

ANEXO 24

RESULTADOS DE FLUJOS DE POTENCIA

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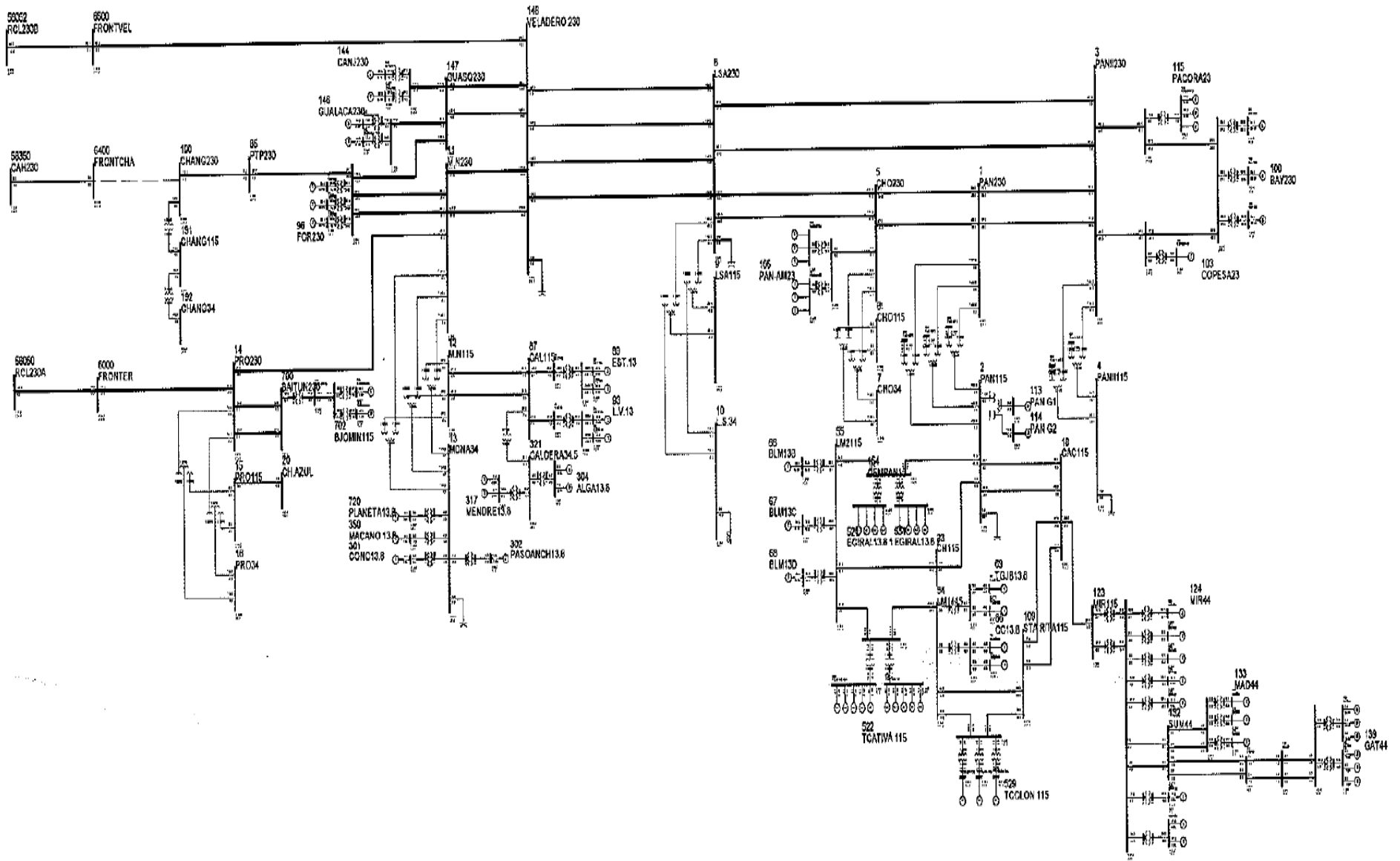
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1. AÑO 2010

