003	115.03	12	M.N	115		115.00	6	1.0043	115.50
15	PRO	115		115.00	6	1.0115	116.32	18	CAC	115		115.00	6	1.0052	115.59
20	CH.	AZUL		115.00	6	1.0122	116.41	33	STM	115		115.00	6	1.0025	115.29
48	TINAJ	115		115.00	6	1.0011	115.12	50	M.O	115		115.00	6	1.0013	115.15
52	TOC	115		115.00	6	1.0049	115.56	54	LM	115		115.00	6	1.0305	118.51
55	LM	2115		115.00	6	1.0286	118.29	61	FFIELD	115		115.00	9	1.0236	117.72
87	CAL	115		115.00	6	1.0315	118.63	88	EST	115		115.00	6	1.0368	119.23
92	L.V	115		115.00	6	1.0336	118.86	109	STA RITA	115		115.00	6	1.0405	119.65
123	MIR	115		115.00	7	1.0081	115.94	154	CEMPAN	15		115.00	6	1.0198	117.28
191	CHANG	115		115.00	6	1.0134	116.54	522	TCATIVÁ	115		115.00	6	1.0296	118.40

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO	115		115.00	6	0.9655	111.03	19	C.V	115		115.00	6	0.9925	114.14
21	C.BAN	115		115.00	6	0.9864	113.44	23	CH	115		115.00	6	0.9980	114.77
26	LOC	115		115.00	6	0.9886	113.69	30	MAR	115		115.00	6	0.9869	113.49
37	SAN	115		115.00	6	0.9843	113.20								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:14
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT1 LLANO SANCHEZ-CHORRERA

AREA 6 [PANAMA] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
70		TGJB13A		13.800	J5	31.0	12.3	20.0	0.0	1.0200	32.7	0.9297	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	12.3	20.0	0.0	1.0200	32.7	0.9297	39.4			1	6	
73		BLMCCB		13.800	V9	45.0	20.5	40.0	0.0	1.0200	48.5	0.9100	71.0			1	6	
90		EST-13L		13.800	E1	21.0	10.8	12.0	-5.0	1.0200	23.2	0.8884	27.0			1	6	
91		EST-13T		13.800	E2	21.0	10.8	12.0	-5.0	1.0200	23.2	0.8884	27.0			1	6	
94		LV-13.8L		13.800	L1	24.0	12.0	12.0	-5.0	1.0199	26.3	0.8944	27.0			1	6	
95		LV-13.8T		13.800	L2	24.0	12.0	12.0	-5.0	1.0199	26.3	0.8944	27.0			1	6	
97		FOR13A		13.800	F1	95.0	15.5	50.0	-50.0	1.0200	94.4	0.9870	111.0			1	6	
98		FOR13B		13.800	F2	95.0	15.5	50.0	-50.0	1.0200	94.4	0.9870	111.0			1	6	
99		FOR13C		13.800	F3	95.0	15.5	50.0	-50.0	1.0200	94.4	0.9870	111.0			1	6	
101		BAY13A		13.800	B1	62.3	40.6	50.0	-25.0	0.9900	75.1	0.8375	96.0			1	6	SYST
102		BAY13B		13.800	B2	57.7	40.2	50.0	-25.0	0.9900	71.1	0.8202	96.0			1	6	
108		BAY13C		13.800	B3	57.7	40.2	50.0	-25.0	0.9900	71.1	0.8202	100.0			1	6	
117		CB250A-1		13.800	C1	115.9	75.6	75.6	0.0	1.0190	135.8	0.8376	143.5			1	6	
118		CB250A-2		13.800	C2	115.9	75.6	75.6	0.0	1.0190	135.8	0.8376	143.5			1	6	
142		CANJ13A		13.800	C1	57.0	21.1	29.0	-29.0	1.0200	59.6	0.9376	69.0			1	6	
143		CANJ13B		13.800	C2	57.0	21.1	29.0	-29.0	1.0200	59.6	0.9376	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	4.3	6.1	0.0	0.9900	10.1	0.9038	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	4.3	6.1	0.0	0.9900	10.1	0.9038	11.6			1	6	
151		GUALACA13.8		13.800	G1	23.0	9.5	10.0	-10.0	1.0200	24.4	0.9240	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	5.7	5.7	0.2	1.0058	16.4	0.9394	20.5			1	6	
156		TABASARAI13		13.800	G2	15.5	5.7	5.7	0.2	1.0058	16.4	0.9394	20.5			1	6	
187		CCGN250-A1		13.800	C1	71.0	28.7	50.0	0.0	1.0000	76.6	0.9272	84.0			1	6	
188		CCGN250-A2		13.800	C2	71.0	28.7	50.0	0.0	1.0000	76.6	0.9272	84.0			1	6	
189		CCGN250-A3		13.800	C3	95.0	30.9	40.0	0.0	1.0000	99.9	0.9508	105.3			1	6	
193		GEBONYIC		13.800	G1	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9924	35.3			1	6	
193		GEBONYIC		13.800	G2	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9924	35.3			1	6	
193		GEBONYIC		13.800	G3	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9924	35.3			1	6	
194		CCGN250-B1		13.800	C1	71.0	28.7	50.0	0.0	1.0000	76.6	0.9272	84.0			1	6	
195		CCGN250-B2		13.800	C2	71.0	28.7	50.0	0.0	1.0000	76.6	0.9272	84.0			1	6	
204		BJOMIN13		13.800	G1	24.0	-1.5	13.0	-13.0	1.0200	23.6	0.9982	28.9			1	6	
204		BJOMIN13		13.800	G2	24.0	-1.5	13.0	-13.0	1.0200	23.6	0.9982	28.9			1	6	
205		BAITUN13.8		13.800	G1	40.0	19.1	26.6	-26.6	1.0200	43.5	0.9022	50.6			1	6	
205		BAITUN13.8		13.800	G2	40.0	19.1	26.6	-26.6	1.0200	43.5	0.9022	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9639	11.1	0.8849	13.5			1	6	
302		PASOANCH13.8		13.800	P1	4.4	2.0	2.0	-2.0	0.9621	5.0	0.9110	6.2			1	6	
303		SIND13.8		13.800	G1	8.4	0.0	5.0	0.0	1.1073	7.6	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9836	8.4	0.9701	13.5			1	6	
305		ELALTO13.8		13.800	G1	19.0	-0.8	12.0	-5.0	1.0200	18.6	0.9992	20.6			1	6	
305		ELALTO13.8		13.800	G2	19.0	-0.8	12.0	-5.0	1.0200	18.6	0.9992	20.6			1	6	
305		ELALTO13.8		13.800	G3	19.0	-0.8	12.0	-5.0	1.0200	18.6	0.9992	20.6			1	6	
307		CHANI A		13.800	G1	109.0	3.5	50.0	-50.0	1.0200	106.9	0.9995	118.6			1	6	
308		CHANI B		13.800	G2	109.0	3.5	50.0	-50.0	1.0200	106.9	0.9995	118.6			1	6	
311		PANDO13.8		13.800	G1	15.0	0.8	10.0	-5.0	1.0200	14.7	0.9985	19.9			1	6	
311		PANDO13.8		13.800	G2	15.0	0.8	10.0	-5.0	1.0200	14.7	0.9985	19.9			1	6	
316		MONTE LIRIO		13.800	G1	24.0	-0.1	12.0	-5.0	1.0200	23.5	1.0000	27.0			1	6	
316		MONTE LIRIO		13.800	G2	24.0	-0.1	12.0	-5.0	1.0200	23.5	1.0000	27.0			1	6	
317		MENDRE13.8		13.800	M1	8.7	0.0	4.0	0.0	1.1069	7.9	1.0000	35.3			1	6	
317		MENDRE13.8		13.800	M2	8.7	0.0	4.0	0.0	1.1069	7.9	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	16.0	2.0	10.5	-5.0	1.0200	15.8	0.9922	19.9			1	6	
342		LORENA13.8		13.800	G2	16.0	2.0	10.5	-5.0	1.0200	15.8	0.9922	19.9			1	6	
343		PRUDENCIA138		13.800	G1	26.6	1.0	9.8	-9.8	1.0200	26.1	0.9994	33.0			1	6	
343		PRUDENCIA138		13.800	G2	26.6	1.0	9.8	-9.8	1.0200	26.1	0.9994	33.0			1	6	
SUBSYSTEM TOTALS						2095.6	686.4	1244.6	-575.3				2721.1					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT1 LLANO SANCHEZ-CHORRERA

MON, JUN 02 2008 9:14

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	6.0	11.0	0.0	1.0200	13.7	0.9036	29.4			2	7	
129		MIR13D		13.800	G4	35.0	6.7	15.0	0.0	1.0200	34.9	0.9822	44.1			2	7	
130		MIR13F		13.800	G5	17.1	1.4	8.0	0.0	1.0200	16.8	0.9966	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0314	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0404	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0404	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	34.5	67.5	20.5				170.3					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT1 LLANO SANCHEZ-CHORRERA

MON, JUN 02 2008 9:14

AREA TOTALS
 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	NICA		538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
			33.1	224.5	-98.8	0.0	143.2	-96.8	147.4	



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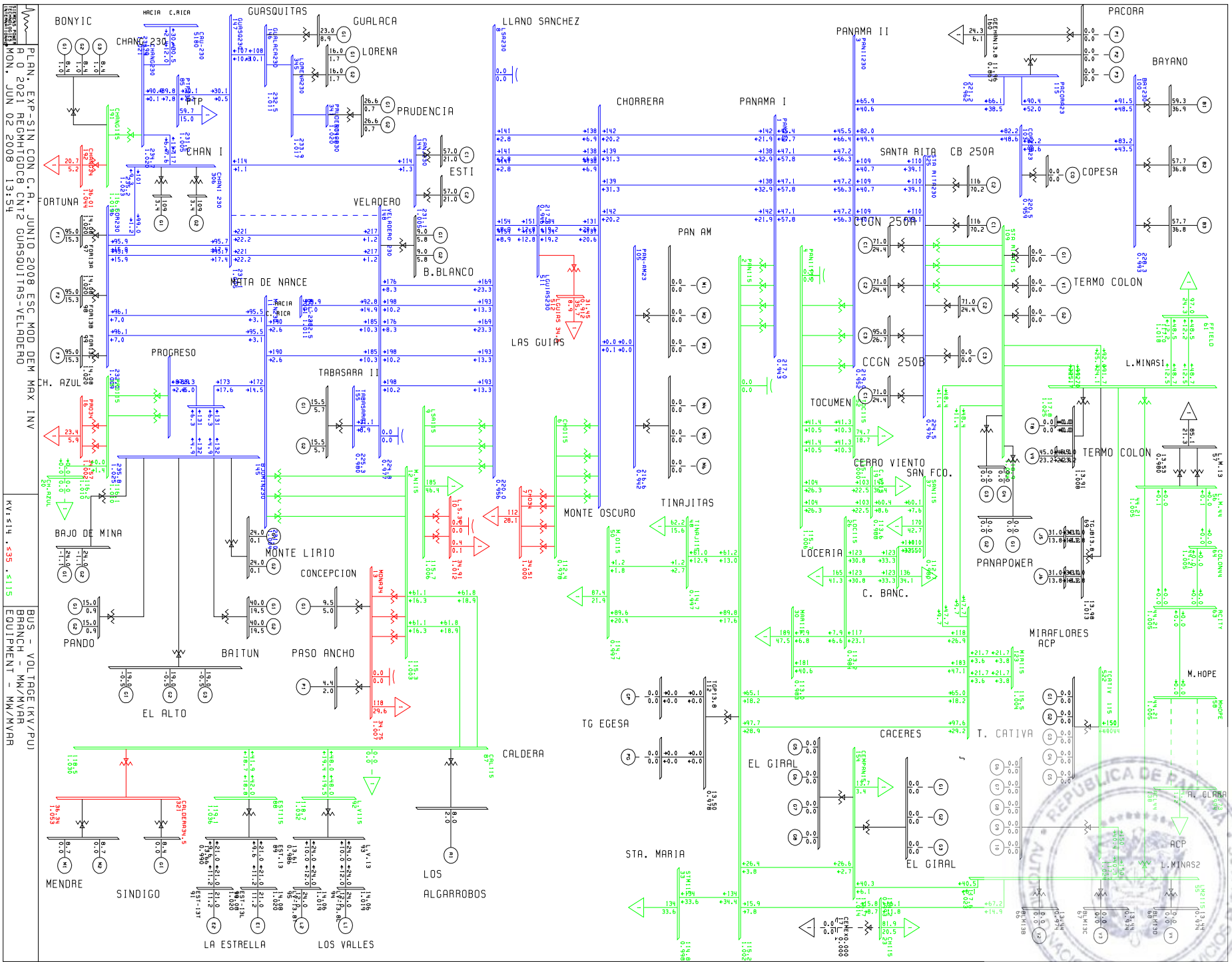
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	272.6	569.4	-237.2	0.0	467.4	47.7	360.0	
6	2095.6	1849.0	0.0	0.0	0.0	138.7	107.9	25.0
PANAMA	686.4	463.4	-363.9	0.0	526.7	56.5	1057.1	
7	116.0	71.8	0.0	0.0	0.0	43.3	0.9	50.0
ACANAL	34.5	18.0	0.0	0.0	0.0	5.5	11.0	
9	0.0	182.1	0.0	0.0	0.0	-182.4	0.3	-75.0
COLON	0.0	45.6	0.0	0.0	1.1	-64.1	19.6	
TOTALS	7360.9	7154.4	0.0	0.0	0.0	0.0	206.5	0.0
	1213.0	2143.3	-1212.6	0.0	2074.0	0.0	2356.2	



de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 2: Contingencia Guasquitas – Veladero**





PLAN - EXP-SIN CON C.A. JUNIO 2008 ESC. MOD. DEM. MAX. INV.
 P.O. 2021 RECHMTC08 CNT2 GUASQUITAS-VELADERO
 MON. JUN 02 2008 13:54
 KY:514 .535 .5115
 BUS - VOLTAGE (KV/PV)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT2 GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230	230.00	6	1.0042	230.96	14	PRO230	230.00	6	1.0133	233.05				
85	PTP230	230.00	6	1.0053	231.21	96	FOR230	230.00	6	1.0087	232.00				
144	CANJ230	230.00	6	1.0049	231.12	145	BJOMIN230	230.00	6	1.0251	235.77				
146	GUALACA230	230.00	6	1.0107	232.47	147	GUASQ230	230.00	6	1.0047	231.07				
190	CHANG230	230.00	6	1.0202	234.65	306	CHANI 230	230.00	6	1.0226	235.20				
310	CONCEPCION230	230.00	6	1.0164	233.77	341	PRUDENCIA230	230.00	6	1.0201	234.62				
345	LORENA230	230.00	6	1.0168	233.87	6000	FRONTIER	230.00	6	1.0129	232.96				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9435	217.00	3	PANII230	230.00	6	0.9523	219.04				
5	CHO230	230.00	6	0.9416	216.56	8	LSA230	230.00	6	0.9564	219.97				
100	BAY230	230.00	6	0.9927	228.32	103	COPESA23	230.00	6	0.9588	220.53				
105	PAN-AM23	230.00	6	0.9416	216.56	115	PACORA23	230.00	6	0.9618	221.22				
148	VELADERO 230	230.00	6	0.9775	224.81	155	TABASARAI	230.00	6	0.9797	225.33				
325	STA RITA230	230.00	6	0.9763	224.55	511	LGUIAS230	230.00	6	0.9460	217.58				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT2 GUASQUITAS-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0019	115.22	4	PANII115	115.00	6	1.0057	115.66				
9	LSA115	115.00	6	1.0060	115.69	12	M.N115	115.00	6	1.0028	115.32				
15	PRO115	115.00	6	1.0097	116.11	18	CAC115	115.00	6	1.0011	115.12				
20	CH.AZUL	115.00	6	1.0104	116.20	52	TOC115	115.00	6	1.0005	115.05				
54	LM1115	115.00	6	1.0246	117.82	55	LM2115	115.00	6	1.0227	117.61				
61	FFIELD	115.00	9	1.0176	117.03	87	CAL115	115.00	6	1.0303	118.48				
88	EST115	115.00	6	1.0357	119.10	92	L.V115	115.00	6	1.0323	118.71				
109	STA RITA115	115.00	6	1.0338	118.88	123	MIR115	115.00	7	1.0043	115.50				
154	CEMPAN15	115.00	6	1.0144	116.65	191	CHANG115	115.00	6	1.0135	116.55				
522	TCATIVÁ	115.00	6	1.0236	117.72										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO115	115.00	6	0.9778	112.45	19	C.V115	115.00	6	0.9881	113.63				
21	C.BAN115	115.00	6	0.9822	112.95	23	CH115	115.00	6	0.9931	114.21				
26	LOC115	115.00	6	0.9844	113.21	30	MAR115	115.00	6	0.9827	113.01				
33	STM115	115.00	6	0.9985	114.82	37	SAN115	115.00	6	0.9801	112.71				
48	TINAJ115	115.00	6	0.9970	114.65	50	M.O115	115.00	6	0.9972	114.68				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT2 GUASQUITAS-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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70	TGJB13A	13.800	J5	31.0	13.8	20.0	0.0	1.0200	33.3	0.9131	39.4	1	6
71	TGJB13B	13.800	J6	31.0	13.8	20.0	0.0	1.0200	33.3	0.9131	39.4	1	6
73	BLMCCB	13.800	V9	45.0	23.2	40.0	0.0	1.0200	49.6	0.8887	71.0	1	6
90	EST-13L	13.800	E1	21.0	11.2	12.0	-5.0	1.0200	23.3	0.8826	27.0	1	6
91	EST-13T	13.800	E2	21.0	11.2	12.0	-5.0	1.0200	23.3	0.8826	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	12.0	12.0	-5.0	1.0187	26.3	0.8944	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	12.0	12.0	-5.0	1.0187	26.3	0.8944	27.0	1	6
97	FOR13A	13.800	F1	95.0	15.3	50.0	-50.0	1.0200	94.3	0.9872	111.0	1	6
98	FOR13B	13.800	F2	95.0	15.3	50.0	-50.0	1.0200	94.3	0.9872	111.0	1	6
99	FOR13C	13.800	F3	95.0	15.3	50.0	-50.0	1.0200	94.3	0.9872	111.0	1	6
101	BAY13A	13.800	B1	59.3	36.9	50.0	-25.0	0.9900	70.5	0.8486	96.0	1	6
102	BAY13B	13.800	B2	57.7	36.8	50.0	-25.0	0.9900	69.2	0.8431	96.0	1	6
108	BAY13C	13.800	B3	57.7	36.8	50.0	-25.0	0.9900	69.2	0.8431	100.0	1	6
117	CB250A-1	13.800	C1	115.9	70.2	75.6	0.0	1.0200	132.8	0.8554	143.5	1	6
118	CB250A-2	13.800	C2	115.9	70.2	75.6	0.0	1.0200	132.8	0.8554	143.5	1	6
142	CANJ13A	13.800	C1	57.0	21.0	29.0	-29.0	1.0200	59.6	0.9382	69.0	1	6
143	CANJ13B	13.800	C2	57.0	21.0	29.0	-29.0	1.0200	59.6	0.9382	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	5.8	6.1	0.0	0.9900	10.8	0.8413	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	5.8	6.1	0.0	0.9900	10.8	0.8413	11.6	1	6
151	GUALACA13.8	13.800	G1	23.0	8.9	10.0	-10.0	1.0200	24.2	0.9319	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	5.7	5.7	0.2	1.0025	16.5	0.9394	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	5.7	5.7	0.2	1.0025	16.5	0.9394	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	24.4	50.0	0.0	1.0000	75.1	0.9457	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	24.4	50.0	0.0	1.0000	75.1	0.9457	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	26.7	40.0	0.0	1.0000	98.7	0.9628	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9925	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9925	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	1.0	4.0	-4.0	1.0200	8.3	0.9925	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	24.4	50.0	0.0	1.0000	75.1	0.9457	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	24.4	50.0	0.0	1.0000	75.1	0.9457	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-1.1	13.0	-13.0	1.0200	23.6	0.9990	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-1.1	13.0	-13.0	1.0200	23.6	0.9990	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	19.5	26.6	-26.6	1.0200	43.6	0.8987	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	19.5	26.6	-26.6	1.0200	43.6	0.8987	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9623	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9604	5.1	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1060	7.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9824	8.4	0.9701	13.5	1	6
305	ELALTO13.8	13.800	G1	19.0	-0.5	12.0	-5.0	1.0200	18.6	0.9996	20.6	1	6
305	ELALTO13.8	13.800	G2	19.0	-0.5	12.0	-5.0	1.0200	18.6	0.9996	20.6	1	6
305	ELALTO13.8	13.800	G3	19.0	-0.5	12.0	-5.0	1.0200	18.6	0.9996	20.6	1	6
307	CHAN1 A	13.800	G1	109.0	3.4	50.0	-50.0	1.0200	106.9	0.9995	118.6	1	6
308	CHAN1 B	13.800	G2	109.0	3.4	50.0	-50.0	1.0200	106.9	0.9995	118.6	1	6
311	PANDO13.8	13.800	G1	15.0	0.9	10.0	-5.0	1.0200	14.7	0.9982	19.9	1	6
311	PANDO13.8	13.800	G2	15.0	0.9	10.0	-5.0	1.0200	14.7	0.9982	19.9	1	6
316	MONTE LIRIO	13.800	G1	24.0	0.1	12.0	-5.0	1.0200	23.5	1.0000	27.0	1	6
316	MONTE LIRIO	13.800	G2	24.0	0.1	12.0	-5.0	1.0200	23.5	1.0000	27.0	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1055	7.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1055	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	1.7	10.5	-5.0	1.0200	15.8	0.9941	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	1.7	10.5	-5.0	1.0200	15.8	0.9941	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.6	0.7	9.8	-9.8	1.0200	26.1	0.9997	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.6	0.7	9.8	-9.8	1.0200	26.1	0.9997	33.0	1	6
SUBSYSTEM TOTALS				2092.6	653.6	1244.6	-575.3				2721.1		

SYST



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT2 GUASQUITAS-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	6.4	11.0	0.0	1.0200	13.8	0.8920	29.4			2	7	
129		MIR13D		13.800	G4	35.0	7.3	15.0	0.0	1.0200	35.1	0.9788	44.1			2	7	
130		MIR13F		13.800	G5	17.1	2.1	8.0	0.0	1.0200	16.9	0.9924	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0299	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0389	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0389	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	36.3	67.5	20.5				170.3					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTGDC8 CNT2 GUASQUITAS-VELADERO IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4			538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0



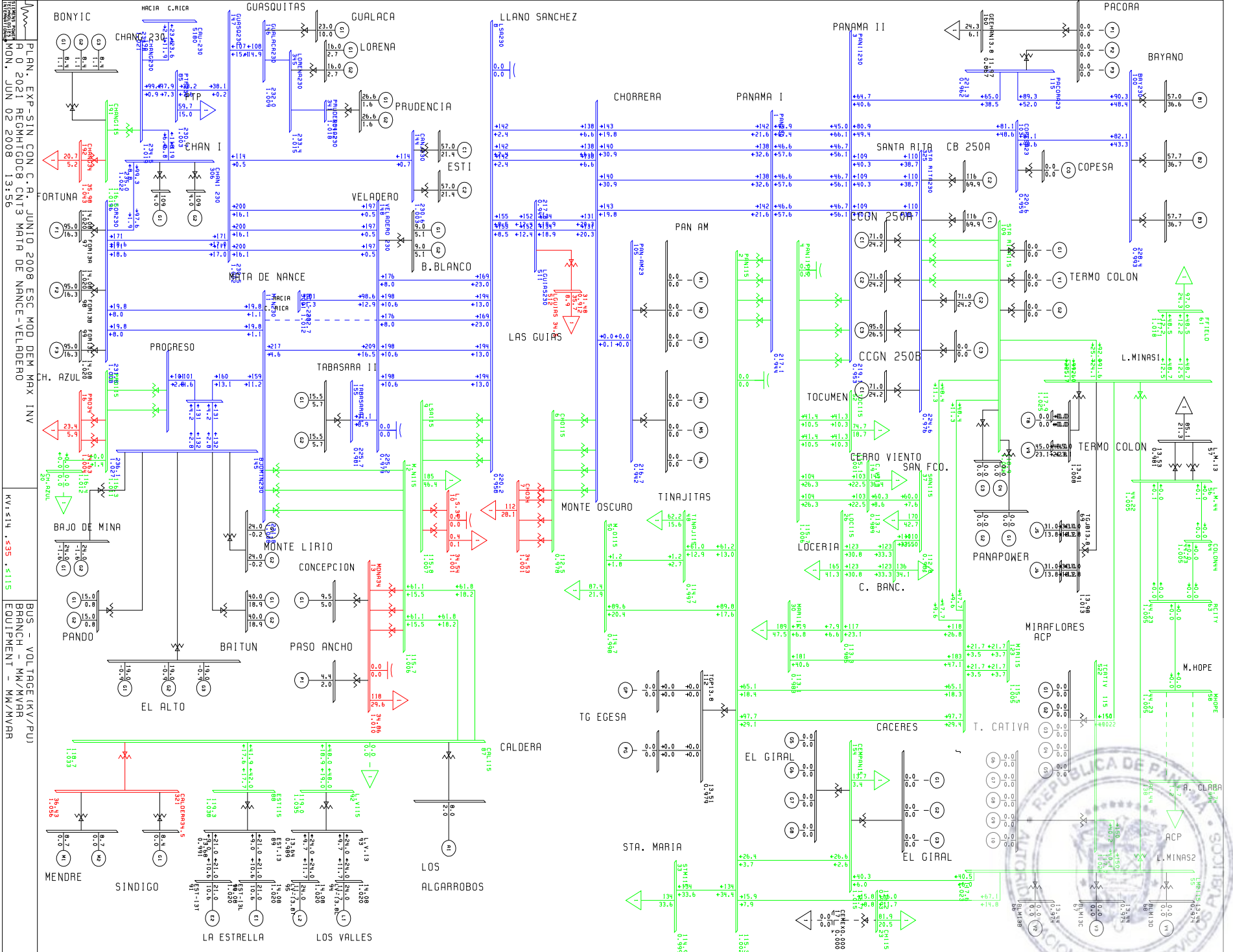
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NICA	33.1	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.2	19.9	0.0
C.RICA	275.5	569.4	-237.0	0.0	467.0	49.0	361.2	
6	2092.6	1849.0	0.0	0.0	0.0	138.9	104.8	25.0
PANAMA	653.6	463.4	-363.3	0.0	538.0	53.8	1037.7	
7	116.0	71.8	0.0	0.0	0.0	43.3	0.9	50.0
ACANAL	36.3	18.0	0.0	0.0	0.0	7.2	11.1	
9	0.0	182.1	0.0	0.0	0.0	-182.5	0.3	-75.0
COLON	0.0	45.6	0.0	0.0	1.1	-64.4	19.9	
TOTALS	7357.9	7154.4	0.0	0.0	0.0	0.0	203.5	0.0
	1185.0	2143.3	-1211.7	0.0	2084.9	0.0	2338.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance – Veladero

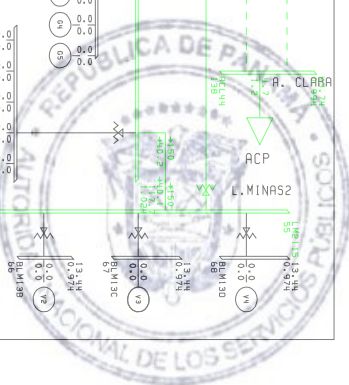


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PLAN. EXP-SIN CON C.A.R. JUNIO 2008 ESC MOD DEM MAX INV
 R 0 2021 REGHMGDC8 CNT3 MACIA DE NANCE-VELADERO
 MON, JUN 02 2008 13:56

BUS - VOLTAGE (KV/PUI)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:18
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT3 MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0079	231.82	14	PRO230		230.00	6	1.0148	233.39	
85	PTP230			230.00	6	1.0032	230.73	96	FOR230		230.00	6	1.0077	231.77	
144	CANJ230			230.00	6	1.0025	230.58	145	BJOMIN230		230.00	6	1.0266	236.11	
146	GUALACA230			230.00	6	1.0085	231.96	147	GUASQ230		230.00	6	1.0023	230.52	
190	CHANG230			230.00	6	1.0194	234.46	306	CHANI 230		230.00	6	1.0219	235.04	
310	CONCEPCION230			230.00	6	1.0185	234.25	341	PRUDENCIA230		230.00	6	1.0181	234.17	
345	LORENA230			230.00	6	1.0148	233.40	6000	FRONTIER		230.00	6	1.0142	233.26	

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230			230.00	6	0.9439	217.10	3	PANII230		230.00	6	0.9527	219.13	
5	CHO230			230.00	6	0.9422	216.70	8	LSA230		230.00	6	0.9575	220.23	
100	BAY230			230.00	6	0.9929	228.36	103	COPESA23		230.00	6	0.9592	220.61	
105	PAN-AM23			230.00	6	0.9422	216.70	115	PACORA23		230.00	6	0.9622	221.30	
148	VELADERO 230			230.00	6	0.9790	225.16	155	TABASARAI		230.00	6	0.9812	225.67	
325	STA RITA230			230.00	6	0.9765	224.59	511	LGUIAS230		230.00	6	0.9469	217.78	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:18
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT3 MATA DE NANCE-VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115			115.00	6	1.0024	115.27	4	PANII115		115.00	6	1.0062	115.71	
9	LSA115			115.00	6	1.0072	115.83	12	M.N115		115.00	6	1.0058	115.67	
15	PRO115			115.00	6	1.0112	116.29	18	CAC115		115.00	6	1.0015	115.17	
20	CH.AZUL			115.00	6	1.0119	116.37	52	TOC115		115.00	6	1.0009	115.10	
54	LM115			115.00	6	1.0248	117.85	55	LM2115		115.00	6	1.0230	117.64	
61	FFIELD			115.00	9	1.0179	117.06	87	CAL115		115.00	6	1.0326	118.74	
88	EST115			115.00	6	1.0377	119.34	92	L.V115		115.00	6	1.0345	118.97	
109	STA RITA115			115.00	6	1.0340	118.91	123	MIR115		115.00	7	1.0047	115.55	
154	CEMPAN15			115.00	6	1.0147	116.69	191	CHANG115		115.00	6	1.0129	116.48	
522	TCATIVÁ			115.00	6	1.0239	117.75								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
6	CHO115			115.00	6	0.9785	112.52	19	C.V115		115.00	6	0.9886	113.69	
21	C.BAN115			115.00	6	0.9827	113.01	23	CH115		115.00	6	0.9935	114.25	
26	LOC115			115.00	6	0.9848	113.26	30	MAR115		115.00	6	0.9831	113.06	
33	STM115			115.00	6	0.9989	114.87	37	SAN115		115.00	6	0.9805	112.76	
48	TINAJ115			115.00	6	0.9974	114.70	50	M.O115		115.00	6	0.9976	114.73	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:18
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT3 MATA DE NANCE-VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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70	TGJB13A	13.800	J5	31.0	13.8	20.0	0.0	1.0200	33.3	0.9139	39.4	1	6
71	TGJB13B	13.800	J6	31.0	13.8	20.0	0.0	1.0200	33.3	0.9139	39.4	1	6
73	BLMCCB	13.800	V9	45.0	23.1	40.0	0.0	1.0200	49.6	0.8896	71.0	1	6
90	EST-13L	13.800	E1	21.0	10.6	12.0	-5.0	1.0200	23.1	0.8931	27.0	1	6
91	EST-13T	13.800	E2	21.0	10.6	12.0	-5.0	1.0200	23.1	0.8931	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	11.7	12.0	-5.0	1.0200	26.2	0.8982	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	11.7	12.0	-5.0	1.0200	26.2	0.8982	27.0	1	6
97	FOR13A	13.800	F1	95.0	16.3	50.0	-50.0	1.0200	94.5	0.9857	111.0	1	6
98	FOR13B	13.800	F2	95.0	16.3	50.0	-50.0	1.0200	94.5	0.9857	111.0	1	6
99	FOR13C	13.800	F3	95.0	16.3	50.0	-50.0	1.0200	94.5	0.9857	111.0	1	6
101	BAY13A	13.800	B1	57.0	36.6	50.0	-25.0	0.9900	68.4	0.8414	96.0	1	6
102	BAY13B	13.800	B2	57.7	36.7	50.0	-25.0	0.9900	69.1	0.8441	96.0	1	6
108	BAY13C	13.800	B3	57.7	36.7	50.0	-25.0	0.9900	69.1	0.8441	100.0	1	6
117	CB250A-1	13.800	C1	115.9	69.9	75.6	0.0	1.0200	132.7	0.8565	143.5	1	6
118	CB250A-2	13.800	C2	115.9	69.9	75.6	0.0	1.0200	132.7	0.8565	143.5	1	6
142	CANJ13A	13.800	C1	57.0	21.4	29.0	-29.0	1.0200	59.7	0.9360	69.0	1	6
143	CANJ13B	13.800	C2	57.0	21.4	29.0	-29.0	1.0200	59.7	0.9360	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	5.1	6.1	0.0	0.9900	10.4	0.8702	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	5.1	6.1	0.0	0.9900	10.4	0.8702	11.6	1	6
151	GUALACA13.8	13.800	G1	23.0	10.0	10.0	-10.0	1.0189	24.6	0.9171	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	5.7	5.7	0.2	1.0040	16.5	0.9394	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	5.7	5.7	0.2	1.0040	16.5	0.9394	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	24.2	50.0	0.0	1.0000	75.0	0.9465	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	24.2	50.0	0.0	1.0000	75.0	0.9465	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	26.5	40.0	0.0	1.0000	98.6	0.9633	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	1.1	4.0	-4.0	1.0200	8.3	0.9916	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	1.1	4.0	-4.0	1.0200	8.3	0.9916	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	1.1	4.0	-4.0	1.0200	8.3	0.9916	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	24.2	50.0	0.0	1.0000	75.0	0.9465	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	24.2	50.0	0.0	1.0000	75.0	0.9465	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-1.6	13.0	-13.0	1.0200	23.6	0.9977	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-1.6	13.0	-13.0	1.0200	23.6	0.9977	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	18.9	26.6	-26.6	1.0200	43.4	0.9038	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	18.9	26.6	-26.6	1.0200	43.4	0.9038	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9655	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9636	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1085	7.6	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9846	8.4	0.9701	13.5	1	6
305	ELALTO13.8	13.800	G1	19.0	-0.9	12.0	-5.0	1.0200	18.6	0.9989	20.6	1	6
305	ELALTO13.8	13.800	G2	19.0	-0.9	12.0	-5.0	1.0200	18.6	0.9989	20.6	1	6
305	ELALTO13.8	13.800	G3	19.0	-0.9	12.0	-5.0	1.0200	18.6	0.9989	20.6	1	6
307	CHAN1 A	13.800	G1	109.0	4.0	50.0	-50.0	1.0200	106.9	0.9993	118.6	1	6
308	CHAN1 B	13.800	G2	109.0	4.0	50.0	-50.0	1.0200	106.9	0.9993	118.6	1	6
311	PANDO13.8	13.800	G1	15.0	0.8	10.0	-5.0	1.0200	14.7	0.9987	19.9	1	6
311	PANDO13.8	13.800	G2	15.0	0.8	10.0	-5.0	1.0200	14.7	0.9987	19.9	1	6
316	MONTE LIRIO	13.800	G1	24.0	-0.2	12.0	-5.0	1.0200	23.5	1.0000	27.0	1	6
316	MONTE LIRIO	13.800	G2	24.0	-0.2	12.0	-5.0	1.0200	23.5	1.0000	27.0	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1080	7.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1080	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	2.7	10.5	-5.0	1.0200	15.9	0.9860	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	2.7	10.5	-5.0	1.0200	15.9	0.9860	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.6	1.6	9.8	-9.8	1.0200	26.1	0.9981	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.6	1.6	9.8	-9.8	1.0200	26.1	0.9981	33.0	1	6
SUBSYSTEM TOTALS				2090.4	653.7	1244.6	-575.3				2721.1		

SYST



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CNT3 MATA DE NANCE-VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	6.3	11.0	0.0	1.0200	13.8	0.8933	29.4			2	7	
129		MIR13D		13.800	G4	35.0	7.3	15.0	0.0	1.0200	35.0	0.9792	44.1			2	7	
130		MIR13F		13.800	G5	17.1	2.0	8.0	0.0	1.0200	16.9	0.9929	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0300	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0390	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0390	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	36.1	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:19
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTGDC8 CNT3 MATA DE NANCE-VELADERO IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.8	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.1	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.7	0.0
C.RICA	274.5	569.4	-237.1	0.0	467.1	49.4	360.0	
6	2090.4	1849.0	0.0	0.0	0.0	138.7	102.7	25.0
PANAMA	653.7	463.4	-363.8	0.0	537.5	53.7	1037.9	
7	116.0	71.8	0.0	0.0	0.0	43.3	0.9	50.0
ACANAL	36.1	18.0	0.0	0.0	0.0	7.0	11.1	
9	0.0	182.1	0.0	0.0	0.0	-182.5	0.3	-75.0
COLON	0.0	45.6	0.0	0.0	1.1	-64.4	19.8	
TOTALS	7355.6	7154.4	0.0	0.0	0.0	0.0	201.2	0.0
	1183.8	2143.3	-1212.3	0.0	2084.5	0.0	2337.3	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO



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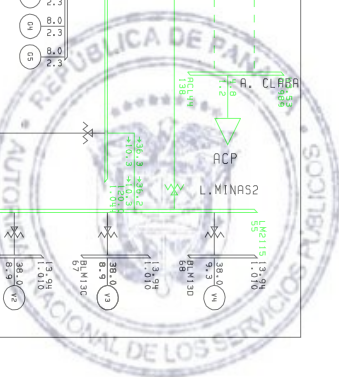
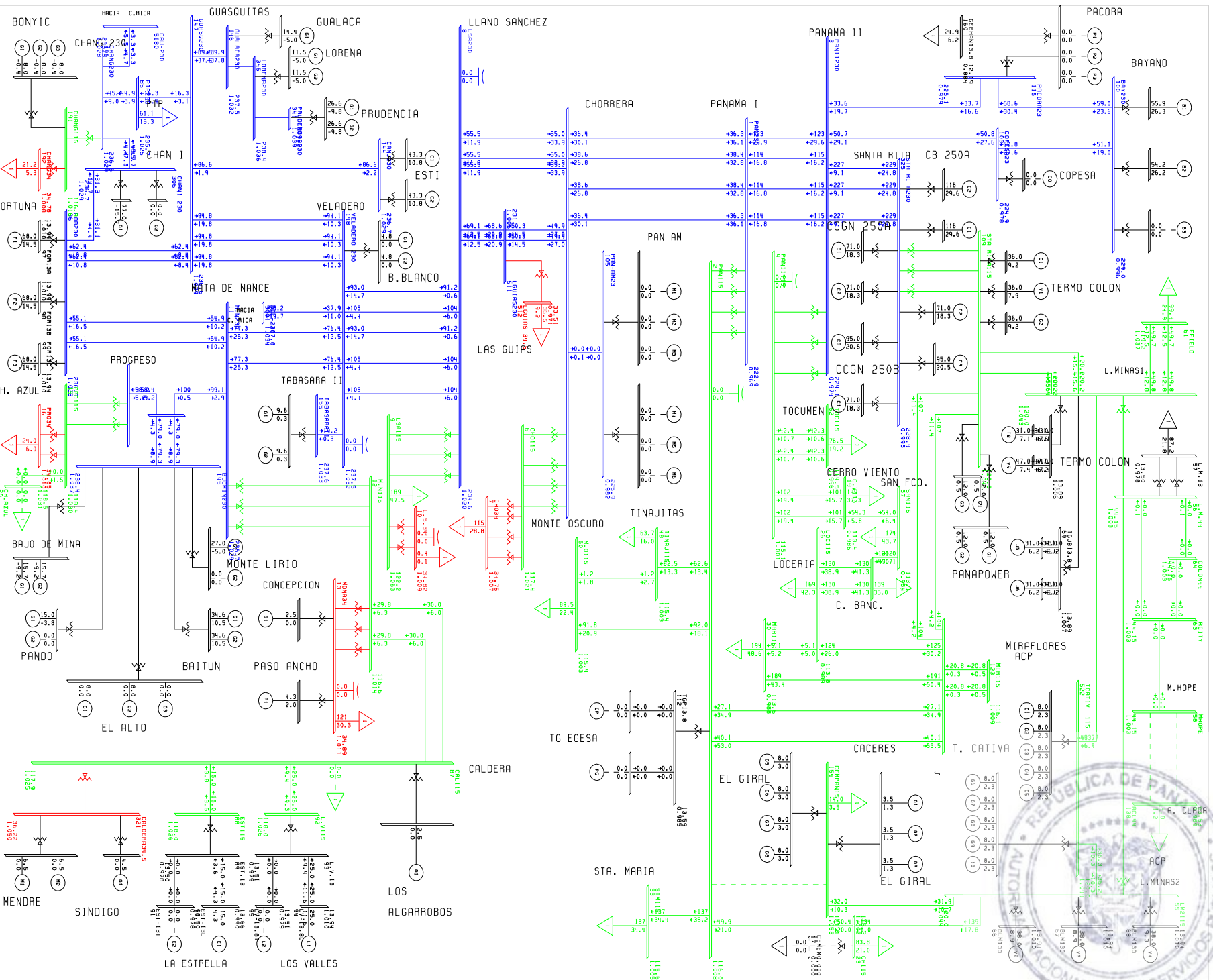
Contingencia 4: Contingencia Panamá – Cemento Panamá



de

PLAN. EXP-SIN CON C.R. JUNIO 2008 ESC MOD DEM MAX VER
 R 0 2021 REGMTC08 CNT4 PANAMA-CEMENTO PANAMA
 JUN 02 2008 13:57

BUS - VOLTAGE (KV/PV)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT4 PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0202	234.65	11	M.N230	230.00	6	1.0293	236.75				
14	PRO230	230.00	6	1.0335	237.70	85	PTP230	230.00	6	1.0250	235.75				
96	FOR230	230.00	6	1.0284	236.54	144	CANJ230	230.00	6	1.0290	236.68				
145	BJOMIN230	230.00	6	1.0367	238.44	146	GUALACA230	230.00	6	1.0325	237.47				
147	GUASQ230	230.00	6	1.0289	236.64	148	VELADERO 230	230.00	6	1.0324	237.46				
155	TABASARAI	230.00	6	1.0331	237.61	190	CHANG230	230.00	6	1.0288	236.63				
306	CHAN1 230	230.00	6	1.0292	236.72	310	CONCEPCION23	230.00	6	1.0343	237.89				
341	PRUDENCIA230	230.00	6	1.0390	238.96	345	LORENA230	230.00	6	1.0365	238.39				
511	LGUIAS230	230.00	6	1.0046	231.06	6000	FRONTER	230.00	6	1.0339	237.79				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9689	222.85	3	PANII230	230.00	6	0.9742	224.06				
5	CHO230	230.00	6	0.9823	225.93	100	BAY230	230.00	6	0.9959	229.05				
103	COPESA23	230.00	6	0.9779	224.91	105	PAN-AM23	230.00	6	0.9823	225.93				
115	PACORA23	230.00	6	0.9786	225.07	325	STA RITA230	230.00	6	0.9931	228.42				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT4 PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0083	115.96	4	PANII115	115.00	6	1.0010	115.11				
6	CHO115	115.00	6	1.0210	117.42	9	LSA115	115.00	6	1.0630	122.25				
12	M.N115	115.00	6	1.0140	116.61	15	PRO115	115.00	6	1.0299	118.44				
18	CAC115	115.00	6	1.0073	115.83	20	CH.AZUL	115.00	6	1.0307	118.53				
23	CH115	115.00	6	1.0019	115.21	33	STM115	115.00	6	1.0048	115.55				
48	TINAJ115	115.00	6	1.0033	115.38	50	M.O115	115.00	6	1.0035	115.40				
54	LM1115	115.00	6	1.0435	120.00	55	LM2115	115.00	6	1.0435	120.00				
61	FFIELD	115.00	9	1.0365	119.20	87	CAL115	115.00	6	1.0251	117.89				
88	EST115	115.00	6	1.0265	118.04	92	L.V115	115.00	6	1.0261	118.00				
109	STA RITA115	115.00	6	1.0460	120.29	123	MIR115	115.00	7	1.0093	116.07				
154	CEMPAN15	115.00	6	1.0528	121.08	191	CHANG115	115.00	6	1.0163	116.88				
522	TCATIVÁ	115.00	6	1.0437	120.03										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9860	113.39	21	C.BAN115	115.00	6	0.9867	113.47				
26	LOC115	115.00	6	0.9892	113.76	30	MAR115	115.00	6	0.9880	113.62				
37	SAN115	115.00	6	0.9839	113.15	52	TOC115	115.00	6	0.9955	114.49				