1.1. Demanda Máxima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 10:49

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	1.0055	231.26	14		PRO230		230.00	6	1.0154	233.53
96		FOR230		230.00	6	1.0020	230.46	100		BAY230		230.00	6	1.0287	236.61
103		COPESA23		230.00	6	1.0010	230.24	115		PACORA23		230.00	6	1.0068	231.57
144		CANJ230		230.00	6	1.0019	230.43	146		GUALACA230		230.00	6	1.0032	230.73
147		GUASQ230		230.00	6	1.0019	230.44	148		VELADERO	230	230.00	6	1.0025	230.59
700		BAITUN230		230.00	6	1.0154	233.54	6000		FRONTER		230.00	6	1.0166	233.81
6400		FRONTCHA		230.00	6	1.0382	238.80	6500		FRONTVEL		230.00	6	1.0192	234.41

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	0.9905	227.83	3		PANII230		230.00	6	0.9957	229.01
5		CHO230		230.00	6	0.9887	227.40	8		LSA230		230.00	6	0.9927	228.32
85		PTP230		230.00	6	0.9882	227.28	105		PAN-AM23		230.00	6	0.9887	227.40
190		CHANG230		230.00	6	0.9852	226.59								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 10:49

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)
9		LSA115		115.00	6	1.0343	118.95	15		PRO115		115.00	6	1.0172	116.98
20		CH.AZUL		115.00	6	1.0179	117.06	54		LM1115		115.00	6	1.0217	117.50
55		LM2115		115.00	6	1.0227	117.61	61		FFIELD		115.00	6	1.0189	117.18
87		CAL115		115.00	6	1.0109	116.25	88		EST115		115.00	6	1.0141	116.62
92		L.V115		115.00	6	1.0121	116.40	109		STA RITA115		115.00	6	1.0187	117.15
154		CEMPAN15		115.00	6	1.0131	116.51	522		TCATIVÁ	115	115.00	6	1.0224	117.58
529		TCOLON	115	115.00	6	1.0202	117.32								

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)
2		PAN115		115.00	6	0.9928	114.18	4		PANII115		115.00	6	0.9982	114.79
6		CHO115		115.00	6	0.9899	113.83	12		M.N115		115.00	6	0.9979	114.75
18		CAC115		115.00	6	0.9927	114.16	19		C.V115		115.00	6	0.9889	113.73
21		C.BAN115		115.00	6	0.9843	113.19	23		CH115		115.00	6	0.9972	114.68
26		LOC115		115.00	6	0.9852	113.30	30		MAR115		115.00	6	0.9840	113.16

33	STM115	115.00	6	0.9911	113.98	37	SAN115	115.00	6	0.9834	113.09
48	TINAJ115	115.00	6	0.9907	113.93	50	M.O115	115.00	6	0.9908	113.94
52	TOC115	115.00	6	0.9957	114.50	123	MIR115	115.00	7	0.9997	114.96
191	CHANG115	115.00	6	0.9809	112.81	701	BAITUN115	115.00	6	0.9932	114.22
702	BJOMIN115	115.00	6	0.9951	114.44						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 10:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO

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
6		66		BLM13B	V2	13.800	38.0	13.3	25.0	0.0	1.0000	40.3	0.9436	47.0		62
6		67		BLM13C	V3	13.800	38.0	13.3	25.0	0.0	1.0000	40.3	0.9436	47.0		62
6		68		BLM13D	V4	13.800	38.0	13.9	25.0	0.0	1.0000	40.5	0.9394	47.0		62
6		90		EST-13L	E1	13.800	22.8	5.1	12.0	-5.0	0.9800	23.9	0.9755	27.0		64
6		91		EST-13T	E2	13.800	22.8	5.1	12.0	-5.0	0.9800	23.9	0.9755	27.0		64
6		94		LV-13.8L	L1	13.800	25.6	5.9	12.0	-5.0	0.9800	26.9	0.9742	27.0		64
6		95		LV-13.8T	L2	13.800	25.6	5.9	12.0	-5.0	0.9800	26.9	0.9742	27.0		64
6		97		FOR13A	F1	13.800	93.4	-14.7	50.0	-50.0	0.9800	96.5	0.9878	111.0		64
6		98		FOR13B	F2	13.800	93.4	-14.7	50.0	-50.0	0.9800	96.5	0.9878	111.0		64
6		99		FOR13C	F3	13.800	93.4	-14.7	50.0	-50.0	0.9800	96.5	0.9878	111.0		64
6		101		BAY13A	B1	13.800	58.5	26.1	50.0	-25.0	1.0100	63.5	0.9131	96.0		61
6		102		BAY13B	B2	13.800	56.6	26.0	50.0	-25.0	1.0100	61.7	0.9089	96.0		61
6		108		BAY13C	B3	13.800	56.6	26.0	50.0	-25.0	1.0100	61.7	0.9089	100.0		61
6		116		PACORA13	P1	13.800	14.5	5.2	8.8	0.0	1.0200	15.1	0.9406	21.7		61
6		116		PACORA13	P2	13.800	17.5	6.3	8.8	0.0	1.0200	18.2	0.9406	21.7		61
6		142		CANJ13A	C1	13.800	57.0	15.1	29.0	-29.0	0.9800	60.2	0.9665	69.0		64
6		143		CANJ13B	C2	13.800	57.0	15.1	29.0	-29.0	0.9800	60.2	0.9665	69.0		64

6	150	GUALACA	13-213.800	G2	14.0	-2.9	7.4	-7.4	0.9900	14.4	0.9796	14.8	64	
6	151	GUALACA	13.8	13.800	G1	14.0	-2.9	7.4	-7.4	0.9900	14.4	0.9796	14.8	64
6	301	CONC	13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9691	11.1	0.8849	13.5	64
6	302	PASOANCH	13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9672	5.3	0.9216	6.2	64
6	304	ALGA	13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.0705	5.0	0.9063	5.7	64
6	304	ALGA	13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.0705	5.0	0.9063	5.7	64
6	317	MENDRE	13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0725	8.8	1.0000	35.3	64
6	317	MENDRE	13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0725	8.8	1.0000	35.3	64
6	350	MACANO	13.8	13.800	G1	3.3	-1.0	2.0	-1.0	1.0638	3.2	0.9560	6.2	64
6	523	TCATIVÁ	13A	13.800	G1	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	523	TCATIVÁ	13A	13.800	G2	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	523	TCATIVÁ	13A	13.800	G3	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	523	TCATIVÁ	13A	13.800	G4	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	523	TCATIVÁ	13A	13.800	G5	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	524	TCATIVÁ	13B	13.800	G0	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	524	TCATIVÁ	13B	13.800	G6	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	524	TCATIVÁ	13B	13.800	G7	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	524	TCATIVÁ	13B	13.800	G8	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	524	TCATIVÁ	13B	13.800	G9	6.3	3.4	6.6	-6.6	1.0000	7.1	0.8769	10.9	62
6	703	BJOMIN	13A	13.800	G1	25.0	1.5	13.0	-13.0	0.9900	25.3	0.9983	30.5	64
6	704	BJOMIN	13B	13.800	G2	25.0	1.5	13.0	-13.0	0.9900	25.3	0.9983	30.5	64
6	720	PLANETA	13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9672	5.1	0.9138	6.2	64
6	SUBSYSTEM TOTALS					1000.0	173.5	620.6	-423.9				1369.6	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO