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	38.0	8.9	25.0	0.0	1.0100	38.7	0.9734	47.0			1	6	
67		BLM13C		13.800	V3	38.0	8.9	25.0	0.0	1.0100	38.7	0.9734	47.0			1	6	
68		BLM13D		13.800	V4	38.0	9.3	25.0	0.0	1.0100	38.7	0.9716	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	6.2	20.0	0.0	1.0100	31.3	0.9808	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	6.2	20.0	0.0	1.0100	31.3	0.9808	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	7.1	20.0	0.0	1.0100	31.5	0.9749	50.0			1	6	
73		BLMCCB		13.800	V9	47.0	7.4	40.0	0.0	1.0100	47.1	0.9878	71.0			1	6	
90		EST-13L		13.800	E1	15.0	4.3	12.0	-5.0	0.9900	15.8	0.9610	27.0			1	6	
94		LV-13.8L		13.800	L1	25.0	11.6	12.0	-5.0	1.0100	27.3	0.9068	27.0			1	6	
97		FOR13A		13.800	F1	68.0	-14.5	50.0	-50.0	1.0100	68.8	0.9781	111.0			1	6	
98		FOR13B		13.800	F2	68.0	-14.5	50.0	-50.0	1.0100	68.8	0.9781	111.0			1	6	
99		FOR13C		13.800	F3	68.0	-14.5	50.0	-50.0	1.0100	68.8	0.9781	111.0			1	6	
101		BAY13A		13.800	B1	55.9	26.3	50.0	-25.0	0.9800	63.0	0.9045	96.0			1	6	SYST
102		BAY13B		13.800	B2	54.2	26.2	50.0	-25.0	0.9800	61.4	0.9002	96.0			1	6	
117		CB250A-1		13.800	C1	115.9	29.6	75.6	0.0	1.0100	118.4	0.9688	143.5			1	6	
118		CB250A-2		13.800	C2	115.9	29.6	75.6	0.0	1.0100	118.4	0.9688	143.5			1	6	
142		CANJ13A		13.800	C1	43.3	10.8	29.0	-29.0	1.0100	44.2	0.9700	69.0			1	6	
143		CANJ13B		13.800	C2	43.3	10.8	29.0	-29.0	1.0100	44.2	0.9700	69.0			1	6	
149		BBLANCO13.8		13.800	G1	4.8	0.0	6.1	0.0	1.0324	4.6	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	4.8	0.0	6.1	0.0	1.0324	4.6	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	14.4	-5.0	10.0	-5.0	1.0271	14.8	0.9447	26.7			1	6	
156		TABASARAI13		13.800	G1	9.6	0.2	5.7	0.2	1.0333	9.3	0.9997	20.5			1	6	
156		TABASARAI13		13.800	G2	9.6	0.2	5.7	0.2	1.0333	9.3	0.9997	20.5			1	6	
187		CCGN250-A1		13.800	C1	71.0	18.3	50.0	0.0	1.0100	72.6	0.9684	84.0			1	6	
188		CCGN250-A2		13.800	C2	71.0	18.3	50.0	0.0	1.0100	72.6	0.9684	84.0			1	6	
189		CCGN250-A3		13.800	C3	95.0	20.5	40.0	0.0	1.0100	96.2	0.9776	105.3			1	6	
193		GEBONYIC		13.800	G1	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9988	35.3			1	6	
193		GEBONYIC		13.800	G2	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9988	35.3			1	6	
193		GEBONYIC		13.800	G3	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9988	35.3			1	6	
194		CCGN250-B1		13.800	C1	71.0	18.3	50.0	0.0	1.0100	72.6	0.9684	84.0			1	6	
195		CCGN250-B2		13.800	C2	71.0	18.3	50.0	0.0	1.0100	72.6	0.9684	84.0			1	6	
196		CCGN250-B3		13.800	C3	95.0	20.5	40.0	0.0	1.0100	96.2	0.9776	105.3			1	6	
204		BJOMIN13		13.800	G1	15.7	-9.2	13.0	-13.0	1.0105	18.0	0.8639	28.9			1	6	
204		BJOMIN13		13.800	G2	15.7	-9.2	13.0	-13.0	1.0105	18.0	0.8639	28.9			1	6	
205		BAITUN13.8		13.800	G1	34.6	10.5	26.6	-26.6	1.0100	35.8	0.9570	50.6			1	6	
205		BAITUN13.8		13.800	G2	34.6	10.5	26.6	-26.6	1.0100	35.8	0.9570	50.6			1	6	
301		CONC13.8		13.800	G1	2.5	0.0	0.0	-5.0	0.9632	2.6	1.0000	13.5			1	6	
302		PASOANCH13.8		13.800	P1	4.3	2.0	2.0	-2.0	0.9645	4.9	0.9067	6.2			1	6	
303		SIND13.8		13.800	G1	4.5	0.0	5.0	0.0	1.1023	4.1	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	2.5	0.0	0.0	0.0	0.9763	2.6	1.0000	13.5			1	6	
305		ELALTO13.8		13.800	G1	8.0	0.0	12.0	0.0	1.0365	7.7	1.0000	20.6			1	6	
305		ELALTO13.8		13.800	G2	8.0	0.0	12.0	0.0	1.0365	7.7	1.0000	20.6			1	6	
307		CHAN1 A		13.800	G1	77.0	-15.7	50.0	-50.0	1.0100	77.8	0.9798	118.6			1	6	
311		PANDO13.8		13.800	G1	15.0	-3.8	10.0	-5.0	1.0100	15.3	0.9700	19.9			1	6	
316		MONTE LRIO		13.800	G1	27.0	-5.0	12.0	-5.0	1.0237	26.8	0.9833	27.0			1	6	
317		MENDRE13.8		13.800	M1	6.5	0.0	4.0	0.0	1.1020	5.9	1.0000	35.3			1	6	
317		MENDRE13.8		13.800	M2	6.5	0.0	4.0	0.0	1.1020	5.9	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	11.5	-5.0	10.5	-5.0	1.0256	12.2	0.9171	19.9			1	6	
342		LORENA13.8		13.800	G2	11.5	-5.0	10.5	-5.0	1.0256	12.2	0.9171	19.9			1	6	
343		PRUDENCIA138		13.800	G1	26.6	-9.8	9.8	-9.8	1.0164	27.9	0.9388	33.0			1	6	
343		PRUDENCIA138		13.800	G2	26.6	-9.8	9.8	-9.8	1.0164	27.9	0.9388	33.0			1	6	
516		PANAPOW13A		13.800	G1	12.0	0.5	12.5	0.5	1.0470	11.5	0.9990	20.9			1	6	



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516	PANAPOW13A	13.800	G2	12.0	0.5	12.5	0.5	1.0470	11.5	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G3	12.0	0.5	12.5	0.5	1.0470	11.5	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G4	12.0	0.5	12.5	0.5	1.0470	11.5	0.9990	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0247	3.6	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0247	3.6	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0247	3.6	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0247	3.6	0.9373	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	2.3	6.6	-6.6	1.0100	8.2	0.9623	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0126	36.7	0.9689	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	9.2	18.4	9.2	1.0126	36.7	0.9689	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	7.9	18.4	5.8	1.0100	36.5	0.9766	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0256	8.3	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0256	8.3	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0256	8.3	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0256	8.3	0.9363	10.9	1	6
SUBSYSTEM TOTALS				2088.3	287.4	1422.4	-482.3				3066.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:20
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2021 REGMHTGDC8 CNT4 PANAMA-CEMENTO PANAMA

AREA 7 [ACANAL] MACHINE SUMMARY:																							
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING	
128		MIR13C		12.000	G3	12.6	4.7	11.0	0.0	1.0100	13.3	0.9378	29.4							2	7		
129		MIR13D		13.800	G4	35.0	4.7	15.0	0.0	1.0100	35.0	0.9910	44.1							2	7		
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0114	16.9	1.0000	27.7							2	7		
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0258	17.9	0.9289	23.0							2	7		
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0349	17.8	0.9289	23.0							2	7		
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0349	17.8	0.9289	23.0							2	7		
SUBSYSTEM TOTALS						116.0	29.8	67.5	20.5				170.3										



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:20
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 REGMHTGDC8 CNT4 PANAMA-CEMENTO PANAMA IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	243.5	569.4	-237.3	0.0	470.7	24.9	357.1	
6	2088.3	1893.6	0.0	0.0	0.0	144.5	50.2	25.0
PANAMA	287.4	474.6	-283.4	0.0	594.0	87.5	602.7	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	29.8	18.4	0.0	0.0	0.0	0.6	10.8	
9	0.0	186.5	0.0	0.0	0.0	-186.8	0.3	-75.0
COLON	0.0	46.7	0.0	0.0	1.1	-66.5	20.9	
TOTALS	7353.5	7205.2	0.0	0.0	0.0	0.0	148.4	0.0
	779.2	2156.0	-1132.1	0.0	2144.7	0.0	1899.9	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO



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Contingencia 5: Contingencia Las Minas 2 – Chilibre



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT5 MINAS2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA	230	230.00	6	1.0179	234.12	11	M.N	230	230.00	6	1.0285	236.56		
14	PRO	230	230.00	6	1.0329	237.57	85	PTP	230	230.00	6	1.0243	235.59		
96	FOR	230	230.00	6	1.0277	236.38	144	CANJ	230	230.00	6	1.0282	236.49		
145	BJOMIN	230	230.00	6	1.0362	238.33	146	GUALACA	230	230.00	6	1.0317	237.28		
147	GUASQ	230	230.00	6	1.0280	236.45	148	VELADERO	230	230.00	6	1.0310	237.14		
155	TABASARAI	230	230.00	6	1.0317	237.29	190	CHANG	230	230.00	6	1.0284	236.54		
306	CHAN1	230	230.00	6	1.0288	236.63	310	CONCEPCION	230	230.00	6	1.0337	237.75		
341	PRUDENCIA	230	230.00	6	1.0381	238.77	345	LORENA	230	230.00	6	1.0357	238.20		
511	LGUIAS	230	230.00	6	1.0020	230.46	6000	FRONTER	230	230.00	6	1.0333	237.65		

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230	230.00	6	0.9657	222.10	3	PANII	230	230.00	6	0.9709	223.31		
5	CHO	230	230.00	6	0.9793	225.23	100	BAY	230	230.00	6	0.9936	228.54		
103	COPE	230	230.00	6	0.9748	224.20	105	PAN-AM	230	230.00	6	0.9793	225.23		
115	PACORA	230	230.00	6	0.9756	224.38	325	STA RITA	230	230.00	6	0.9919	228.14		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT5 MINAS2-CHILIBRE

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115	115.00	6	1.0048	115.56	4	PANII	115	115.00	6	1.0075	115.87		
6	CHO	115	115.00	6	1.0177	117.04	9	LSA	115	115.00	6	1.0605	121.96		
12	M.N	115	115.00	6	1.0133	116.53	15	PRO	115	115.00	6	1.0293	118.37		
18	CAC	115	115.00	6	1.0039	115.44	20	CH.AZUL	115	115.00	6	1.0301	118.46		
33	STM	115	115.00	6	1.0013	115.15	52	TOC	115	115.00	6	1.0022	115.25		
54	LM	115	115.00	6	1.0441	120.07	55	LM2	115	115.00	6	1.0445	120.11		
61	FFIELD	115	115.00	9	1.0372	119.27	87	CAL	115	115.00	6	1.0246	117.83		
88	EST	115	115.00	6	1.0260	117.98	92	L.V	115	115.00	6	1.0256	117.94		
109	STA RITA	115	115.00	6	1.0454	120.22	123	MIR	115	115.00	7	1.0061	115.70		
154	CEMPAN	115	115.00	6	1.0366	119.21	191	CHANG	115	115.00	6	1.0160	116.84		
522	TCATIVÁ	115	115.00	6	1.0445	120.12									

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115	115.00	6	0.9899	113.83	21	C.BAN	115	115.00	6	0.9845	113.21		
23	CH	115	115.00	6	0.9727	111.86	26	LOC	115	115.00	6	0.9867	113.47		
30	MAR	115	115.00	6	0.9850	113.28	37	SAN	115	115.00	6	0.9822	112.96		
48	TINAJ	115	115.00	6	0.9998	114.97	50	M.O	115	115.00	6	1.0000	115.00		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT5 MINAS2-CHILIBRE



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X-- NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B		13.800	V2	38.0	8.5	25.0	0.0	1.0100	38.6	0.9757	47.0			1	6	
67	BLM13C		13.800	V3	38.0	8.5	25.0	0.0	1.0100	38.6	0.9757	47.0			1	6	
68	BLM13D		13.800	V4	38.0	8.8	25.0	0.0	1.0100	38.6	0.9741	47.0			1	6	
70	TGJB13A		13.800	J5	31.0	6.0	20.0	0.0	1.0100	31.3	0.9818	39.4			1	6	
71	TGJB13B		13.800	J6	31.0	6.0	20.0	0.0	1.0100	31.3	0.9818	39.4			1	6	
72	BLMCCA		13.800	T8	31.0	6.9	20.0	0.0	1.0100	31.4	0.9760	50.0			1	6	
73	BLMCCB		13.800	V9	47.0	7.2	40.0	0.0	1.0100	47.1	0.9883	71.0			1	6	
90	EST-13L		13.800	E1	15.0	4.5	12.0	-5.0	0.9900	15.8	0.9584	27.0			1	6	
94	LV-13.8L		13.800	L1	25.0	11.8	12.0	-5.0	1.0100	27.4	0.9046	27.0			1	6	
97	FOR13A		13.800	F1	68.0	-13.8	50.0	-50.0	1.0100	68.7	0.9800	111.0			1	6	
98	FOR13B		13.800	F2	68.0	-13.8	50.0	-50.0	1.0100	68.7	0.9800	111.0			1	6	
99	FOR13C		13.800	F3	68.0	-13.8	50.0	-50.0	1.0100	68.7	0.9800	111.0			1	6	
101	BAY13A		13.800	B1	58.0	28.1	50.0	-25.0	0.9800	65.8	0.8997	96.0			1	6	SYST
102	BAY13B		13.800	B2	54.2	27.8	50.0	-25.0	0.9800	62.2	0.8895	96.0			1	6	
117	CB250A-1		13.800	C1	115.9	31.4	75.6	0.0	1.0100	118.9	0.9652	143.5			1	6	
118	CB250A-2		13.800	C2	115.9	31.4	75.6	0.0	1.0100	118.9	0.9652	143.5			1	6	
142	CANJ13A		13.800	C1	43.3	11.0	29.0	-29.0	1.0100	44.2	0.9693	69.0			1	6	
143	CANJ13B		13.800	C2	43.3	11.0	29.0	-29.0	1.0100	44.2	0.9693	69.0			1	6	
149	BBLANCO13.8		13.800	G1	4.8	0.0	6.1	0.0	1.0310	4.7	1.0000	11.6			1	6	
149	BBLANCO13.8		13.800	G2	4.8	0.0	6.1	0.0	1.0310	4.7	1.0000	11.6			1	6	
151	GUALACA13.8		13.800	G1	14.4	-5.0	10.0	-5.0	1.0262	14.9	0.9447	26.7			1	6	
156	TABASARAI1313.800		13.800	G1	9.6	0.2	5.7	0.2	1.0319	9.3	0.9997	20.5			1	6	
156	TABASARAI1313.800		13.800	G2	9.6	0.2	5.7	0.2	1.0319	9.3	0.9997	20.5			1	6	
187	CCGN250-A1		13.800	C1	71.0	19.4	50.0	0.0	1.0100	72.9	0.9648	84.0			1	6	
188	CCGN250-A2		13.800	C2	71.0	19.4	50.0	0.0	1.0100	72.9	0.9648	84.0			1	6	
189	CCGN250-A3		13.800	C3	95.0	21.6	40.0	0.0	1.0100	96.5	0.9752	105.3			1	6	
193	GEBONYIC		13.800	G1	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9990	35.3			1	6	
193	GEBONYIC		13.800	G2	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9990	35.3			1	6	
193	GEBONYIC		13.800	G3	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9990	35.3			1	6	
194	CCGN250-B1		13.800	C1	71.0	19.4	50.0	0.0	1.0100	72.9	0.9648	84.0			1	6	
195	CCGN250-B2		13.800	C2	71.0	19.4	50.0	0.0	1.0100	72.9	0.9648	84.0			1	6	
196	CCGN250-B3		13.800	C3	95.0	21.6	40.0	0.0	1.0100	96.5	0.9752	105.3			1	6	
204	BJOMIN13		13.800	G1	15.7	-9.0	13.0	-13.0	1.0105	17.9	0.8680	28.9			1	6	
204	BJOMIN13		13.800	G2	15.7	-9.0	13.0	-13.0	1.0105	17.9	0.8680	28.9			1	6	
205	BAITUN13.8		13.800	G1	34.6	10.7	26.6	-26.6	1.0100	35.9	0.9556	50.6			1	6	
205	BAITUN13.8		13.800	G2	34.6	10.7	26.6	-26.6	1.0100	35.9	0.9556	50.6			1	6	
301	CONC13.8		13.800	G1	2.5	0.0	0.0	-5.0	0.9625	2.6	1.0000	13.5			1	6	
302	PASOANCH13.813.800		13.800	P1	4.3	2.0	2.0	-2.0	0.9638	4.9	0.9067	6.2			1	6	
303	SIND13.8		13.800	G1	4.5	0.0	5.0	0.0	1.1017	4.1	1.0000	13.5			1	6	
304	ALGA13.8		13.800	A1	2.5	0.0	0.0	0.0	0.9758	2.6	1.0000	13.5			1	6	
305	ELALTO13.8		13.800	G1	8.0	0.0	12.0	0.0	1.0360	7.7	1.0000	20.6			1	6	
305	ELALTO13.8		13.800	G2	8.0	0.0	12.0	0.0	1.0360	7.7	1.0000	20.6			1	6	
307	CHAN1 A		13.800	G1	77.0	-15.3	50.0	-50.0	1.0100	77.7	0.9808	118.6			1	6	
311	PANDO13.8		13.800	G1	15.0	-3.7	10.0	-5.0	1.0100	15.3	0.9712	19.9			1	6	
316	MONTE LIRIO		13.800	G1	27.0	-5.0	12.0	-5.0	1.0232	26.8	0.9833	27.0			1	6	
317	MENDRE13.8		13.800	M1	6.5	0.0	4.0	0.0	1.1014	5.9	1.0000	35.3			1	6	
317	MENDRE13.8		13.800	M2	6.5	0.0	4.0	0.0	1.1014	5.9	1.0000	35.3			1	6	
342	LORENA13.8		13.800	G1	11.5	-5.0	10.5	-5.0	1.0247	12.2	0.9171	19.9			1	6	
342	LORENA13.8		13.800	G2	11.5	-5.0	10.5	-5.0	1.0247	12.2	0.9171	19.9			1	6	
343	PRUDENCIA13813.800		13.800	G1	26.6	-9.8	9.8	-9.8	1.0156	27.9	0.9388	33.0			1	6	
343	PRUDENCIA13813.800		13.800	G2	26.6	-9.8	9.8	-9.8	1.0156	27.9	0.9388	33.0			1	6	
516	PANAPOW13A		13.800	G1	12.0	0.5	12.5	0.5	1.0464	11.5	0.9990	20.9			1	6	
516	PANAPOW13A		13.800	G2	12.0	0.5	12.5	0.5	1.0464	11.5	0.9990	20.9			1	6	
517	PANAPOW13B		13.800	G3	12.0	0.5	12.5	0.5	1.0464	11.5	0.9990	20.9			1	6	
517	PANAPOW13B		13.800	G4	12.0	0.5	12.5	0.5	1.0464	11.5	0.9990	20.9			1	6	
521	EGIRAL13.8		113.800	G1	3.5	1.3	2.8	1.3	1.0100	3.7	0.9351	4.8			1	6	



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521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0100	3.7	0.9351	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0100	3.7	0.9351	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0100	3.7	0.9351	4.8	1	6
523	TCATIVÁ	13A 13.800	G1	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
523	TCATIVÁ	13A 13.800	G2	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
523	TCATIVÁ	13A 13.800	G3	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
523	TCATIVÁ	13A 13.800	G4	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
523	TCATIVÁ	13A 13.800	G5	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
524	TCATIVÁ	13B 13.800	10	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
524	TCATIVÁ	13B 13.800	G6	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
524	TCATIVÁ	13B 13.800	G7	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
524	TCATIVÁ	13B 13.800	G8	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
524	TCATIVÁ	13B 13.800	G9	8.0	2.2	6.6	-6.6	1.0100	8.2	0.9652	10.9	1	6
525	TCOLON	13A 13.800	G1	36.0	9.2	18.4	9.2	1.0120	36.7	0.9689	44.4	1	6
526	TCOLON	13B 13.800	G2	36.0	9.2	18.4	9.2	1.0120	36.7	0.9689	44.4	1	6
527	TCOLON	13C 13.800	V1	36.0	8.2	18.4	5.8	1.0100	36.6	0.9749	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0105	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0105	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0105	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0105	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				2090.4	302.2	1422.4	-482.3				3066.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:45
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT5 MINAS2-CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128	MIR13C	12.000	G3	12.6	5.1	11.0	0.0	1.0100	13.5	0.9269	29.4			2	7		
129	MIR13D	13.800	G4	35.0	5.4	15.0	0.0	1.0100	35.1	0.9884	44.1			2	7		
130	MIR13F	13.800	G5	17.1	0.1	8.0	0.0	1.0100	16.9	1.0000	27.7			2	7		
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0242	18.0	0.9289	23.0			2	7		
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0333	17.8	0.9289	23.0			2	7		
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0333	17.8	0.9289	23.0			2	7		
SUBSYSTEM TOTALS				116.0	31.0	67.5	20.5				170.3						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT5 MINAS2-CHILIBRE

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0



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NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	244.4	569.4	-237.2	0.0	470.6	25.7	357.2	
6	2090.4	1893.6	0.0	0.0	0.0	144.5	52.3	25.0
PANAMA	302.2	474.6	-283.5	0.0	592.3	85.5	618.0	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	31.0	18.4	0.0	0.0	0.0	1.8	10.9	
9	0.0	186.5	0.0	0.0	0.0	-186.8	0.3	-75.0
COLON	0.0	46.7	0.0	0.0	1.1	-66.4	20.8	
TOTALS	7355.6	7205.2	0.0	0.0	0.0	0.0	150.5	0.0
	796.2	2156.0	-1132.2	0.0	2142.9	0.0	1915.2	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 6: Contingencia Las Minas 1 – Santa Rita



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT6 MINAS1-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0235	235.41	11	M.N230	230.00	6	1.0305	237.02				
14	PRO230	230.00	6	1.0344	237.90	85	PTP230	230.00	6	1.0260	235.98				
96	FOR230	230.00	6	1.0295	236.78	144	CANJ230	230.00	6	1.0303	236.96				
145	BJOMIN230	230.00	6	1.0374	238.61	146	GUALACA230	230.00	6	1.0337	237.75				
147	GUASQ230	230.00	6	1.0301	236.93	148	VELADERO 230	230.00	6	1.0345	237.94				
155	TABASARAI	230.00	6	1.0352	238.09	190	CHANG230	230.00	6	1.0294	236.77				
306	CHAN1 230	230.00	6	1.0298	236.85	310	CONCEPCION23	230.00	6	1.0352	238.09				
341	PRUDENCIA230	230.00	6	1.0402	239.24	345	LORENA230	230.00	6	1.0377	238.67				
511	LGUIAS230	230.00	6	1.0085	231.95	6000	FRONTER	230.00	6	1.0347	237.99				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9737	223.96	3	PANII230	230.00	6	0.9786	225.08				
5	CHO230	230.00	6	0.9868	226.97	100	BAY230	230.00	6	0.9989	229.75				
103	COPESA23	230.00	6	0.9821	225.89	105	PAN-AM23	230.00	6	0.9868	226.97				
115	PACORA23	230.00	6	0.9826	226.01	325	STA RITA230	230.00	6	0.9954	228.94				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT6 MINAS1-SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0139	116.60	4	PANII115	115.00	6	1.0058	115.67				
6	CHO115	115.00	6	1.0258	117.97	9	LSA115	115.00	6	1.0666	122.66				
12	M.N115	115.00	6	1.0150	116.72	15	PRO115	115.00	6	1.0308	118.54				
18	CAC115	115.00	6	1.0128	116.47	20	CH.AZUL	115.00	6	1.0315	118.63				
23	CH115	115.00	6	1.0057	115.65	33	STM115	115.00	6	1.0104	116.19				
48	TINAJ115	115.00	6	1.0089	116.02	50	M.O115	115.00	6	1.0091	116.04				
52	TOC115	115.00	6	1.0004	115.05	54	LM1115	115.00	6	1.0424	119.87				
55	LM2115	115.00	6	1.0417	119.80	61	FFIELD	115.00	9	1.0354	119.07				
87	CAL115	115.00	6	1.0259	117.98	88	EST115	115.00	6	1.0272	118.13				
92	L.V115	115.00	6	1.0269	118.09	109	STA RITA115	115.00	6	1.0492	120.66				
123	MIR115	115.00	7	1.0145	116.67	154	CEMPAN15	115.00	6	1.0386	119.44				
191	CHANG115	115.00	6	1.0167	116.93	522	TCATIVÁ 115	115.00	6	1.0423	119.86				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9912	113.99	21	C.BAN115	115.00	6	0.9923	114.11				
26	LOC115	115.00	6	0.9948	114.41	30	MAR115	115.00	6	0.9936	114.27				
37	SAN115	115.00	6	0.9895	113.79										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT6 MINAS1-SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	9.7	25.0	0.0	1.0100	38.8	0.9688	47.0	1	6
67	BLM13C	13.800	V3	38.0	9.7	25.0	0.0	1.0100	38.8	0.9688	47.0	1	6
68	BLM13D	13.800	V4	38.0	10.1	25.0	0.0	1.0100	38.9	0.9667	47.0	1	6
70	TGJB13A	13.800	J5	31.0	6.5	20.0	0.0	1.0100	31.4	0.9790	39.4	1	6
71	TGJB13B	13.800	J6	31.0	6.5	20.0	0.0	1.0100	31.4	0.9790	39.4	1	6
72	BLMCCA	13.800	T8	31.0	7.4	20.0	0.0	1.0100	31.6	0.9728	50.0	1	6
73	BLMCCB	13.800	V9	47.0	7.7	40.0	0.0	1.0100	47.2	0.9868	71.0	1	6
90	EST-13L	13.800	E1	15.0	4.1	12.0	-5.0	0.9900	15.7	0.9647	27.0	1	6
94	LV-13.8L	13.800	L1	25.0	11.4	12.0	-5.0	1.0100	27.2	0.9101	27.0	1	6
97	FOR13A	13.800	F1	68.0	-15.4	50.0	-50.0	1.0100	69.0	0.9752	111.0	1	6
98	FOR13B	13.800	F2	68.0	-15.4	50.0	-50.0	1.0100	69.0	0.9752	111.0	1	6
99	FOR13C	13.800	F3	68.0	-15.4	50.0	-50.0	1.0100	69.0	0.9752	111.0	1	6
101	BAY13A	13.800	B1	54.1	24.0	50.0	-25.0	0.9800	60.4	0.9144	96.0	1	6
102	BAY13B	13.800	B2	54.2	24.0	50.0	-25.0	0.9800	60.5	0.9145	96.0	1	6
117	CB250A-1	13.800	C1	115.9	26.2	75.6	0.0	1.0100	117.7	0.9753	143.5	1	6
118	CB250A-2	13.800	C2	115.9	26.2	75.6	0.0	1.0100	117.7	0.9753	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.6	29.0	-29.0	1.0100	44.1	0.9711	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.6	29.0	-29.0	1.0100	44.1	0.9711	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0345	4.6	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	4.8	0.0	6.1	0.0	1.0345	4.6	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0283	14.8	0.9447	26.7	1	6
156	TABASARAI13	13.800	G1	9.6	0.2	5.7	0.2	1.0354	9.3	0.9997	20.5	1	6
156	TABASARAI13	13.800	G2	9.6	0.2	5.7	0.2	1.0354	9.3	0.9997	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	16.2	50.0	0.0	1.0100	72.1	0.9750	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	16.2	50.0	0.0	1.0100	72.1	0.9750	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	18.4	40.0	0.0	1.0100	95.8	0.9818	105.3	1	6
193	GEBONYIC	13.800	G1	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9985	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9985	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9985	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	16.2	50.0	0.0	1.0100	72.1	0.9750	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	16.2	50.0	0.0	1.0100	72.1	0.9750	84.0	1	6
196	CCGN250-B3	13.800	C3	95.0	18.4	40.0	0.0	1.0100	95.8	0.9818	105.3	1	6
204	BJOMIN13	13.800	G1	15.7	-9.4	13.0	-13.0	1.0105	18.1	0.8577	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-9.4	13.0	-13.0	1.0105	18.1	0.8577	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9590	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.2	26.6	-26.6	1.0100	35.7	0.9590	50.6	1	6
301	CONC13.8	13.800	G1	2.5	0.0	0.0	-5.0	0.9643	2.6	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.3	2.0	2.0	-2.0	0.9655	4.9	0.9067	6.2	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1031	4.1	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	2.5	0.0	0.0	0.0	0.9770	2.6	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	8.0	0.0	12.0	0.0	1.0372	7.7	1.0000	20.6	1	6
305	ELALTO13.8	13.800	G2	8.0	0.0	12.0	0.0	1.0372	7.7	1.0000	20.6	1	6
307	CHANI A	13.800	G1	77.0	-16.3	50.0	-50.0	1.0100	77.9	0.9784	118.6	1	6
311	PANDO13.8	13.800	G1	15.0	-3.9	10.0	-5.0	1.0100	15.3	0.9682	19.9	1	6
316	MONTE LIRIO	13.800	G1	27.0	-5.0	12.0	-5.0	1.0244	26.8	0.9833	27.0	1	6
317	MENDRE13.8	13.800	M1	6.5	0.0	4.0	0.0	1.1028	5.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.5	0.0	4.0	0.0	1.1028	5.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.5	-5.0	10.5	-5.0	1.0268	12.2	0.9171	19.9	1	6
342	LORENA13.8	13.800	G2	11.5	-5.0	10.5	-5.0	1.0268	12.2	0.9171	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.6	-9.8	9.8	-9.8	1.0177	27.8	0.9388	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.6	-9.8	9.8	-9.8	1.0177	27.8	0.9388	33.0	1	6
516	PANAPOW13A	13.800	G1	12.0	0.5	12.5	0.5	1.0503	11.4	0.9990	20.9	1	6
516	PANAPOW13A	13.800	G2	12.0	0.5	12.5	0.5	1.0503	11.4	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G3	12.0	0.5	12.5	0.5	1.0503	11.4	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G4	12.0	0.5	12.5	0.5	1.0503	11.4	0.9990	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.3	2.8	1.3	1.0114	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.3	2.8	1.3	1.0114	3.7	0.9373	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.3	2.8	1.3	1.0114	3.7	0.9373	4.8	1	6

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521	EGIRAL13.8	113.800	G4	3.5	1.3	2.8	1.3	1.0114	3.7	0.9373	4.8	1	6
523	TCATIVÁ	13A 13.800	G1	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
523	TCATIVÁ	13A 13.800	G2	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
523	TCATIVÁ	13A 13.800	G3	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
523	TCATIVÁ	13A 13.800	G4	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
523	TCATIVÁ	13A 13.800	G5	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
524	TCATIVÁ	13B 13.800	10	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
524	TCATIVÁ	13B 13.800	G6	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
524	TCATIVÁ	13B 13.800	G7	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
524	TCATIVÁ	13B 13.800	G8	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
524	TCATIVÁ	13B 13.800	G9	8.0	2.4	6.6	-6.6	1.0100	8.3	0.9566	10.9	1	6
525	TCOLON	13A 13.800	G1	36.0	9.2	18.4	9.2	1.0157	36.6	0.9689	44.4	1	6
526	TCOLON	13B 13.800	G2	36.0	9.2	18.4	9.2	1.0157	36.6	0.9689	44.4	1	6
527	TCOLON	13C 13.800	V1	36.0	6.5	18.4	5.8	1.0100	36.2	0.9843	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0123	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0123	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0123	8.4	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0123	8.4	0.9363	10.9	1	6
SUBSYSTEM TOTALS				2086.5	261.5	1422.4	-482.3				3066.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT6 MINAS1-SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128	MIR13C	12.000	G3	12.6	3.9	11.0	0.0	1.0100	13.1	0.9549	29.4					2	7		
129	MIR13D	13.800	G4	35.0	3.6	15.0	0.0	1.0100	34.8	0.9948	44.1					2	7		
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0142	16.9	1.0000	27.7					2	7		
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0286	17.9	0.9289	23.0					2	7		
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0377	17.7	0.9289	23.0					2	7		
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0377	17.7	0.9289	23.0					2	7		
SUBSYSTEM TOTALS				116.0	28.0	67.5	20.5				170.3								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:48
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT6 MINAS1-SANTA RITA

AREA TOTALS IN MW/MVAR										
X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	HONDURAS		1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
			55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	NICA		538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
			32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	



5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	242.1	569.4	-237.3	0.0	470.8	23.7	357.1	
6	2086.5	1893.6	0.0	0.0	0.0	144.5	48.4	25.0
PANAMA	261.5	474.6	-285.9	0.0	599.0	90.5	581.4	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	28.0	18.4	0.0	0.0	0.0	-1.2	10.7	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.7	0.0	0.0	1.1	-66.5	20.9	
TOTALS	7351.8	7205.2	0.0	0.0	0.0	0.0	146.6	0.0
	750.0	2156.0	-1134.8	0.0	2149.9	0.0	1878.5	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 7: Contingencia Panamá II – Santa Rita



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT7 SANTA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0175	234.02	11	M.N230	230.00	6	1.0284	236.53				
14	PRO230	230.00	6	1.0328	237.54	85	PTP230	230.00	6	1.0242	235.55				
96	FOR230	230.00	6	1.0276	236.34	144	CANJ230	230.00	6	1.0280	236.45				
145	BJOMIN230	230.00	6	1.0361	238.31	146	GUALACA230	230.00	6	1.0315	237.24				
147	GUASQ230	230.00	6	1.0279	236.41	148	VELADERO 230	230.00	6	1.0307	237.07				
155	TABASARAI	230.00	6	1.0314	237.22	190	CHANG230	230.00	6	1.0284	236.52				
306	CHAN1 230	230.00	6	1.0287	236.61	310	CONCEPCION23	230.00	6	1.0336	237.72				
341	PRUDENCIA230	230.00	6	1.0380	238.73	345	LORENA230	230.00	6	1.0355	238.16				
511	LGUIAS230	230.00	6	1.0014	230.33	6000	FRONTER	230.00	6	1.0331	237.62				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9650	221.94	3	PANII230	230.00	6	0.9691	222.89				
5	CHO230	230.00	6	0.9786	225.09	100	BAY230	230.00	6	0.9924	228.25				
103	COPESA23	230.00	6	0.9730	223.80	105	PAN-AM23	230.00	6	0.9786	225.09				
115	PACORA23	230.00	6	0.9739	224.00	325	STA RITA230	230.00	6	0.9930	228.39				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT7 SANTA RITA-PANAMA II

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0053	115.61	4	PANII115	115.00	6	1.0059	115.68				
6	CHO115	115.00	6	1.0170	116.96	9	LSA115	115.00	6	1.0600	121.90				
12	M.N115	115.00	6	1.0132	116.52	15	PRO115	115.00	6	1.0292	118.36				
18	CAC115	115.00	6	1.0043	115.50	20	CH.AZUL	115.00	6	1.0300	118.44				
33	STM115	115.00	6	1.0017	115.20	48	TINAJ115	115.00	6	1.0002	115.03				
50	M.O115	115.00	6	1.0004	115.05	52	TOC115	115.00	6	1.0005	115.06				
54	LM1115	115.00	6	1.0414	119.76	55	LM2115	115.00	6	1.0405	119.66				
61	FFIELD	115.00	9	1.0344	118.96	87	CAL115	115.00	6	1.0245	117.81				
88	EST115	115.00	6	1.0258	117.97	92	L.V115	115.00	6	1.0255	117.93				
109	STA RITA115	115.00	6	1.0456	120.25	123	MIR115	115.00	7	1.0065	115.75				
154	CEMPAN15	115.00	6	1.0349	119.01	191	CHANG115	115.00	6	1.0160	116.84				
522	TCATIVÁ	115.00	6	1.0412	119.74										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9889	113.72	21	C.BAN115	115.00	6	0.9846	113.23				
23	CH115	115.00	6	0.9991	114.90	26	LOC115	115.00	6	0.9869	113.50				
30	MAR115	115.00	6	0.9853	113.31	37	SAN115	115.00	6	0.9823	112.97				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT7 SANTA RITA-PANAMA II