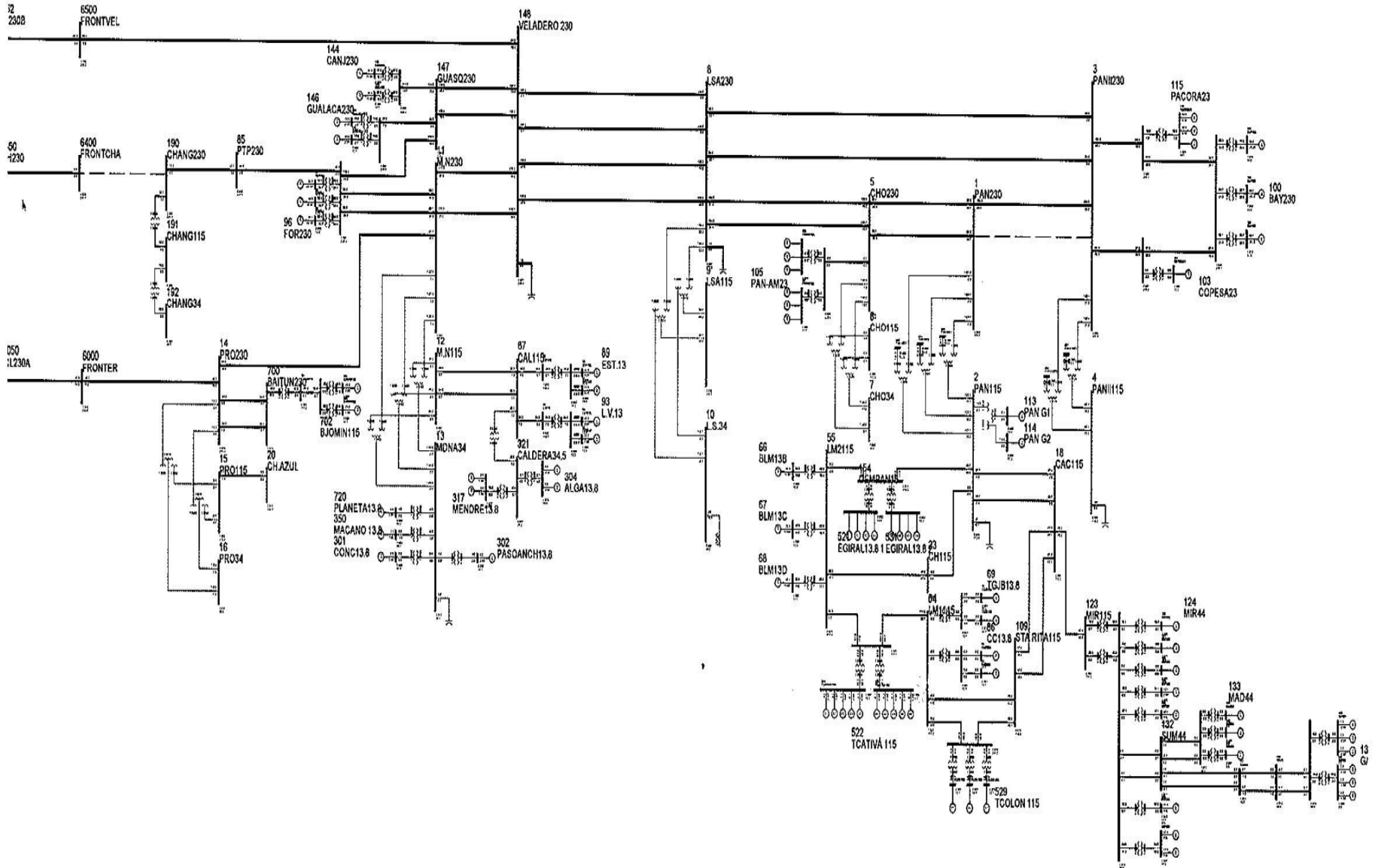
MON, MAY 24 2010 10:49

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																
129		MIR13D		13.800	G4	13.1	2.2	15.0	0.0	1.0000	13.3	0.9865	44.1			65
7		AREA														
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0138	16.9	1.0000	27.7			65
7																
140		GAT6A		6.9000	G1	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9099	4.1			65
7																
140		GAT6A		6.9000	G2	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9099	4.1			65
7																
140		GAT6A		6.9000	G3	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9099	4.1			65
7																
141		GAT6B		6.9000	G4	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9213	5.6			65
7																
141		GAT6B		6.9000	G5	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9213	6.2			65
7																
141		GAT6B		6.9000	G6	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9213	6.2			65
7																
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0282	17.8	0.9281	23.0			65
7																
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0372	17.7	0.9281	23.0			65
7																
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0372	17.7	0.9281	23.0			65
7																
SUBSYSTEM TOTALS						98.6	15.1	71.5	5.5				171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 10:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO 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	1374.7	1330.8	0.0	0.0	0.0	0.0	43.9	0.0
GUATEMAL	200.7	275.1	-198.7	0.0	277.7	0.0	402.0	
2	868.7	855.0	0.0	0.0	0.0	0.0	13.7	0.0
SALVADOR	73.2	224.2	-70.8	0.0	229.1	-26.1	175.0	
3	1236.8	1203.0	0.0	0.0	0.0	0.0	33.8	0.0
HONDURAS	461.5	321.1	-47.3	0.0	294.0	54.2	427.6	
4	532.0	525.2	0.0	0.0	0.0	0.0	6.8	0.0
NICARAGU	33.0	207.6	-57.8	0.0	182.3	-47.3	112.7	
5	1348.6	1280.2	0.0	0.0	0.0	49.5	18.9	49.0
COSTA RI	218.1	520.4	-230.5	0.0	418.4	19.3	327.2	
6	1000.0	1065.9	0.0	0.0	0.0	-108.7	42.8	-109.0
PANAMA	173.5	216.4	-64.2	0.0	443.9	2.6	462.6	
7	98.6	38.9	0.0	0.0	0.0	59.2	0.5	60.0
ACANAL	15.1	7.9	0.0	0.0	0.0	-2.7	9.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6459.4	6299.0	0.0	0.0	0.0	0.0	160.4	0.0
	1175.0	1772.6	-669.2	0.0	1845.3	0.0	1917.0	

1.1.1. Contingencia Panamá – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:01
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	1.0047	231.08	14	PRO230	230.00	6	1.0146	233.36				
96	FOR230	230.00	6	1.0014	230.32	100	BAY230	230.00	6	1.0285	236.55				
103	COPESA23	230.00	6	1.0007	230.15	115	PACORA23	230.00	6	1.0065	231.49				
144	CANJ230	230.00	6	1.0011	230.26	146	GUALACA230	230.00	6	1.0024	230.56				
147	GUASQ230	230.00	6	1.0011	230.26	148	VELADERO 230	230.00	6	1.0013	230.30				
700	BAITUN230	230.00	6	1.0147	233.37	6000	FRONTER	230.00	6	1.0158	233.64				
6400	FRONTCHA	230.00	6	1.0380	238.75	6500	FRONTVEL	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	0.9860	226.78	3	PANII230	230.00	6	0.9953	228.91				
5	CHO230	230.00	6	0.9845	226.43	8	LSA230	230.00	6	0.9908	227.89				
85	PTP230	230.00	6	0.9875	227.13	105	PAN-AM23	230.00	6	0.9845	226.43				
190	CHANG230	230.00	6	0.9845	226.44										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:01
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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)
9	LSA115	115.00	6	1.0323	118.72	15	PRO115	115.00	6	1.0164	116.89				
20	CH.AZUL	115.00	6	1.0172	116.98	54	LM115	115.00	6	1.0201	117.31				
55	LM2115	115.00	6	1.0211	117.42	61	FFIELD	115.00	6	1.0173	116.99				
87	CAL115	115.00	6	1.0106	116.22	88	EST115	115.00	6	1.0138	116.59				
92	L.V115	115.00	6	1.0118	116.36	109	STA RITA115	115.00	6	1.0169	116.94				
154	CEMPAN15	115.00	6	1.0109	116.26	522	TCATIVÁ 115	115.00	6	1.0208	117.39				
529	TCOLON 115	115.00	6	1.0185	117.13										

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)
2	PAN115	115.00	6	0.9894	113.78	4	PANII115	115.00	6	0.9971	114.66				
6	CHO115	115.00	6	0.9857	113.35	12	M.N115	115.00	6	0.9974	114.70				
18	CAC115	115.00	6	0.9892	113.76	19	C.V115	115.00	6	0.9870	113.51				