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	10.3	25.0	0.0	1.0100	39.0	0.9654	47.0	1	6
67	BLM13C	13.800	V3	38.0	10.3	25.0	0.0	1.0100	39.0	0.9654	47.0	1	6
68	BLM13D	13.800	V4	38.0	10.6	25.0	0.0	1.0100	39.1	0.9630	47.0	1	6
70	TGJB13A	13.800	J5	31.0	6.7	20.0	0.0	1.0100	31.4	0.9774	39.4	1	6
71	TGJB13B	13.800	J6	31.0	6.7	20.0	0.0	1.0100	31.4	0.9774	39.4	1	6
72	BLMCCA	13.800	T8	31.0	7.6	20.0	0.0	1.0100	31.6	0.9711	50.0	1	6
73	BLMCCB	13.800	V9	47.0	8.0	40.0	0.0	1.0100	47.2	0.9860	71.0	1	6
90	EST-13L	13.800	E1	15.0	4.5	12.0	-5.0	0.9900	15.8	0.9578	27.0	1	6
94	LV-13.8L	13.800	L1	25.0	11.8	12.0	-5.0	1.0100	27.4	0.9041	27.0	1	6
97	FOR13A	13.800	F1	68.0	-13.7	50.0	-50.0	1.0100	68.7	0.9803	111.0	1	6
98	FOR13B	13.800	F2	68.0	-13.7	50.0	-50.0	1.0100	68.7	0.9803	111.0	1	6
99	FOR13C	13.800	F3	68.0	-13.7	50.0	-50.0	1.0100	68.7	0.9803	111.0	1	6
101	BAY13A	13.800	B1	59.9	29.2	50.0	-25.0	0.9800	68.0	0.8988	96.0	1	6
102	BAY13B	13.800	B2	54.2	28.8	50.0	-25.0	0.9800	62.6	0.8833	96.0	1	6
117	CB250A-1	13.800	C1	115.9	29.8	75.6	0.0	1.0100	118.5	0.9684	143.5	1	6
118	CB250A-2	13.800	C2	115.9	29.8	75.6	0.0	1.0100	118.5	0.9684	143.5	1	6
142	CANJ13A	13.800	C1	43.3	11.0	29.0	-29.0	1.0100	44.2	0.9692	69.0	1	6
143	CANJ13B	13.800	C2	43.3	11.0	29.0	-29.0	1.0100	44.2	0.9692	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0307	4.7	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	4.8	0.0	6.1	0.0	1.0307	4.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0261	14.9	0.9447	26.7	1	6
156	TABASARAI13	13.800	G1	9.6	0.2	5.7	0.2	1.0316	9.3	0.9997	20.5	1	6
156	TABASARAI13	13.800	G2	9.6	0.2	5.7	0.2	1.0316	9.3	0.9997	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	18.4	50.0	0.0	1.0100	72.6	0.9681	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	18.4	50.0	0.0	1.0100	72.6	0.9681	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	20.6	40.0	0.0	1.0100	96.2	0.9773	105.3	1	6
193	GEBONYIC	13.800	G1	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9990	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9990	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	-0.4	4.0	-4.0	1.0100	7.9	0.9990	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	18.4	50.0	0.0	1.0100	72.6	0.9681	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	18.4	50.0	0.0	1.0100	72.6	0.9681	84.0	1	6
196	CCGN250-B3	13.800	C3	95.0	20.6	40.0	0.0	1.0100	96.2	0.9773	105.3	1	6
204	BJOMIN13	13.800	G1	15.7	-8.9	13.0	-13.0	1.0105	17.9	0.8689	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-8.9	13.0	-13.0	1.0105	17.9	0.8689	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	10.7	26.6	-26.6	1.0100	35.9	0.9553	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	10.7	26.6	-26.6	1.0100	35.9	0.9553	50.6	1	6
301	CONC13.8	13.800	G1	2.5	0.0	0.0	-5.0	0.9624	2.6	1.0000	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.3	2.0	2.0	-2.0	0.9636	4.9	0.9067	6.2	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1016	4.1	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	2.5	0.0	0.0	0.0	0.9757	2.6	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	8.0	0.0	12.0	0.0	1.0359	7.7	1.0000	20.6	1	6
305	ELALTO13.8	13.800	G2	8.0	0.0	12.0	0.0	1.0359	7.7	1.0000	20.6	1	6
307	CHANI A	13.800	G1	77.0	-15.2	50.0	-50.0	1.0100	77.7	0.9810	118.6	1	6
311	PANDO13.8	13.800	G1	15.0	-3.7	10.0	-5.0	1.0100	15.3	0.9715	19.9	1	6
316	MONTE LIRIO	13.800	G1	27.0	-5.0	12.0	-5.0	1.0231	26.8	0.9833	27.0	1	6
317	MENDRE13.8	13.800	M1	6.5	0.0	4.0	0.0	1.1013	5.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.5	0.0	4.0	0.0	1.1013	5.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.5	-5.0	10.5	-5.0	1.0246	12.2	0.9171	19.9	1	6
342	LORENA13.8	13.800	G2	11.5	-5.0	10.5	-5.0	1.0246	12.2	0.9171	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.6	-9.8	9.8	-9.8	1.0154	27.9	0.9388	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.6	-9.8	9.8	-9.8	1.0154	27.9	0.9388	33.0	1	6
516	PANAPOW13A	13.800	G1	12.0	0.5	12.5	0.5	1.0466	11.5	0.9990	20.9	1	6
516	PANAPOW13A	13.800	G2	12.0	0.5	12.5	0.5	1.0466	11.5	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G3	12.0	0.5	12.5	0.5	1.0466	11.5	0.9990	20.9	1	6
517	PANAPOW13B	13.800	G4	12.0	0.5	12.5	0.5	1.0466	11.5	0.9990	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.5	1.4	2.8	1.3	1.0100	3.7	0.9272	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.5	1.4	2.8	1.3	1.0100	3.7	0.9272	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.5	1.4	2.8	1.3	1.0100	3.7	0.9272	4.8	1	6

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521	EGIRAL13.8	113.800	G4	3.5	1.4	2.8	1.3	1.0100	3.7	0.9272	4.8	1	6
523	TCATIVÁ	13A 13.800	G1	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
523	TCATIVÁ	13A 13.800	G2	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
523	TCATIVÁ	13A 13.800	G3	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
523	TCATIVÁ	13A 13.800	G4	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
523	TCATIVÁ	13A 13.800	G5	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
524	TCATIVÁ	13B 13.800	10	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
524	TCATIVÁ	13B 13.800	G6	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
524	TCATIVÁ	13B 13.800	G7	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
524	TCATIVÁ	13B 13.800	G8	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
524	TCATIVÁ	13B 13.800	G9	8.0	2.6	6.6	-6.6	1.0100	8.3	0.9522	10.9	1	6
525	TCOLON	13A 13.800	G1	36.0	9.2	18.4	9.2	1.0123	36.7	0.9689	44.4	1	6
526	TCOLON	13B 13.800	G2	36.0	9.2	18.4	9.2	1.0123	36.7	0.9689	44.4	1	6
527	TCOLON	13C 13.800	V1	36.0	8.1	18.4	5.8	1.0100	36.5	0.9756	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.1	6.4	3.0	1.0100	8.5	0.9309	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.1	6.4	3.0	1.0100	8.5	0.9309	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.1	6.4	3.0	1.0100	8.5	0.9309	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.1	6.4	3.0	1.0100	8.5	0.9309	10.9	1	6
SUBSYSTEM TOTALS				2092.3	308.8	1422.4	-482.3				3066.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:49
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT7 SANTA RITA-PANAMA II

AREA 7 [ACANAL] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128	MIR13C			12.000	G3	12.6	5.1	11.0	0.0	1.0100	13.4	0.9280	29.4			2	7		
129	MIR13D			13.800	G4	35.0	5.3	15.0	0.0	1.0100	35.1	0.9887	44.1			2	7		
130	MIR13F			13.800	G5	17.1	0.0	8.0	0.0	1.0100	16.9	1.0000	27.7			2	7		
170	MIR13G			13.800	M1	17.1	6.8	11.2	6.8	1.0244	18.0	0.9289	23.0			2	7		
171	MIR13H			13.800	M1	17.1	6.8	11.2	6.8	1.0335	17.8	0.9289	23.0			2	7		
171	MIR13H			13.800	M2	17.1	6.8	11.2	6.8	1.0335	17.8	0.9289	23.0			2	7		
SUBSYSTEM TOTALS						116.0	30.9	67.5	20.5					170.3					

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 9:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTGDC8 CNT7 SANTA RITA-PANAMA II

AREA TOTALS										
IN MW/MVAR										
X--	AREA	--X	GENERATION	FROM	TO	TO BUS	TO LINE	FROM	TO	DESIRED
				CHARGING	NET INT	SHUNT	SHUNT	CHARGING	NET INT	NET INT
1			1347.4			1312.2	0.0	0.0	0.0	0.0
GUATEMAL			29.8			349.5	-266.2	0.0	412.9	17.9
2			911.8			902.0	0.0	0.0	0.0	9.8
SALVADOR			100.8			182.3	-58.1	0.0	219.9	38.3
3			1006.9			985.5	0.0	0.0	0.0	21.4
HONDURAS			55.6			290.6	-188.3	0.0	302.9	-5.3
4			538.2			527.1	0.0	0.0	0.0	11.1
NICA			32.4			224.5	-98.9	0.0	143.3	-97.4



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5	1344.9	1324.8	0.0	0.0	0.0	0.7	19.4	0.0
C.RICA	244.6	569.4	-237.2	0.0	470.5	25.8	357.2	
6	2092.3	1893.6	0.0	0.0	0.0	144.5	54.2	25.0
PANAMA	308.8	474.6	-283.2	0.0	585.2	85.7	616.9	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	50.0
ACANAL	30.9	18.4	0.0	0.0	0.0	1.6	10.8	
9	0.0	186.5	0.0	0.0	0.0	-186.9	0.3	-75.0
COLON	0.0	46.7	0.0	0.0	1.1	-66.6	21.0	
TOTALS	7357.5	7205.2	0.0	0.0	0.0	0.0	152.4	0.0
	802.8	2156.0	-1131.9	0.0	2135.7	0.0	1914.4	

AÑO 2021

Caso 3: REGMHTTLA8



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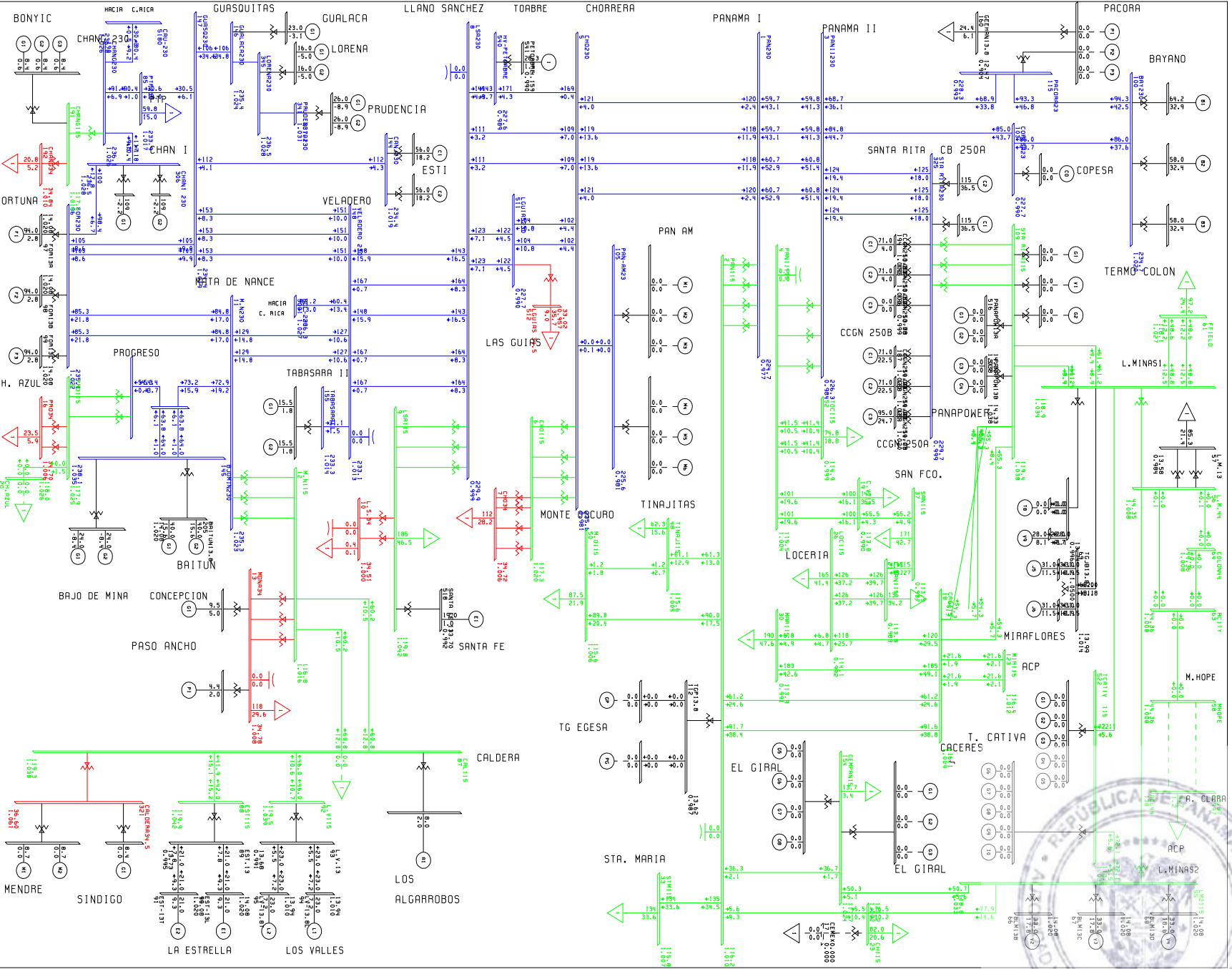
**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÁXIMA INVIERNO**



de

PLAN. EXP-STN CON C.A.R. JUNIO 2008 ESC MOD DEM MAX INV
 0 2021 RECHHTLAR 8:36

BUS - VOLTAGE (KV/PU)
 BRANCH - KM/MVAR
 EQUIPMENT - KM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0230	235.29	14	PRO	230		230.00	6	1.0288	236.62
85	PTP	230		230.00	6	1.0169	233.89	96	FOR	230		230.00	6	1.0220	235.06
100	BAY	230		230.00	6	1.0204	234.68	144	CANJ	230		230.00	6	1.0192	234.40
145	BJOMIN	230		230.00	6	1.0353	238.11	146	GUALACA	230		230.00	6	1.0236	235.42
147	GUASQ	230		230.00	6	1.0190	234.37	148	VELADERO	230		230.00	6	1.0133	233.06
155	TABASARAII	230		230.00	6	1.0145	233.33	190	CHANG	230		230.00	6	1.0264	236.08
306	CHAN1	230		230.00	6	1.0283	236.50	310	CONCEPCION	230		230.00	6	1.0309	237.10
341	PRUDENCIA	230		230.00	6	1.0307	237.06	345	LORENA	230		230.00	6	1.0282	236.49
6000	FRONTER	230		230.00	6	1.0287	236.59								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9771	224.73	3	PANII	230		230.00	6	0.9841	226.34
5	CHO	230		230.00	6	0.9808	225.58	8	LSA	230		230.00	6	0.9995	229.87
103	COPESA	230		230.00	6	0.9900	227.69	105	PAN-AM	230		230.00	6	0.9808	225.58
115	PACORA	230		230.00	6	0.9926	228.30	325	STA RITA	230		230.00	6	0.9986	229.69
511	LGUIAS	230		230.00	6	0.9900	227.69	540	HV-PETOABRE	230		230.00	6	0.9894	227.57

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0103	116.18	4	PANII	115		115.00	6	1.0045	115.51
6	CHO	115		115.00	6	1.0197	117.27	9	LSA	115		115.00	6	1.0417	119.80
12	M.	N115		115.00	6	1.0160	116.84	15	PRO	115		115.00	6	1.0253	117.91
18	CAC	115		115.00	6	1.0093	116.07	20	CH.	AZUL		115.00	6	1.0260	118.00
23	CH	115		115.00	6	1.0021	115.24	33	STM	115		115.00	6	1.0068	115.78
48	TINAJ	115		115.00	6	1.0054	115.62	50	M.	O115		115.00	6	1.0056	115.64
54	LM	115		115.00	6	1.0336	118.87	55	LM	2115		115.00	6	1.0330	118.79
61	FFIELD	115		115.00	9	1.0267	118.07	87	CAL	115		115.00	6	1.0375	119.31
88	EST	115		115.00	6	1.0422	119.85	92	L.	V115		115.00	6	1.0389	119.47
109	STA RITA	115		115.00	6	1.0381	119.38	123	MIR	115		115.00	7	1.0119	116.37
154	CEMPAN	115		115.00	6	1.0239	117.75	191	CHANG	115		115.00	6	1.0178	117.04
522	TCATIVÁ	115		115.00	6	1.0333	118.83								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9895	113.80	21	C.	BAN115		115.00	6	0.9894	113.78
26	LOC	115		115.00	6	0.9919	114.06	30	MAR	115		115.00	6	0.9906	113.92
37	SAN	115		115.00	6	0.9867	113.48	52	TOC	115		115.00	6	0.9992	114.90

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM	13B		13.800	V2	33.0	17.8	25.0	0.0	1.0200	36.8	0.8800	47.0			1	6	



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67	BLM13C	13.800	V3	33.0	17.8	25.0	0.0	1.0200	36.8	0.8800	47.0	1	6
68	BLM13D	13.800	V4	33.0	18.6	25.0	0.0	1.0200	37.1	0.8710	47.0	1	6
70	TGJB13A	13.800	J5	31.0	11.5	20.0	0.0	1.0200	32.4	0.9378	39.4	1	6
71	TGJB13B	13.800	J6	31.0	11.5	20.0	0.0	1.0200	32.4	0.9378	39.4	1	6
73	BLMCCB	13.800	V9	28.0	8.1	40.0	0.0	1.0000	29.2	0.9604	71.0	1	6
90	EST-13L	13.800	E1	21.0	9.3	12.0	-5.0	1.0200	22.5	0.9150	27.0	1	6
91	EST-13T	13.800	E2	21.0	9.3	12.0	-5.0	1.0200	22.5	0.9150	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	7.2	12.0	-5.0	1.0100	23.9	0.9542	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	7.2	12.0	-5.0	1.0100	23.9	0.9542	27.0	1	6
97	FOR13A	13.800	F1	94.0	2.8	50.0	-50.0	1.0200	92.2	0.9996	111.0	1	6
98	FOR13B	13.800	F2	94.0	2.8	50.0	-50.0	1.0200	92.2	0.9996	111.0	1	6
99	FOR13C	13.800	F3	94.0	2.8	50.0	-50.0	1.0200	92.2	0.9996	111.0	1	6
101	BAY13A	13.800	B1	64.2	32.9	50.0	-25.0	1.0100	71.4	0.8900	96.0	1	6
102	BAY13B	13.800	B2	58.0	32.4	50.0	-25.0	1.0100	65.8	0.8731	96.0	1	6
108	BAY13C	13.800	B3	58.0	32.4	50.0	-25.0	1.0100	65.8	0.8731	100.0	1	6
117	CB250A-1	13.800	C1	115.0	36.5	75.6	0.0	1.0200	118.3	0.9532	143.5	1	6
118	CB250A-2	13.800	C2	115.0	36.5	75.6	0.0	1.0200	118.3	0.9532	143.5	1	6
142	CANJ13A	13.800	C1	56.0	18.2	29.0	-29.0	1.0200	57.7	0.9509	69.0	1	6
143	CANJ13B	13.800	C2	56.0	18.2	29.0	-29.0	1.0200	57.7	0.9509	69.0	1	6
151	GUALACA13.8	13.800	G1	23.0	-3.1	10.0	-10.0	1.0200	22.7	0.9913	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	1.8	5.7	0.2	1.0200	15.3	0.9935	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	1.8	5.7	0.2	1.0200	15.3	0.9935	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	22.5	50.0	0.0	1.0200	73.0	0.9531	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	22.5	50.0	0.0	1.0200	73.0	0.9531	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	24.7	40.0	0.0	1.0200	96.2	0.9678	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	0.6	4.0	-4.0	1.0200	8.3	0.9978	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.6	4.0	-4.0	1.0200	8.3	0.9978	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.6	4.0	-4.0	1.0200	8.3	0.9978	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	4.0	50.0	0.0	1.0000	71.1	0.9984	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	4.0	50.0	0.0	1.0000	71.1	0.9984	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-8.4	13.0	-13.0	1.0100	25.2	0.9443	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-8.4	13.0	-13.0	1.0100	25.2	0.9443	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	15.6	26.6	-26.6	1.0200	42.1	0.9315	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	15.6	26.6	-26.6	1.0200	42.1	0.9315	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9632	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9614	5.0	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1138	7.5	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9893	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	109.0	-2.2	50.0	-50.0	1.0200	106.9	0.9998	118.6	1	6
308	CHAN1 B	13.800	G2	109.0	-2.2	50.0	-50.0	1.0200	106.9	0.9998	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1134	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1134	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0169	16.5	0.9545	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	-5.0	10.5	-5.0	1.0169	16.5	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.0	-8.9	9.8	-9.8	1.0100	27.2	0.9464	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.0	-8.9	9.8	-9.8	1.0100	27.2	0.9464	33.0	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9924	19.2	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	0.9903	28.6	0.9988	136.0	1	6
SUBSYSTEM TOTALS				2064.5	407.5	1229.7	-539.9				2919.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:32
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X-- NAME	--X BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	13.800	G3	12.6	5.6	11.0	0.0	1.0200	13.5	0.9147	29.4				2	
129	MIR13D	13.800	G4	35.0	6.1	15.0	0.0	1.0200	34.8	0.9853	44.1				2	



130	MIR13F	13.800	G5	17.1	0.7	8.0	0.0	1.0200	16.8	0.9992	27.7	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0329	17.8	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0419	17.7	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0419	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	32.8	67.5	20.5				170.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:33
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTLA8 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.2	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.2	20.0	0.0
C.RICA	253.3	569.4	-237.6	0.0	469.6	30.5	360.5	
6	2064.5	1852.9	0.0	0.0	0.0	139.5	72.2	25.0
PANAMA	407.5	464.4	-341.2	0.0	578.1	76.2	786.3	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	32.8	18.0	0.0	0.0	0.0	3.9	10.9	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.4	19.8	
TOTALS	7329.7	7158.8	0.0	0.0	0.0	0.0	170.9	0.0
	912.4	2144.4	-1190.3	0.0	2127.7	0.0	2085.9	

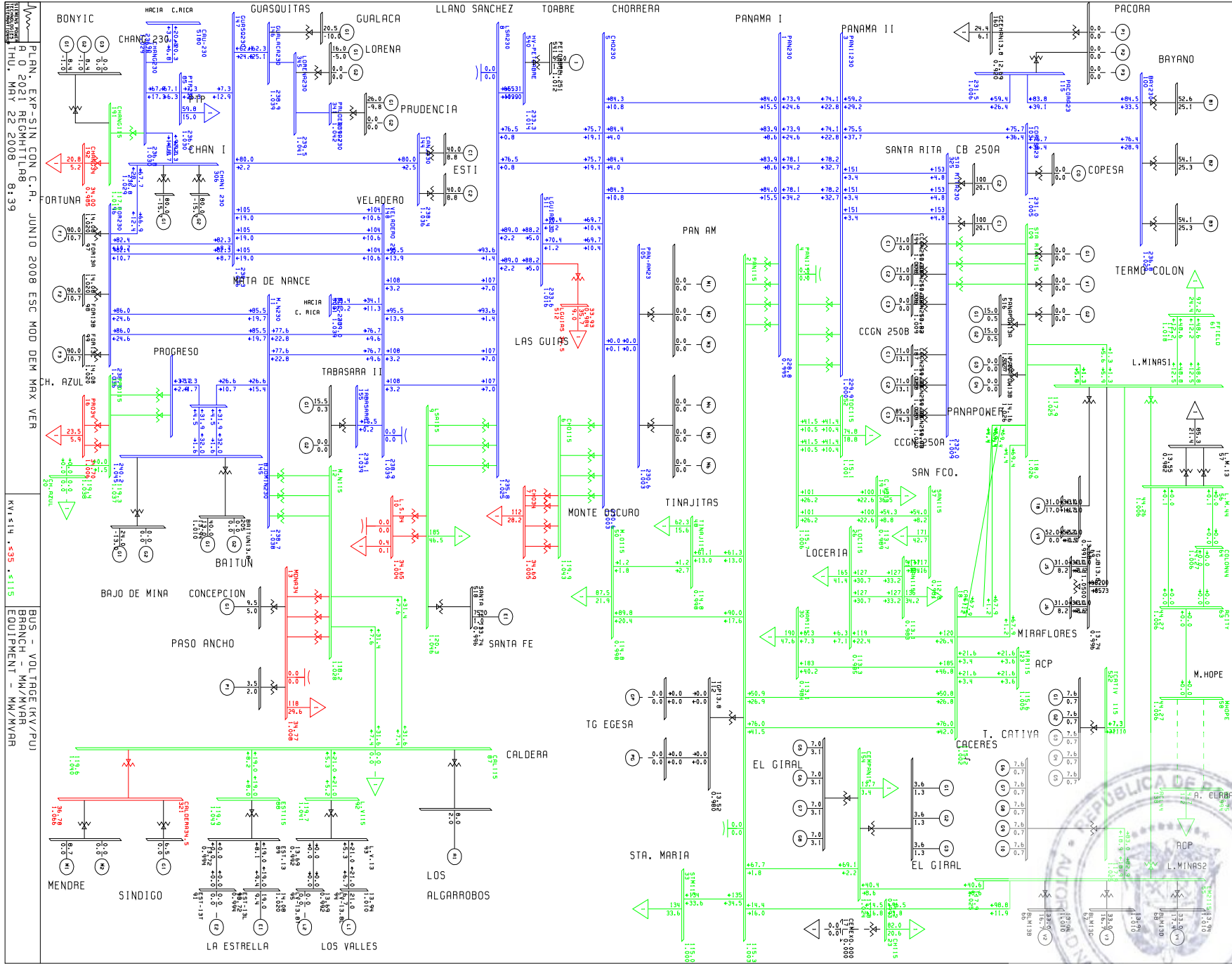


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÁXIMA VERANO**



de



PLN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 R 0 2021 REGHITL18 8:39
 THU, MAY 22 2008
 KW:14 *55 *115
 BUS - VOLTAGE (KV/PV)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0026	230.60	8		LSA230		230.00	6	1.0253	235.83
11	M.	N230		230.00	6	1.0380	238.73	14		PRO230		230.00	6	1.0406	239.35
85		PTP230		230.00	6	1.0300	236.91	96		FOR230		230.00	6	1.0361	238.31
100		BAY230		230.00	6	1.0295	236.78	103		COPESA23		230.00	6	1.0045	231.04
105		PAN-AM23		230.00	6	1.0026	230.60	115		PACORA23		230.00	6	1.0064	231.48
144		CANJ230		230.00	6	1.0364	238.37	145		BJOMIN230		230.00	6	1.0446	240.25
146		GUALACA230		230.00	6	1.0388	238.93	147		GUASQ230		230.00	6	1.0363	238.35
148		VELADERO	230	230.00	6	1.0389	238.94	155		TABASARAI		230.00	6	1.0394	239.07
190		CHANG230		230.00	6	1.0296	236.80	306		CHAN1	230	230.00	6	1.0295	236.78
310		CONCEPCION23	230	230.00	6	1.0425	239.77	325		STA RITA230		230.00	6	1.0088	232.02
341		PRUDENCIA230	230	230.00	6	1.0424	239.74	345		LORENA230		230.00	6	1.0411	239.46
511		LGUIAS230		230.00	6	1.0158	233.62	540		HV-PETOABRE		230.00	6	1.0144	233.31
6000		FRONTER		230.00	6	1.0406	239.33								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9947	228.77	3		PANII230		230.00	6	0.9996	229.91

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0030	115.35	4		PANII115		115.00	6	1.0061	115.70
6		CHO115		115.00	6	1.0430	119.95	9		LSA115		115.00	6	1.0458	120.26
12	M.	N115		115.00	6	1.0280	118.22	15		PRO115		115.00	6	1.0372	119.28
18		CAC115		115.00	6	1.0020	115.23	20		CH.AZUL		115.00	6	1.0380	119.37
52		TOC115		115.00	6	1.0008	115.09	54		LM1115		115.00	6	1.0250	117.88
55		LM2115		115.00	6	1.0248	117.85	61		FFIELD		115.00	9	1.0181	117.08
87		CAL115		115.00	6	1.0404	119.65	88		EST115		115.00	6	1.0428	119.92
92	L.	V115		115.00	6	1.0411	119.72	109		STA RITA115		115.00	6	1.0264	118.03
123		MIR115		115.00	7	1.0052	115.60	154		CEMPAN15		115.00	6	1.0244	117.80
191		CHANG115		115.00	6	1.0173	116.99	522		TCATIVÁ	115	115.00	6	1.0251	117.89

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9887	113.70	21		C.BAN115		115.00	6	0.9831	113.06
23		CH115		115.00	6	0.9934	114.24	26		LOC115		115.00	6	0.9853	113.31
30		MAR115		115.00	6	0.9836	113.12	33		STM115		115.00	6	0.9996	114.95
37		SAN115		115.00	6	0.9810	112.81	48		TINAJ115		115.00	6	0.9981	114.78
50	M.	O115		115.00	6	0.9983	114.80								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	33.0	16.7	25.0	0.0	1.0100	36.6	0.8926	47.0	1	6
67	BLM13C	13.800	V3	33.0	16.7	25.0	0.0	1.0100	36.6	0.8926	47.0	1	6
68	BLM13D	13.800	V4	33.0	17.4	25.0	0.0	1.0100	36.9	0.8845	47.0	1	6
70	TGJB13A	13.800	J5	31.0	8.2	20.0	0.0	1.0000	32.1	0.9668	39.4	1	6
71	TGJB13B	13.800	J6	31.0	8.2	20.0	0.0	1.0000	32.1	0.9668	39.4	1	6
72	BLMCCA	13.800	T8	31.0	17.0	20.0	0.0	1.0000	35.4	0.8767	50.0	1	6
73	BLMCCB	13.800	V9	52.0	0.0	40.0	0.0	0.9906	52.5	1.0000	71.0	1	6
90	EST-13L	13.800	E1	19.0	9.4	12.0	-5.0	1.0200	20.8	0.8969	27.0	1	6
94	LV-13.8L	13.800	L1	21.0	6.7	12.0	-5.0	1.0100	21.8	0.9528	27.0	1	6
97	FOR13A	13.800	F1	90.0	-10.7	50.0	-50.0	1.0200	88.9	0.9930	111.0	1	6
98	FOR13B	13.800	F2	90.0	-10.7	50.0	-50.0	1.0200	88.9	0.9930	111.0	1	6
99	FOR13C	13.800	F3	90.0	-10.7	50.0	-50.0	1.0200	88.9	0.9930	111.0	1	6
101	BAY13A	13.800	B1	52.6	25.1	50.0	-25.0	1.0100	57.7	0.9022	96.0	1	6
102	BAY13B	13.800	B2	54.1	25.3	50.0	-25.0	1.0100	59.1	0.9063	96.0	1	6
108	BAY13C	13.800	B3	54.1	25.3	50.0	-25.0	1.0100	59.1	0.9063	100.0	1	6
117	CB250A-1	13.800	C1	100.0	20.1	75.6	0.0	1.0200	100.0	0.9803	143.5	1	6
118	CB250A-2	13.800	C2	100.0	20.1	75.6	0.0	1.0200	100.0	0.9803	143.5	1	6
142	CANJ13A	13.800	C1	40.0	8.8	29.0	-29.0	1.0100	40.5	0.9768	69.0	1	6
143	CANJ13B	13.800	C2	40.0	8.8	29.0	-29.0	1.0100	40.5	0.9768	69.0	1	6
151	GUALACA13.8	13.800	G1	20.5	-10.0	10.0	-10.0	1.0280	22.2	0.8988	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0394	14.9	0.9999	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	13.1	50.0	0.0	1.0200	70.8	0.9834	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	13.1	50.0	0.0	1.0200	70.8	0.9834	84.0	1	6
189	CCGN250-A3	13.800	C3	85.0	14.3	40.0	0.0	1.0200	84.5	0.9862	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	-1.0	4.0	-4.0	1.0100	8.4	0.9933	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-1.0	4.0	-4.0	1.0100	8.4	0.9933	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	0.0	50.0	0.0	1.0058	70.6	1.0000	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	0.0	50.0	0.0	1.0058	70.6	1.0000	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-13.0	13.0	-13.0	1.0264	26.6	0.8793	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	13.0	26.6	-26.6	1.0100	41.6	0.9509	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9629	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9610	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1193	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9921	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-15.7	50.0	-50.0	1.0100	80.7	0.9812	118.6	1	6
308	CHAN1 B	13.800	G2	80.0	-15.7	50.0	-50.0	1.0100	80.7	0.9812	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1192	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0357	16.2	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.0	-9.8	9.8	-9.8	1.0317	26.9	0.9362	33.0	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0267	14.6	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0267	14.6	0.9994	20.9	1	6
518	SANTA FE 13	13.800	E1	75.0	1.0	1.0	-1.0	0.9960	75.3	0.9999	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	0.9980	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	0.9980	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	0.9980	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	0.9980	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9958	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.1	6.4	3.0	1.0000	7.6	0.9166	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.1	6.4	3.0	1.0000	7.6	0.9166	10.9	1	6

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531	EGIRAL13.8	213.800	G7	7.0	3.1	6.4	3.0	1.0000	7.6	0.9166	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.1	6.4	3.0	1.0000	7.6	0.9166	10.9	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0122	93.9	0.9999	136.0	1	6
SUBSYSTEM TOTALS				2037.0	220.8	1279.6	-519.1				2905.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:27
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:																
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	6.3	11.0	0.0	1.0200	13.8	0.8946	29.4			2	7	
129		MIR13D		13.800	G4	35.0	7.2	15.0	0.0	1.0200	35.0	0.9796	44.1			2	7	
130		MIR13F		13.800	G5	17.1	2.0	8.0	0.0	1.0200	16.9	0.9935	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0302	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0392	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0392	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	35.9	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:28
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 REGMHTLA8 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.2	224.5	-98.9	0.0	143.3	-97.5	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	239.1	569.4	-236.5	0.0	471.3	18.1	359.3	
6	2037.0	1852.9	0.0	0.0	0.0	139.3	44.8	25.0
PANAMA	220.8	464.4	-275.0	0.0	598.9	86.2	544.1	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	35.9	18.0	0.0	0.0	0.0	6.8	11.1	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.5	19.9	
TOTALS	7302.2	7158.8	0.0	0.0	0.0	0.0	143.4	0.0
	714.1	2144.4	-1122.9	0.0	2150.3	0.0	1842.8	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DE 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MÍNIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:41
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0054	231.25	8		LSA230		230.00	6	1.0189	234.34
11		M.N230		230.00	6	1.0330	237.60	14		PRO230		230.00	6	1.0393	239.04
85		PTP230		230.00	6	1.0323	237.43	96		FOR230		230.00	6	1.0308	237.09
100		BAY230		230.00	6	1.0014	230.31	105		PAN-AM23		230.00	6	1.0054	231.25
144		CANJ230		230.00	6	1.0316	237.27	145		BJOMIN230		230.00	6	1.0419	239.64
146		GUALACA230		230.00	6	1.0341	237.84	147		GUASQ230		230.00	6	1.0315	237.25
148		VELADERO 230		230.00	6	1.0312	237.18	155		TABASARAI		230.00	6	1.0318	237.31
190		CHANG230		230.00	6	1.0330	237.58	306		CHAN1 230		230.00	6	1.0324	237.46
310		CONCEPCION232		230.00	6	1.0396	239.10	325		STA RITA230		230.00	6	1.0007	230.15
341		PRUDENCIA230		230.00	6	1.0376	238.66	345		LORENA230		230.00	6	1.0364	238.38
511		LGUIAS230		230.00	6	1.0149	233.44	540		HV-PETOABRE		230.00	6	1.0129	232.98
6000		FRONTER		230.00	6	1.0391	239.00								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9977	229.48	3		PANII230		230.00	6	0.9980	229.55
103		COPESA23		230.00	6	0.9990	229.78	115		PACORA23		230.00	6	0.9991	229.79

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:41
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTTLA8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0137	116.58	4		PANII115		115.00	6	1.0147	116.69
6		CHO115		115.00	6	1.0543	121.24	9		LSA115		115.00	6	1.0305	118.50
12		M.N115		115.00	6	1.0157	116.81	15		PRO115		115.00	6	1.0386	119.44
18		CAC115		115.00	6	1.0135	116.55	19		C.V115		115.00	6	1.0084	115.96
20		CH.AZUL		115.00	6	1.0394	119.53	21		C.BAN115		115.00	6	1.0066	115.76
23		CH115		115.00	6	1.0117	116.34	26		LOC115		115.00	6	1.0074	115.85
30		MAR115		115.00	6	1.0066	115.76	33		STM115		115.00	6	1.0124	116.42
37		SAN115		115.00	6	1.0058	115.67	48		TINAJ115		115.00	6	1.0121	116.39
50		M.O115		115.00	6	1.0122	116.40	52		TOC115		115.00	6	1.0126	116.45
54		LM115		115.00	6	1.0239	117.75	55		LM2115		115.00	6	1.0240	117.75
61		FFIELD		115.00	9	1.0212	117.44	87		CAL115		115.00	6	1.0275	118.16
88		EST115		115.00	6	1.0293	118.37	92		L.V115		115.00	6	1.0282	118.24
109		STA RITA115		115.00	6	1.0225	117.58	123		MIR115		115.00	7	1.0160	116.84
154		CEMPAN15		115.00	6	1.0205	117.36	191		CHANG115		115.00	6	1.0243	117.79
522		TCATIVÁ		115.00	6	1.0239	117.75								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:41
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTTLA8

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	30.0	12.2	25.0	0.0	1.0000	32.4	0.9266	47.0							1	6	



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67	BLM13C	13.800	V3	30.0	12.2	25.0	0.0	1.0000	32.4	0.9266	47.0	1	6
70	TGJB13A	13.800	J5	31.0	8.5	20.0	0.0	1.0000	32.1	0.9646	39.4	1	6
71	TGJB13B	13.800	J6	31.0	8.5	20.0	0.0	1.0000	32.1	0.9646	39.4	1	6
73	BLMCCB	13.800	V9	23.0	7.4	40.0	0.0	0.9900	24.4	0.9514	71.0	1	6
90	EST-13L	13.800	E1	18.0	6.8	12.0	-5.0	1.0000	19.3	0.9348	27.0	1	6
94	LV-13.8L	13.800	L1	21.0	7.4	12.0	-5.0	1.0000	22.3	0.9433	27.0	1	6
97	FOR13A	13.800	F1	80.4	-24.6	50.0	-50.0	1.0000	84.0	0.9563	111.0	1	6
98	FOR13B	13.800	F2	80.2	-24.6	50.0	-50.0	1.0000	83.9	0.9561	111.0	1	6
142	CANJ13A	13.800	C1	40.0	7.9	29.0	-29.0	1.0000	40.8	0.9809	69.0	1	6
151	GUALACA13.8	13.800	G1	20.5	-10.0	10.0	-10.0	1.0232	22.3	0.8988	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0318	15.1	0.9999	20.5	1	6
193	GEBONYIC	13.800	G1	9.5	-4.0	4.0	-4.0	1.0116	10.2	0.9216	35.3	1	6
204	BJOMIN13	13.800	G1	24.0	-13.0	13.0	-13.0	1.0237	26.7	0.8793	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	15.0	26.6	-26.6	1.0100	42.3	0.9363	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9624	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9606	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1053	5.9	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9797	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	70.0	-19.4	50.0	-50.0	1.0100	71.9	0.9638	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1052	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0310	16.3	0.9545	19.9	1	6
343	PRUDENCIA13	13.800	G1	26.0	-9.8	9.8	-9.8	1.0269	27.0	0.9362	33.0	1	6
518	SANTA FE 13	13.800	E1	75.0	1.0	1.0	-1.0	0.9814	76.4	0.9999	100.0	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0107	94.0	0.9999	136.0	1	6
SUBSYSTEM TOTALS				812.3	-12.8	432.9	-263.8				1240.5		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:41
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER
 AÑO 2021 REGMHTTLA8

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
170	MIR13G	13.800	M1	15.5	6.8	11.2	6.8	1.0434	16.2	0.9150	23.0					2	7	
171	MIR13H	13.800	M1	15.5	6.8	11.2	6.8	1.0525	16.1	0.9150	23.0					2	7	
171	MIR13H	13.800	M2	15.5	6.8	11.2	6.8	1.0525	16.1	0.9149	23.0					2	7	
SUBSYSTEM TOTALS				46.4	20.5	33.5	20.5				69.1							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E WED, MAY 21 2008 17:41
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MIN VER AREA TOTALS
 AÑO 2021 REGMHTTLA8 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR		911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
			100.8	182.3	-58.1	0.0	219.9	38.3	158.1	



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3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.2	224.5	-98.9	0.0	143.3	-97.5	147.3	
5	1344.7	1324.8	0.0	0.0	0.0	0.5	19.4	0.0
C.RICA	237.3	569.4	-236.9	0.0	471.3	18.8	357.4	
6	812.3	737.9	0.0	0.0	0.0	54.5	19.9	25.0
PANAMA	-12.8	184.9	145.2	0.0	595.5	38.0	214.6	
7	46.4	28.6	0.0	0.0	0.0	17.7	0.1	50.0
ACANAL	20.5	7.2	0.0	0.0	0.0	10.0	3.3	
9	0.0	72.7	0.0	0.0	0.0	-72.7	0.1	-75.0
COLON	0.0	18.2	0.0	0.0	1.1	-20.1	3.0	
TOTALS	6007.7	5890.8	0.0	0.0	0.0	0.0	117.0	0.0
	463.3	1826.6	-703.2	0.0	2146.8	0.0	1486.7	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 1: Contingencia Chorrera-Llano Sánchez**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA CHORRERA- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0206	234.73	14	PRO230		230.00	6	1.0269	236.19	
85	PTP	230		230.00	6	1.0151	233.47	96	FOR230		230.00	6	1.0200	234.61	
100	BAY	230		230.00	6	1.0163	233.75	144	CANJ230		230.00	6	1.0169	233.88	
145	BJOMIN	230		230.00	6	1.0337	237.75	146	GUALACA230		230.00	6	1.0214	234.92	
147	GUASQ	230		230.00	6	1.0167	233.84	148	VELADERO	230	230.00	6	1.0086	231.97	
155	TABASARAII			230.00	6	1.0100	232.30	190	CHANG230		230.00	6	1.0255	235.86	
306	CHAN1	230		230.00	6	1.0274	236.30	310	CONCEPCION23	230.00	6	1.0290	236.67		
341	PRUDENCIA230			230.00	6	1.0287	236.60	345	LORENA230		230.00	6	1.0261	236.01	
6000	FRONTER			230.00	6	1.0268	236.16								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9697	223.04	3	PANII230		230.00	6	0.9773	224.78	
5	CHO	230		230.00	6	0.9702	223.14	8	LSA230		230.00	6	0.9910	227.94	
103	COPE	SA23		230.00	6	0.9836	226.22	105	PAN-AM23		230.00	6	0.9702	223.14	
115	PACORA	23		230.00	6	0.9866	226.91	325	STA RITA230		230.00	6	0.9954	228.94	
511	LGUIAS	230		230.00	6	0.9792	225.21	540	HV-PETOABRE		230.00	6	0.9784	225.03	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA CHORRERA- LLANO SÁNCHEZ