6	142	CANJ13A	13.800	C1	57.0	15.3	29.0	-29.0	0.9800	60.2	0.9659	69.0	64
6	143	CANJ13B	13.800	C2	57.0	15.3	29.0	-29.0	0.9800	60.2	0.9659	69.0	64
6	150	GUALACA 13-213.800	13.800	G2	14.0	-2.7	7.4	-7.4	0.9900	14.4	0.9821	14.8	64
6	151	GUALACA13.8	13.800	G1	14.0	-2.7	7.4	-7.4	0.9900	14.4	0.9821	14.8	64
6	301	CONC13.8	13.800	G1	9.5	5.0	5.0	-5.0	0.9683	11.1	0.8850	13.5	64
6	302	PASOANCH13.813.800	13.800	P1	4.8	2.0	2.0	-2.0	0.9664	5.3	0.9217	6.2	64
6	304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.0701	5.0	0.9063	5.7	64
6	304	ALGA13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.0701	5.0	0.9063	5.7	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0722	8.8	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0722	8.8	1.0000	35.3	64
6	350	MACANO 13.8	13.800	G1	3.3	-1.0	2.0	-1.0	1.0630	3.2	0.9560	6.2	64
6	523	TCATIVÁ 13A	13.800	G1	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	523	TCATIVÁ 13A	13.800	G5	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	6.3	3.6	6.6	-6.6	1.0000	7.2	0.8655	10.9	62
6	703	BJOMIN13A	13.800	G1	25.0	1.5	13.0	-13.0	0.9900	25.3	0.9981	30.5	64
6	704	BJOMIN13B	13.800	G2	25.0	1.5	13.0	-13.0	0.9900	25.3	0.9981	30.5	64
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9664	5.1	0.9138	6.2	64

SUBSYSTEM TOTALS 1000.3 181.1 620.6 -423.9 1369.6

 PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:01
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

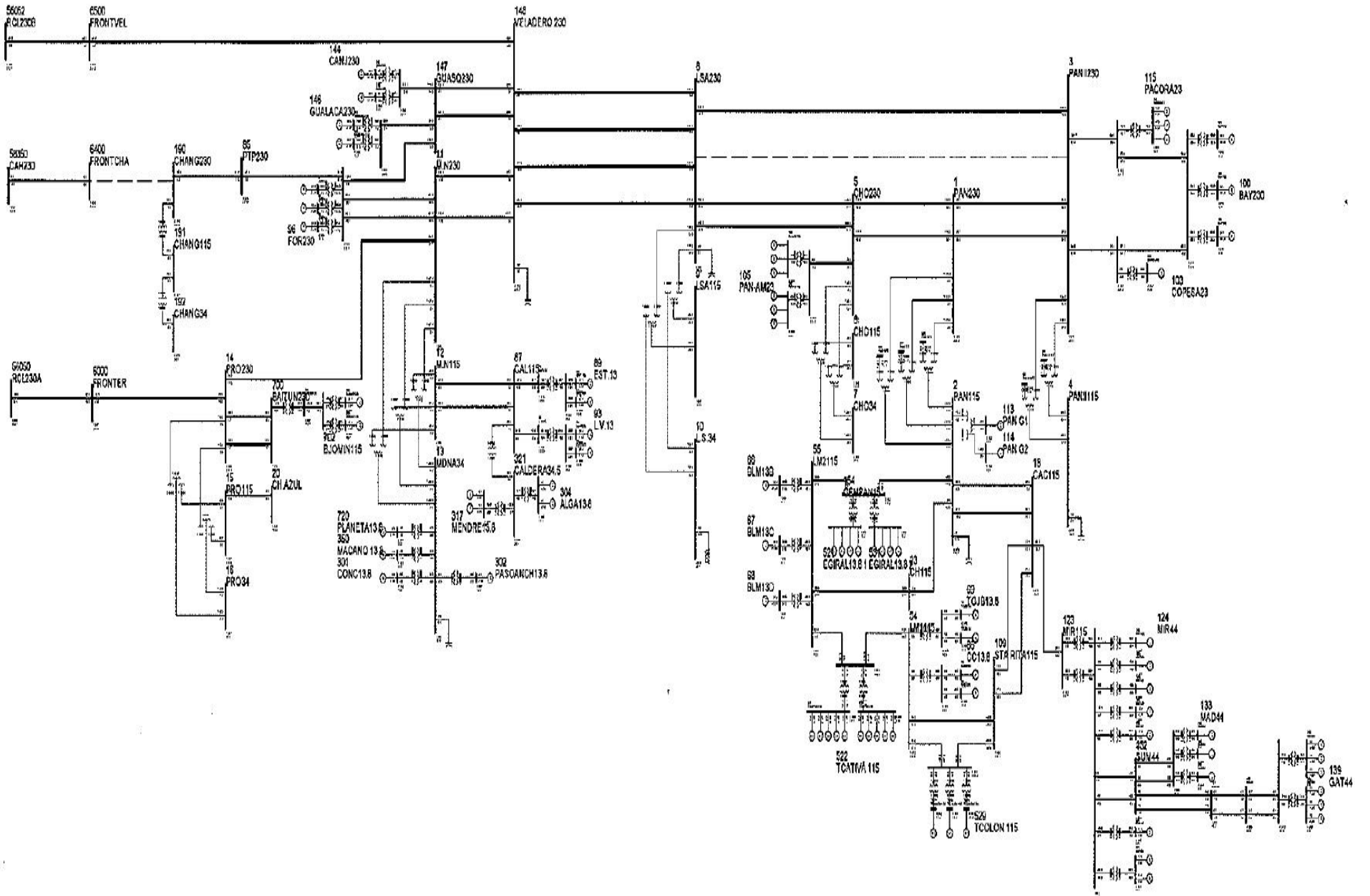
AREA 7 [ACANAL] MACHINE SUMMARY:

	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING	129		MIR13D		13.800	G4	13.1	2.9	15.0	0.0	1.0000	13.4	0.9757	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0119	16.9	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9201	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9201	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9201	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9263	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9263	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9263	6.2			65
7	170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0263	17.9	0.9281	23.0			65
7	171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0354	17.7	0.9281	23.0			65
7	171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0354	17.7	0.9281	23.0			65
7	SUBSYSTEM TOTALS							98.6	16.2	71.5	5.5			171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:20
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII 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	1375.0	1330.8	0.0	0.0	0.0	0.3	43.9	0.0
GUATEMAL	200.7	275.1	-198.7	0.0	277.7	0.0	402.0	
2	868.8	855.0	0.0	0.0	0.0	0.1	13.7	0.0
SALVADOR	73.2	224.2	-70.8	0.0	229.1	-26.1	175.1	
3	1236.9	1203.0	0.0	0.0	0.0	0.1	33.8	0.0
HONDURAS	461.6	321.1	-47.3	0.0	294.0	54.2	427.7	
4	532.0	525.2	0.0	0.0	0.0	0.0	6.8	0.0
NICARAGU	33.0	207.6	-57.8	0.0	182.3	-47.3	112.7	
5	1348.8	1280.2	0.0	0.0	0.0	49.6	19.0	49.0
COSTA RI	218.9	520.4	-230.4	0.0	418.3	19.6	327.6	
6	1000.3	1065.9	0.0	0.0	0.0	-109.4	43.8	-109.0
PANAMA	181.1	216.4	-63.8	0.0	440.0	1.3	467.2	
7	98.6	38.9	0.0	0.0	0.0	59.2	0.5	60.0
ACANAL	16.2	7.9	0.0	0.0	0.0	-1.6	9.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6460.4	6299.0	0.0	0.0	0.0	0.0	161.4	0.0
	1184.6	1772.6	-668.8	0.0	1841.3	0.0	1922.1	

1.1.2. Contingencia Llano Sánchez – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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)
14		PRO230		230.00	6	1.0055	231.27	100		BAY230		230.00	6	1.0165	233.81
700		BAITUN230		230.00	6	1.0057	231.31	6000		FRONTER		230.00	6	1.0067	231.54
6400		FRONTCHA		230.00	6	1.0356	238.20	6500		FRONTVEL		230.00	6	1.0082	231.90