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0041	115.48	4	PANII115		115.00	6	1.0074	115.85	
6	CHO	115		115.00	6	1.0084	115.96	9	LSA115		115.00	6	1.0326	118.75	
12	M.	N115		115.00	6	1.0141	116.62	15	PRO115		115.00	6	1.0234	117.69	
18	CAC	115		115.00	6	1.0032	115.37	20	CH.AZUL		115.00	6	1.0242	117.78	
33	STM	115		115.00	6	1.0007	115.08	52	TOC115		115.00	6	1.0021	115.24	
54	LM	115		115.00	6	1.0305	118.51	55	LM2115		115.00	6	1.0299	118.44	
61	FFIELD			115.00	9	1.0236	117.72	87	CAL115		115.00	6	1.0363	119.17	
88	EST	115		115.00	6	1.0411	119.72	92	L.V115		115.00	6	1.0377	119.34	
109	STA	RITA115		115.00	6	1.0347	118.99	123	MIR115		115.00	7	1.0063	115.73	
154	CEMPAN	15		115.00	6	1.0199	117.29	191	CHANG115		115.00	6	1.0171	116.97	
522	TCATIVÁ	115		115.00	6	1.0302	118.47								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.	V115		115.00	6	0.9899	113.84	21	C.BAN115		115.00	6	0.9843	113.20	
23	CH	115		115.00	6	0.9971	114.67	26	LOC115		115.00	6	0.9865	113.45	
30	MAR	115		115.00	6	0.9848	113.26	37	SAN115		115.00	6	0.9822	112.95	
48	TINAJ	115		115.00	6	0.9992	114.91	50	M.O115		115.00	6	0.9994	114.93	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA CHORRERA- LLANO SÁNCHEZ

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	33.0	19.2	25.0	0.0	1.0200	37.4	0.8647	47.0	1	6
67	BLM13C	13.800	V3	33.0	19.2	25.0	0.0	1.0200	37.4	0.8647	47.0	1	6
68	BLM13D	13.800	V4	33.0	20.0	25.0	0.0	1.0200	37.9	0.8547	47.0	1	6
70	TGJB13A	13.800	J5	31.0	12.3	20.0	0.0	1.0200	32.7	0.9297	39.4	1	6
71	TGJB13B	13.800	J6	31.0	12.3	20.0	0.0	1.0200	32.7	0.9297	39.4	1	6
73	BLMCCB	13.800	V9	28.0	9.5	40.0	0.0	1.0000	29.6	0.9469	71.0	1	6
90	EST-13L	13.800	E1	21.0	9.6	12.0	-5.0	1.0200	22.6	0.9097	27.0	1	6
91	EST-13T	13.800	E2	21.0	9.6	12.0	-5.0	1.0200	22.6	0.9097	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	7.6	12.0	-5.0	1.0100	24.0	0.9500	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	7.6	12.0	-5.0	1.0100	24.0	0.9500	27.0	1	6
97	FOR13A	13.800	F1	94.0	4.7	50.0	-50.0	1.0200	92.3	0.9988	111.0	1	6
98	FOR13B	13.800	F2	94.0	4.7	50.0	-50.0	1.0200	92.3	0.9988	111.0	1	6
99	FOR13C	13.800	F3	94.0	4.7	50.0	-50.0	1.0200	92.3	0.9988	111.0	1	6
101	BAY13A	13.800	B1	68.6	36.3	50.0	-25.0	1.0100	76.9	0.8838	96.0	1	6
102	BAY13B	13.800	B2	58.0	35.5	50.0	-25.0	1.0100	67.3	0.8533	96.0	1	6
108	BAY13C	13.800	B3	58.0	35.5	50.0	-25.0	1.0100	67.3	0.8533	100.0	1	6
117	CB250A-1	13.800	C1	115.0	41.3	75.6	0.0	1.0200	119.8	0.9410	143.5	1	6
118	CB250A-2	13.800	C2	115.0	41.3	75.6	0.0	1.0200	119.8	0.9410	143.5	1	6
142	CANJ13A	13.800	C1	56.0	18.6	29.0	-29.0	1.0200	57.9	0.9490	69.0	1	6
143	CANJ13B	13.800	C2	56.0	18.6	29.0	-29.0	1.0200	57.9	0.9490	69.0	1	6
151	GUALACA13.8	13.800	G1	23.0	-1.0	10.0	-10.0	1.0200	22.6	0.9990	26.7	1	6
156	TABASARAI1313.800	G1	15.5	2.8	5.7	0.2	1.0200	15.5	0.9841	20.5	1	6	
156	TABASARAI1313.800	G2	15.5	2.8	5.7	0.2	1.0200	15.5	0.9841	20.5	1	6	
187	CCGN250-A1	13.800	C1	71.0	25.6	50.0	0.0	1.0200	74.0	0.9409	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	25.6	50.0	0.0	1.0200	74.0	0.9409	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	27.7	40.0	0.0	1.0200	97.0	0.9600	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	0.6	4.0	-4.0	1.0200	8.3	0.9972	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.6	4.0	-4.0	1.0200	8.3	0.9972	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.6	4.0	-4.0	1.0200	8.3	0.9972	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	7.0	50.0	0.0	1.0000	71.3	0.9952	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	7.0	50.0	0.0	1.0000	71.3	0.9952	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-7.8	13.0	-13.0	1.0100	25.0	0.9509	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-7.8	13.0	-13.0	1.0100	25.0	0.9509	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	16.2	26.6	-26.6	1.0200	42.3	0.9268	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	16.2	26.6	-26.6	1.0200	42.3	0.9268	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9613	11.2	0.8849	13.5	1	6
302	PASOANCH13.813.800	P1	4.4	2.0	2.0	-2.0	0.9595	5.1	0.9110	6.2	1	6	
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1125	7.5	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9881	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	109.0	-1.4	50.0	-50.0	1.0200	106.9	0.9999	118.6	1	6
308	CHAN1 B	13.800	G2	109.0	-1.4	50.0	-50.0	1.0200	106.9	0.9999	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1120	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1120	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0148	16.5	0.9545	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	-5.0	10.5	-5.0	1.0148	16.5	0.9545	19.9	1	6
343	PRUDENCIA13813.800	G1	26.0	-7.9	9.8	-9.8	1.0100	26.9	0.9564	33.0	1	6	
343	PRUDENCIA13813.800	G2	26.0	-7.9	9.8	-9.8	1.0100	26.9	0.9564	33.0	1	6	
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9837	19.3	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	0.9793	28.9	0.9988	136.0	1	6
SUBSYSTEM TOTALS				2069.0	466.7	1229.7	-539.9				2919.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:06
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTLA8 CONTINGENCIA CHORRERA- LLANO SÁNCHEZ
 AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	13.800	G3	12.6	6.2	11.0	0.0	1.0200	13.8	0.8980	29.4						2	
129	MIR13D	13.800	G4	35.0	7.0	15.0	0.0	1.0200	35.0	0.9806	44.1						2	



130 MIR13F	13.800 G5	17.1	1.8	8.0	0.0	1.0200	16.9	0.9948	27.7	2	7
170 MIR13G	13.800 M1	17.1	6.8	11.2	6.8	1.0306	17.9	0.9289	23.0	2	7
171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0	2	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS		116.0	35.4	67.5	20.5				170.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:07
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTLA8 CONTINGENCIA CHORRERA- LLANO SÁNCHEZ IN MW/MVAR

X-- AREA	--X GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.6	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.2	19.9	0.0
C.RICA	256.1	569.4	-237.4	0.0	469.2	32.8	360.6	
6	2069.0	1852.9	0.0	0.0	0.0	139.5	76.6	25.0
PANAMA	466.7	464.4	-338.7	0.0	546.2	71.6	815.7	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	35.4	18.0	0.0	0.0	0.0	6.3	11.0	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.6	19.9	
TOTALS	7334.2	7158.8	0.0	0.0	0.0	0.0	175.4	0.0
	977.1	2144.4	-1187.6	0.0	2095.4	0.0	2115.7	

PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008 AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO Contingencia 2: Contingencia Guasquitas-Veladero



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.	N230		230.00	6	1.0182	234.19	14	PRO	230		230.00	6	1.0249	235.72
85	PTP	230		230.00	6	1.0141	233.25	96	FOR	230		230.00	6	1.0188	234.33
100	BAY	230		230.00	6	1.0190	234.37	144	CANJ	230		230.00	6	1.0156	233.58
145	BJOMIN	230		230.00	6	1.0321	237.39	146	GUALACA	230		230.00	6	1.0202	234.64
147	GUASQ	230		230.00	6	1.0154	233.54	148	VELADERO	230		230.00	6	1.0054	231.25
155	TABASARAII	230		230.00	6	1.0070	231.62	190	CHANG	230		230.00	6	1.0249	235.73
306	CHAN1	230		230.00	6	1.0269	236.19	310	CONCEPCION	230		230.00	6	1.0271	236.23
341	PRUDENCIA	230		230.00	6	1.0276	236.34	345	LORENA	230		230.00	6	1.0250	235.74
6000	FRONTER	230		230.00	6	1.0247	235.68								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN	230		230.00	6	0.9745	224.13	3	PANII	230		230.00	6	0.9818	225.81
5	CHO	230		230.00	6	0.9771	224.74	8	LSA	230		230.00	6	0.9932	228.44
103	COPE	230		230.00	6	0.9878	227.19	105	PAN-AM	230		230.00	6	0.9771	224.74
115	PACORA	230		230.00	6	0.9905	227.83	325	STA RITA	230		230.00	6	0.9975	229.42
511	LGUIAS	230		230.00	6	0.9848	226.50	540	HV-PETOABRE	230		230.00	6	0.9846	226.46

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN	115		115.00	6	1.0078	115.89	4	PANII	115		115.00	6	1.0020	115.23
6	CHO	115		115.00	6	1.0158	116.82	9	LSA	115		115.00	6	1.0350	119.02
12	M.	N115		115.00	6	1.0123	116.41	15	PRO	115		115.00	6	1.0214	117.46
18	CAC	115		115.00	6	1.0068	115.78	20	CH.AZUL	115		115.00	6	1.0221	117.54
23	CH	115		115.00	6	1.0001	115.01	33	STM	115		115.00	6	1.0043	115.49
48	TINAJ	115		115.00	6	1.0028	115.32	50	M.O	115		115.00	6	1.0030	115.35
54	LM	115		115.00	6	1.0324	118.73	55	LM	115		115.00	6	1.0318	118.66
61	FFIELD	115		115.00	9	1.0255	117.94	87	CAL	115		115.00	6	1.0351	119.03
88	EST	115		115.00	6	1.0400	119.60	92	L.V	115		115.00	6	1.0365	119.20
109	STA RITA	115		115.00	6	1.0368	119.24	123	MIR	115		115.00	7	1.0096	116.11
154	CEMPAN	115		115.00	6	1.0223	117.57	191	CHANG	115		115.00	6	1.0167	116.92
522	TCATIVÁ	115		115.00	6	1.0321	118.69								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V	115		115.00	6	0.9870	113.51	21	C.BAN	115		115.00	6	0.9868	113.49
26	LOC	115		115.00	6	0.9893	113.77	30	MAR	115		115.00	6	0.9880	113.62
37	SAN	115		115.00	6	0.9842	113.18	52	TOC	115		115.00	6	0.9967	114.62

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	33.0	18.3	25.0	0.0	1.0200	37.0	0.8742	47.0	1	6
67	BLM13C	13.800	V3	33.0	18.3	25.0	0.0	1.0200	37.0	0.8742	47.0	1	6
68	BLM13D	13.800	V4	33.0	19.2	25.0	0.0	1.0200	37.4	0.8648	47.0	1	6
70	TGJB13A	13.800	J5	31.0	11.8	20.0	0.0	1.0200	32.5	0.9347	39.4	1	6
71	TGJB13B	13.800	J6	31.0	11.8	20.0	0.0	1.0200	32.5	0.9347	39.4	1	6
73	BLMCCB	13.800	V9	28.0	8.7	40.0	0.0	1.0000	29.3	0.9554	71.0	1	6
90	EST-13L	13.800	E1	21.0	9.9	12.0	-5.0	1.0200	22.8	0.9043	27.0	1	6
91	EST-13T	13.800	E2	21.0	9.9	12.0	-5.0	1.0200	22.8	0.9043	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	7.9	12.0	-5.0	1.0100	24.1	0.9457	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	7.9	12.0	-5.0	1.0100	24.1	0.9457	27.0	1	6
97	FOR13A	13.800	F1	94.0	5.8	50.0	-50.0	1.0200	92.3	0.9981	111.0	1	6
98	FOR13B	13.800	F2	94.0	5.8	50.0	-50.0	1.0200	92.3	0.9981	111.0	1	6
99	FOR13C	13.800	F3	94.0	5.8	50.0	-50.0	1.0200	92.3	0.9981	111.0	1	6
101	BAY13A	13.800	B1	68.4	34.3	50.0	-25.0	1.0100	75.8	0.8941	96.0	1	6
102	BAY13B	13.800	B2	58.0	33.4	50.0	-25.0	1.0100	66.3	0.8666	96.0	1	6
108	BAY13C	13.800	B3	58.0	33.4	50.0	-25.0	1.0100	66.3	0.8666	100.0	1	6
117	CB250A-1	13.800	C1	115.0	38.2	75.6	0.0	1.0200	118.8	0.9490	143.5	1	6
118	CB250A-2	13.800	C2	115.0	38.2	75.6	0.0	1.0200	118.8	0.9490	143.5	1	6
142	CANJ13A	13.800	C1	56.0	18.8	29.0	-29.0	1.0200	57.9	0.9478	69.0	1	6
143	CANJ13B	13.800	C2	56.0	18.8	29.0	-29.0	1.0200	57.9	0.9478	69.0	1	6
151	GUALACA13.8	13.800	G1	23.0	0.1	10.0	-10.0	1.0200	22.5	1.0000	26.7	1	6
156	TABASARAI1313.800	G1	15.5	3.5	5.7	0.2	1.0200	15.6	0.9758	20.5	1	6	
156	TABASARAI1313.800	G2	15.5	3.5	5.7	0.2	1.0200	15.6	0.9758	20.5	1	6	
187	CCGN250-A1	13.800	C1	71.0	23.6	50.0	0.0	1.0200	73.4	0.9489	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	23.6	50.0	0.0	1.0200	73.4	0.9489	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	25.8	40.0	0.0	1.0200	96.5	0.9651	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	0.7	4.0	-4.0	1.0200	8.3	0.9967	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.7	4.0	-4.0	1.0200	8.3	0.9967	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.7	4.0	-4.0	1.0200	8.3	0.9967	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	5.1	50.0	0.0	1.0000	71.2	0.9975	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	5.1	50.0	0.0	1.0000	71.2	0.9975	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-7.2	13.0	-13.0	1.0100	24.8	0.9575	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-7.2	13.0	-13.0	1.0100	24.8	0.9575	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	16.8	26.6	-26.6	1.0200	42.5	0.9218	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	16.8	26.6	-26.6	1.0200	42.5	0.9218	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9595	11.2	0.8849	13.5	1	6
302	PASOANCH13.813.800	P1	4.4	2.0	2.0	-2.0	0.9576	5.1	0.9110	6.2	1	6	
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1112	7.5	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9870	8.4	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	109.0	-0.9	50.0	-50.0	1.0200	106.9	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	109.0	-0.9	50.0	-50.0	1.0200	106.9	1.0000	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1107	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1107	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0136	16.5	0.9545	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	-5.0	10.5	-5.0	1.0136	16.5	0.9545	19.9	1	6
343	PRUDENCIA13813.800	G1	26.0	-7.4	9.8	-9.8	1.0100	26.8	0.9616	33.0	1	6	
343	PRUDENCIA13813.800	G2	26.0	-7.4	9.8	-9.8	1.0100	26.8	0.9616	33.0	1	6	
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9860	19.3	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	0.9855	28.7	0.9988	136.0	1	6
SUBSYSTEM TOTALS				2068.7	452.4	1229.7	-539.9				2919.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:11
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:



BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C			12.000	G3	12.6	5.8	11.0	0.0	1.0200	13.6	0.9079	29.4			2	7	
129	MIR13D			13.800	G4	35.0	6.5	15.0	0.0	1.0200	34.9	0.9834	44.1			2	7	
130	MIR13F			13.800	G5	17.1	1.1	8.0	0.0	1.0200	16.8	0.9978	27.7			2	7	
170	MIR13G			13.800	M1	17.1	6.8	11.2	6.8	1.0319	17.8	0.9289	23.0			2	7	
171	MIR13H			13.800	M1	17.1	6.8	11.2	6.8	1.0410	17.7	0.9289	23.0			2	7	
171	MIR13H			13.800	M2	17.1	6.8	11.2	6.8	1.0410	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	33.9	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:12
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTTLA8 CONTINGENCIA GUASQUITAS- VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.0	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.0	20.1	0.0
C.RICA	259.5	569.4	-237.3	0.0	468.9	34.5	361.7	
6	2068.7	1852.9	0.0	0.0	0.0	139.6	76.2	25.0
PANAMA	452.4	464.4	-338.8	0.0	557.3	71.1	813.0	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	33.9	18.0	0.0	0.0	0.0	4.9	11.0	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.5	19.8	
TOTALS	7334.0	7158.8	0.0	0.0	0.0	0.0	175.1	0.0
	964.8	2144.4	-1187.5	0.0	2106.1	0.0	2114.0	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 3: Contingencia Mata de Nance-Veladero**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11	M.N230			230.00	6	1.0202	234.66	14	PRO230			230.00	6	1.0259	235.96
85	PTP230			230.00	6	1.0135	233.10	96	FOR230			230.00	6	1.0186	234.27
100	BAY230			230.00	6	1.0192	234.41	144	CANJ230			230.00	6	1.0150	233.45
145	BJOMIN230			230.00	6	1.0332	237.64	146	GUALACA230			230.00	6	1.0196	234.52
147	GUASQ230			230.00	6	1.0148	233.41	148	VELADERO 230	230.00		6	1.0067	231.53	
155	TABASARAI			230.00	6	1.0082	231.89	190	CHANG230			230.00	6	1.0247	235.68
306	CHAN1 230			230.00	6	1.0267	236.14	310	CONCEPCION23	230.00		6	1.0284	236.54	
341	PRUDENCIA230			230.00	6	1.0270	236.22	345	LORENA230			230.00	6	1.0244	235.62
6000	FRONTIER			230.00	6	1.0257	235.90								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230			230.00	6	0.9748	224.21	3	PANII230			230.00	6	0.9821	225.88
5	CHO230			230.00	6	0.9776	224.85	8	LSA230			230.00	6	0.9941	228.64
103	COPESA23			230.00	6	0.9881	227.26	105	PAN-AM23			230.00	6	0.9776	224.85
115	PACORA23			230.00	6	0.9908	227.89	325	STA RITA230			230.00	6	0.9976	229.46
511	LGUIAS230			230.00	6	0.9855	226.65	540	HV-PETOABRE			230.00	6	0.9853	226.61

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA MATA DE NANCE- VELADERO

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115			115.00	6	1.0081	115.93	4	PANII115			115.00	6	1.0023	115.27
6	CHO115			115.00	6	1.0163	116.88	9	LSA115			115.00	6	1.0359	119.13
12	M.N115			115.00	6	1.0139	116.59	15	PRO115			115.00	6	1.0224	117.58
18	CAC115			115.00	6	1.0071	115.82	20	CH.AZUL			115.00	6	1.0231	117.66
23	CH115			115.00	6	1.0004	115.04	33	STM115			115.00	6	1.0046	115.53
48	TINAJ115			115.00	6	1.0032	115.36	50	M.O115			115.00	6	1.0034	115.39
54	LM115			115.00	6	1.0326	118.75	55	LM2115			115.00	6	1.0319	118.67
61	FFIELD			115.00	9	1.0257	117.96	87	CAL115			115.00	6	1.0361	119.15
88	EST115			115.00	6	1.0409	119.70	92	L.V115			115.00	6	1.0375	119.32
109	STA RITA115			115.00	6	1.0370	119.26	123	MIR115			115.00	7	1.0099	116.14
154	CEMPAN15			115.00	6	1.0225	117.59	191	CHANG115			115.00	6	1.0165	116.90
522	TCATIVÁ	115		115.00	6	1.0323	118.71								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115			115.00	6	0.9873	113.54	21	C.BAN115			115.00	6	0.9872	113.52
26	LOC115			115.00	6	0.9896	113.81	30	MAR115			115.00	6	0.9883	113.66
37	SAN115			115.00	6	0.9845	113.22	52	TOC115			115.00	6	0.9970	114.66

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B			13.800	V2	33.0	18.3	25.0	0.0	1.0200	37.0	0.8750	47.0				1	6



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67	BLM13C	13.800	V3	33.0	18.3	25.0	0.0	1.0200	37.0	0.8750	47.0	1	6
68	BLM13D	13.800	V4	33.0	19.1	25.0	0.0	1.0200	37.4	0.8656	47.0	1	6
70	TGJB13A	13.800	J5	31.0	11.7	20.0	0.0	1.0200	32.5	0.9351	39.4	1	6
71	TGJB13B	13.800	J6	31.0	11.7	20.0	0.0	1.0200	32.5	0.9351	39.4	1	6
73	BLMCCB	13.800	V9	28.0	8.6	40.0	0.0	1.0000	29.3	0.9561	71.0	1	6
90	EST-13L	13.800	E1	21.0	9.6	12.0	-5.0	1.0200	22.7	0.9089	27.0	1	6
91	EST-13T	13.800	E2	21.0	9.6	12.0	-5.0	1.0200	22.7	0.9089	27.0	1	6
94	LV-13.8L	13.800	L1	23.0	7.6	12.0	-5.0	1.0100	24.0	0.9494	27.0	1	6
95	LV-13.8T	13.800	L2	23.0	7.6	12.0	-5.0	1.0100	24.0	0.9494	27.0	1	6
97	FOR13A	13.800	F1	94.0	6.0	50.0	-50.0	1.0200	92.3	0.9980	111.0	1	6
98	FOR13B	13.800	F2	94.0	6.0	50.0	-50.0	1.0200	92.3	0.9980	111.0	1	6
99	FOR13C	13.800	F3	94.0	6.0	50.0	-50.0	1.0200	92.3	0.9980	111.0	1	6
101	BAY13A	13.800	B1	66.2	34.0	50.0	-25.0	1.0100	73.7	0.8897	96.0	1	6
102	BAY13B	13.800	B2	58.0	33.3	50.0	-25.0	1.0100	66.3	0.8673	96.0	1	6
108	BAY13C	13.800	B3	58.0	33.3	50.0	-25.0	1.0100	66.3	0.8673	100.0	1	6
117	CB250A-1	13.800	C1	115.0	38.0	75.6	0.0	1.0200	118.7	0.9496	143.5	1	6
118	CB250A-2	13.800	C2	115.0	38.0	75.6	0.0	1.0200	118.7	0.9496	143.5	1	6
142	CANJ13A	13.800	C1	56.0	18.9	29.0	-29.0	1.0200	58.0	0.9473	69.0	1	6
143	CANJ13B	13.800	C2	56.0	18.9	29.0	-29.0	1.0200	58.0	0.9473	69.0	1	6
151	GUALACA13.8	13.800	G1	23.0	0.6	10.0	-10.0	1.0200	22.6	0.9996	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	3.2	5.7	0.2	1.0200	15.5	0.9792	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	3.2	5.7	0.2	1.0200	15.5	0.9792	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	23.5	50.0	0.0	1.0200	73.3	0.9495	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	23.5	50.0	0.0	1.0200	73.3	0.9495	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	25.6	40.0	0.0	1.0200	96.5	0.9655	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	0.7	4.0	-4.0	1.0200	8.3	0.9966	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	0.7	4.0	-4.0	1.0200	8.3	0.9966	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	0.7	4.0	-4.0	1.0200	8.3	0.9966	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	4.9	50.0	0.0	1.0000	71.2	0.9976	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	4.9	50.0	0.0	1.0000	71.2	0.9976	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-7.6	13.0	-13.0	1.0100	24.9	0.9530	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-7.6	13.0	-13.0	1.0100	24.9	0.9530	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	16.4	26.6	-26.6	1.0200	42.4	0.9253	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	16.4	26.6	-26.6	1.0200	42.4	0.9253	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9610	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9592	5.1	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1123	7.5	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9880	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	109.0	-0.7	50.0	-50.0	1.0200	106.9	1.0000	118.6	1	6
308	CHAN1 B	13.800	G2	109.0	-0.7	50.0	-50.0	1.0200	106.9	1.0000	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1118	7.8	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.7	0.0	4.0	0.0	1.1118	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0131	16.5	0.9545	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	-5.0	10.5	-5.0	1.0131	16.5	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.0	-7.2	9.8	-9.8	1.0100	26.7	0.9639	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.0	-7.2	9.8	-9.8	1.0100	26.7	0.9639	33.0	1	6
518	SANTA FE 13	13.800	E1	19.0	1.0	1.0	-1.0	0.9869	19.3	0.9986	100.0	1	6
541	PETOABRE	4.2000	1	28.3	1.4	1.4	1.4	0.9862	28.7	0.9988	136.0	1	6
SUBSYSTEM TOTALS				2066.5	449.3	1229.7	-539.9				2919.2		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:34
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTTLA8 CONTINGENCIA MATA DE NANCE- VELADERO

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS# X-- NAME --X BASKV ID MW MVAR QMAX QMIN ETERM CURRENT PF MVABASE X T R A N GENTAP ZONE AREA SWING



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128	MIR13C	12.000	G3	12.6	5.8	11.0	0.0	1.0200	13.6	0.9088	29.4	2	7
129	MIR13D	13.800	G4	35.0	6.4	15.0	0.0	1.0200	34.9	0.9837	44.1	2	7
130	MIR13F	13.800	G5	17.1	1.1	8.0	0.0	1.0200	16.8	0.9980	27.7	2	7
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0	2	7
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0411	17.7	0.9289	23.0	2	7
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0411	17.7	0.9289	23.0	2	7
SUBSYSTEM TOTALS				116.0	33.7	67.5	20.5				170.3		



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:46
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 REGMHTTLA8 CONTINGENCIA MATA DE NANCE- VELADERO IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.7	290.6	-188.3	0.0	302.8	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.7	224.5	-98.9	0.0	143.2	-97.1	147.4	
5	1344.9	1324.8	0.0	0.0	0.0	0.2	19.9	0.0
C.RICA	258.2	569.4	-237.3	0.0	469.0	34.6	360.6	
6	2066.5	1852.9	0.0	0.0	0.0	139.5	74.2	25.0
PANAMA	449.3	464.4	-339.1	0.0	556.6	71.2	809.4	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	33.7	18.0	0.0	0.0	0.0	4.8	10.9	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.5	19.8	
TOTALS	7331.8	7158.8	0.0	0.0	0.0	0.0	172.9	0.0
	960.2	2144.4	-1187.9	0.0	2105.6	0.0	2109.2	



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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 4: Contingencia Panamá-Cemento Panamá



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0211	234.84	11		M.N230		230.00	6	1.0364	238.37
14		PRO230		230.00	6	1.0394	239.05	85		PTP230		230.00	6	1.0288	236.61
96		FOR230		230.00	6	1.0348	238.00	100		BAY230		230.00	6	1.0262	236.03
115		PACORA23		230.00	6	1.0016	230.38	144		CANJ230		230.00	6	1.0348	238.01
145		BJOMIN230		230.00	6	1.0434	239.97	146		GUALACA230		230.00	6	1.0372	238.56
147		GUASQ230		230.00	6	1.0347	237.98	148		VELADERO	230230.00	6	1.0362	238.33	
155		TABASARAI		230.00	6	1.0367	238.45	190		CHANG230		230.00	6	1.0289	236.65
306		CHAN1	230	230.00	6	1.0289	236.64	310		CONCEPCION23	230.00	6	1.0412	239.47	
325		STA RITA230		230.00	6	1.0047	231.09	341		PRUDENCIA230	230.00	6	1.0408	239.38	
345		LORENA230		230.00	6	1.0396	239.10	511		LGUIAS230		230.00	6	1.0108	232.49
540		HV-PETOABRE		230.00	6	1.0093	232.13	6000		FRONTIER		230.00	6	1.0393	239.04

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9885	227.37	3		PANII230		230.00	6	0.9942	228.67
5		CHO230		230.00	6	0.9969	229.29	103		COPESA23		230.00	6	0.9995	229.88
105		PAN-AM23		230.00	6	0.9969	229.29								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMA-CEMENTO PANAMA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0075	115.86	4		PANII115		115.00	6	1.0026	115.29
6		CHO115		115.00	6	1.0370	119.25	9		LSA115		115.00	6	1.0412	119.74
12		M.N115		115.00	6	1.0266	118.06	15		PRO115		115.00	6	1.0359	119.13
18		CAC115		115.00	6	1.0064	115.74	20		CH.AZUL		115.00	6	1.0367	119.22
33		STM115		115.00	6	1.0040	115.46	48		TINAJ115		115.00	6	1.0025	115.29
50		M.O115		115.00	6	1.0028	115.32	54		LM1115		115.00	6	1.0303	118.49
55		LM2115		115.00	6	1.0306	118.51	61		FFIELD		115.00	9	1.0234	117.69
87		CAL115		115.00	6	1.0394	119.53	88		EST115		115.00	6	1.0418	119.81
92		L.V115		115.00	6	1.0401	119.61	109		STA RITA115		115.00	6	1.0322	118.70
123		MIR115		115.00	7	1.0093	116.07	154		CEMPAN15		115.00	6	1.0399	119.58
191		CHANG115		115.00	6	1.0169	116.95	522		TCATIVÁ	115	115.00	6	1.0306	118.52

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9873	113.54	21		C.BAN115		115.00	6	0.9866	113.46
23		CH115		115.00	6	0.9978	114.75	26		LOC115		115.00	6	0.9891	113.74
30		MAR115		115.00	6	0.9877	113.59	37		SAN115		115.00	6	0.9840	113.16
52		TOC115		115.00	6	0.9973	114.69								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMA-CEMENTO PANAMA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	33.0	14.2	25.0	0.0	1.0100	35.6	0.9189	47.0	1	6
67	BLM13C	13.800	V3	33.0	14.2	25.0	0.0	1.0100	35.6	0.9189	47.0	1	6
68	BLM13D	13.800	V4	33.0	14.8	25.0	0.0	1.0100	35.8	0.9126	47.0	1	6
70	TGJB13A	13.800	J5	31.0	6.8	20.0	0.0	1.0000	31.7	0.9765	39.4	1	6
71	TGJB13B	13.800	J6	31.0	6.8	20.0	0.0	1.0000	31.7	0.9765	39.4	1	6
72	BLMCCA	13.800	T8	31.0	14.6	20.0	0.0	1.0000	34.3	0.9044	50.0	1	6
73	BLMCCB	13.800	V9	52.0	0.0	40.0	0.0	0.9919	52.4	1.0000	71.0	1	6
90	EST-13L	13.800	E1	19.0	9.7	12.0	-5.0	1.0200	20.9	0.8911	27.0	1	6
94	LV-13.8L	13.800	L1	21.0	7.0	12.0	-5.0	1.0100	21.9	0.9486	27.0	1	6
97	FOR13A	13.800	F1	90.0	-9.5	50.0	-50.0	1.0200	88.7	0.9945	111.0	1	6
98	FOR13B	13.800	F2	90.0	-9.5	50.0	-50.0	1.0200	88.7	0.9945	111.0	1	6
99	FOR13C	13.800	F3	90.0	-9.5	50.0	-50.0	1.0200	88.7	0.9945	111.0	1	6
101	BAY13A	13.800	B1	53.6	27.7	50.0	-25.0	1.0100	59.7	0.8887	96.0	1	6
102	BAY13B	13.800	B2	54.1	27.7	50.0	-25.0	1.0100	60.2	0.8903	96.0	1	6
108	BAY13C	13.800	B3	54.1	27.7	50.0	-25.0	1.0100	60.2	0.8903	100.0	1	6
117	CB250A-1	13.800	C1	100.0	26.2	75.6	0.0	1.0200	101.3	0.9673	143.5	1	6
118	CB250A-2	13.800	C2	100.0	26.2	75.6	0.0	1.0200	101.3	0.9673	143.5	1	6
142	CANJ13A	13.800	C1	40.0	9.0	29.0	-29.0	1.0100	40.6	0.9755	69.0	1	6
143	CANJ13B	13.800	C2	40.0	9.0	29.0	-29.0	1.0100	40.6	0.9755	69.0	1	6
151	GUALACA13.8	13.800	G1	20.5	-10.0	10.0	-10.0	1.0264	22.2	0.8988	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0367	15.0	0.9999	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	16.9	50.0	0.0	1.0200	71.5	0.9730	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	16.9	50.0	0.0	1.0200	71.5	0.9730	84.0	1	6
189	CCGN250-A3	13.800	C3	85.0	18.0	40.0	0.0	1.0200	85.2	0.9782	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	-0.9	4.0	-4.0	1.0100	8.4	0.9942	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-0.9	4.0	-4.0	1.0100	8.4	0.9942	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	0.0	50.0	0.0	1.0017	70.9	1.0000	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	0.0	50.0	0.0	1.0017	70.9	1.0000	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-13.0	13.0	-13.0	1.0252	26.6	0.8793	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	13.9	26.6	-26.6	1.0100	41.9	0.9445	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9615	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9597	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1181	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9911	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-15.2	50.0	-50.0	1.0100	80.6	0.9825	118.6	1	6
308	CHAN1 B	13.800	G2	80.0	-15.2	50.0	-50.0	1.0100	80.6	0.9825	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1181	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0341	16.2	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.0	-9.8	9.8	-9.8	1.0301	27.0	0.9362	33.0	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0325	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0325	14.5	0.9994	20.9	1	6
518	SANTA FE 13	13.800	E1	75.0	1.0	1.0	-1.0	0.9917	75.6	0.9999	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0125	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0125	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0125	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0125	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	0.1	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0140	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0140	7.5	0.9191	10.9	1	6

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531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0140	7.5	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0140	7.5	0.9191	10.9	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0070	94.3	0.9999	136.0	1	6
SUBSYSTEM TOTALS				2038.0	239.3	1279.6	-519.1				2905.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMA-CEMENTO PANAMA

AREA 7 [ACANAL] MACHINE SUMMARY:													X	T	R	A	N	GENTAP	ZONE	AREA	SWING
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE								
128		MIR13C		12.000	G3	12.6	5.9	11.0	0.0	1.0200	13.6	0.9069	29.4				2	7			
129		MIR13D		13.800	G4	35.0	6.5	15.0	0.0	1.0200	34.9	0.9831	44.1				2	7			
130		MIR13F		13.800	G5	17.1	1.2	8.0	0.0	1.0200	16.8	0.9976	27.7				2	7			
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0318	17.8	0.9289	23.0				2	7			
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0408	17.7	0.9289	23.0				2	7			
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0408	17.7	0.9289	23.0				2	7			
SUBSYSTEM TOTALS						116.0	34.0	67.5	20.5				170.3								



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:50
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMA-CEMENTO PANAMA IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.2	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.8	0.0
C.RICA	240.9	569.4	-236.4	0.0	471.1	19.6	359.4	
6	2038.0	1852.9	0.0	0.0	0.0	139.3	45.9	25.0
PANAMA	239.3	464.4	-274.9	0.0	593.4	86.2	557.1	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	34.0	18.0	0.0	0.0	0.0	5.0	11.0	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.3	19.6	
TOTALS	7303.2	7158.8	0.0	0.0	0.0	0.0	144.4	0.0
	732.6	2144.4	-1122.8	0.0	2144.6	0.0	1855.5	

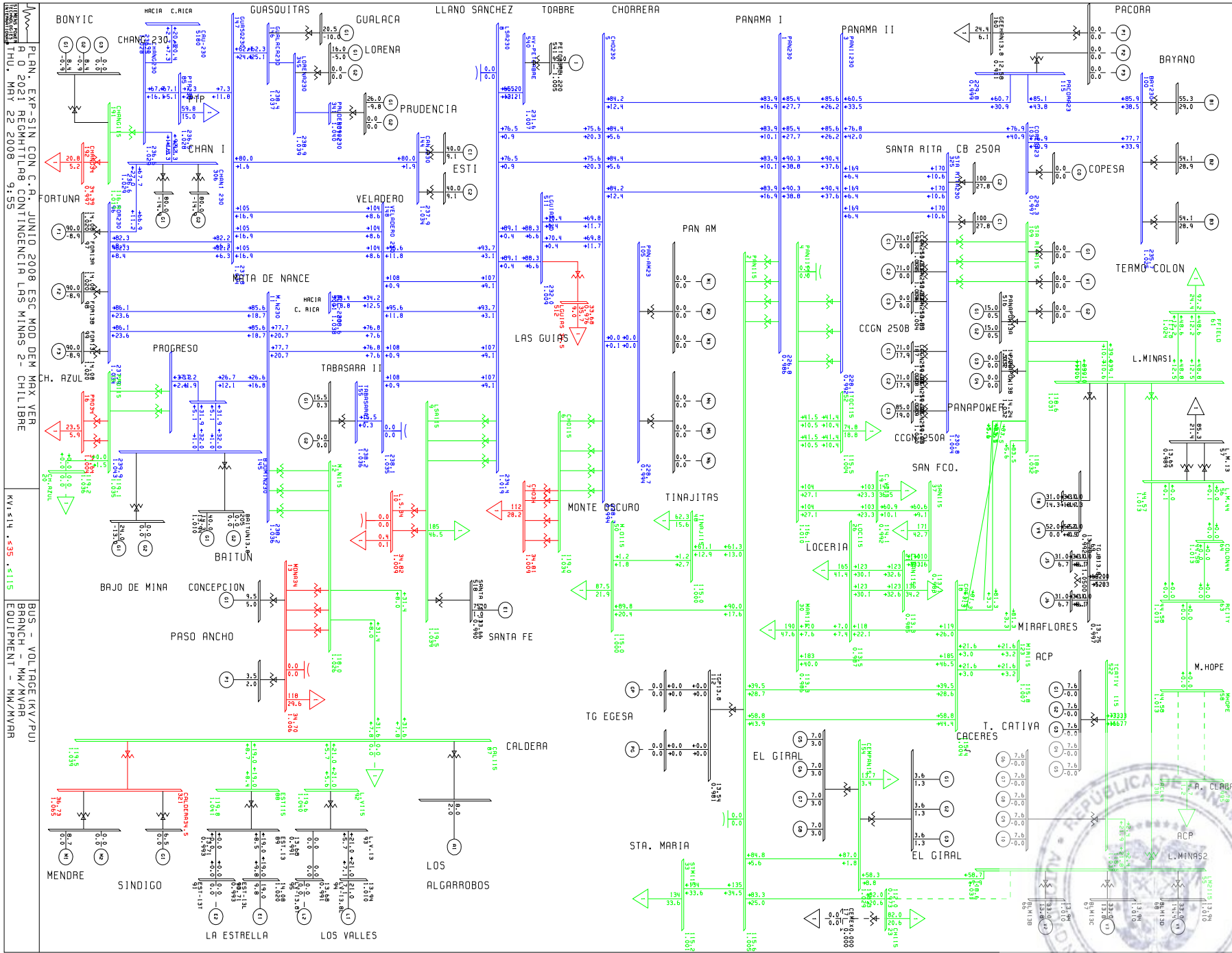


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PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO
Contingencia 5: Contingencia Las Minas 2-Chilibre



de



PLAN - EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 R 0 2021 REGIMTIL CON CONTINGENCIA LAS MINAS 2- CHILIBRE
 THU, MAY 22 2008 9:55

KV1 <14 <35 <115
 BUS - VOLTAGE (KV/PU)
 BRANCH - MW/MVAR
 EQUIPMENT - MW/MVAR



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:54
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE
 BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8		LSA230		230.00	6	1.0192	234.42	11		M.N230		230.00	6	1.0357	238.21
14		PRO230		230.00	6	1.0388	238.93	85		PTP230		230.00	6	1.0282	236.49
96		FOR230		230.00	6	1.0342	237.87	100		BAY230		230.00	6	1.0247	235.67
144		CANJ230		230.00	6	1.0342	237.86	145		BJOMIN230		230.00	6	1.0429	239.86
146		GUALACA230		230.00	6	1.0365	238.40	147		GUASQ230		230.00	6	1.0340	237.82
148		VELADERO		230230.00	6	1.0350	238.06	155		TABASARAI		230.00	6	1.0356	238.18
190		CHANG230		230.00	6	1.0286	236.59	306		CHAN1		230.00	6	1.0286	236.59
310		CONCEPCION230		230.00	6	1.0406	239.34	325		STA RITA230		230.00	6	1.0037	230.84
341		PRUDENCIA230		230.00	6	1.0401	239.23	345		LORENA230		230.00	6	1.0389	238.94
511		LGUIAS230		230.00	6	1.0087	232.00	540		HV-PETOABRE		230.00	6	1.0071	231.63
6000		FRONTER		230.00	6	1.0388	238.92								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9859	226.76	3		PANII230		230.00	6	0.9916	228.07
5		CHO230		230.00	6	0.9945	228.73	103		COPESA23		230.00	6	0.9970	229.31
105		PAN-AM23		230.00	6	0.9945	228.73	115		PACORA23		230.00	6	0.9993	229.84

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:54
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE
 BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0048	115.56	4		PANII115		115.00	6	1.0097	116.11
6		CHO115		115.00	6	1.0344	118.95	9		LSA115		115.00	6	1.0393	119.52
12		M.N115		115.00	6	1.0261	118.00	15		PRO115		115.00	6	1.0354	119.07
18		CAC115		115.00	6	1.0039	115.44	20		CH.AZUL		115.00	6	1.0361	119.16
33		STM115		115.00	6	1.0014	115.16	50		M.O115		115.00	6	1.0001	115.01
52		TOC115		115.00	6	1.0044	115.51	54		LM115		115.00	6	1.0310	118.56
55		LM2115		115.00	6	1.0315	118.62	61		FFIELD		115.00	9	1.0240	117.77
87		CAL115		115.00	6	1.0389	119.48	88		EST115		115.00	6	1.0414	119.76
92		L.V115		115.00	6	1.0396	119.56	109		STA RITA115		115.00	6	1.0317	118.64
123		MIR115		115.00	7	1.0069	115.79	154		CEMPAN15		115.00	6	1.0287	118.30
191		CHANG115		115.00	6	1.0167	116.92	522		TCATIVÁ		115.00	6	1.0314	118.61

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9918	114.05	21		C.BAN115		115.00	6	0.9852	113.30
23		CH115		115.00	6	0.9735	111.95	26		LOC115		115.00	6	0.9874	113.55
30		MAR115		115.00	6	0.9856	113.34	37		SAN115		115.00	6	0.9832	113.06
48		TINAJ115		115.00	6	0.9999	114.99								



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	33.0	13.8	25.0	0.0	1.0100	35.4	0.9229	47.0			1	6	
67		BLM13C		13.800	V3	33.0	13.8	25.0	0.0	1.0100	35.4	0.9229	47.0			1	6	
68		BLM13D		13.800	V4	33.0	14.4	25.0	0.0	1.0100	35.6	0.9170	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	6.7	20.0	0.0	1.0000	31.7	0.9776	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	6.7	20.0	0.0	1.0000	31.7	0.9776	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	14.3	20.0	0.0	1.0000	34.2	0.9076	50.0			1	6	
73		BLMCCB		13.800	V9	52.0	0.0	40.0	0.0	0.9920	52.4	1.0000	71.0			1	6	
90		EST-13L		13.800	E1	19.0	9.8	12.0	-5.0	1.0200	21.0	0.8886	27.0			1	6	
94		LV-13.8L		13.800	L1	21.0	7.1	12.0	-5.0	1.0100	22.0	0.9467	27.0			1	6	
97		FOR13A		13.800	F1	90.0	-8.9	50.0	-50.0	1.0200	88.7	0.9951	111.0			1	6	
98		FOR13B		13.800	F2	90.0	-8.9	50.0	-50.0	1.0200	88.7	0.9951	111.0			1	6	
99		FOR13C		13.800	F3	90.0	-8.9	50.0	-50.0	1.0200	88.7	0.9951	111.0			1	6	
101		BAY13A		13.800	B1	55.3	29.0	50.0	-25.0	1.0100	61.8	0.8859	96.0			1	6	SYST
102		BAY13B		13.800	B2	54.1	28.9	50.0	-25.0	1.0100	60.8	0.8823	96.0			1	6	
108		BAY13C		13.800	B3	54.1	28.9	50.0	-25.0	1.0100	60.8	0.8823	100.0			1	6	
117		CB250A-1		13.800	C1	100.0	27.8	75.6	0.0	1.0200	101.8	0.9634	143.5			1	6	
118		CB250A-2		13.800	C2	100.0	27.8	75.6	0.0	1.0200	101.8	0.9634	143.5			1	6	
142		CANJ13A		13.800	C1	40.0	9.1	29.0	-29.0	1.0100	40.6	0.9749	69.0			1	6	
143		CANJ13B		13.800	C2	40.0	9.1	29.0	-29.0	1.0100	40.6	0.9749	69.0			1	6	
151		GUALACA13.8		13.800	G1	20.5	-10.0	10.0	-10.0	1.0257	22.2	0.8988	26.7			1	6	
156		TABASARAI13		13.800	G1	15.5	0.2	5.7	0.2	1.0356	15.0	0.9999	20.5			1	6	
187		CCGN250-A1		13.800	C1	71.0	17.9	50.0	0.0	1.0200	71.8	0.9698	84.0			1	6	
188		CCGN250-A2		13.800	C2	71.0	17.9	50.0	0.0	1.0200	71.8	0.9698	84.0			1	6	
189		CCGN250-A3		13.800	C3	85.0	19.0	40.0	0.0	1.0200	85.4	0.9758	105.3			1	6	
193		GEBONYIC		13.800	G1	8.4	-0.9	4.0	-4.0	1.0100	8.4	0.9946	35.3			1	6	
193		GEBONYIC		13.800	G2	8.4	-0.9	4.0	-4.0	1.0100	8.4	0.9946	35.3			1	6	
194		CCGN250-B1		13.800	C1	71.0	0.0	50.0	0.0	1.0006	71.0	1.0000	84.0			1	6	
195		CCGN250-B2		13.800	C2	71.0	0.0	50.0	0.0	1.0006	71.0	1.0000	84.0			1	6	
204		BJOMIN13		13.800	G1	24.0	-13.0	13.0	-13.0	1.0246	26.6	0.8793	28.9			1	6	
205		BAITUN13.8		13.800	G1	40.0	14.3	26.6	-26.6	1.0100	42.1	0.9416	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9609	11.2	0.8849	13.5			1	6	
302		PASOANCH13.8		13.800	P1	3.5	2.0	2.0	-2.0	0.9591	4.2	0.8682	6.2			1	6	
303		SIND13.8		13.800	G1	6.5	0.0	5.0	0.0	1.1177	5.8	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9907	8.3	0.9701	13.5			1	6	
307		CHAN1 A		13.800	G1	80.0	-14.9	50.0	-50.0	1.0100	80.6	0.9831	118.6			1	6	
308		CHAN1 B		13.800	G2	80.0	-14.9	50.0	-50.0	1.0100	80.6	0.9831	118.6			1	6	
317		MENDRE13.8		13.800	M1	8.7	0.0	4.0	0.0	1.1176	7.8	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	16.0	-5.0	10.5	-5.0	1.0335	16.2	0.9545	19.9			1	6	
343		PRUDENCIA13		13.800	G1	26.0	-9.8	9.8	-9.8	1.0294	27.0	0.9362	33.0			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0320	14.5	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0320	14.5	0.9994	20.9			1	6	
518		SANTA FE 13		13.800	E1	75.0	1.0	1.0	-1.0	0.9898	75.8	0.9999	100.0			1	6	
521		EGIRAL13.8		113.800	G1	3.6	1.3	2.8	1.3	1.0020	3.8	0.9404	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.6	1.3	2.8	1.3	1.0020	3.8	0.9404	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.6	1.3	2.8	1.3	1.0020	3.8	0.9404	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.6	1.3	2.8	1.3	1.0020	3.8	0.9404	4.8			1	6	
523		TCATIVÁ 13A		13.800	G1	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9			1	6	
523		TCATIVÁ 13A		13.800	G2	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9			1	6	
523		TCATIVÁ 13A		13.800	G3	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9			1	6	
523		TCATIVÁ 13A		13.800	G4	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9			1	6	
523		TCATIVÁ 13A		13.800	G5	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9			1	6	
524		TCATIVÁ 13B		13.800	10	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9			1	6	



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524	TCATIVÁ	13B	13.800	G6	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0036	7.6	0.9191	10.9	1	6	
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0036	7.6	0.9191	10.9	1	6	
531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0036	7.6	0.9191	10.9	1	6	
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0036	7.6	0.9191	10.9	1	6	
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0048	94.6	0.9999	136.0	1	6	
SUBSYSTEM TOTALS					2039.7	249.5	1279.6	-519.1				2905.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:54
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE

AREA 7 [ACANAL] MACHINE SUMMARY:																
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	6.1	11.0	0.0	1.0200	13.7	0.8997	29.4	2	7					
129	MIR13D	13.800	G4	35.0	6.9	15.0	0.0	1.0200	35.0	0.9811	44.1	2	7					
130	MIR13F	13.800	G5	17.1	1.6	8.0	0.0	1.0200	16.8	0.9954	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0309	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0399	17.7	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0399	17.7	0.9289	23.0	2	7					
SUBSYSTEM TOTALS					116.0	35.1	67.5	20.5			170.3							



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:54
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 2- CHILIBRE IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.8	0.0
C.RICA	241.7	569.4	-236.3	0.0	471.0	20.2	359.4	
6	2039.7	1852.9	0.0	0.0	0.0	139.3	47.6	25.0
PANAMA	249.5	464.4	-275.9	0.0	592.2	84.5	568.8	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	35.1	18.0	0.0	0.0	0.0	6.1	11.0	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.2	19.6	
TOTALS	7305.0	7158.8	0.0	0.0	0.0	0.0	146.1	0.0
	744.7	2144.4	-1123.7	0.0	2143.3	0.0	1867.3	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 6: Contingencia Las Minas 1-Santa Rita**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0027	230.63	8		LSA230		230.00	6	1.0254	235.85
11		M.N230		230.00	6	1.0380	238.74	14		PRO230		230.00	6	1.0407	239.35
85		PTP230		230.00	6	1.0301	236.91	96		FOR230		230.00	6	1.0362	238.32
100		BAY230		230.00	6	1.0295	236.80	103		COPESA23		230.00	6	1.0047	231.07
105		PAN-AM23		230.00	6	1.0027	230.63	115		PACORA23		230.00	6	1.0066	231.51
144		CANJ230		230.00	6	1.0364	238.38	145		BJOMIN230		230.00	6	1.0446	240.25
146		GUALACA230		230.00	6	1.0388	238.93	147		GUASQ230		230.00	6	1.0363	238.35
148		VELADERO	230	230.00	6	1.0389	238.96	155		TABASARAI		230.00	6	1.0395	239.08
190		CHANG230		230.00	6	1.0296	236.80	306		CHAN1 230		230.00	6	1.0295	236.78
310		CONCEPCION23	230.00	6	1.0425	239.77	325		STA RITA230		230.00	6	1.0090	232.06	
341		PRUDENCIA230	230.00	6	1.0424	239.75	345		LORENA230		230.00	6	1.0412	239.47	
511		LGUIAS230		230.00	6	1.0159	233.65	540		HV-PETOABRE		230.00	6	1.0145	233.33
6000		FRONTIER		230.00	6	1.0406	239.34								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9948	228.80	3		PANII230		230.00	6	0.9997	229.94

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0032	115.36	4		PANII115		115.00	6	1.0062	115.71
6		CHO115		115.00	6	1.0431	119.96	9		LSA115		115.00	6	1.0459	120.27
12		M.N115		115.00	6	1.0280	118.22	15		PRO115		115.00	6	1.0372	119.28
18		CAC115		115.00	6	1.0022	115.25	20		CH.AZUL		115.00	6	1.0380	119.37
52		TOC115		115.00	6	1.0009	115.11	54		LM115		115.00	6	1.0246	117.83
55		LM2115		115.00	6	1.0244	117.80	61		FFIELD		115.00	9	1.0176	117.03
87		CAL115		115.00	6	1.0404	119.65	88		EST115		115.00	6	1.0428	119.92
92		L.V115		115.00	6	1.0411	119.73	109		STA RITA115		115.00	6	1.0268	118.08
123		MIR115		115.00	7	1.0053	115.61	154		CEMPAN15		115.00	6	1.0241	117.77
191		CHANG115		115.00	6	1.0174	117.00	522		TCATIVÁ	115	115.00	6	1.0247	117.84

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9888	113.71	21		C.BAN115		115.00	6	0.9833	113.07
23		CH115		115.00	6	0.9933	114.23	26		LOC115		115.00	6	0.9855	113.33
30		MAR115		115.00	6	0.9837	113.13	33		STM115		115.00	6	0.9997	114.96
37		SAN115		115.00	6	0.9811	112.83	48		TINAJ115		115.00	6	0.9982	114.79
50		M.O115		115.00	6	0.9984	114.82								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	33.0	16.9	25.0	0.0	1.0100	36.7	0.8905	47.0				1	6



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67	BLM13C	13.800	V3	33.0	16.9	25.0	0.0	1.0100	36.7	0.8905	47.0	1	6
68	BLM13D	13.800	V4	33.0	17.6	25.0	0.0	1.0100	37.0	0.8822	47.0	1	6
70	TGJB13A	13.800	J5	31.0	8.3	20.0	0.0	1.0000	32.1	0.9659	39.4	1	6
71	TGJB13B	13.800	J6	31.0	8.3	20.0	0.0	1.0000	32.1	0.9659	39.4	1	6
72	BLMCCA	13.800	T8	31.0	17.2	20.0	0.0	1.0000	35.5	0.8742	50.0	1	6
73	BLMCCB	13.800	V9	52.0	0.0	40.0	0.0	0.9905	52.5	1.0000	71.0	1	6
90	EST-13L	13.800	E1	19.0	9.4	12.0	-5.0	1.0200	20.8	0.8970	27.0	1	6
94	LV-13.8L	13.800	L1	21.0	6.7	12.0	-5.0	1.0100	21.8	0.9529	27.0	1	6
97	FOR13A	13.800	F1	90.0	-10.8	50.0	-50.0	1.0200	88.9	0.9929	111.0	1	6
98	FOR13B	13.800	F2	90.0	-10.8	50.0	-50.0	1.0200	88.9	0.9929	111.0	1	6
99	FOR13C	13.800	F3	90.0	-10.8	50.0	-50.0	1.0200	88.9	0.9929	111.0	1	6
101	BAY13A	13.800	B1	52.6	25.1	50.0	-25.0	1.0100	57.7	0.9026	96.0	1	6
102	BAY13B	13.800	B2	54.1	25.2	50.0	-25.0	1.0100	59.1	0.9067	96.0	1	6
108	BAY13C	13.800	B3	54.1	25.2	50.0	-25.0	1.0100	59.1	0.9067	100.0	1	6
117	CB250A-1	13.800	C1	100.0	19.9	75.6	0.0	1.0200	100.0	0.9809	143.5	1	6
118	CB250A-2	13.800	C2	100.0	19.9	75.6	0.0	1.0200	100.0	0.9809	143.5	1	6
142	CANJ13A	13.800	C1	40.0	8.8	29.0	-29.0	1.0100	40.5	0.9768	69.0	1	6
143	CANJ13B	13.800	C2	40.0	8.8	29.0	-29.0	1.0100	40.5	0.9768	69.0	1	6
151	GUALACA13.8	13.800	G1	20.5	-10.0	10.0	-10.0	1.0280	22.2	0.8988	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0395	14.9	0.9999	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	12.9	50.0	0.0	1.0200	70.8	0.9838	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	12.9	50.0	0.0	1.0200	70.8	0.9838	84.0	1	6
189	CCGN250-A3	13.800	C3	85.0	14.1	40.0	0.0	1.0200	84.5	0.9865	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	-1.0	4.0	-4.0	1.0100	8.4	0.9933	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-1.0	4.0	-4.0	1.0100	8.4	0.9933	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	0.0	50.0	0.0	1.0060	70.6	1.0000	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	0.0	50.0	0.0	1.0060	70.6	1.0000	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-13.0	13.0	-13.0	1.0264	26.6	0.8793	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	13.0	26.6	-26.6	1.0100	41.6	0.9511	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9629	11.1	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9610	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1193	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9921	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-15.7	50.0	-50.0	1.0100	80.7	0.9812	118.6	1	6
308	CHAN1 B	13.800	G2	80.0	-15.7	50.0	-50.0	1.0100	80.7	0.9812	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1192	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0358	16.2	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.0	-9.8	9.8	-9.8	1.0317	26.9	0.9362	33.0	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0271	14.6	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0271	14.6	0.9994	20.9	1	6
518	SANTA FE 13	13.800	E1	75.0	1.0	1.0	-1.0	0.9961	75.3	0.9999	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	0.9977	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	0.9977	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	0.9977	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	0.9977	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	0.7	6.6	-6.6	0.9800	7.8	0.9952	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.1	6.4	3.0	1.0000	7.6	0.9153	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.1	6.4	3.0	1.0000	7.6	0.9153	10.9	1	6
531	EGIRAL13.8	213.800	G7	7.0	3.1	6.4	3.0	1.0000	7.6	0.9153	10.9	1	6

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531 EGIRAL13.8	213.800	G8	7.0	3.1	6.4	3.0	1.0000	7.6	0.9153	10.9	1	6
541 PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0123	93.9	0.9999	136.0	1	6
SUBSYSTEM TOTALS			2037.0	221.0	1279.6	-519.1				2905.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:58
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	6.3	11.0	0.0	1.0200	13.8	0.8949	29.4			2	7	
129		MIR13D		13.800	G4	35.0	7.2	15.0	0.0	1.0200	35.0	0.9797	44.1			2	7	
130		MIR13F		13.800	G5	17.1	1.9	8.0	0.0	1.0200	16.9	0.9936	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0302	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0393	17.7	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0393	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	35.8	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 9:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 REGMHTTLA8 CONTINGENCIA LAS MINAS 1- SANTA RITA IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.4	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.2	224.5	-98.9	0.0	143.3	-97.5	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.3	19.8	0.0
C.RICA	239.0	569.4	-236.5	0.0	471.3	18.1	359.3	
6	2037.0	1852.9	0.0	0.0	0.0	139.3	44.8	25.0
PANAMA	221.0	464.4	-275.1	0.0	598.7	86.4	544.1	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	35.8	18.0	0.0	0.0	0.0	6.8	11.1	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.6	19.9	
TOTALS	7302.2	7158.8	0.0	0.0	0.0	0.0	143.4	0.0
	714.2	2144.4	-1123.0	0.0	2150.0	0.0	1842.8	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO
Contingencia 7: Contingencia Panamá II-Santa Rita**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:02
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMÁ II- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0201	234.62	11	M.N230	230.00	6	1.0360	238.29				
14	PRO230	230.00	6	1.0391	238.99	85	PTP230	230.00	6	1.0285	236.55				
96	FOR230	230.00	6	1.0345	237.93	100	BAY230	230.00	6	1.0249	235.72				
144	CANJ230	230.00	6	1.0345	237.93	145	BJOMIN230	230.00	6	1.0431	239.91				
146	GUALACA230	230.00	6	1.0369	238.48	147	GUASQ230	230.00	6	1.0343	237.90				
148	VELADERO	230230.00	6	1.0356	238.19	155	TABASARAI	230.00	6	1.0361	238.31				
190	CHANG230	230.00	6	1.0288	236.62	306	CHAN1	230.00	6	1.0288	236.61				
310	CONCEPCION23	230.00	6	1.0409	239.40	325	STA RITA230	230.00	6	1.0047	231.08				
341	PRUDENCIA230	230.00	6	1.0404	239.30	345	LORENA230	230.00	6	1.0392	239.02				
511	LGUIAS230	230.00	6	1.0097	232.24	540	HV-PETOABRE	230.00	6	1.0081	231.87				
6000	FRONTIER	230.00	6	1.0390	238.98										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9872	227.05	3	PANII230	230.00	6	0.9920	228.16				
5	CHO230	230.00	6	0.9957	229.00	103	COPESA23	230.00	6	0.9974	229.40				
105	PAN-AM23	230.00	6	0.9957	229.00	115	PACORA23	230.00	6	0.9996	229.92				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMÁ II- SANTA RITA

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0071	115.82	4	PANII115	115.00	6	1.0103	116.19				
6	CHO115	115.00	6	1.0356	119.09	9	LSA115	115.00	6	1.0402	119.63				
12	M.N115	115.00	6	1.0263	118.03	15	PRO115	115.00	6	1.0356	119.10				
18	CAC115	115.00	6	1.0061	115.70	20	CH.AZUL	115.00	6	1.0364	119.19				
33	STM115	115.00	6	1.0037	115.42	48	TINAJ115	115.00	6	1.0022	115.25				
50	M.O115	115.00	6	1.0024	115.28	52	TOC115	115.00	6	1.0051	115.58				
54	LM1115	115.00	6	1.0294	118.38	55	LM2115	115.00	6	1.0289	118.33				
61	FFIELD	115.00	9	1.0225	117.58	87	CAL115	115.00	6	1.0391	119.50				
88	EST115	115.00	6	1.0416	119.78	92	L.V115	115.00	6	1.0398	119.58				
109	STA RITA115	115.00	6	1.0324	118.72	123	MIR115	115.00	7	1.0090	116.04				
154	CEMPAN15	115.00	6	1.0280	118.22	191	CHANG115	115.00	6	1.0168	116.93				
522	TCATIVÁ	115 115.00	6	1.0293	118.37										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9930	114.19	21	C.BAN115	115.00	6	0.9873	113.54				
23	CH115	115.00	6	0.9972	114.68	26	LOC115	115.00	6	0.9895	113.79				
30	MAR115	115.00	6	0.9878	113.59	37	SAN115	115.00	6	0.9852	113.30				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:02
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMÁ II- SANTA RITA

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	33.0	14.9	25.0	0.0	1.0100	35.8	0.9116	47.0	1	6
67	BLM13C	13.800	V3	33.0	14.9	25.0	0.0	1.0100	35.8	0.9116	47.0	1	6
68	BLM13D	13.800	V4	33.0	15.5	25.0	0.0	1.0100	36.1	0.9048	47.0	1	6
70	TGJB13A	13.800	J5	31.0	7.1	20.0	0.0	1.0000	31.8	0.9749	39.4	1	6
71	TGJB13B	13.800	J6	31.0	7.1	20.0	0.0	1.0000	31.8	0.9749	39.4	1	6
72	BLMCCA	13.800	T8	31.0	15.0	20.0	0.0	1.0000	34.5	0.8996	50.0	1	6
73	BLMCCB	13.800	V9	52.0	0.0	40.0	0.0	0.9917	52.4	1.0000	71.0	1	6
90	EST-13L	13.800	E1	19.0	9.7	12.0	-5.0	1.0200	20.9	0.8898	27.0	1	6
94	LV-13.8L	13.800	L1	21.0	7.1	12.0	-5.0	1.0100	21.9	0.9476	27.0	1	6
97	FOR13A	13.800	F1	90.0	-9.2	50.0	-50.0	1.0200	88.7	0.9948	111.0	1	6
98	FOR13B	13.800	F2	90.0	-9.2	50.0	-50.0	1.0200	88.7	0.9948	111.0	1	6
99	FOR13C	13.800	F3	90.0	-9.2	50.0	-50.0	1.0200	88.7	0.9948	111.0	1	6
101	BAY13A	13.800	B1	55.5	28.8	50.0	-25.0	1.0100	61.9	0.8875	96.0	1	6
102	BAY13B	13.800	B2	54.1	28.7	50.0	-25.0	1.0100	60.7	0.8835	96.0	1	6
108	BAY13C	13.800	B3	54.1	28.7	50.0	-25.0	1.0100	60.7	0.8835	100.0	1	6
117	CB250A-1	13.800	C1	100.0	26.2	75.6	0.0	1.0200	101.4	0.9672	143.5	1	6
118	CB250A-2	13.800	C2	100.0	26.2	75.6	0.0	1.0200	101.4	0.9672	143.5	1	6
142	CANJ13A	13.800	C1	40.0	9.1	29.0	-29.0	1.0100	40.6	0.9752	69.0	1	6
143	CANJ13B	13.800	C2	40.0	9.1	29.0	-29.0	1.0100	40.6	0.9752	69.0	1	6
151	GUALACA13.8	13.800	G1	20.5	-10.0	10.0	-10.0	1.0260	22.2	0.8988	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0361	15.0	0.9999	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	16.9	50.0	0.0	1.0200	71.5	0.9729	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	16.9	50.0	0.0	1.0200	71.5	0.9729	84.0	1	6
189	CCGN250-A3	13.800	C3	85.0	18.1	40.0	0.0	1.0200	85.2	0.9782	105.3	1	6
193	GEBONYIC	13.800	G1	8.4	-0.9	4.0	-4.0	1.0100	8.4	0.9944	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-0.9	4.0	-4.0	1.0100	8.4	0.9944	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	0.0	50.0	0.0	1.0017	70.9	1.0000	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	0.0	50.0	0.0	1.0017	70.9	1.0000	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-13.0	13.0	-13.0	1.0249	26.6	0.8793	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	14.1	26.6	-26.6	1.0100	42.0	0.9430	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9612	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	3.5	2.0	2.0	-2.0	0.9594	4.2	0.8682	6.2	1	6
303	SIND13.8	13.800	G1	6.5	0.0	5.0	0.0	1.1179	5.8	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9909	8.3	0.9701	13.5	1	6
307	CHAN1 A	13.800	G1	80.0	-15.0	50.0	-50.0	1.0100	80.6	0.9828	118.6	1	6
308	CHAN1 B	13.800	G2	80.0	-15.0	50.0	-50.0	1.0100	80.6	0.9828	118.6	1	6
317	MENDRE13.8	13.800	M1	8.7	0.0	4.0	0.0	1.1178	7.8	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0338	16.2	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.0	-9.8	9.8	-9.8	1.0297	27.0	0.9362	33.0	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0327	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0327	14.5	0.9994	20.9	1	6
518	SANTA FE 13	13.800	E1	75.0	1.0	1.0	-1.0	0.9907	75.7	0.9999	100.0	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0014	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0014	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0014	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0014	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	7.6	0.2	6.6	-6.6	0.9800	7.7	0.9996	10.9	1	6
531	EGIRAL13.8	213.800	G5	7.0	3.0	6.4	3.0	1.0030	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G6	7.0	3.0	6.4	3.0	1.0030	7.6	0.9191	10.9	1	6

SYST



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531	EGIRAL13.8	213.800	G7	7.0	3.0	6.4	3.0	1.0030	7.6	0.9191	10.9	1	6
531	EGIRAL13.8	213.800	G8	7.0	3.0	6.4	3.0	1.0030	7.6	0.9191	10.9	1	6
541	PETOABRE	4.2000	1	95.0	1.4	1.4	1.4	1.0059	94.5	0.9999	136.0	1	6
SUBSYSTEM TOTALS				2039.9	248.8	1279.6	-519.1				2905.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:02
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMÁ II- SANTA RITA

AREA 7 [ACANAL] MACHINE SUMMARY:													X	T	R	A	N	GENTAP	ZONE	AREA	SWING
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE								
128		MIR13C		12.000	G3	12.6	5.9	11.0	0.0	1.0200	13.6	0.9061	29.4				2	7			
129		MIR13D		13.800	G4	35.0	6.6	15.0	0.0	1.0200	34.9	0.9829	44.1				2	7			
130		MIR13F		13.800	G5	17.1	1.2	8.0	0.0	1.0200	16.8	0.9973	27.7				2	7			
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0317	17.8	0.9289	23.0				2	7			
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0407	17.7	0.9289	23.0				2	7			
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0407	17.7	0.9289	23.0				2	7			
SUBSYSTEM TOTALS						116.0	34.1	67.5	20.5				170.3								



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, MAY 22 2008 10:03
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2021 REGMHTTLA8 CONTINGENCIA PANAMÁ II- SANTA RITA IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.3	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.6	290.6	-188.3	0.0	302.9	-5.3	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	32.3	224.5	-98.9	0.0	143.3	-97.4	147.3	
5	1344.9	1324.8	0.0	0.0	0.0	0.4	19.8	0.0
C.RICA	241.3	569.4	-236.4	0.0	471.1	19.9	359.4	
6	2039.9	1852.9	0.0	0.0	0.0	139.3	47.7	25.0
PANAMA	248.8	464.4	-276.7	0.0	586.0	85.8	561.3	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	50.0
ACANAL	34.1	18.0	0.0	0.0	0.0	5.2	11.0	
9	0.0	182.5	0.0	0.0	0.0	-182.8	0.3	-75.0
COLON	0.0	45.7	0.0	0.0	1.1	-64.3	19.7	
TOTALS	7305.1	7158.8	0.0	0.0	0.0	0.0	146.3	0.0
	742.6	2144.4	-1124.5	0.0	2137.1	0.0	1859.8	



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ANÁLISIS DE ESTADO ESTABLE CON INTERCAMBIO HACIA CENTRO AMÉRICA



de

AÑO 2012

**Caso 1: REGMHTCB8 y
Caso 2: REGMHTGDC8**



**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 17:46
 PLAN. EXP-SIN JUN-2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 Año 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0016	230.37	3	PANII230	230.00	6	1.0112	232.57				
5	CHO230	230.00	6	1.0044	231.01	8	LSA230	230.00	6	1.0258	235.93				
11	M.N230	230.00	6	1.0368	238.46	14	PRO230	230.00	6	1.0352	238.10				
85	PTP230	230.00	6	1.0334	237.68	96	FOR230	230.00	6	1.0342	237.87				
100	BAY230	230.00	6	1.0376	238.65	103	COPESA23	230.00	6	1.0155	233.56				
105	PAN-AM23	230.00	6	1.0044	231.01	115	PACORA23	230.00	6	1.0179	234.11				
144	CANJ230	230.00	6	1.0352	238.11	145	BJOMIN230	230.00	6	1.0372	238.56				
146	GUALACA230	230.00	6	1.0372	238.56	147	GUASQ230	230.00	6	1.0351	238.06				
148	VELADERO 230	230.00	6	1.0375	238.62	155	TABASARAI	230.00	6	1.0380	238.74				
190	CHANG230	230.00	6	1.0341	237.85	306	CHAN1 230	230.00	6	1.0372	238.55				
310	CONCEPCION23	230.00	6	1.0371	238.53	325	STA RITA230	230.00	6	1.0221	235.09				
345	LORENA230	230.00	6	1.0390	238.97	511	LGUIAS230	230.00	6	1.0157	233.62				
6000	FRONTER	230.00	6	1.0350	238.04										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 17:50
 PLAN. EXP-SIN JUN-2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 Año 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0030	115.35	4	PANII115	115.00	6	1.0074	115.85				
6	CHO115	115.00	6	1.0469	120.40	9	LSA115	115.00	6	1.0406	119.66				
12	M.N115	115.00	6	1.0318	118.65	15	PRO115	115.00	6	1.0334	118.84				
18	CAC115	115.00	6	1.0027	115.31	20	CH.AZUL	115.00	6	1.0342	118.93				
23	CH115	115.00	6	1.0038	115.43	33	STM115	115.00	6	1.0008	115.09				
48	TINAJ115	115.00	6	1.0000	115.00	50	M.O115	115.00	6	1.0001	115.02				
52	TOC115	115.00	6	1.0040	115.47	54	LM115	115.00	6	1.0312	118.59				
55	LM2115	115.00	6	1.0313	118.60	61	FFIELD	115.00	6	1.0268	118.08				
87	CAL115	115.00	6	1.0492	120.66	88	EST115	115.00	6	1.0528	121.07				
92	L.V115	115.00	6	1.0506	120.82	109	STA RITA115	115.00	6	1.0341	118.93				
123	MIR115	115.00	7	1.0053	115.61	154	CEMPAN15	115.00	6	1.0217	117.50				
191	CHANG115	115.00	6	1.0252	117.90	522	TCATIVÁ	115 115.00	6	1.0313	118.60				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9958	114.52	21	C.BAN115	115.00	6	0.9910	113.97				
26	LOC115	115.00	6	0.9924	114.12	30	MAR115	115.00	6	0.9911	113.97				
37	SAN115	115.00	6	0.9898	113.83										



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 17:46
 PLAN. EXP-SIN JUN-2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 AÑO 2012

AREA 6 [PANAMA] MACHINE SUMMARY:																			
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	36.0	18.8	25.0	0.0	1.0200	39.8	0.8868	47.0			1	6		
67		BLM13C		13.800	V3	36.0	18.8	25.0	0.0	1.0200	39.8	0.8868	47.0			1	6		
68		BLM13D		13.800	V4	36.0	19.6	25.0	0.0	1.0200	40.2	0.8783	47.0			1	6		
90		EST-13L		13.800	E1	22.0	6.2	12.0	-5.0	1.0200	22.4	0.9627	27.0			1	6		
91		EST-13T		13.800	E2	22.0	6.2	12.0	-5.0	1.0200	22.4	0.9627	27.0			1	6		
94		LV-13.8L		13.800	L1	24.0	7.0	12.0	-5.0	1.0200	24.5	0.9603	27.0			1	6		
95		LV-13.8T		13.800	L2	24.0	7.0	12.0	-5.0	1.0200	24.5	0.9603	27.0			1	6		
97		FOR13A		13.800	F1	95.0	-17.5	50.0	-50.0	1.0100	95.6	0.9835	111.0			1	6		
98		FOR13B		13.800	F2	95.0	-17.5	50.0	-50.0	1.0100	95.6	0.9835	111.0			1	6		
99		FOR13C		13.800	F3	95.0	-17.5	50.0	-50.0	1.0100	95.6	0.9835	111.0			1	6		
101		BAY13A		13.800	B1	71.5	20.5	50.0	-25.0	1.0100	73.6	0.9612	96.0			1	6	SYST	
102		BAY13B		13.800	B2	70.9	20.4	50.0	-25.0	1.0100	73.1	0.9608	96.0			1	6		
106		PANAM13A		13.800	M1	15.1	0.0	9.0	0.0	0.9773	15.5	1.0000	20.7			1	6		
106		PANAM13A		13.800	M2	15.1	0.0	9.0	0.0	0.9773	15.5	1.0000	20.7			1	6		
108		BAY13C		13.800	B3	70.9	20.4	50.0	-25.0	1.0100	73.1	0.9608	100.0			1	6		
117		CB250A-1		13.800	C1	100.0	15.1	75.6	0.0	1.0300	98.2	0.9887	143.5			1	6		
118		CB250A-2		13.800	C2	100.0	15.1	75.6	0.0	1.0300	98.2	0.9887	143.5			1	6		
142		CANJ13A		13.800	C1	51.0	15.4	29.0	-29.0	1.0300	51.7	0.9571	69.0			1	6		
143		CANJ13B		13.800	C2	51.0	15.4	29.0	-29.0	1.0300	51.7	0.9571	69.0			1	6		
151		GUALACA13.8		13.800	G1	21.0	-10.0	10.0	-10.0	1.0263	22.7	0.9029	26.7			1	6		
156		TABASARAI13		13.800	G1	14.0	0.2	5.7	0.2	1.0381	13.5	0.9998	20.5			1	6		
193		GEBONYIC		13.800	G1	9.0	-0.2	4.0	-4.0	1.0200	8.8	0.9997	35.3			1	6		
193		GEBONYIC		13.800	G2	9.0	-0.2	4.0	-4.0	1.0200	8.8	0.9997	35.3			1	6		
193		GEBONYIC		13.800	G3	9.0	-0.2	4.0	-4.0	1.0200	8.8	0.9997	35.3			1	6		
204		BJOMIN13		13.800	G1	24.0	-5.5	13.0	-13.0	1.0200	24.1	0.9744	28.9			1	6		
204		BJOMIN13		13.800	G2	24.0	-5.5	13.0	-13.0	1.0200	24.1	0.9744	28.9			1	6		
301		CONC13.8		13.800	G1	9.5	0.0	0.0	-5.0	0.9595	9.9	1.0000	13.5			1	6		
302		PASOANCH13.8		13.800	P1	4.4	0.0	0.0	-2.0	0.9595	4.6	1.0000	6.2			1	6		
304		ALGA13.8		13.800	A1	8.0	0.0	0.0	0.0	0.9993	8.0	1.0000	13.5			1	6		
307		CHAN1 A		13.800	G1	105.0	-1.8	50.0	-50.0	1.0300	102.0	0.9999	118.6			1	6		
308		CHAN1 B		13.800	G2	105.0	-1.8	50.0	-50.0	1.0300	102.0	0.9999	118.6			1	6		
317		MENDRE13.8		13.800	M1	8.0	0.0	0.0	0.0	1.1277	7.1	1.0000	35.3			1	6		
317		MENDRE13.8		13.800	M2	8.0	0.0	0.0	0.0	1.1277	7.1	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	16.0	-5.0	10.5	-5.0	1.0278	16.3	0.9545	19.9			1	6		
342		LORENA13.8		13.800	G2	16.0	-5.0	10.5	-5.0	1.0278	16.3	0.9545	19.9			1	6		
523		TCATIVÁ 13A		13.800	G1	7.3	2.5	6.6	-6.6	0.9900	7.8	0.9467	10.9			1	6		
523		TCATIVÁ 13A		13.800	G2	7.3	2.5	6.6	-6.6	0.9900	7.8	0.9467	10.9			1	6		
525		TCOLON 13A		13.800	G1	36.0	18.4	18.4	9.2	1.0204	39.6	0.8904	44.4			1	6		
526		TCOLON 13B		13.800	G2	36.0	18.4	18.4	9.2	1.0204	39.6	0.8904	44.4			1	6		
527		TCOLON 13C		13.800	V1	36.0	18.4	18.4	5.8	1.0204	39.6	0.8904	44.4			1	6		
SUBSYSTEM TOTALS						1543.0	178.8	893.1	-456.6				2087.3						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 17:46
 PLAN. EXP-SIN JUN-2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 AÑO 2012

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128		MIR13C		12.000	G3	12.6	3.5	11.0	0.0	1.0000	13.1	0.9638	29.4			2	7		
129		MIR13D		13.800	G4	35.0	2.9	15.0	0.0	1.0000	35.1	0.9965	44.1			2	7		
140		GAT6A		6.9000	G1	1.9	0.0	2.0	-2.0	1.0000	1.9	0.9997	4.1			2	7		
140		GAT6A		6.9000	G2	1.9	0.0	2.0	-2.0	1.0000	1.9	0.9997	4.1			2	7		
140		GAT6A		6.9000	G3	1.9	0.0	2.0	-2.0	1.0000	1.9	0.9997	4.1			2	7		
141		GAT6B		6.9000	G4	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9806	5.6			2	7		
141		GAT6B		6.9000	G5	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9806	6.2			2	7		
141		GAT6B		6.9000	G6	3.9	-0.8	3.0	-3.0	1.0000	4.0	0.9806	6.2			2	7		
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0199	18.0	0.9281	23.0			2	7		
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0290	17.8	0.9281	23.0			2	7		
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0290	17.8	0.9281	23.0			2	7		
SUBSYSTEM TOTALS						116.0	24.4	74.5	5.5				173.1						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 17:46
 PLAN. EXP-SIN JUN-2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 AÑO 2012

AREA TOTALS
 IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1			1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2			911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR			100.9	182.3	-58.1	0.0	219.9	38.5	158.1	
3			1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS			56.2	290.6	-188.3	0.0	302.8	-4.9	261.6	
4			538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA			34.7	224.5	-98.7	0.0	143.1	-95.4	147.4	
5			1092.0	1324.8	0.0	0.0	0.0	-250.0	17.2	-250.0
C.RICA			240.6	569.4	-236.7	0.0	467.6	44.2	331.3	
6			1543.0	1322.6	0.0	0.0	0.0	182.0	38.3	190.0
PANAMA			178.8	331.5	-60.6	0.0	531.7	3.1	436.6	
7			116.0	46.7	0.0	0.0	0.0	68.0	1.3	60.0
ACANAL			24.4	11.7	0.0	0.0	0.0	-3.3	16.0	
TOTALS			6555.2	6420.9	0.0	0.0	0.0	0.0	134.3	0.0
			665.5	1959.5	-908.6	0.0	2078.0	0.0	1692.6	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2012 ESCENARIO MODERADO DEMANDA MAXIMA VERANO**



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0004	230.10	3	PANII230	230.00	6	1.0089	232.05				
5	CHO230	230.00	6	1.0131	233.01	8	LSA230	230.00	6	1.0359	238.26				
11	M.N230	230.00	6	1.0301	236.93	14	PRO230	230.00	6	1.0329	237.56				
85	PTP230	230.00	6	1.0219	235.04	96	FOR230	230.00	6	1.0222	235.11				
100	BAY230	230.00	6	1.0287	236.60	103	COPESA23	230.00	6	1.0123	232.83				
105	PAN-AM23	230.00	6	1.0132	233.04	115	PACORA23	230.00	6	1.0167	233.85				
144	CANJ230	230.00	6	1.0282	236.48	145	BJOMIN230	230.00	6	1.0354	238.15				
146	GUALACA230	230.00	6	1.0296	236.82	147	GUASQ230	230.00	6	1.0281	236.46				
148	VELADERO 230	230.00	6	1.0417	239.60	155	TABASARAI	230.00	6	1.0424	239.75				
190	CHANG230	230.00	6	1.0139	233.20	306	CHAN1 230	230.00	6	1.0115	232.64				
310	CONCEPCION23	230.00	6	1.0339	237.81	325	STA RITA230	230.00	6	1.0193	234.44				
345	LORENA230	230.00	6	1.0306	237.05	511	LGUIAS230	230.00	6	1.0267	236.13				
6000	FRONTER	230.00	6	1.0329	237.56										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:16
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0088	116.01	4	PANII115	115.00	6	1.0118	116.36				
6	CHO115	115.00	6	1.0559	121.42	9	LSA115	115.00	6	1.0507	120.83				
12	M.N115	115.00	6	1.0238	117.73	15	PRO115	115.00	6	1.0310	118.57				
18	CAC115	115.00	6	1.0084	115.96	19	C.V115	115.00	6	1.0004	115.05				
20	CH.AZUL	115.00	6	1.0318	118.65	23	CH115	115.00	6	1.0095	116.09				
33	STM115	115.00	6	1.0065	115.75	48	TINAJ115	115.00	6	1.0057	115.65				
50	M.O115	115.00	6	1.0058	115.67	52	TOC115	115.00	6	1.0084	115.96				
54	LM1115	115.00	6	1.0403	119.63	55	LM2115	115.00	6	1.0405	119.65				
61	FFIELD	115.00	6	1.0358	119.12	87	CAL115	115.00	6	1.0342	118.93				
88	EST115	115.00	6	1.0356	119.09	92	L.V115	115.00	6	1.0351	119.04				
109	STA RITA115	115.00	6	1.0392	119.51	123	MIR115	115.00	7	1.0106	116.22				
154	CEMPAN15	115.00	6	1.0379	119.36	191	CHANG115	115.00	6	1.0056	115.65				
522	TCATIVÁ	115 115.00	6	1.0406	119.67										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21	C.BAN115	115.00	6	0.9963	114.57	26	LOC115	115.00	6	0.9977	114.73				
30	MAR115	115.00	6	0.9964	114.59	37	SAN115	115.00	6	0.9950	114.42				



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	38.0	14.9	25.0	0.0	1.0200	40.0	0.9308	47.0			1	6	
67		BLM13C		13.800	V3	38.0	14.9	25.0	0.0	1.0200	40.0	0.9308	47.0			1	6	
68		BLM13D		13.800	V4	38.0	15.5	25.0	0.0	1.0200	40.2	0.9256	47.0			1	6	
70		TGJB13A		13.800	J5	20.0	3.6	20.0	0.0	1.0000	20.3	0.9842	39.4			1	6	
71		TGJB13B		13.800	J6	30.0	3.7	20.0	0.0	1.0000	30.2	0.9924	39.4			1	6	
72		BLMCCA		13.800	T8	30.0	3.7	20.0	0.0	1.0000	30.2	0.9924	50.0			1	6	
73		BLMCCB		13.800	V9	20.0	3.6	40.0	0.0	1.0000	20.3	0.9842	71.0			1	6	
90		EST-13L		13.800	E1	16.0	4.8	12.0	-5.0	1.0000	16.7	0.9576	27.0			1	6	
94		LV-13.8L		13.800	L1	14.0	4.7	12.0	-5.0	1.0000	14.8	0.9489	27.0			1	6	
95		LV-13.8T		13.800	L2	14.0	4.7	12.0	-5.0	1.0000	14.8	0.9489	27.0			1	6	
97		FOR13A		13.800	F1	65.0	-35.3	50.0	-50.0	0.9800	75.5	0.8789	111.0			1	6	
98		FOR13B		13.800	F2	65.0	-35.3	50.0	-50.0	0.9800	75.5	0.8789	111.0			1	6	
99		FOR13C		13.800	F3	65.0	-35.3	50.0	-50.0	0.9800	75.5	0.8789	111.0			1	6	
101		BAY13A		13.800	B1	61.9	18.4	50.0	-25.0	1.0000	64.5	0.9586	96.0			1	6	SYST
102		BAY13B		13.800	B2	62.5	18.4	50.0	-25.0	1.0000	65.1	0.9592	96.0			1	6	
106		PANAM13A		13.800	M1	15.0	7.0	9.0	0.0	1.0300	16.1	0.9073	20.7			1	6	
106		PANAM13A		13.800	M2	15.0	7.0	9.0	0.0	1.0300	16.1	0.9073	20.7			1	6	
106		PANAM13A		13.800	M3	15.0	7.0	9.0	0.0	1.0300	16.1	0.9073	20.7			1	6	
107		PANAM13B		13.800	M4	15.0	7.0	9.0	0.0	1.0300	16.1	0.9073	20.7			1	6	
107		PANAM13B		13.800	M5	15.0	7.0	9.0	0.0	1.0300	16.1	0.9073	20.7			1	6	
107		PANAM13B		13.800	M6	15.0	7.0	9.0	0.0	1.0300	16.1	0.9073	20.7			1	6	
116		PACORA13		13.800	P1	17.0	4.8	8.8	0.0	1.0300	17.2	0.9617	21.7			1	6	
116		PACORA13		13.800	P2	17.0	4.8	8.8	0.0	1.0300	17.2	0.9617	21.7			1	6	
116		PACORA13		13.800	P3	17.0	4.8	8.8	0.0	1.0300	17.2	0.9617	21.7			1	6	
117		CB250A-1		13.800	C1	115.0	20.5	75.6	0.0	1.0300	113.4	0.9845	143.5			1	6	
118		CB250A-2		13.800	C2	115.0	20.5	75.6	0.0	1.0300	113.4	0.9845	143.5			1	6	
142		CANJ13A		13.800	C1	40.0	8.5	29.0	-29.0	1.0000	40.9	0.9783	69.0			1	6	
143		CANJ13B		13.800	C2	40.0	8.5	29.0	-29.0	1.0000	40.9	0.9783	69.0			1	6	
151		GUALACA13.8		13.800	G1	15.0	0.0	10.0	0.0	1.0295	14.6	1.0000	26.7			1	6	
156		TABASARAI13		13.800	G1	10.0	0.2	5.7	0.2	1.0426	9.6	0.9997	20.5			1	6	
156		TABASARAI13		13.800	G2	10.0	0.2	5.7	0.2	1.0426	9.6	0.9997	20.5			1	6	
193		GEBONYIC		13.800	G1	5.0	-0.5	4.0	-4.0	1.0000	5.0	0.9953	35.3			1	6	
193		GEBONYIC		13.800	G2	5.0	-0.5	4.0	-4.0	1.0000	5.0	0.9953	35.3			1	6	
193		GEBONYIC		13.800	G3	5.0	-0.5	4.0	-4.0	1.0000	5.0	0.9953	35.3			1	6	
204		BJOMIN13		13.800	G1	15.0	0.0	13.0	0.0	1.0346	14.5	1.0000	28.9			1	6	
204		BJOMIN13		13.800	G2	15.0	0.0	13.0	0.0	1.0346	14.5	1.0000	28.9			1	6	
301		CONC13.8		13.800	G1	4.0	0.0	0.0	0.0	0.9623	4.2	1.0000	13.5			1	6	
302		PASOANCH13.8		13.800	P1	2.0	0.0	0.0	0.0	0.9623	2.1	1.0000	6.2			1	6	
304		ALGA13.8		13.800	A1	3.0	0.0	0.0	0.0	0.9849	3.0	1.0000	13.5			1	6	
307		CHAN1 A		13.800	G1	70.0	-18.9	50.0	-50.0	0.9890	73.3	0.9655	118.6			1	6	
308		CHAN1 B		13.800	G2	70.0	-27.1	50.0	-50.0	0.9800	76.6	0.9324	118.6			1	6	
317		MENDRE13.8		13.800	M1	5.0	0.0	4.0	0.0	1.1135	4.5	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	10.0	-5.0	10.5	-5.0	1.0197	11.0	0.8944	19.9			1	6	
342		LORENA13.8		13.800	G2	10.0	-5.0	10.5	-5.0	1.0197	11.0	0.8944	19.9			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0396	14.4	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0396	14.4	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G3	15.0	0.5	12.5	0.5	1.0398	14.4	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G4	15.0	0.5	12.5	0.5	1.0398	14.4	0.9994	20.9			1	6	
521		EGIRAL13.8		113.800	G1	3.6	1.3	2.8	1.3	1.0107	3.8	0.9404	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.6	1.3	2.8	1.3	1.0107	3.8	0.9404	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.6	1.3	2.8	1.3	1.0107	3.8	0.9404	4.8			1	6	
521		EGIRAL13.8		113.800	G4	3.6	1.3	2.8	1.3	1.0107	3.8	0.9404	4.8			1	6	



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523	TCATIVÁ	13A	13.800	G1	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
523	TCATIVÁ	13A	13.800	G2	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
523	TCATIVÁ	13A	13.800	G3	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
523	TCATIVÁ	13A	13.800	G4	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
524	TCATIVÁ	13B	13.800	10	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	8.2	1.4	6.6	-6.6	1.0000	8.3	0.9860	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	1.0062	36.9	0.9688	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	6.2	18.4	5.8	1.0000	36.5	0.9853	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0117	8.4	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0117	8.4	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0117	8.4	0.9363	10.9	1	6	
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0117	8.4	0.9363	10.9	1	6	
SUBSYSTEM TOTALS					1542.7	110.9	1124.4	-425.7				2482.8		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2012

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	23.0	1.9	11.0	0.0	1.0000	23.1	0.9967	29.4	2	7					
129	MIR13D	13.800	G4	37.0	1.5	15.0	0.0	1.0000	37.0	0.9992	44.1	2	7					
140	GAT6A	6.9000	G1	1.7	0.7	2.0	-2.0	1.0000	1.8	0.9321	4.1	2	7					
141	GAT6B	6.9000	G4	3.0	-1.8	3.0	-3.0	1.0000	3.5	0.8593	5.6	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0230	18.0	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0321	17.8	0.9289	23.0	2	7					
SUBSYSTEM TOTALS					116.0	22.7	64.5	15.5				152.4						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2012 IN MW/MVAR

X-- AREA	--X GENERATION	FROM LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.9	182.3	-58.1	0.0	219.9	38.5	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	56.2	290.6	-188.3	0.0	302.8	-4.9	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	34.4	224.5	-98.8	0.0	143.1	-95.7	147.4	
5	1117.4	1324.8	0.0	0.0	0.0	-228.0	20.6	-228.0
C.RICA	268.4	569.4	-236.2	0.0	466.2	53.9	347.6	
6	1542.7	1358.9	0.0	0.0	0.0	161.2	22.6	168.0
PANAMA	110.9	340.6	0.0	0.0	532.3	-4.8	307.4	
7	116.0	48.0	0.0	0.0	0.0	66.9	1.1	60.0
ACANAL	22.7	12.0	0.0	0.0	0.0	-4.8	15.5	
TOTALS	6580.4	6458.5	0.0	0.0	0.0	0.0	121.9	0.0
	623.2	1968.9	-847.6	0.0	2077.2	0.0	1579.0	



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AÑO 2016

Caso 1: REGMHTCB8

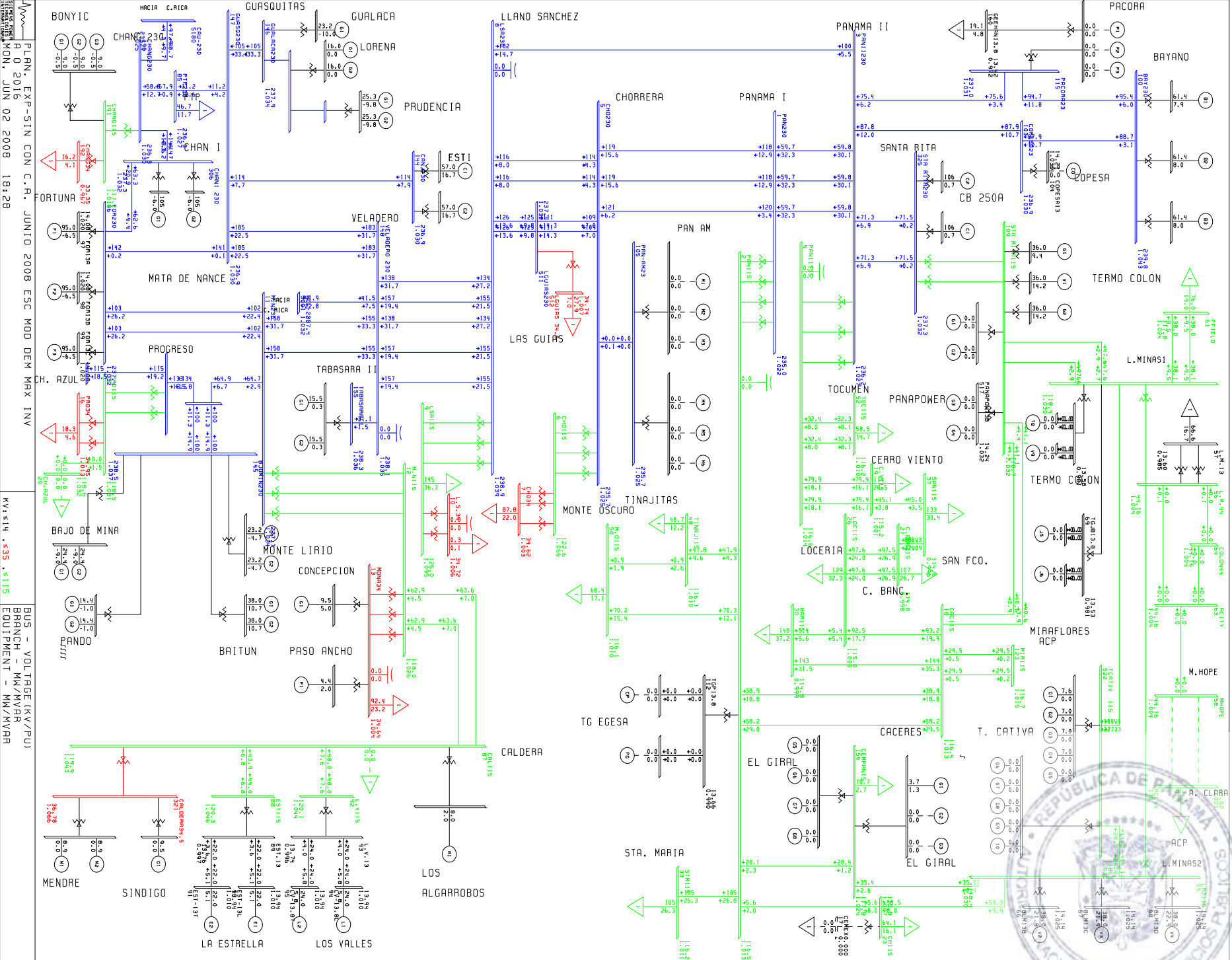


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO**



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PLN - EXP - SIN CON C.A. JUNIO 2008 ESC MOD DEM BRX INV
 MON, JUN 02 2008 18:28

ORTUNA
 MATA DE NANCE
 PROGRESO
 CH. AZUL
 BAJO DE MINA
 RONDANDO

MONTE LIRIO
 CONCEPCION
 BAITUN
 PASO ANCHO

LA ESTRELLA
 LOS VALLES
 LOS ALGARROBOS

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PLN - EXP - SIN CON C.A. JUNIO 2008 ESC MOD DEM BRX INV
 MON, JUN 02 2008 18:28

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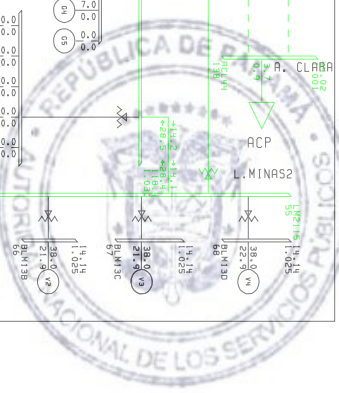
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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2016

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0217	235.00	3	PANII230	230.00	6	1.0271	236.23				
5	CHO230	230.00	6	1.0247	235.69	8	LSA230	230.00	6	1.0387	238.89				
11	M.N230	230.00	6	1.0336	237.73	14	PRO230	230.00	6	1.0332	237.64				
85	PTP230	230.00	6	1.0273	236.29	96	FOR230	230.00	6	1.0321	237.39				
100	BAY230	230.00	6	1.0426	239.80	103	COPESA23	230.00	6	1.0298	236.85				
105	PAN-AM23	230.00	6	1.0247	235.69	115	PACORA23	230.00	6	1.0305	237.02				
144	CANJ230	230.00	6	1.0301	236.91	145	BJOMIN230	230.00	6	1.0370	238.52				
146	GUALACA230	230.00	6	1.0345	237.93	147	GUASQ230	230.00	6	1.0300	236.89				
148	VELADERO	230230.00	6	1.0352	238.11	155	TABASARAI	230.00	6	1.0360	238.29				
190	CHANG230	230.00	6	1.0296	236.80	306	CHAN1 230	230.00	6	1.0316	237.28				
310	CONCEPCION23230.00	6	1.0353	238.12	325	STA RITA230	230.00	6	1.0319	237.34					
341	PRUDENCIA230230.00	6	1.0416	239.57	345	LORENA230	230.00	6	1.0393	239.04					
511	LGUIAS230	230.00	6	1.0323	237.42	6000	FRONTER	230.00	6	1.0331	237.61				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
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* NONE *

PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2016

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0133	116.53	4	PANII115	115.00	6	1.0143	116.64				
6	CHO115	115.00	6	1.0659	122.58	9	LSA115	115.00	6	1.0953	125.96				
12	M.N115	115.00	6	1.0264	118.04	15	PRO115	115.00	6	1.0308	118.54				
18	CAC115	115.00	6	1.0126	116.45	19	C.V115	115.00	6	1.0015	115.17				
20	CH.AZUL	115.00	6	1.0316	118.63	23	CH115	115.00	6	1.0069	115.79				
33	STM115	115.00	6	1.0106	116.22	48	TINAJ115	115.00	6	1.0096	116.11				
50	M.O115	115.00	6	1.0098	116.13	52	TOC115	115.00	6	1.0102	116.17				
54	LM1115	115.00	6	1.0297	118.41	55	LM2115	115.00	6	1.0299	118.44				
61	FFIELD	115.00	6	1.0243	117.79	87	CAL115	115.00	6	1.0429	119.93				
88	EST115	115.00	6	1.0460	120.29	92	L.V115	115.00	6	1.0441	120.07				
109	STA RITA115	115.00	6	1.0322	118.71	123	MIR115	115.00	7	1.0152	116.75				
154	CEMPAN15	115.00	6	1.0242	117.78	191	CHANG115	115.00	6	1.0181	117.08				
522	TCATIVÁ	115 115.00	6	1.0299	118.43										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
21	C.BAN115	115.00	6	0.9982	114.79	26	LOC115	115.00	6	0.9999	114.98				
30	MAR115	115.00	6	0.9985	114.83	37	SAN115	115.00	6	0.9964	114.59				

PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2016

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	38.0		38.0	21.9	25.0	0.0	1.0250	42.8	0.8662	47.0				1	6
67	BLM13C	13.800	V3	38.0		38.0	21.9	25.0	0.0	1.0250	42.8	0.8662	47.0				1	6



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68	BLM13D	13.800	V4	38.0	22.9	25.0	0.0	1.0250	43.3	0.8565	47.0	1	6
90	EST-13L	13.800	E1	22.0	5.1	12.0	-5.0	1.0100	22.3	0.9746	27.0	1	6
91	EST-13T	13.800	E2	22.0	5.1	12.0	-5.0	1.0100	22.3	0.9746	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	5.8	12.0	-5.0	1.0100	24.4	0.9724	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	5.8	12.0	-5.0	1.0100	24.4	0.9724	27.0	1	6
97	FOR13A	13.800	F1	95.0	-6.5	50.0	-50.0	1.0200	93.4	0.9977	111.0	1	6
98	FOR13B	13.800	F2	95.0	-6.5	50.0	-50.0	1.0200	93.4	0.9977	111.0	1	6
99	FOR13C	13.800	F3	95.0	-6.5	50.0	-50.0	1.0200	93.4	0.9977	111.0	1	6
101	BAY13A	13.800	B1	61.4	7.9	50.0	-25.0	1.0000	61.9	0.9917	96.0	1	6
102	BAY13B	13.800	B2	61.4	8.0	50.0	-25.0	1.0000	61.9	0.9917	96.0	1	6
108	BAY13C	13.800	B3	61.4	8.0	50.0	-25.0	1.0000	61.9	0.9917	100.0	1	6
117	CB250A-1	13.800	C1	106.3	0.7	75.6	0.0	1.0300	103.2	1.0000	143.5	1	6
118	CB250A-2	13.800	C2	106.3	0.7	75.6	0.0	1.0300	103.2	1.0000	143.5	1	6
142	CANJ13A	13.800	C1	57.0	16.7	29.0	-29.0	1.0200	58.2	0.9594	69.0	1	6
143	CANJ13B	13.800	C2	57.0	16.7	29.0	-29.0	1.0200	58.2	0.9594	69.0	1	6
151	GUALACA13.8	13.800	G1	23.2	-10.0	10.0	-10.0	1.0235	24.7	0.9184	26.7	1	6
156	TABASARAI1313.800	13.800	G1	15.5	0.2	5.7	0.2	1.0349	15.0	0.9999	20.5	1	6
156	TABASARAI1313.800	13.800	G2	15.5	0.2	5.7	0.2	1.0349	15.0	0.9999	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	-0.5	4.0	-4.0	1.0100	8.9	0.9984	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	-0.5	4.0	-4.0	1.0100	8.9	0.9984	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	-0.5	4.0	-4.0	1.0100	8.9	0.9984	35.3	1	6
204	BJOMIN13	13.800	G1	24.4	-9.0	13.0	-13.0	1.0100	25.7	0.9384	28.9	1	6
204	BJOMIN13	13.800	G2	24.4	-9.0	13.0	-13.0	1.0100	25.7	0.9384	28.9	1	6
205	BAITUN13.8	13.800	G1	38.0	10.7	26.6	-26.6	1.0100	39.1	0.9627	50.6	1	6
205	BAITUN13.8	13.800	G2	38.0	10.7	26.6	-26.6	1.0100	39.1	0.9627	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9595	11.2	0.8849	13.5	1	6
302	PASOANCH13.813.800	13.800	P1	4.4	2.0	2.0	-2.0	0.9576	5.1	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	9.5	0.0	5.0	0.0	1.1193	8.5	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9944	8.3	0.9701	13.5	1	6
307	CHANI A	13.800	G1	105.2	-6.0	50.0	-50.0	1.0200	103.3	0.9984	118.6	1	6
308	CHANI B	13.800	G2	105.2	-6.0	50.0	-50.0	1.0200	103.3	0.9984	118.6	1	6
311	PANDO13.8	13.800	G1	14.4	-1.0	10.0	-5.0	1.0100	14.3	0.9975	19.9	1	6
311	PANDO13.8	13.800	G2	14.4	-1.0	10.0	-5.0	1.0100	14.3	0.9975	19.9	1	6
316	MONTE LIRIO	13.800	G1	23.2	-4.7	12.0	-5.0	1.0100	23.5	0.9798	27.0	1	6
316	MONTE LIRIO	13.800	G2	23.2	-4.7	12.0	-5.0	1.0100	23.5	0.9798	27.0	1	6
317	MENDRE13.8	13.800	M1	8.9	0.0	4.0	0.0	1.1188	7.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.9	0.0	4.0	0.0	1.1188	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	0.0	10.5	0.0	1.0388	15.4	1.0000	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	0.0	10.5	0.0	1.0388	15.4	1.0000	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	25.3	-9.8	9.8	-9.8	1.0193	26.6	0.9329	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	25.3	-9.8	9.8	-9.8	1.0193	26.6	0.9329	33.0	1	6
521	EGIRAL13.8	113.800	G1	3.7	1.3	2.8	1.3	0.9816	4.0	0.9433	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	0.0	6.6	-6.6	0.9800	7.7	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	0.0	6.6	-6.6	0.9800	7.1	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	0.0	6.6	-6.6	0.9800	7.1	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	0.0	6.6	-6.6	0.9800	7.1	1.0000	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.4	18.4	9.2	1.0000	37.2	0.9678	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	14.2	18.4	9.2	1.0100	38.3	0.9304	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	14.2	18.4	5.8	1.0100	38.3	0.9304	44.4	1	6
SUBSYSTEM TOTALS				1765.4	125.2	1035.6	-551.0				2367.6		

SYST

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016

MON, JUN 02 2008 18:35

AREA 7 [ACANAL] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	3.1	11.0	0.0	1.0100	12.9	0.9702	29.4					2	7	
129	MIR13D	13.800	G4	35.0	2.4	15.0	0.0	1.0100	34.7	0.9977	44.1					2	7	
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0171	16.8	1.0000	27.7					2	7	
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0315	17.8	0.9289	23.0					2	7	
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0405	17.7	0.9289	23.0					2	7	
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0405	17.7	0.9289	23.0					2	7	
SUBSYSTEM TOTALS						116.0	26.0	67.5	20.5			170.3						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:35
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 IN MW/MVAR

X-- AREA --X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1 GUATEMAL	1347.4 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2 SALVADOR	911.8 100.8	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.4	9.8 158.1	0.0
3 HONDURAS	1006.8 56.0	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.8	0.0 -5.1	21.4 261.6	0.0
4 NICA	538.2 33.7	527.1 224.5	0.0 -98.8	0.0 0.0	0.0 143.2	0.0 -96.3	11.1 147.4	0.0
5 C.RICA	1173.9 253.4	1324.8 569.4	0.0 -235.9	0.0 0.0	0.0 467.9	-170.2 42.8	19.3 345.0	-170.0
6 PANAMA	1765.4 125.2	1590.3 398.6	0.0 -354.6	0.0 0.0	0.0 588.4	111.3 3.2	63.8 666.5	110.0
7 ACANAL	116.0 26.0	56.2 14.1	0.0 0.0	0.0 0.0	0.0 0.0	58.9 -0.9	0.9 12.8	60.0
TOTALS	6859.6 624.8	6698.0 2028.9	0.0 -1202.0	0.0 0.0	0.0 2135.0	0.0 0.0	161.6 1932.9	0.0



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:45
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 AÑO 2016
 BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	1.0000	230.00	3		PANII230		230.00	6	1.0053	231.21
5		CHO230		230.00	6	1.0114	232.61	8		LSA230		230.00	6	1.0304	237.00
11		M.N230		230.00	6	1.0341	237.84	14		PRO230		230.00	6	1.0353	238.12
85		PTP230		230.00	6	1.0278	236.40	96		FOR230		230.00	6	1.0311	237.15
100		BAY230		230.00	6	1.0322	237.40	103		COPESA23		230.00	6	1.0095	232.19
105		PAN-AM23		230.00	6	1.0114	232.63	115		PACORA23		230.00	6	1.0135	233.11
144		CANJ230		230.00	6	1.0319	237.34	145		BJOMIN230		230.00	6	1.0376	238.64
146		GUALACA230		230.00	6	1.0343	237.88	147		GUASQ230		230.00	6	1.0318	237.31
148		VELADERO	230	230.00	6	1.0394	239.05	155		TABASARAI		230.00	6	1.0397	239.12
190		CHANG230		230.00	6	1.0271	236.24	306		CHAN1	230	230.00	6	1.0272	236.27
310		CONCEPCION23	230	230.00	6	1.0364	238.38	325		STA RITA230		230.00	6	1.0105	232.42
341		PRUDENCIA230	230	230.00	6	1.0381	238.76	345		LORENA230		230.00	6	1.0368	238.47
511		LGUIAS230		230.00	6	1.0238	235.47	6000		FRONTER		230.00	6	1.0355	238.16

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
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* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:45
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 AÑO 2016
 BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0088	116.01	4		PANII115		115.00	6	1.0028	115.32
6		CHO115		115.00	6	1.0512	120.89	9		LSA115		115.00	6	1.0368	119.23
12		M.N115		115.00	6	1.0263	118.03	15		PRO115		115.00	6	1.0328	118.77
18		CAC115		115.00	6	1.0081	115.93	20		CH.AZUL		115.00	6	1.0336	118.86
23		CH115		115.00	6	1.0040	115.46	33		STM115		115.00	6	1.0060	115.70
48		TINAJ115		115.00	6	1.0050	115.57	50		M.O115		115.00	6	1.0052	115.59
54		LM115		115.00	6	1.0315	118.62	55		LM2115		115.00	6	1.0318	118.66
61		FFIELD		115.00	6	1.0260	117.99	87		CAL115		115.00	6	1.0354	119.07
88		EST115		115.00	6	1.0367	119.22	92		L.V115		115.00	6	1.0361	119.15
109		STA RITA115		115.00	6	1.0335	118.85	123		MIR115		115.00	7	1.0108	116.25
154		CEMPAN15		115.00	6	1.0325	118.74	191		CHANG115		115.00	6	1.0164	116.89
522		TCATIVÁ	115	115.00	6	1.0319	118.67								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9914	114.01	21		C.BAN115		115.00	6	0.9922	114.10
26		LOC115		115.00	6	0.9942	114.33	30		MAR115		115.00	6	0.9932	114.21
37		SAN115		115.00	6	0.9900	113.85	52		TOC115		115.00	6	0.9985	114.83

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:45
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX INV EXPORTA A C.A.
 AÑO 2016

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
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66	BLM13B	13.800	V2	38.0	14.0	25.0	0.0	1.0100	40.1	0.9382	47.0	1	6
67	BLM13C	13.800	V3	38.0	14.0	25.0	0.0	1.0100	40.1	0.9382	47.0	1	6
68	BLM13D	13.800	V4	38.0	14.6	25.0	0.0	1.0100	40.3	0.9336	47.0	1	6
90	EST-13L	13.800	E1	13.0	4.3	12.0	-5.0	1.0000	13.7	0.9484	27.0	1	6
94	LV-13.8L	13.800	L1	17.6	8.0	12.0	-5.0	1.0100	19.2	0.9098	27.0	1	6
97	FOR13A	13.800	F1	68.9	-16.9	50.0	-50.0	1.0100	70.2	0.9713	111.0	1	6
98	FOR13B	13.800	F2	68.9	-16.9	50.0	-50.0	1.0100	70.2	0.9713	111.0	1	6
99	FOR13C	13.800	F3	68.9	-16.9	50.0	-50.0	1.0100	70.2	0.9713	111.0	1	6
101	BAY13A	13.800	B1	83.5	17.8	50.0	-25.0	1.0000	85.4	0.9780	96.0	1	6
102	BAY13B	13.800	B2	83.5	17.8	50.0	-25.0	1.0000	85.4	0.9780	96.0	1	6
106	PANAM13A	13.800	M1	15.2	4.2	9.0	0.0	1.0100	15.6	0.9639	20.7	1	6
106	PANAM13A	13.800	M2	15.2	4.2	9.0	0.0	1.0100	15.6	0.9639	20.7	1	6
106	PANAM13A	13.800	M3	15.2	4.2	9.0	0.0	1.0100	15.6	0.9639	20.7	1	6
107	PANAM13B	13.800	M4	15.2	4.2	9.0	0.0	1.0100	15.6	0.9639	20.7	1	6
107	PANAM13B	13.800	M5	15.2	4.2	9.0	0.0	1.0100	15.6	0.9639	20.7	1	6
107	PANAM13B	13.800	M6	15.2	4.2	9.0	0.0	1.0100	15.6	0.9639	20.7	1	6
108	BAY13C	13.800	B3	83.5	25.8	50.0	-25.0	1.0100	86.5	0.9554	100.0	1	6
116	PACORA13	13.800	P1	17.5	2.3	8.8	0.0	1.0100	17.4	0.9911	21.7	1	6
116	PACORA13	13.800	P2	17.5	2.3	8.8	0.0	1.0100	17.4	0.9911	21.7	1	6
116	PACORA13	13.800	P3	17.5	2.3	8.8	0.0	1.0100	17.4	0.9911	21.7	1	6
117	CB250A-1	13.800	C1	115.4	3.6	75.6	0.0	1.0100	114.3	0.9995	143.5	1	6
118	CB250A-2	13.800	C2	115.4	3.6	75.6	0.0	1.0100	114.3	0.9995	143.5	1	6
142	CANJ13A	13.800	C1	44.7	10.8	29.0	-29.0	1.0100	45.5	0.9722	69.0	1	6
143	CANJ13B	13.800	C2	44.7	10.8	29.0	-29.0	1.0100	45.5	0.9722	69.0	1	6
151	GUALACA13.8	13.800	G1	13.4	-5.0	10.0	-5.0	1.0289	13.9	0.9369	26.7	1	6
156	TABASARAI13	13.800	G1	3.8	0.2	5.7	0.2	1.0402	3.7	0.9978	20.5	1	6
193	GEBONYIC	13.800	G1	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9990	35.3	1	6
193	GEBONYIC	13.800	G2	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9990	35.3	1	6
193	GEBONYIC	13.800	G3	8.4	-0.4	4.0	-4.0	1.0100	8.3	0.9990	35.3	1	6
204	BJOMIN13	13.800	G1	18.9	-9.5	13.0	-13.0	1.0100	20.9	0.8936	28.9	1	6
204	BJOMIN13	13.800	G2	18.9	-9.5	13.0	-13.0	1.0100	20.9	0.8936	28.9	1	6
205	BAITUN13.8	13.800	G1	28.7	9.7	26.6	-26.6	1.0100	30.0	0.9475	50.6	1	6
205	BAITUN13.8	13.800	G2	28.7	9.7	26.6	-26.6	1.0100	30.0	0.9475	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9677	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.3	0.0	5.0	0.0	1.1139	3.9	1.0000	13.5	1	6
307	CHAN1 A	13.800	G1	77.9	-13.7	50.0	-50.0	1.0100	78.3	0.9848	118.6	1	6
308	CHAN1 B	13.800	G2	77.9	-13.7	50.0	-50.0	1.0100	78.3	0.9848	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9839	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.7	10.0	-5.0	1.0100	9.7	0.9839	19.9	1	6
316	MONTE LIRIO	13.800	G1	18.6	-5.0	12.0	-5.0	1.0113	19.0	0.9657	27.0	1	6
316	MONTE LIRIO	13.800	G2	18.6	-5.0	12.0	-5.0	1.0113	19.0	0.9657	27.0	1	6
317	MENDRE13.8	13.800	M1	5.1	0.0	4.0	0.0	1.1137	4.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	5.1	0.0	4.0	0.0	1.1137	4.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.0	-5.0	10.5	-5.0	1.0259	11.8	0.9104	19.9	1	6
342	LORENA13.8	13.800	G2	11.0	-5.0	10.5	-5.0	1.0259	11.8	0.9104	19.9	1	6
343	PRUDENCIA13813	13.800	G1	15.2	-8.2	9.8	-9.8	1.0200	16.9	0.8795	33.0	1	6
343	PRUDENCIA13813	13.800	G2	15.2	-8.2	9.8	-9.8	1.0200	16.9	0.8795	33.0	1	6
516	PANAPOW13A	13.800	G1	15.0	0.5	12.5	0.5	1.0339	14.5	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.0	0.5	12.5	0.5	1.0339	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.0	0.5	12.5	0.5	1.0339	14.5	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.0	0.5	12.5	0.5	1.0339	14.5	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0056	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0056	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0056	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0056	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.1	6.6	-6.6	0.9800	8.2	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.1	6.6	-6.6	0.9800	8.2	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.1	6.6	-6.6	0.9800	8.2	1.0000	10.9	1	6

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523	TCATIVÁ	13A	13.800	G4	8.0	-0.1	6.6	-6.6	0.9800	8.2	1.0000	10.9	1	6
523	TCATIVÁ	13A	13.800	G5	8.0	-0.1	6.6	-6.6	0.9800	8.2	1.0000	10.9	1	6
524	TCATIVÁ	13B	13.800	10	8.0	3.7	6.6	-6.6	1.0100	8.7	0.9083	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	8.0	3.7	6.6	-6.6	1.0100	8.7	0.9083	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	8.0	3.7	6.6	-6.6	1.0100	8.7	0.9083	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	8.0	3.7	6.6	-6.6	1.0100	8.7	0.9083	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	8.0	3.7	6.6	-6.6	1.0100	8.7	0.9083	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	9.2	18.4	9.2	1.0009	37.1	0.9688	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	13.6	18.4	9.2	1.0100	38.1	0.9355	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	13.6	18.4	5.8	1.0100	38.1	0.9355	44.4	1	6
531	EGIRAL	13.8	213.800	G5	8.0	3.4	6.4	3.0	1.0100	8.6	0.9203	10.9	1	6
531	EGIRAL	13.8	213.800	G6	8.0	3.4	6.4	3.0	1.0100	8.6	0.9203	10.9	1	6
531	EGIRAL	13.8	213.800	G7	8.0	3.4	6.4	3.0	1.0100	8.6	0.9203	10.9	1	6
531	EGIRAL	13.8	213.800	G8	8.0	3.4	6.4	3.0	1.0100	8.6	0.9203	10.9	1	6
SUBSYSTEM TOTALS					1786.1	134.5	1205.9	-565.6				2669.8		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:45
PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX INV EXPORTA A C.A.
AÑO 2016

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR	13C		12.000	G3	12.6	3.8	11.0	0.0	1.0100	13.0	0.9569	29.4			2	7	
129	MIR	13D		13.800	G4	35.0	3.4	15.0	0.0	1.0100	34.8	0.9952	44.1			2	7	
130	MIR	13F		13.800	G5	17.1	0.0	8.0	0.0	1.0146	16.9	1.0000	27.7			2	7	
170	MIR	13G		13.800	M1	17.1	6.8	11.2	6.8	1.0290	17.9	0.9289	23.0			2	7	
171	MIR	13H		13.800	M1	17.1	6.8	11.2	6.8	1.0380	17.7	0.9289	23.0			2	7	
171	MIR	13H		13.800	M2	17.1	6.8	11.2	6.8	1.0380	17.7	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	27.7	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:45
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX INV EXPORTA A C.A. AREA TOTALS
 AÑO 2016 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	55.9	290.6	-188.3	0.0	302.8	-5.1	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	33.4	224.5	-98.8	0.0	143.2	-96.5	147.4	
5	1168.8	1324.8	0.0	0.0	0.0	-174.0	18.0	-174.0
C.RICA	240.6	569.4	-236.7	0.0	469.5	46.0	331.4	
6	1786.1	1636.4	0.0	0.0	0.0	116.7	33.0	114.0
PANAMA	134.5	410.1	-121.4	0.0	582.2	-1.2	429.2	
7	116.0	57.8	0.0	0.0	0.0	57.3	0.9	60.0
ACANAL	27.7	14.5	0.0	0.0	0.0	0.5	12.7	
TOTALS	6875.2	6745.8	0.0	0.0	0.0	0.0	129.4	0.0
	622.7	2040.9	-969.5	0.0	2130.5	0.0	1681.8	



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AÑO 2016

Caso 2: REGMHTGDC8



de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	1.0160	233.68	3	PANII230	230.00	6	1.0215	234.96				
5	CHO230	230.00	6	1.0198	234.54	8	LSA230	230.00	6	1.0351	238.08				
11	M.N230	230.00	6	1.0348	238.01	14	PRO230	230.00	6	1.0357	238.21				
85	PTP230	230.00	6	1.0280	236.45	96	FOR230	230.00	6	1.0330	237.58				
100	BAY230	230.00	6	1.0393	239.03	103	COPESA23	230.00	6	1.0246	235.65				
105	PAN-AM23	230.00	6	1.0198	234.54	115	PACORA23	230.00	6	1.0256	235.88				
144	CANJ230	230.00	6	1.0309	237.10	145	BJOMIN230	230.00	6	1.0398	239.15				
146	GUALACA230	230.00	6	1.0354	238.13	147	GUASQ230	230.00	6	1.0308	237.08				
148	VELADERO 230	230.00	6	1.0354	238.13	155	TABASARAI	230.00	6	1.0362	238.32				
190	CHANG230	230.00	6	1.0300	236.90	306	CHAN1 230	230.00	6	1.0321	237.37				
310	CONCEPCION23	230.00	6	1.0378	238.69	325	STA RITA230	230.00	6	1.0288	236.62				
341	PRUDENCIA230	230.00	6	1.0427	239.81	345	LORENA230	230.00	6	1.0403	239.26				
511	LGUIAS230	230.00	6	1.0283	236.50	6000	FRONTER	230.00	6	1.0355	238.17				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
* NONE *															

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 18:59
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0066	115.76	4	PANII115	115.00	6	1.0062	115.72				
6	CHO115	115.00	6	1.0606	121.97	9	LSA115	115.00	6	1.0777	123.94				
12	M.N115	115.00	6	1.0298	118.42	15	PRO115	115.00	6	1.0333	118.83				
18	CAC115	115.00	6	1.0059	115.68	20	CH.AZUL	115.00	6	1.0340	118.91				
23	CH115	115.00	6	1.0015	115.17	33	STM115	115.00	6	1.0039	115.44				
48	TINAJ115	115.00	6	1.0028	115.32	50	M.O115	115.00	6	1.0030	115.34				
52	TOC115	115.00	6	1.0021	115.24	54	LM115	115.00	6	1.0270	118.10				
55	LM2115	115.00	6	1.0270	118.10	61	FFIELD	115.00	6	1.0216	117.48				
87	CAL115	115.00	6	1.0451	120.19	88	EST115	115.00	6	1.0480	120.52				
92	L.V115	115.00	6	1.0462	120.31	109	STA RITA115	115.00	6	1.0292	118.36				
123	MIR115	115.00	7	1.0088	116.02	154	CEMPAN15	115.00	6	1.0219	117.51				
191	CHANG115	115.00	6	1.0184	117.12	522	TCATIVÁ 115	115.00	6	1.0270	118.10				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9936	114.27	21	C.BAN115	115.00	6	0.9911	113.97				
26	LOC115	115.00	6	0.9928	114.18	30	MAR115	115.00	6	0.9916	114.03				
37	SAN115	115.00	6	0.9892	113.76										



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AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
66		BLM13B		13.800	V2	38.0	16.1	25.0	0.0	1.0100	40.9	0.9205	47.0			1	6		
67		BLM13C		13.800	V3	38.0	16.1	25.0	0.0	1.0100	40.9	0.9205	47.0			1	6		
68		BLM13D		13.800	V4	38.0	16.8	25.0	0.0	1.0100	41.1	0.9146	47.0			1	6		
70		TGJB13A		13.800	J5	20.0	9.4	20.0	0.0	1.0100	21.9	0.9058	39.4			1	6		
71		TGJB13B		13.800	J6	20.0	9.4	20.0	0.0	1.0100	21.9	0.9058	39.4			1	6		
90		EST-13L		13.800	E1	22.0	4.5	12.0	-5.0	1.0100	22.2	0.9800	27.0			1	6		
91		EST-13T		13.800	E2	22.0	4.5	12.0	-5.0	1.0100	22.2	0.9800	27.0			1	6		
94		LV-13.8L		13.800	L1	24.0	5.1	12.0	-5.0	1.0100	24.3	0.9779	27.0			1	6		
95		LV-13.8T		13.800	L2	24.0	5.1	12.0	-5.0	1.0100	24.3	0.9779	27.0			1	6		
97		FOR13A		13.800	F1	95.0	-7.3	50.0	-50.0	1.0200	93.4	0.9971	111.0			1	6		
98		FOR13B		13.800	F2	95.0	-7.3	50.0	-50.0	1.0200	93.4	0.9971	111.0			1	6		
99		FOR13C		13.800	F3	95.0	-7.3	50.0	-50.0	1.0200	93.4	0.9971	111.0			1	6		
101		BAY13A		13.800	B1	62.3	10.5	50.0	-25.0	1.0000	63.2	0.9861	96.0			1	6	SYST	
102		BAY13B		13.800	B2	62.3	10.5	50.0	-25.0	1.0000	63.2	0.9861	96.0			1	6		
108		BAY13C		13.800	B3	62.3	10.5	50.0	-25.0	1.0000	63.2	0.9861	100.0			1	6		
117		CB250A-1		13.800	C1	106.3	5.5	75.6	0.0	1.0300	103.3	0.9987	143.5			1	6		
118		CB250A-2		13.800	C2	106.3	5.5	75.6	0.0	1.0300	103.3	0.9987	143.5			1	6		
142		CANJ13A		13.800	C1	57.0	16.6	29.0	-29.0	1.0200	58.2	0.9601	69.0			1	6		
143		CANJ13B		13.800	C2	57.0	16.6	29.0	-29.0	1.0200	58.2	0.9601	69.0			1	6		
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0352	8.7	1.0000	11.6			1	6		
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0352	8.7	1.0000	11.6			1	6		
151		GUALACA13.8		13.800	G1	23.2	-10.0	10.0	-10.0	1.0244	24.7	0.9184	26.7			1	6		
156		TABASARAI1313.800		G1	15.5	0.2	5.7	0.2	1.0351	15.0	0.9999	20.5			1	6			
156		TABASARAI1313.800		G2	15.5	0.2	5.7	0.2	1.0351	15.0	0.9999	20.5			1	6			
193		GEBONYIC		13.800	G1	9.0	-0.5	4.0	-4.0	1.0100	8.9	0.9982	35.3			1	6		
193		GEBONYIC		13.800	G2	9.0	-0.5	4.0	-4.0	1.0100	8.9	0.9982	35.3			1	6		
193		GEBONYIC		13.800	G3	9.0	-0.5	4.0	-4.0	1.0100	8.9	0.9982	35.3			1	6		
204		BJOMIN13		13.800	G1	23.0	-10.1	13.0	-13.0	1.0100	24.9	0.9160	28.9			1	6		
204		BJOMIN13		13.800	G2	23.0	-10.1	13.0	-13.0	1.0100	24.9	0.9160	28.9			1	6		
205		BAITUN13.8		13.800	G1	40.0	9.8	26.6	-26.6	1.0100	40.8	0.9710	50.6			1	6		
205		BAITUN13.8		13.800	G2	40.0	9.8	26.6	-26.6	1.0100	40.8	0.9710	50.6			1	6		
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9626	11.2	0.8849	13.5			1	6		
302		PASOANCH13.813.800		P1	4.4	2.0	2.0	-2.0	0.9607	5.0	0.9110	6.2			1	6			
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1217	8.5	1.0000	13.5			1	6		
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9965	8.3	0.9701	13.5			1	6		
307		CHAN1 A		13.800	G1	105.9	-6.3	50.0	-50.0	1.0200	104.0	0.9982	118.6			1	6		
308		CHAN1 B		13.800	G2	105.9	-6.3	50.0	-50.0	1.0200	104.0	0.9982	118.6			1	6		
311		PANDO13.8		13.800	G1	14.4	-1.2	10.0	-5.0	1.0100	14.3	0.9963	19.9			1	6		
311		PANDO13.8		13.800	G2	14.4	-1.2	10.0	-5.0	1.0100	14.3	0.9963	19.9			1	6		
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1213	7.9	1.0000	35.3			1	6		
317		MENDRE13.8		13.800	M2	8.9	0.0	4.0	0.0	1.1213	7.9	1.0000	35.3			1	6		
342		LORENA13.8		13.800	G1	16.0	0.0	10.5	0.0	1.0397	15.4	1.0000	19.9			1	6		
342		LORENA13.8		13.800	G2	16.0	0.0	10.5	0.0	1.0397	15.4	1.0000	19.9			1	6		
343		PRUDENCIA13813.800		G1	26.0	-9.8	9.8	-9.8	1.0203	27.2	0.9362	33.0			1	6			
343		PRUDENCIA13813.800		G2	26.0	-9.8	9.8	-9.8	1.0203	27.2	0.9362	33.0			1	6			
521		EGIRAL13.8		113.800	G1	3.7	1.4	2.8	1.3	0.9800	4.1	0.9321	4.8			1	6		
523		TCATIVÁ 13A		13.800	G1	7.6	1.2	6.6	-6.6	0.9800	7.8	0.9873	10.9			1	6		
525		TCOLON 13A		13.800	G1	36.0	10.7	18.4	9.2	1.0000	37.6	0.9584	44.4			1	6		
526		TCOLON 13B		13.800	G2	36.0	15.6	18.4	9.2	1.0100	38.8	0.9180	44.4			1	6		
527		TCOLON 13C		13.800	V1	36.0	15.6	18.4	5.8	1.0100	38.8	0.9180	44.4			1	6		
531		EGIRAL13.8		213.800	G6	7.0	3.2	6.4	3.0	0.9800	7.8	0.9118	10.9			1	6		
SUBSYSTEM TOTALS						1769.8	151.2	1050.6	-518.3				2393.9						



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 PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2016 REGMHTGDC8

MON, JUN 02 2008 19:00

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128		MIR13C		12.000	G3	12.6	4.1	11.0	0.0	1.0100	13.1	0.9518	29.4			2	7	
129		MIR13D		13.800	G4	35.0	3.8	15.0	0.0	1.0100	34.9	0.9942	44.1			2	7	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0137	16.9	1.0000	27.7			2	7	
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0281	17.9	0.9289	23.0			2	7	
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0371	17.8	0.9289	23.0			2	7	
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0371	17.8	0.9289	23.0			2	7	
SUBSYSTEM TOTALS						116.0	28.3	67.5	20.5				170.3					



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 19:00
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2016 REGMHTGDC8 IN MW/MVAR

X--	AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
		29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	SALVADOR	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
		100.8	182.3	-58.1	0.0	219.9	38.4	158.1	
3	HONDURAS	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
		55.9	290.6	-188.3	0.0	302.8	-5.2	261.6	
4	NICA	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
		33.2	224.5	-98.8	0.0	143.2	-96.7	147.4	
5	C.RICA	1172.6	1324.8	0.0	0.0	0.0	-170.8	18.5	-170.0
		243.6	569.4	-237.1	0.0	469.1	43.1	337.3	
6	PANAMA	1769.8	1597.6	0.0	0.0	0.0	112.1	60.1	110.0
		151.2	400.4	-299.8	0.0	586.1	1.3	635.5	
7	ACANAL	116.0	56.4	0.0	0.0	0.0	58.7	0.9	60.0
		28.3	14.1	0.0	0.0	0.0	1.2	12.9	
TOTALS		6862.7	6705.6	0.0	0.0	0.0	0.0	157.1	0.0
		642.8	2030.8	-1148.3	0.0	2133.9	0.0	1894.2	

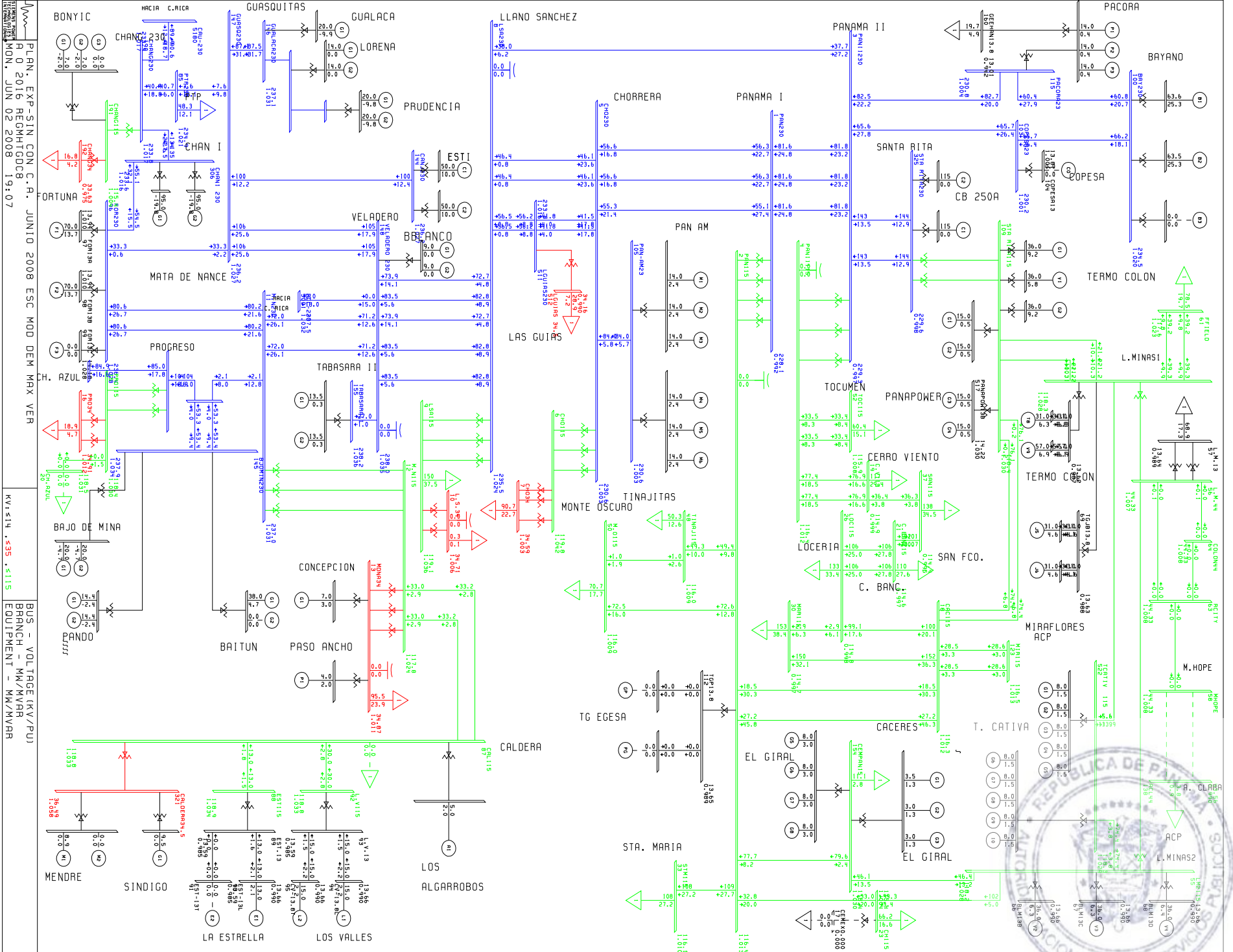


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2016 ESCENARIO MODERADO DEMANDA MAXIMA VERANO**



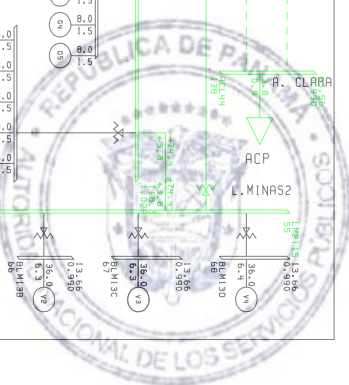
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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 R 0 2016 REGMHGD8
 MON, JUN 02 2008 19:07

KV:14 -35 -115

BUS - VOLTAGE (KV/PUI)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 19:08
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0027	230.63	8		LSA230		230.00	6	1.0241	235.55
11		M.N230		230.00	6	1.0306	237.04	14		PRO230		230.00	6	1.0324	237.46
85		PTP230		230.00	6	1.0211	234.86	96		FOR230		230.00	6	1.0278	236.38
100		BAY230		230.00	6	1.0196	234.50	103		COPESA23		230.00	6	1.0010	230.22
105		PAN-AM23		230.00	6	1.0028	230.64	115		PACORA23		230.00	6	1.0037	230.85
144		CANJ230		230.00	6	1.0271	236.24	145		BJOMIN230		230.00	6	1.0344	237.90
146		GUALACA230		230.00	6	1.0308	237.08	147		GUASQ230		230.00	6	1.0271	236.24
148		VELADERO	230230.00		6	1.0349	238.02	155		TABASARAI		230.00	6	1.0356	238.19
190		CHANG230		230.00	6	1.0167	233.84	306		CHAN1	230	230.00	6	1.0157	233.61
310		CONCEPCION23	230.00		6	1.0334	237.67	341		PRUDENCIA230	230.00		6	1.0364	238.37
345		LORENA230		230.00	6	1.0347	237.98	511		LGUIAS230		230.00	6	1.0164	233.78
6000		FRONTER		230.00	6	1.0326	237.50								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9920	228.15	3		PANII230		230.00	6	0.9971	229.34
325		STA RITA230		230.00	6	0.9982	229.60								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 19:09
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0125	116.44	4		PANII115		115.00	6	1.0119	116.36
6		CHO115		115.00	6	1.0419	119.82	9		LSA115		115.00	6	1.0357	119.10
12		M.N115		115.00	6	1.0242	117.78	15		PRO115		115.00	6	1.0299	118.44
18		CAC115		115.00	6	1.0117	116.34	20		CH.AZUL		115.00	6	1.0307	118.53
23		CH115		115.00	6	1.0036	115.41	33		STM115		115.00	6	1.0098	116.12
48		TINAJ115		115.00	6	1.0087	116.00	50		M.O115		115.00	6	1.0089	116.02
52		TOC115		115.00	6	1.0077	115.88	54		LM115		115.00	6	1.0285	118.27
55		LM2115		115.00	6	1.0282	118.25	61		FFIELD		115.00	6	1.0229	117.64
87		CAL115		115.00	6	1.0327	118.76	88		EST115		115.00	6	1.0336	118.86
92		L.V115		115.00	6	1.0333	118.83	109		STA RITA115		115.00	6	1.0298	118.43
123		MIR115		115.00	7	1.0132	116.51	154		CEMPAN15		115.00	6	1.0296	118.40
191		CHANG115		115.00	6	1.0037	115.42	522		TCATIVÁ	115	115.00	6	1.0286	118.29

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9991	114.89	21		C.BAN115		115.00	6	0.9965	114.60
26		LOC115		115.00	6	0.9983	114.81	30		MAR115		115.00	6	0.9970	114.66
37		SAN115		115.00	6	0.9947	114.39								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 19:09
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
 AÑO 2016 REGMHTGDC8

AREA 6 [PANAMA] MACHINE SUMMARY:



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BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	6.3	25.0	0.0	0.9900	36.9	0.9852	47.0			1	6	
67		BLM13C		13.800	V3	36.0	6.3	25.0	0.0	0.9900	36.9	0.9852	47.0			1	6	
68		BLM13D		13.800	V4	36.0	6.4	25.0	0.0	0.9900	36.9	0.9844	47.0			1	6	
70		TGJB13A		13.800	J5	31.0	4.6	20.0	0.0	0.9900	31.7	0.9890	39.4			1	6	
71		TGJB13B		13.800	J6	31.0	4.6	20.0	0.0	0.9900	31.7	0.9890	39.4			1	6	
72		BLMCCA		13.800	T8	31.0	6.3	20.0	0.0	0.9900	32.0	0.9799	50.0			1	6	
73		BLMCCB		13.800	V9	57.0	6.9	40.0	0.0	0.9900	58.0	0.9927	71.0			1	6	
90		EST-13L		13.800	E1	13.0	2.1	12.0	-5.0	0.9900	13.3	0.9875	27.0			1	6	
94		LV-13.8L		13.800	L1	15.0	2.2	12.0	-5.0	0.9900	15.3	0.9898	27.0			1	6	
95		LV-13.8T		13.800	L2	15.0	2.2	12.0	-5.0	0.9900	15.3	0.9898	27.0			1	6	
97		FOR13A		13.800	F1	70.0	-13.7	50.0	-50.0	1.0100	70.6	0.9814	111.0			1	6	
98		FOR13B		13.800	F2	70.0	-13.7	50.0	-50.0	1.0100	70.6	0.9814	111.0			1	6	
101		BAY13A		13.800	B1	63.6	25.3	50.0	-25.0	1.0000	68.4	0.9289	96.0			1	6	SYST
102		BAY13B		13.800	B2	63.5	25.3	50.0	-25.0	1.0000	68.4	0.9288	96.0			1	6	
106		PANAM13A		13.800	M1	14.0	2.4	9.0	0.0	0.9900	14.3	0.9859	20.7			1	6	
106		PANAM13A		13.800	M2	14.0	2.4	9.0	0.0	0.9900	14.3	0.9859	20.7			1	6	
106		PANAM13A		13.800	M3	14.0	2.4	9.0	0.0	0.9900	14.3	0.9859	20.7			1	6	
107		PANAM13B		13.800	M4	14.0	2.4	9.0	0.0	0.9900	14.3	0.9859	20.7			1	6	
107		PANAM13B		13.800	M5	14.0	2.4	9.0	0.0	0.9900	14.3	0.9859	20.7			1	6	
107		PANAM13B		13.800	M6	14.0	2.4	9.0	0.0	0.9900	14.3	0.9859	20.7			1	6	
116		PACORA13		13.800	P1	14.0	0.4	8.8	0.0	0.9900	14.1	0.9995	21.7			1	6	
116		PACORA13		13.800	P2	14.0	0.4	8.8	0.0	0.9900	14.1	0.9995	21.7			1	6	
116		PACORA13		13.800	P3	14.0	0.4	8.8	0.0	0.9900	14.1	0.9995	21.7			1	6	
117		CB250A-1		13.800	C1	115.0	0.0	75.6	0.0	0.9951	115.6	1.0000	143.5			1	6	
118		CB250A-2		13.800	C2	115.0	0.0	75.6	0.0	0.9951	115.6	1.0000	143.5			1	6	
142		CANJ13A		13.800	C1	50.0	10.0	29.0	-29.0	0.9900	51.5	0.9806	69.0			1	6	
143		CANJ13B		13.800	C2	50.0	10.0	29.0	-29.0	0.9900	51.5	0.9806	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0347	8.7	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0347	8.7	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	20.0	-9.9	10.0	-10.0	1.0200	21.9	0.8965	26.7			1	6	
156		TABASARAI1313.800		13.800	G1	13.5	0.2	5.7	0.2	1.0350	13.0	0.9998	20.5			1	6	
156		TABASARAI1313.800		13.800	G2	13.5	0.2	5.7	0.2	1.0350	13.0	0.9998	20.5			1	6	
193		GEBONYIC		13.800	G1	7.0	-2.0	4.0	-4.0	0.9900	7.4	0.9608	35.3			1	6	
193		GEBONYIC		13.800	G2	7.0	-2.0	4.0	-4.0	0.9900	7.4	0.9608	35.3			1	6	
204		BJOMIN13		13.800	G1	20.0	-4.7	13.0	-13.0	1.0200	20.1	0.9733	28.9			1	6	
204		BJOMIN13		13.800	G2	20.0	-4.7	13.0	-13.0	1.0200	20.1	0.9733	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.0	4.7	26.6	-26.6	0.9900	38.7	0.9923	50.6			1	6	
301		CONC13.8		13.800	G1	7.0	3.0	3.0	-3.0	0.9644	7.9	0.9191	13.5			1	6	
302		PASOANCH13.813.800		13.800	P1	4.0	2.0	2.0	-2.0	0.9638	4.6	0.8944	6.2			1	6	
303		SIND13.8		13.800	G1	9.5	0.0	5.0	0.0	1.1103	8.6	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	5.0	2.0	2.0	0.0	0.9847	5.5	0.9285	13.5			1	6	
307		CHAN1 A		13.800	G1	95.0	-19.8	50.0	-50.0	0.9900	98.0	0.9790	118.6			1	6	
308		CHAN1 B		13.800	G2	95.0	-19.8	50.0	-50.0	0.9900	98.0	0.9790	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-2.4	10.0	-5.0	0.9900	14.7	0.9869	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-2.4	10.0	-5.0	0.9900	14.7	0.9869	19.9			1	6	
317		MENDRE13.8		13.800	M1	8.9	0.0	4.0	0.0	1.1104	8.0	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	14.0	0.0	10.5	0.0	1.0343	13.5	1.0000	19.9			1	6	
342		LORENA13.8		13.800	G2	14.0	0.0	10.5	0.0	1.0343	13.5	1.0000	19.9			1	6	
343		PRUDENCIA13813.800		13.800	G1	20.0	-9.8	9.8	-9.8	1.0145	21.9	0.8987	33.0			1	6	
343		PRUDENCIA13813.800		13.800	G2	20.0	-9.8	9.8	-9.8	1.0145	21.9	0.8987	33.0			1	6	
516		PANAPOW13A		13.800	G1	15.0	0.5	12.5	0.5	1.0302	14.6	0.9994	20.9			1	6	
516		PANAPOW13A		13.800	G2	15.0	0.5	12.5	0.5	1.0302	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G3	15.0	0.5	12.5	0.5	1.0302	14.6	0.9994	20.9			1	6	
517		PANAPOW13B		13.800	G4	15.0	0.5	12.5	0.5	1.0302	14.6	0.9994	20.9			1	6	
521		EGIRAL13.8		113.800	G1	3.5	1.3	2.8	1.3	1.0034	3.7	0.9373	4.8			1	6	
521		EGIRAL13.8		113.800	G2	3.0	1.3	2.8	1.3	1.0034	3.3	0.9173	4.8			1	6	
521		EGIRAL13.8		113.800	G3	3.0	1.3	2.8	1.3	1.0034	3.3	0.9173	4.8			1	6	



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521	EGIRAL13.8	113.800	G4	3.0	1.3	2.8	1.3	1.0034	3.3	0.9173	4.8	1	6
523	TCATIVÁ	13A 13.800	G1	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
523	TCATIVÁ	13A 13.800	G2	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
523	TCATIVÁ	13A 13.800	G3	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
523	TCATIVÁ	13A 13.800	G4	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
523	TCATIVÁ	13A 13.800	G5	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
524	TCATIVÁ	13B 13.800	10	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
524	TCATIVÁ	13B 13.800	G6	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
524	TCATIVÁ	13B 13.800	G7	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
524	TCATIVÁ	13B 13.800	G8	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
524	TCATIVÁ	13B 13.800	G9	8.0	1.5	6.6	-6.6	0.9900	8.2	0.9818	10.9	1	6
525	TCOLON	13A 13.800	G1	36.0	9.2	18.4	9.2	0.9974	37.3	0.9689	44.4	1	6
526	TCOLON	13B 13.800	G2	36.0	9.2	18.4	9.2	0.9974	37.3	0.9688	44.4	1	6
527	TCOLON	13C 13.800	V1	36.0	5.8	18.4	5.8	0.9902	36.8	0.9872	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0039	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0039	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0039	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0039	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				1794.7	90.8	1179.2	-449.7				2574.1		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 19:09
PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER
AÑO 2016 REGMHTGDC8

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	0.3	11.0	0.0	0.9900	12.7	0.9998	29.4	2	7					
129	MIR13D	13.800	G4	35.0	0.0	15.0	0.0	0.9948	35.2	1.0000	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0073	17.0	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0218	18.0	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0309	17.9	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0309	17.9	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	20.7	67.5	20.5				170.3							



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E MON, JUN 02 2008 19:09
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX VER AREA TOTALS
 AÑO 2016 REGMHTGDC8 IN MW/MVAR

X-- AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	100.9	182.3	-58.1	0.0	219.9	38.5	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	56.4	290.6	-188.3	0.0	302.8	-4.8	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	35.3	224.5	-98.7	0.0	143.0	-95.0	147.5	
5	1168.5	1324.8	0.0	0.0	0.0	-174.4	18.1	-174.0
C.RICA	258.2	569.4	-236.3	0.0	467.1	51.0	341.1	
6	1794.7	1643.2	0.0	0.0	0.0	117.3	34.2	114.0
PANAMA	90.8	411.8	-184.4	0.0	575.7	-1.1	440.2	
7	116.0	58.1	0.0	0.0	0.0	57.0	0.9	60.0
ACANAL	20.7	14.6	0.0	0.0	0.0	-6.6	12.8	
TOTALS	6883.5	6752.8	0.0	0.0	0.0	0.0	130.7	0.0
	592.0	2042.7	-1032.0	0.0	2121.4	0.0	1702.7	



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AÑO 2021

Caso 1: REGMHTCB8



de

**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO**



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2021

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0204	234.69	11	M.N230	230.00	6	1.0234	235.38				
14	PRO230	230.00	6	1.0202	234.65	85	PTP230	230.00	6	1.0164	233.77				
96	FOR230	230.00	6	1.0220	235.07	100	BAY230	230.00	6	1.0159	233.65				
144	CANJ230	230.00	6	1.0211	234.84	145	BJOMIN230	230.00	6	1.0274	236.29				
146	GUALACA230	230.00	6	1.0254	235.84	147	GUASQ230	230.00	6	1.0210	234.83				
148	VELADERO	230230.00	6	1.0250	235.75	155	TABASARAI	230.00	6	1.0258	235.93				
190	CHANG230	230.00	6	1.0185	234.25	306	CHAN1	230	6	1.0209	234.81				
310	CONCEPCION	23230.00	6	1.0243	235.59	341	PRUDENCIA	230230.00	6	1.0325	237.48				
345	LORENA230	230.00	6	1.0300	236.91	511	LGUIAS230	230.00	6	1.0072	231.66				
6000	FRONTER	230.00	6	1.0199	234.57										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9805	225.51	3	PANII230	230.00	6	0.9854	226.64				
5	CHO230	230.00	6	0.9901	227.72	103	COPESA23	230.00	6	0.9903	227.77				
105	PAN-AM23	230.00	6	0.9901	227.72	115	PACORA23	230.00	6	0.9922	228.20				
325	STA RITA	230.00	6	0.9949	228.83										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E

TUE, JUN 03 2008 9:17

PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
AÑO 2021

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0127	116.46	4	PANII115	115.00	6	1.0160	116.83				
6	CHO115	115.00	6	1.0296	118.41	9	LSA115	115.00	6	1.0666	122.66				
12	M.N115	115.00	6	1.0148	116.70	15	PRO115	115.00	6	1.0167	116.92				
18	CAC115	115.00	6	1.0116	116.34	20	CH.AZUL	115.00	6	1.0174	117.00				
23	CH115	115.00	6	1.0010	115.11	33	STM115	115.00	6	1.0092	116.06				
48	TINAJ115	115.00	6	1.0078	115.89	50	M.O115	115.00	6	1.0080	115.92				
52	TOC115	115.00	6	1.0107	116.23	54	LM1115	115.00	6	1.0283	118.26				
55	LM2115	115.00	6	1.0279	118.20	61	FFIELD	115.00	6	1.0214	117.46				
87	CAL115	115.00	6	1.0350	119.03	88	EST115	115.00	6	1.0389	119.47				
92	L.V115	115.00	6	1.0365	119.20	109	STA RITA	115.00	6	1.0361	119.16				
123	MIR115	115.00	7	1.0135	116.55	154	CEMPAN15	115.00	6	1.0215	117.48				
191	CHANG115	115.00	6	1.0090	116.04	522	TCATIVÁ	115	6	1.0282	118.24				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9986	114.84	21	C.BAN115	115.00	6	0.9930	114.19				
26	LOC115	115.00	6	0.9952	114.45	30	MAR115	115.00	6	0.9934	114.24				
37	SAN115	115.00	6	0.9909	113.95										



AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66		BLM13B		13.800	V2	36.0	15.6	25.0	0.0	1.0100	38.8	0.9178	47.0			1	6	
67		BLM13C		13.800	V3	36.0	15.6	25.0	0.0	1.0100	38.8	0.9178	47.0			1	6	
68		BLM13D		13.800	V4	36.0	16.2	25.0	0.0	1.0100	39.1	0.9116	47.0			1	6	
90		EST-13L		13.800	E1	21.0	7.1	12.0	-5.0	1.0100	21.9	0.9478	27.0			1	6	
91		EST-13T		13.800	E2	21.0	7.1	12.0	-5.0	1.0100	21.9	0.9478	27.0			1	6	
94		LV-13.8L		13.800	L1	24.0	8.0	12.0	-5.0	1.0100	25.0	0.9489	27.0			1	6	
95		LV-13.8T		13.800	L2	24.0	8.0	12.0	-5.0	1.0100	25.0	0.9489	27.0			1	6	
97		FOR13A		13.800	F1	97.0	-6.0	50.0	-50.0	1.0100	96.2	0.9981	111.0			1	6	
98		FOR13B		13.800	F2	97.0	-6.0	50.0	-50.0	1.0100	96.2	0.9981	111.0			1	6	
99		FOR13C		13.800	F3	97.0	-6.0	50.0	-50.0	1.0100	96.2	0.9981	111.0			1	6	
101		BAY13A		13.800	B1	67.1	20.5	50.0	-25.0	0.9900	70.9	0.9566	96.0			1	6	SYST
102		BAY13B		13.800	B2	67.1	20.5	50.0	-25.0	0.9900	70.8	0.9565	96.0			1	6	
108		BAY13C		13.800	B3	67.1	36.6	50.0	-25.0	1.0100	75.7	0.8782	100.0			1	6	
117		CB250A-1		13.800	C1	115.9	27.0	75.6	0.0	1.0100	117.8	0.9740	143.5			1	6	
118		CB250A-2		13.800	C2	115.9	27.0	75.6	0.0	1.0100	117.8	0.9740	143.5			1	6	
119		CB250B-1		13.800	C1	115.9	12.1	75.6	0.0	1.0000	116.5	0.9946	143.5			1	6	
120		CB250B-2		13.800	C2	115.9	12.1	75.6	0.0	1.0000	116.5	0.9946	143.5			1	6	
121		CB250C-1		13.800	C1	111.0	11.7	75.6	0.0	1.0000	111.6	0.9945	143.5			1	6	
122		CB250C-2		13.800	C2	111.0	11.7	75.6	0.0	1.0000	111.6	0.9945	143.5			1	6	
142		CANJ13A		13.800	C1	59.5	17.6	29.0	-29.0	1.0100	61.4	0.9588	69.0			1	6	
143		CANJ13B		13.800	C2	59.5	17.6	29.0	-29.0	1.0100	61.4	0.9588	69.0			1	6	
149		BBLANCO13.8		13.800	G1	9.0	0.0	6.1	0.0	1.0248	8.8	1.0000	11.6			1	6	
149		BBLANCO13.8		13.800	G2	9.0	0.0	6.1	0.0	1.0248	8.8	1.0000	11.6			1	6	
151		GUALACA13.8		13.800	G1	23.0	-10.0	10.0	-10.0	1.0143	24.7	0.9171	26.7			1	6	
156		TABASARAI1313.800		G1	15.5	0.2	5.7	0.2	1.0246	15.2	0.9999	20.5			1	6		
156		TABASARAI1313.800		G2	15.5	0.2	5.7	0.2	1.0246	15.2	0.9999	20.5			1	6		
193		GEBONYIC		13.800	G1	8.4	0.4	4.0	-4.0	1.0100	8.3	0.9987	35.3			1	6	
193		GEBONYIC		13.800	G2	8.4	0.4	4.0	-4.0	1.0100	8.3	0.9987	35.3			1	6	
193		GEBONYIC		13.800	G3	8.4	0.4	4.0	-4.0	1.0100	8.3	0.9987	35.3			1	6	
204		BJOMIN13		13.800	G1	23.5	-5.5	13.0	-13.0	1.0100	23.9	0.9734	28.9			1	6	
204		BJOMIN13		13.800	G2	23.5	-5.5	13.0	-13.0	1.0100	23.9	0.9734	28.9			1	6	
205		BAITUN13.8		13.800	G1	38.7	14.4	26.6	-26.6	1.0100	40.9	0.9371	50.6			1	6	
205		BAITUN13.8		13.800	G2	38.7	14.4	26.6	-26.6	1.0100	40.9	0.9371	50.6			1	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9620	11.2	0.8849	13.5			1	6	
302		PASOANCH13.813.800		P1	4.5	2.0	2.0	2.0	-2.0	0.9601	5.1	0.9138	6.2			1	6	
303		SIND13.8		13.800	G1	8.4	0.0	5.0	0.0	1.1112	7.5	1.0000	13.5			1	6	
304		ALGA13.8		13.800	A1	8.0	2.0	2.0	0.0	0.9870	8.4	0.9701	13.5			1	6	
305		ELALTO13.8		13.800	G1	18.0	-5.0	12.0	-5.0	1.0037	18.6	0.9635	20.6			1	6	
305		ELALTO13.8		13.800	G2	18.0	-5.0	12.0	-5.0	1.0037	18.6	0.9635	20.6			1	6	
305		ELALTO13.8		13.800	G3	18.0	-5.0	12.0	-5.0	1.0037	18.6	0.9635	20.6			1	6	
307		CHAN1 A		13.800	G1	105.0	-5.0	50.0	-50.0	1.0100	104.1	0.9989	118.6			1	6	
308		CHAN1 B		13.800	G2	105.0	-5.0	50.0	-50.0	1.0100	104.1	0.9989	118.6			1	6	
311		PANDO13.8		13.800	G1	14.4	-0.2	10.0	-5.0	1.0100	14.3	0.9999	19.9			1	6	
311		PANDO13.8		13.800	G2	14.4	-0.2	10.0	-5.0	1.0100	14.3	0.9999	19.9			1	6	
316		MONTE LIRIO		13.800	G1	23.2	-2.6	12.0	-5.0	1.0100	23.2	0.9938	27.0			1	6	
316		MONTE LIRIO		13.800	G2	23.2	-2.6	12.0	-5.0	1.0100	23.2	0.9938	27.0			1	6	
317		MENDRE13.8		13.800	M1	8.7	0.0	4.0	0.0	1.1107	7.8	1.0000	35.3			1	6	
317		MENDRE13.8		13.800	M2	8.7	0.0	4.0	0.0	1.1107	7.8	1.0000	35.3			1	6	
342		LORENA13.8		13.800	G1	16.0	-5.0	10.5	-5.0	1.0187	16.5	0.9545	19.9			1	6	
342		LORENA13.8		13.800	G2	16.0	-5.0	10.5	-5.0	1.0187	16.5	0.9545	19.9			1	6	
343		PRUDENCIA13813.800		G1	26.6	-9.7	9.8	9.8	-9.8	1.0100	28.0	0.9397	33.0			1	6	
343		PRUDENCIA13813.800		G2	26.6	-9.7	9.8	9.8	-9.8	1.0100	28.0	0.9397	33.0			1	6	



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521	EGIRAL13.8	113.800	G1	3.7	1.5	2.8	1.3	0.9800	4.1	0.9265	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	7.6	0.0	0.0	-6.6	0.9772	7.7	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.7	0.0	0.0	-6.6	0.9772	7.9	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.7	0.0	0.0	-6.6	0.9772	7.9	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.7	0.0	0.0	-6.6	0.9772	7.9	1.0000	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	7.7	0.0	0.0	-6.6	0.9772	7.9	1.0000	10.9	1	6
524	TCATIVÁ 13B	13.800	10	7.7	0.0	0.0	-6.6	0.9791	7.9	1.0000	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0033	37.0	0.9689	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	12.4	18.4	9.2	1.0100	37.7	0.9454	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	12.4	18.4	5.8	1.0100	37.7	0.9454	44.4	1	6
SUBSYSTEM TOTALS				2346.6	267.8	1360.0	-589.1				3048.7		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021

AREA 7 [ACANAL] MACHINE SUMMARY:																							
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X	T	R	A	N	GENTAP	ZONE	AREA	SWING	
128		MIR13C		12.000	G3	12.6	4.0	11.0	0.0	1.0100	13.1	0.9531	29.4							2	7		
129		MIR13D		13.800	G4	35.0	3.7	15.0	0.0	1.0100	34.8	0.9945	44.1							2	7		
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0139	16.9	1.0000	27.7							2	7		
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0283	17.9	0.9289	23.0							2	7		
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0374	17.7	0.9289	23.0							2	7		
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0374	17.7	0.9289	23.0							2	7		
SUBSYSTEM TOTALS						116.0	28.2	67.5	20.5				170.3										



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:17
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV AREA TOTALS
 AÑO 2021 IN MW/MVAR

X-- AREA	--X GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
GUATEMAL	29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2	911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0
SALVADOR	101.1	182.3	-58.1	0.0	219.9	38.6	158.1	
3	1006.9	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	56.8	290.6	-188.3	0.0	302.7	-4.4	261.7	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.2	0.0
NICA	36.9	224.5	-98.6	0.0	142.9	-93.7	147.5	
5	1055.0	1324.8	0.0	0.0	0.0	-290.0	20.2	-290.0
C.RICA	271.7	569.4	-236.1	0.0	462.0	60.2	340.2	
6	2346.6	2036.2	0.0	0.0	0.0	246.8	63.6	230.0
PANAMA	267.8	510.3	-383.4	0.0	595.6	-17.8	754.3	
7	116.0	71.9	0.0	0.0	0.0	43.2	0.9	60.0
ACANAL	28.2	18.0	0.0	0.0	0.0	-0.7	10.9	
TOTALS	7321.9	7159.7	0.0	0.0	0.0	0.0	162.2	0.0
	792.1	2144.7	-1230.7	0.0	2136.0	0.0	2014.1	



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO**



de

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:24
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX VER EXPORTA A C.A.
 AÑO 2021

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0205	234.71	11	M.N230	230.00	6	1.0310	237.13				
14	PRO230	230.00	6	1.0301	236.93	85	FTP230	230.00	6	1.0245	235.63				
96	FOR230	230.00	6	1.0296	236.80	100	BAY230	230.00	6	1.0142	233.27				
115	PACORA23	230.00	6	1.0002	230.05	144	CANJ230	230.00	6	1.0304	237.00				
145	BJOMIN230	230.00	6	1.0341	237.84	146	GUALACA230	230.00	6	1.0331	237.62				
147	GUASQ230	230.00	6	1.0303	236.97	148	VELADERO 230	230.00	6	1.0350	238.04				
155	TABASARAI	230.00	6	1.0354	238.14	190	CHANG230	230.00	6	1.0242	235.56				
306	CHAN1 230	230.00	6	1.0251	235.78	310	CONCEPCION23	230.00	6	1.0325	237.48				
325	STA RITA230	230.00	6	1.0004	230.10	341	PRUDENCIA230	230.00	6	1.0377	238.68				
345	LORENA230	230.00	6	1.0361	238.31	511	LGUIAS230	230.00	6	1.0126	232.91				
6000	FRONTER	230.00	6	1.0302	236.94										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9882	227.28	3	PANII230	230.00	6	0.9923	228.22				
5	CHO230	230.00	6	0.9998	229.95	103	COPESA23	230.00	6	0.9959	229.07				
105	PAN-AM23	230.00	6	0.9999	229.98										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:24
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX VER EXPORTA A C.A.
 AÑO 2021

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0067	115.77	4	PANII115	115.00	6	1.0102	116.17				
6	CHO115	115.00	6	1.0396	119.56	9	LSA115	115.00	6	1.0274	118.15				
12	M.N115	115.00	6	1.0202	117.32	15	PRO115	115.00	6	1.0265	118.05				
18	CAC115	115.00	6	1.0056	115.65	20	CH.AZUL	115.00	6	1.0273	118.14				
33	STM115	115.00	6	1.0032	115.36	48	TINAJ115	115.00	6	1.0017	115.19				
50	M.O115	115.00	6	1.0019	115.22	52	TOC115	115.00	6	1.0048	115.56				
54	LM1115	115.00	6	1.0329	118.78	55	LM2115	115.00	6	1.0324	118.72				
61	FFIELD	115.00	6	1.0258	117.97	87	CAL115	115.00	6	1.0347	118.99				
88	EST115	115.00	6	1.0382	119.40	92	L.V115	115.00	6	1.0355	119.08				
109	STA RITA115	115.00	6	1.0347	118.99	123	MIR115	115.00	7	1.0078	115.89				
154	CEMPAN15	115.00	6	1.0300	118.45	191	CHANG115	115.00	6	1.0130	116.49				
522	TCATIVÁ	115.00	6	1.0328	118.78										

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9924	114.12	21	C.BAN115	115.00	6	0.9864	113.44				
23	CH115	115.00	6	0.9974	114.70	26	LOC115	115.00	6	0.9887	113.70				
30	MAR115	115.00	6	0.9869	113.49	37	SAN115	115.00	6	0.9843	113.19				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:25
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX VER EXPORTA A C.A.
 AÑO 2021

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
------	-----	------	-----	-------	----	----	------	------	------	-------	---------	----	---------	-----------	--------	------	------	-------



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66	BLM13B	13.800	V2	38.0	13.8	25.0	0.0	1.0100	40.0	0.9401	47.0	1	6
67	BLM13C	13.800	V3	38.0	13.8	25.0	0.0	1.0100	40.0	0.9401	47.0	1	6
68	BLM13D	13.800	V4	38.0	14.3	25.0	0.0	1.0100	40.2	0.9356	47.0	1	6
70	TGJB13A	13.800	J5	25.0	8.3	20.0	0.0	1.0100	26.1	0.9494	39.4	1	6
71	TGJB13B	13.800	J6	25.0	8.3	20.0	0.0	1.0100	26.1	0.9494	39.4	1	6
72	BLMCCA	13.800	T8	25.0	9.1	20.0	0.0	1.0100	26.4	0.9392	50.0	1	6
73	BLMCCB	13.800	V9	42.7	9.5	40.0	0.0	1.0100	43.3	0.9764	71.0	1	6
90	EST-13L	13.800	E1	14.1	6.9	12.0	-5.0	1.0100	15.5	0.8992	27.0	1	6
91	EST-13T	13.800	E2	14.1	6.9	12.0	-5.0	1.0100	15.5	0.8992	27.0	1	6
94	LV-13.8L	13.800	L1	25.2	8.7	12.0	-5.0	1.0100	26.4	0.9450	27.0	1	6
97	FOR13A	13.800	F1	68.4	-15.5	50.0	-50.0	1.0100	69.4	0.9753	111.0	1	6
98	FOR13B	13.800	F2	68.4	-15.5	50.0	-50.0	1.0100	69.4	0.9753	111.0	1	6
99	FOR13C	13.800	F3	68.4	-15.5	50.0	-50.0	1.0100	69.4	0.9753	111.0	1	6
101	BAY13A	13.800	B1	78.1	22.7	50.0	-25.0	0.9900	82.2	0.9601	96.0	1	6
102	BAY13B	13.800	B2	78.1	22.7	50.0	-25.0	0.9900	82.2	0.9601	96.0	1	6
106	PANAM13A	13.800	M1	15.1	5.8	9.0	0.0	1.0100	16.0	0.9326	20.7	1	6
106	PANAM13A	13.800	M2	15.1	5.8	9.0	0.0	1.0100	16.0	0.9326	20.7	1	6
106	PANAM13A	13.800	M3	15.1	5.8	9.0	0.0	1.0100	16.0	0.9326	20.7	1	6
107	PANAM13B	13.800	M4	15.1	5.8	9.0	0.0	1.0100	16.0	0.9326	20.7	1	6
107	PANAM13B	13.800	M5	15.1	5.8	9.0	0.0	1.0100	16.0	0.9326	20.7	1	6
107	PANAM13B	13.800	M6	15.1	5.8	9.0	0.0	1.0100	16.0	0.9326	20.7	1	6
116	PACORA13	13.800	P1	17.4	5.8	8.8	0.0	1.0100	18.2	0.9486	21.7	1	6
116	PACORA13	13.800	P2	17.4	5.8	8.8	0.0	1.0100	18.2	0.9486	21.7	1	6
116	PACORA13	13.800	P3	17.4	5.8	8.8	0.0	1.0100	18.2	0.9486	21.7	1	6
117	CB250A-1	13.800	C1	115.9	18.7	75.6	0.0	1.0100	116.2	0.9872	143.5	1	6
118	CB250A-2	13.800	C2	115.9	18.7	75.6	0.0	1.0100	116.2	0.9872	143.5	1	6
119	CB250B-1	13.800	C1	115.9	3.9	75.6	0.0	1.0000	116.0	0.9994	143.5	1	6
120	CB250B-2	13.800	C2	115.9	3.9	75.6	0.0	1.0000	116.0	0.9994	143.5	1	6
121	CB250C-1	13.800	C1	115.9	3.9	75.6	0.0	1.0000	116.0	0.9994	143.5	1	6
122	CB250C-2	13.800	C2	115.9	3.9	75.6	0.0	1.0000	116.0	0.9994	143.5	1	6
142	CANJ13A	13.800	C1	43.3	10.6	29.0	-29.0	1.0100	44.1	0.9712	69.0	1	6
143	CANJ13B	13.800	C2	43.3	10.6	29.0	-29.0	1.0100	44.1	0.9712	69.0	1	6
149	BBLANCO13.8	13.800	G1	4.8	0.0	6.1	0.0	1.0349	4.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0277	14.8	0.9447	26.7	1	6
156	TABASARAI13.800	13.800	G1	9.6	0.2	5.7	0.2	1.0357	9.3	0.9997	20.5	1	6
193	GEBONYIC	13.800	G1	8.0	0.0	4.0	-4.0	1.0100	7.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G2	8.0	0.0	4.0	-4.0	1.0100	7.9	1.0000	35.3	1	6
193	GEBONYIC	13.800	G3	8.0	0.0	4.0	-4.0	1.0100	7.9	1.0000	35.3	1	6
204	BJOMIN13	13.800	G1	15.7	-8.4	13.0	-13.0	1.0100	17.6	0.8819	28.9	1	6
204	BJOMIN13	13.800	G2	15.7	-8.4	13.0	-13.0	1.0100	17.6	0.8819	28.9	1	6
205	BAITUN13.8	13.800	G1	34.6	11.5	26.6	-26.6	1.0100	36.1	0.9492	50.6	1	6
205	BAITUN13.8	13.800	G2	34.6	11.5	26.6	-26.6	1.0100	36.1	0.9492	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9637	11.1	0.8849	13.5	1	6
303	SIND13.8	13.800	G1	4.5	0.0	5.0	0.0	1.1127	4.0	1.0000	13.5	1	6
305	ELALTO13.8	13.800	G1	14.0	-5.0	12.0	-5.0	1.0271	14.5	0.9417	20.6	1	6
307	CHAN1 A	13.800	G1	77.3	-11.7	50.0	-50.0	1.0100	77.4	0.9887	118.6	1	6
308	CHAN1 B	13.800	G2	77.3	-11.7	50.0	-50.0	1.0100	77.4	0.9887	118.6	1	6
311	PANDO13.8	13.800	G1	9.6	-1.5	10.0	-5.0	1.0100	9.6	0.9888	19.9	1	6
311	PANDO13.8	13.800	G2	9.6	-1.5	10.0	-5.0	1.0100	9.6	0.9888	19.9	1	6
316	MONTE LIRIO	13.800	G1	13.6	-4.9	12.0	-5.0	1.0100	14.3	0.9412	27.0	1	6
316	MONTE LIRIO	13.800	G2	13.6	-4.9	12.0	-5.0	1.0100	14.3	0.9412	27.0	1	6
317	MENDRE13.8	13.800	M1	6.2	0.0	4.0	0.0	1.1125	5.6	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.2	0.0	4.0	0.0	1.1125	5.6	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.1	-5.0	10.5	-5.0	1.0252	11.9	0.9118	19.9	1	6
342	LORENA13.8	13.800	G2	11.1	-5.0	10.5	-5.0	1.0252	11.9	0.9118	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	19.2	-9.8	9.8	-9.8	1.0160	21.2	0.8910	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	19.2	-9.8	9.8	-9.8	1.0160	21.2	0.8910	33.0	1	6
516	PANAPOWL3A	13.800	G1	12.4	0.5	12.5	0.5	1.0353	12.0	0.9991	20.9	1	6

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516	PANAPOWL3A	13.800	G2	15.8	0.5	12.5	0.5	1.0353	15.3	0.9994	20.9	1	6
517	PANAPOWL3B	13.800	G3	15.8	0.5	12.5	0.5	1.0349	15.3	0.9994	20.9	1	6
517	PANAPOWL3B	13.800	G4	15.8	0.5	12.5	0.5	1.0349	15.3	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0032	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0032	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0032	3.8	0.9404	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0032	3.8	0.9404	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.0	-0.2	6.6	-6.6	0.9800	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.0	-0.2	6.6	-6.6	0.9800	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.0	-0.2	6.6	-6.6	0.9800	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.0	-0.2	6.6	-6.6	0.9800	8.2	0.9998	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.0	-0.2	6.6	-6.6	0.9800	8.2	0.9998	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.0	3.6	6.6	-6.6	1.0100	8.7	0.9132	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.0	3.6	6.6	-6.6	1.0100	8.7	0.9132	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.0	3.6	6.6	-6.6	1.0100	8.7	0.9132	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.0	3.6	6.6	-6.6	1.0100	8.7	0.9132	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.0	3.6	6.6	-6.6	1.0100	8.7	0.9132	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	9.2	18.4	9.2	1.0020	37.1	0.9688	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	13.1	18.4	9.2	1.0100	37.9	0.9401	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	13.1	18.4	5.8	1.0100	37.9	0.9401	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.0	6.4	3.0	1.0042	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.0	6.4	3.0	1.0042	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.0	6.4	3.0	1.0042	8.5	0.9363	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.0	6.4	3.0	1.0042	8.5	0.9363	10.9	1	6
SUBSYSTEM TOTALS				2320.9	232.7	1588.4	-550.6				3403.1		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:25
 PLAN. EXP-SIN JUNIO 2008 ESC MOD DEM MAX VER EXPORTA A C.A.
 Año 2021

AREA 7 [ACANAL] MACHINE SUMMARY:																		
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	4.9	11.0	0.0	1.0100	13.4	0.9324	29.4	2	7					
129	MIR13D	13.800	G4	35.0	5.0	15.0	0.0	1.0100	35.0	0.9898	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0106	16.9	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0250	18.0	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0341	17.8	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0341	17.8	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	30.4	67.5	20.5				170.3							

AÑO 2021

Caso 2: REGMHTGDC8

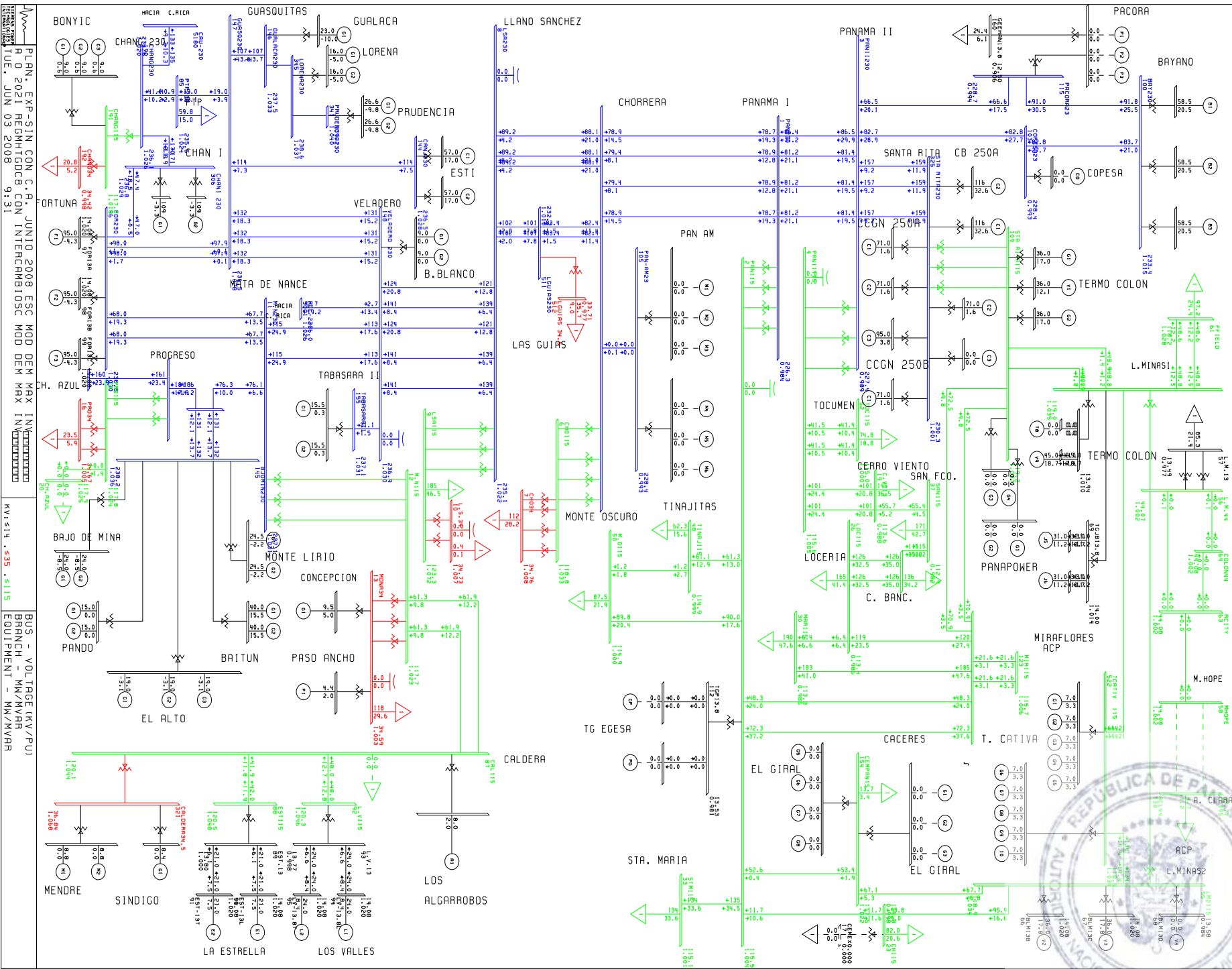


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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA INVIERNO**



de



PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD MAX INV
 R 0 2021 RECOMHTG08 CON INTERCAMBIO SC MOD DEM MAX INV
 TIVE, JUN 03 2008 91.31

BUS - VOLTAGE (KV/PUI)
 BRANCH - MM/MVAR
 EQUIPMENT - MM/MVAR



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PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
8	LSA230	230.00	6	1.0223	235.13	11	M.N230	230.00	6	1.0308	237.09				
14	PRO230	230.00	6	1.0278	236.40	85	PTP230	230.00	6	1.0240	235.52				
96	FOR230	230.00	6	1.0297	236.84	100	BAY230	230.00	6	1.0148	233.41				
144	CANJ230	230.00	6	1.0285	236.55	145	BJOMIN230	230.00	6	1.0356	238.20				
146	GUALACA230	230.00	6	1.0327	237.52	147	GUASQ230	230.00	6	1.0284	236.52				
148	VELADERO	230230.00	6	1.0302	236.94	155	TABASARAI	230.00	6	1.0309	237.12				
190	CHANG230	230.00	6	1.0264	236.08	306	CHAN1	230	230.00	6	1.0294	236.76			
310	CONCEPCION23	230.00	6	1.0321	237.39	325	STA RITA230	230.00	6	1.0013	230.29				
341	PRUDENCIA230	230.00	6	1.0398	239.15	345	LORENA230	230.00	6	1.0373	238.58				
511	LGUIAS230	230.00	6	1.0096	232.20	6000	FRONTER	230.00	6	1.0274	236.29				

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1	PAN230	230.00	6	0.9841	226.33	3	PANII230	230.00	6	0.9888	227.43				
5	CHO230	230.00	6	0.9932	228.44	103	COPESA23	230.00	6	0.9931	228.42				
105	PAN-AM23	230.00	6	0.9932	228.44	115	PACORA23	230.00	6	0.9944	228.72				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:38

PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2	PAN115	115.00	6	1.0042	115.49	4	PANII115	115.00	6	1.0050	115.58				
6	CHO115	115.00	6	1.0330	118.79	9	LSA115	115.00	6	1.0720	123.28				
12	M.N115	115.00	6	1.0231	117.66	15	PRO115	115.00	6	1.0243	117.80				
18	CAC115	115.00	6	1.0033	115.38	20	CH.AZUL	115.00	6	1.0251	117.88				
33	STM115	115.00	6	1.0008	115.09	54	LM115	115.00	6	1.0346	118.98				
55	LM2115	115.00	6	1.0336	118.86	61	FFIELD	115.00	6	1.0277	118.18				
87	CAL115	115.00	6	1.0441	120.07	88	EST115	115.00	6	1.0481	120.53				
92	L.V115	115.00	6	1.0457	120.25	109	STA RITA115	115.00	6	1.0369	119.24				
123	MIR115	115.00	7	1.0064	115.74	154	CEMPAN15	115.00	6	1.0220	117.53				
191	CHANG115	115.00	6	1.0176	117.02	522	TCATIVÁ	115	115.00	6	1.0343	118.95			

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19	C.V115	115.00	6	0.9882	113.65	21	C.BAN115	115.00	6	0.9841	113.17				
23	CH115	115.00	6	0.9981	114.78	26	LOC115	115.00	6	0.9864	113.43				
30	MAR115	115.00	6	0.9848	113.25	37	SAN115	115.00	6	0.9818	112.91				
48	TINAJ115	115.00	6	0.9993	114.92	50	M.O115	115.00	6	0.9995	114.94				
52	TOC115	115.00	6	0.9997	114.97										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:38

PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B	13.800	V2	36.0	17.8	25.0	0.0	1.0200	39.4	0.8968	47.0						1	6



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67	BLM13C	13.800	V3	36.0	17.8	25.0	0.0	1.0200	39.4	0.8968	47.0	1	6
70	TGJB13A	13.800	J5	31.0	11.2	20.0	0.0	1.0200	32.3	0.9402	39.4	1	6
71	TGJB13B	13.800	J6	31.0	11.2	20.0	0.0	1.0200	32.3	0.9402	39.4	1	6
73	BLMCCB	13.800	V9	45.0	18.7	40.0	0.0	1.0200	47.8	0.9237	71.0	1	6
90	EST-13L	13.800	E1	21.0	7.5	12.0	-5.0	1.0200	21.9	0.9418	27.0	1	6
91	EST-13T	13.800	E2	21.0	7.5	12.0	-5.0	1.0200	21.9	0.9418	27.0	1	6
94	LV-13.8L	13.800	L1	24.0	8.4	12.0	-5.0	1.0200	24.9	0.9434	27.0	1	6
95	LV-13.8T	13.800	L2	24.0	8.4	12.0	-5.0	1.0200	24.9	0.9434	27.0	1	6
97	FOR13A	13.800	F1	95.0	-4.3	50.0	-50.0	1.0200	93.2	0.9990	111.0	1	6
98	FOR13B	13.800	F2	95.0	-4.3	50.0	-50.0	1.0200	93.2	0.9990	111.0	1	6
99	FOR13C	13.800	F3	95.0	-4.3	50.0	-50.0	1.0200	93.2	0.9990	111.0	1	6
101	BAY13A	13.800	B1	58.5	20.5	50.0	-25.0	0.9900	62.6	0.9438	96.0	1	6
102	BAY13B	13.800	B2	58.5	20.5	50.0	-25.0	0.9900	62.6	0.9438	96.0	1	6
108	BAY13C	13.800	B3	58.5	20.5	50.0	-25.0	0.9900	62.6	0.9438	100.0	1	6
117	CB250A-1	13.800	C1	115.9	32.6	75.6	0.0	1.0200	118.0	0.9627	143.5	1	6
118	CB250A-2	13.800	C2	115.9	32.6	75.6	0.0	1.0200	118.0	0.9627	143.5	1	6
142	CANJ13A	13.800	C1	57.0	17.0	29.0	-29.0	1.0200	58.3	0.9582	69.0	1	6
143	CANJ13B	13.800	C2	57.0	17.0	29.0	-29.0	1.0200	58.3	0.9582	69.0	1	6
149	BBLANCO13.8	13.800	G1	9.0	0.0	6.1	0.0	1.0300	8.7	1.0000	11.6	1	6
149	BBLANCO13.8	13.800	G2	9.0	0.0	6.1	0.0	1.0300	8.7	1.0000	11.6	1	6
151	GUALACA13.8	13.800	G1	23.0	-10.0	10.0	-10.0	1.0217	24.5	0.9171	26.7	1	6
156	TABASARAI13	13.800	G1	15.5	0.2	5.7	0.2	1.0298	15.1	0.9999	20.5	1	6
156	TABASARAI13	13.800	G2	15.5	0.2	5.7	0.2	1.0298	15.1	0.9999	20.5	1	6
187	CCGN250-A1	13.800	C1	71.0	1.6	50.0	0.0	1.0000	71.0	0.9997	84.0	1	6
188	CCGN250-A2	13.800	C2	71.0	1.6	50.0	0.0	1.0000	71.0	0.9997	84.0	1	6
189	CCGN250-A3	13.800	C3	95.0	3.8	40.0	0.0	1.0000	95.1	0.9992	105.3	1	6
193	GEBONYIC	13.800	G1	9.0	0.6	4.0	-4.0	1.0200	8.8	0.9976	35.3	1	6
193	GEBONYIC	13.800	G2	9.0	0.6	4.0	-4.0	1.0200	8.8	0.9976	35.3	1	6
193	GEBONYIC	13.800	G3	9.0	0.6	4.0	-4.0	1.0200	8.8	0.9976	35.3	1	6
194	CCGN250-B1	13.800	C1	71.0	1.6	50.0	0.0	1.0000	71.0	0.9997	84.0	1	6
195	CCGN250-B2	13.800	C2	71.0	1.6	50.0	0.0	1.0000	71.0	0.9997	84.0	1	6
204	BJOMIN13	13.800	G1	24.0	-8.5	13.0	-13.0	1.0100	25.2	0.9426	28.9	1	6
204	BJOMIN13	13.800	G2	24.0	-8.5	13.0	-13.0	1.0100	25.2	0.9426	28.9	1	6
205	BAITUN13.8	13.800	G1	40.0	15.5	26.6	-26.6	1.0200	42.0	0.9326	50.6	1	6
205	BAITUN13.8	13.800	G2	40.0	15.5	26.6	-26.6	1.0200	42.0	0.9326	50.6	1	6
301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9581	11.2	0.8849	13.5	1	6
302	PASOANCH13.8	13.800	P1	4.4	2.0	2.0	-2.0	0.9562	5.1	0.9110	6.2	1	6
303	SIND13.8	13.800	G1	8.4	0.0	5.0	0.0	1.1210	7.5	1.0000	13.5	1	6
304	ALGA13.8	13.800	A1	8.0	2.0	2.0	0.0	0.9956	8.3	0.9701	13.5	1	6
305	ELALTO13.8	13.800	G1	19.0	-3.1	12.0	-5.0	1.0200	18.9	0.9870	20.6	1	6
305	ELALTO13.8	13.800	G2	19.0	-3.1	12.0	-5.0	1.0200	18.9	0.9870	20.6	1	6
305	ELALTO13.8	13.800	G3	19.0	-3.1	12.0	-5.0	1.0200	18.9	0.9870	20.6	1	6
307	CHANI A	13.800	G1	109.0	-3.3	50.0	-50.0	1.0200	106.9	0.9995	118.6	1	6
308	CHANI B	13.800	G2	109.0	-3.3	50.0	-50.0	1.0200	106.9	0.9995	118.6	1	6
311	PANDO13.8	13.800	G1	15.0	0.0	10.0	-5.0	1.0200	14.7	1.0000	19.9	1	6
311	PANDO13.8	13.800	G2	15.0	0.0	10.0	-5.0	1.0200	14.7	1.0000	19.9	1	6
316	MONTE LIRIO	13.800	G1	24.5	-2.2	12.0	-5.0	1.0200	24.1	0.9962	27.0	1	6
316	MONTE LIRIO	13.800	G2	24.5	-2.2	12.0	-5.0	1.0200	24.1	0.9962	27.0	1	6
317	MENDRE13.8	13.800	M1	8.8	0.0	4.0	0.0	1.1205	7.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	8.8	0.0	4.0	0.0	1.1205	7.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	16.0	-5.0	10.5	-5.0	1.0261	16.3	0.9545	19.9	1	6
342	LORENA13.8	13.800	G2	16.0	-5.0	10.5	-5.0	1.0261	16.3	0.9545	19.9	1	6
343	PRUDENCIA138	13.800	G1	26.6	-9.8	9.8	-9.8	1.0173	27.9	0.9388	33.0	1	6
343	PRUDENCIA138	13.800	G2	26.6	-9.8	9.8	-9.8	1.0173	27.9	0.9388	33.0	1	6
523	TCATIVÁ 13A	13.800	G1	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6

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523	TCATIVÁ	13A	13.800	G5	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
524	TCATIVÁ	13B	13.800	10	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
524	TCATIVÁ	13B	13.800	G6	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
524	TCATIVÁ	13B	13.800	G7	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
524	TCATIVÁ	13B	13.800	G8	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
524	TCATIVÁ	13B	13.800	G9	7.0	3.3	6.6	-6.6	1.0100	7.7	0.9030	10.9	1	6
525	TCOLON	13A	13.800	G1	36.0	17.0	18.4	9.2	1.0200	39.0	0.9044	44.4	1	6
526	TCOLON	13B	13.800	G2	36.0	17.0	18.4	9.2	1.0200	39.0	0.9044	44.4	1	6
527	TCOLON	13C	13.800	V1	36.0	12.1	18.4	5.8	1.0100	37.6	0.9480	44.4	1	6
SUBSYSTEM TOTALS					2346.5	311.6	1415.4	-616.7				3057.6		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

TUE, JUN 03 2008 9:38

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING	
128		MIR13C		12.000	G3	12.6	6.2	11.0	0.0	1.0200	13.8	0.8982	29.4			2	7		
129		MIR13D		13.800	G4	35.0	7.0	15.0	0.0	1.0200	35.0	0.9807	44.1			2	7		
130		MIR13F		13.800	G5	17.1	1.7	8.0	0.0	1.0200	16.9	0.9949	27.7			2	7		
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0307	17.9	0.9289	23.0			2	7		
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0			2	7		
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0397	17.7	0.9289	23.0			2	7		
SUBSYSTEM TOTALS						116.0	35.3	67.5	20.5				170.3						



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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:39
 PLAN. EXP-SIN CON C.A. JUNIO 2008 ESC MOD DEM MAX INV
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOSC MOD DEM MAX INV

X--	AREA	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL	1347.4 29.8	1312.2 349.5	0.0 -266.2	0.0 0.0	0.0 412.9	0.0 17.9	35.2 341.4	0.0
2	SALVADOR	911.8 101.0	902.0 182.3	0.0 -58.1	0.0 0.0	0.0 219.9	0.0 38.5	9.8 158.1	0.0
3	HONDURAS	1006.8 56.5	985.5 290.6	0.0 -188.3	0.0 0.0	0.0 302.8	0.0 -4.7	21.4 261.7	0.0
4	NICA	538.2 35.8	527.1 224.5	0.0 -98.7	0.0 0.0	0.0 143.0	0.0 -94.6	11.1 147.5	0.0
5	C.RICA	1054.1 255.4	1324.8 569.4	0.0 -236.4	0.0 0.0	0.0 465.4	-289.9 58.0	19.1 329.7	-290.0
6	PANAMA	2346.5 311.6	2035.4 510.1	0.0 -332.6	0.0 0.0	0.0 600.3	246.7 -21.5	64.4 755.9	230.0
7	ACANAL	116.0 35.3	71.9 18.0	0.0 0.0	0.0 0.0	0.0 0.0	43.2 6.3	0.9 11.0	60.0
TOTALS		7320.8 825.4	7158.8 2144.4	0.0 -1180.2	0.0 0.0	0.0 2144.2	0.0 0.0	162.0 2005.3	0.0



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**PLAN DE EXPANSION DEL SIN CON CENTROAMERICA JUNIO DEL 2008
AÑO 2021 ESCENARIO MODERADO DEMANDA MAXIMA VERANO**



de

PLAN. EXP-SIN C JUNIO 2008 ESC MOD DEM MAX VERANO
AÑO 2021 REGMHTGDC8 CON INTERCAMBIOS

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	1.0042	230.98	8		LSA230		230.00	6	1.0361	238.31
11		M.N230		230.00	6	1.0357	238.22	14		PRO230		230.00	6	1.0346	237.95
85		PTP230		230.00	6	1.0307	237.05	96		FOR230		230.00	6	1.0347	237.98
100		BAY230		230.00	6	1.0106	232.45	105		PAN-AM23		230.00	6	1.0044	231.00
144		CANJ230		230.00	6	1.0366	238.42	145		BJOMIN230		230.00	6	1.0382	238.80
146		GUALACA230		230.00	6	1.0401	239.22	147		GUASQ230		230.00	6	1.0365	238.40
148		VELADERO 230		230.00	6	1.0449	240.32	155		TABASARAI		230.00	6	1.0455	240.47
190		CHANG230		230.00	6	1.0301	236.92	306		CHAN1 230		230.00	6	1.0311	237.16
310		CONCEPCION23		230.00	6	1.0368	238.46	325		STA RITA230		230.00	6	1.0038	230.88
341		PRUDENCIA230		230.00	6	1.0465	240.70	345		LORENA230		230.00	6	1.0441	240.14
511		LGUIAS230		230.00	6	1.0237	235.45	6000		FRONTER		230.00	6	1.0347	237.99

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9890	227.46	3		PANII230		230.00	6	0.9926	228.29
103		COPESA23		230.00	6	0.9957	229.02	115		PACORA23		230.00	6	0.9996	229.90

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E

TUE, JUN 03 2008 9:46

PLAN. EXP-SIN C JUNIO 2008 ESC MOD DEM MAX VERANO
AÑO 2021 REGMHTGDC8 CON INTERCAMBIOS

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
2		PAN115		115.00	6	1.0052	115.60	4		PANII115		115.00	6	1.0059	115.67
6		CHO115		115.00	6	1.0444	120.11	9		LSA115		115.00	6	1.0679	122.80
12		M.N115		115.00	6	1.0193	117.22	15		PRO115		115.00	6	1.0310	118.57
18		CAC115		115.00	6	1.0042	115.48	20		CH.AZUL		115.00	6	1.0318	118.65
33		STM115		115.00	6	1.0017	115.19	48		TINAJ115		115.00	6	1.0001	115.02
50		M.O115		115.00	6	1.0004	115.04	52		TOC115		115.00	6	1.0005	115.05
54		LM115		115.00	6	1.0362	119.16	55		LM2115		115.00	6	1.0356	119.10
61		FFIELD		115.00	6	1.0292	118.36	87		CAL115		115.00	6	1.0293	118.37
88		EST115		115.00	6	1.0304	118.49	92		L.V115		115.00	6	1.0302	118.47
109		STA RITA115		115.00	6	1.0376	119.32	123		MIR115		115.00	7	1.0064	115.73
154		CEMPAN15		115.00	6	1.0326	118.75	191		CHANG115		115.00	6	1.0171	116.97
522		TCATIVÁ 115		115.00	6	1.0362	119.16								

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)	BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
19		C.V115		115.00	6	0.9888	113.71	21		C.BAN115		115.00	6	0.9845	113.22
23		CH115		115.00	6	0.9977	114.74	26		LOC115		115.00	6	0.9869	113.49
30		MAR115		115.00	6	0.9852	113.30	37		SAN115		115.00	6	0.9822	112.95



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:46
 PLAN. EXP-SIN C JUNIO 2008 ESC MOD DEM MAX VERANO
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOS
 AREA 6 [PANAMA] MACHINE SUMMARY:

BUS#	X-- NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
66	BLM13B		13.800	V2	38.0	12.4	25.0	0.0	1.0100	39.6	0.9510	47.0			1	6	
67	BLM13C		13.800	V3	38.0	12.4	25.0	0.0	1.0100	39.6	0.9510	47.0			1	6	
68	BLM13D		13.800	V4	38.0	12.8	25.0	0.0	1.0100	39.7	0.9474	47.0			1	6	
70	TGJB13A		13.800	J5	31.0	8.0	20.0	0.0	1.0100	31.7	0.9680	39.4			1	6	
71	TGJB13B		13.800	J6	31.0	8.0	20.0	0.0	1.0100	31.7	0.9680	39.4			1	6	
72	BLMCCA		13.800	T8	31.0	9.0	20.0	0.0	1.0100	32.0	0.9606	50.0			1	6	
73	BLMCCB		13.800	V9	47.0	9.3	40.0	0.0	1.0100	47.4	0.9810	71.0			1	6	
90	EST-13L		13.800	E1	15.0	3.1	12.0	-5.0	0.9900	15.5	0.9790	27.0			1	6	
94	LV-13.8L		13.800	L1	25.0	10.4	12.0	-5.0	1.0100	26.8	0.9238	27.0			1	6	
97	FOR13A		13.800	F1	68.0	-20.3	50.0	-50.0	1.0100	70.2	0.9584	111.0			1	6	
98	FOR13B		13.800	F2	68.0	-20.3	50.0	-50.0	1.0100	70.2	0.9584	111.0			1	6	
99	FOR13C		13.800	F3	68.0	-20.3	50.0	-50.0	1.0100	70.2	0.9584	111.0			1	6	
101	BAY13A		13.800	B1	63.6	16.2	50.0	-25.0	0.9800	67.0	0.9692	96.0			1	6	SYST
102	BAY13B		13.800	B2	54.2	15.4	50.0	-25.0	0.9800	57.5	0.9619	96.0			1	6	
106	PANAM13A		13.800	M1	15.2	5.2	9.0	0.0	1.0100	15.9	0.9458	20.7			1	6	
106	PANAM13A		13.800	M2	15.2	5.2	9.0	0.0	1.0100	15.9	0.9458	20.7			1	6	
106	PANAM13A		13.800	M3	15.2	5.2	9.0	0.0	1.0100	15.9	0.9458	20.7			1	6	
107	PANAM13B		13.800	M4	15.2	5.2	9.0	0.0	1.0100	15.9	0.9458	20.7			1	6	
107	PANAM13B		13.800	M5	15.2	5.2	9.0	0.0	1.0100	15.9	0.9458	20.7			1	6	
107	PANAM13B		13.800	M6	15.2	5.2	9.0	0.0	1.0100	15.9	0.9458	20.7			1	6	
116	PACORA13		13.800	P1	17.4	5.9	8.8	0.0	1.0100	18.2	0.9466	21.7			1	6	
116	PACORA13		13.800	P2	17.4	5.9	8.8	0.0	1.0100	18.2	0.9466	21.7			1	6	
116	PACORA13		13.800	P3	17.4	5.9	8.8	0.0	1.0100	18.2	0.9466	21.7			1	6	
117	CB250A-1		13.800	C1	115.9	13.7	75.6	0.0	1.0100	115.6	0.9931	143.5			1	6	
118	CB250A-2		13.800	C2	115.9	13.7	75.6	0.0	1.0100	115.6	0.9931	143.5			1	6	
142	CANJ13A		13.800	C1	43.3	9.6	29.0	-29.0	1.0100	43.9	0.9763	69.0			1	6	
143	CANJ13B		13.800	C2	43.3	9.6	29.0	-29.0	1.0100	43.9	0.9763	69.0			1	6	
149	BBLANCO13.8		13.800	G1	4.8	0.0	6.1	0.0	1.0448	4.6	1.0000	11.6			1	6	
149	BBLANCO13.8		13.800	G2	4.8	0.0	6.1	0.0	1.0448	4.6	1.0000	11.6			1	6	
151	GUALACA13.8		13.800	G1	14.4	-5.0	10.0	-5.0	1.0347	14.7	0.9447	26.7			1	6	
156	TABASARAI13		13.800	G1	9.6	0.2	5.7	0.2	1.0458	9.2	0.9997	20.5			1	6	
156	TABASARAI13		13.800	G2	9.6	0.2	5.7	0.2	1.0458	9.2	0.9997	20.5			1	6	
187	CCGN250-A1		13.800	C1	71.0	8.4	50.0	0.0	1.0100	70.8	0.9931	84.0			1	6	
188	CCGN250-A2		13.800	C2	71.0	8.4	50.0	0.0	1.0100	70.8	0.9931	84.0			1	6	
189	CCGN250-A3		13.800	C3	95.0	10.6	40.0	0.0	1.0100	94.6	0.9939	105.3			1	6	
193	GEBONYIC		13.800	G1	8.0	-0.5	4.0	-4.0	1.0100	7.9	0.9982	35.3			1	6	
193	GEBONYIC		13.800	G2	8.0	-0.5	4.0	-4.0	1.0100	7.9	0.9982	35.3			1	6	
193	GEBONYIC		13.800	G3	8.0	-0.5	4.0	-4.0	1.0100	7.9	0.9982	35.3			1	6	
194	CCGN250-B1		13.800	C1	71.0	8.4	50.0	0.0	1.0100	70.8	0.9931	84.0			1	6	
195	CCGN250-B2		13.800	C2	71.0	8.4	50.0	0.0	1.0100	70.8	0.9931	84.0			1	6	
196	CCGN250-B3		13.800	C3	95.0	10.6	40.0	0.0	1.0100	94.6	0.9939	105.3			1	6	
204	BJOMIN13		13.800	G1	15.7	-9.7	13.0	-13.0	1.0105	18.3	0.8504	28.9			1	6	
204	BJOMIN13		13.800	G2	15.7	-9.7	13.0	-13.0	1.0105	18.3	0.8504	28.9			1	6	
205	BAITUN13.8		13.800	G1	34.6	9.9	26.6	-26.6	1.0100	35.6	0.9613	50.6			1	6	
205	BAITUN13.8		13.800	G2	34.6	9.9	26.6	-26.6	1.0100	35.6	0.9613	50.6			1	6	
301	CONC13.8		13.800	G1	2.5	0.0	0.0	-5.0	0.9559	2.6	1.0000	13.5			1	6	
302	PASOANCH13.8		13.800	P1	4.3	2.0	2.0	-2.0	0.9572	5.0	0.9067	6.2			1	6	
303	SIND13.8		13.800	G1	4.5	0.0	5.0	0.0	1.1068	4.1	1.0000	13.5			1	6	
304	ALGA13.8		13.800	A1	2.5	0.0	0.0	0.0	0.9803	2.6	1.0000	13.5			1	6	
305	ELALTO13.8		13.800	G1	8.0	0.0	12.0	0.0	1.0380	7.7	1.0000	20.6			1	6	
305	ELALTO13.8		13.800	G2	8.0	0.0	12.0	0.0	1.0380	7.7	1.0000	20.6			1	6	
307	CHAN1 A		13.800	G1	99.7	-15.6	50.0	-50.0	1.0100	99.9	0.9880	118.6			1	6	
311	PANDO13.8		13.800	G1	15.0	-1.0	10.0	-5.0	1.0100	14.9	0.9977	19.9			1	6	



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311	PANDO13.8	13.800	G2	15.0	-1.0	10.0	-5.0	1.0100	14.9	0.9977	19.9	1	6
316	MONTE LIRIO	13.800	G1	27.0	-4.6	12.0	-5.0	1.0100	27.1	0.9858	27.0	1	6
316	MONTE LIRIO	13.800	G2	27.0	-4.6	12.0	-5.0	1.0100	27.1	0.9858	27.0	1	6
317	MENDRE13.8	13.800	M1	6.5	0.0	4.0	0.0	1.1065	5.9	1.0000	35.3	1	6
317	MENDRE13.8	13.800	M2	6.5	0.0	4.0	0.0	1.1065	5.9	1.0000	35.3	1	6
342	LORENA13.8	13.800	G1	11.5	-5.0	10.5	-5.0	1.0332	12.1	0.9171	19.9	1	6
342	LORENA13.8	13.800	G2	11.5	-5.0	10.5	-5.0	1.0332	12.1	0.9171	19.9	1	6
343	PRUDENCIA13813.800	13.800	G1	26.6	-9.8	9.8	-9.8	1.0242	27.7	0.9388	33.0	1	6
343	PRUDENCIA13813.800	13.800	G2	26.6	-9.8	9.8	-9.8	1.0242	27.7	0.9388	33.0	1	6
516	PANAPOW13A	13.800	G1	15.8	0.5	12.5	0.5	1.0377	15.2	0.9994	20.9	1	6
516	PANAPOW13A	13.800	G2	15.8	0.5	12.5	0.5	1.0377	15.2	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G3	15.8	0.5	12.5	0.5	1.0377	15.2	0.9994	20.9	1	6
517	PANAPOW13B	13.800	G4	15.8	0.5	12.5	0.5	1.0377	15.2	0.9994	20.9	1	6
521	EGIRAL13.8	113.800	G1	3.6	1.5	2.8	1.3	1.0100	3.9	0.9199	4.8	1	6
521	EGIRAL13.8	113.800	G2	3.6	1.5	2.8	1.3	1.0100	3.9	0.9199	4.8	1	6
521	EGIRAL13.8	113.800	G3	3.6	1.5	2.8	1.3	1.0100	3.9	0.9199	4.8	1	6
521	EGIRAL13.8	113.800	G4	3.6	1.5	2.8	1.3	1.0100	3.9	0.9199	4.8	1	6
523	TCATIVÁ 13A	13.800	G1	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
523	TCATIVÁ 13A	13.800	G2	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
523	TCATIVÁ 13A	13.800	G3	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
523	TCATIVÁ 13A	13.800	G4	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
523	TCATIVÁ 13A	13.800	G5	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
524	TCATIVÁ 13B	13.800	10	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
524	TCATIVÁ 13B	13.800	G6	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
524	TCATIVÁ 13B	13.800	G7	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
524	TCATIVÁ 13B	13.800	G8	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
524	TCATIVÁ 13B	13.800	G9	8.3	3.2	6.6	-6.6	1.0100	8.8	0.9331	10.9	1	6
525	TCOLON 13A	13.800	G1	36.0	11.8	18.4	9.2	1.0100	37.5	0.9506	44.4	1	6
526	TCOLON 13B	13.800	G2	36.0	11.8	18.4	9.2	1.0100	37.5	0.9506	44.4	1	6
527	TCOLON 13C	13.800	V1	36.0	11.8	18.4	5.8	1.0100	37.5	0.9506	44.4	1	6
531	EGIRAL13.8	213.800	G5	8.0	3.4	6.4	3.0	1.0100	8.6	0.9204	10.9	1	6
531	EGIRAL13.8	213.800	G6	8.0	3.4	6.4	3.0	1.0100	8.6	0.9204	10.9	1	6
531	EGIRAL13.8	213.800	G7	8.0	3.4	6.4	3.0	1.0100	8.6	0.9204	10.9	1	6
531	EGIRAL13.8	213.800	G8	8.0	3.4	6.4	3.0	1.0100	8.6	0.9204	10.9	1	6
SUBSYSTEM TOTALS				2322.4	235.8	1524.9	-492.3				3302.4		

AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA	SWING
128	MIR13C	12.000	G3	12.6	5.1	11.0	0.0	1.0100	13.4	0.9277	29.4	2	7					
129	MIR13D	13.800	G4	35.0	5.3	15.0	0.0	1.0100	35.1	0.9886	44.1	2	7					
130	MIR13F	13.800	G5	17.1	0.1	8.0	0.0	1.0100	16.9	1.0000	27.7	2	7					
170	MIR13G	13.800	M1	17.1	6.8	11.2	6.8	1.0243	18.0	0.9289	23.0	2	7					
171	MIR13H	13.800	M1	17.1	6.8	11.2	6.8	1.0334	17.8	0.9289	23.0	2	7					
171	MIR13H	13.800	M2	17.1	6.8	11.2	6.8	1.0334	17.8	0.9289	23.0	2	7					
SUBSYSTEM TOTALS				116.0	30.9	67.5	20.5				170.3							

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUN 03 2008 9:46
 PLAN. EXP-SIN C JUNIO 2008 ESC MOD DEM MAX VERANO AREA TOTALS
 AÑO 2021 REGMHTGDC8 CON INTERCAMBIOS IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	LOSSES	DESIRED NET INT
1	GUATEMAL		1347.4	1312.2	0.0	0.0	0.0	0.0	35.2	0.0
			29.8	349.5	-266.2	0.0	412.9	17.9	341.4	
2			911.8	902.0	0.0	0.0	0.0	0.0	9.8	0.0



SALVADOR	100.9	182.3	-58.1	0.0	219.9	38.4	158.1	
3	1006.8	985.5	0.0	0.0	0.0	0.0	21.4	0.0
HONDURAS	56.1	290.6	-188.3	0.0	302.8	-5.0	261.6	
4	538.2	527.1	0.0	0.0	0.0	0.0	11.1	0.0
NICA	34.0	224.5	-98.8	0.0	143.1	-96.0	147.4	
5	1100.0	1324.8	0.0	0.0	0.0	-240.0	15.2	-240.0
C.RICA	221.2	569.4	-236.5	0.0	470.2	52.4	306.1	
6	2322.4	2080.1	0.0	0.0	0.0	198.4	43.8	180.0
PANAMA	235.8	521.3	-250.4	0.0	611.3	-9.4	585.6	
7	116.0	73.5	0.0	0.0	0.0	41.6	0.9	60.0
ACANAL	30.9	18.4	0.0	0.0	0.0	1.7	10.8	
TOTALS	7342.7	7205.2	0.0	0.0	0.0	0.0	137.5	0.0
	708.7	2156.0	-1098.2	0.0	2160.1	0.0	1811.0	



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