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	0.9693	222.94	3		PANII230		230.00	6	0.9750	224.26
5		CHO230		230.00	6	0.9637	221.66	8		LSA230		230.00	6	0.9672	222.45
11		M.N230		230.00	6	0.9951	228.86	85		PTP230		230.00	6	0.9795	225.28
96		FOR230		230.00	6	0.9936	228.53	103		COPESA23		230.00	6	0.9817	225.79
105		PAN-AM23		230.00	6	0.9637	221.66	115		PACORA23		230.00	6	0.9893	227.54
144		CANJ230		230.00	6	0.9919	228.14	146		GUALACA230		230.00	6	0.9933	228.46
147		GUASQ230		230.00	6	0.9919	228.13	148		VELADERO	230	230.00	6	0.9857	226.70
190		CHANG230		230.00	6	0.9764	224.58								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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)
9		LSA115		115.00	6	1.0067	115.77	15		PRO115		115.00	6	1.0073	115.84
20		CH.AZUL		115.00	6	1.0081	115.93	54		LM1115		115.00	6	1.0132	116.52
55		LM2115		115.00	6	1.0143	116.64	61		FFIELD		115.00	6	1.0105	116.20
87		CAL115		115.00	6	1.0067	115.77	88		EST115		115.00	6	1.0103	116.19
92		L.V115		115.00	6	1.0081	115.93	109		STA RITA115		115.00	6	1.0092	116.05
154		CEMPAN15		115.00	6	1.0019	115.21	522		TCATIVÁ	115	115.00	6	1.0140	116.61
529		TCOLON	115	115.00	6	1.0112	116.29								

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)
2		PAN115		115.00	6	0.9748	112.10	4		PANII115		115.00	6	0.9779	112.45

6	CHO115	115.00	6	0.9649	110.97	12	M.N115	115.00	6	0.9916	114.04
18	CAC115	115.00	6	0.9747	112.09	19	C.V115	115.00	6	0.9690	111.44
21	C.BAN115	115.00	6	0.9657	111.06	23	CH115	115.00	6	0.9831	113.05
26	LOC115	115.00	6	0.9667	111.18	30	MAR115	115.00	6	0.9657	111.06
33	STM115	115.00	6	0.9730	111.89	37	SAN115	115.00	6	0.9647	110.94
48	TINAJ115	115.00	6	0.9725	111.84	50	M.O115	115.00	6	0.9726	111.85
52	TOC115	115.00	6	0.9753	112.16	123	MIR115	115.00	7	0.9834	113.09
191	CHANG115	115.00	6	0.9722	111.80	701	BAITUN115	115.00	6	0.9871	113.51
702	BJOMIN115	115.00	6	0.9895	113.79						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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	17.0	25.0	0.0	1.0000	41.6	0.9133	47.0			62	6
67		BLM13C		13.800	V3	38.0	17.0	25.0	0.0	1.0000	41.6	0.9133	47.0			62	6
68		BLM13D		13.800	V4	38.0	17.7	25.0	0.0	1.0000	41.9	0.9069	47.0			62	6
90		EST-13L		13.800	E1	22.8	6.2	12.0	-5.0	0.9800	24.2	0.9648	27.0			64	6
91		EST-13T		13.800	E2	22.8	6.2	12.0	-5.0	0.9800	24.2	0.9648	27.0			64	6
94		LV-13.8L		13.800	L1	25.7	7.1	12.0	-5.0	0.9800	27.2	0.9639	27.0			64	6
95		LV-13.8T		13.800	L2	25.7	7.1	12.0	-5.0	0.9800	27.2	0.9639	27.0			64	6
97		FOR13A		13.800	F1	93.6	-7.2	50.0	-50.0	0.9800	95.8	0.9971	111.0			64	6
98		FOR13B		13.800	F2	93.6	-7.2	50.0	-50.0	0.9800	95.8	0.9971	111.0			64	6
99		FOR13C		13.800	F3	93.6	-7.2	50.0	-50.0	0.9800	95.8	0.9971	111.0			64	6
101		BAY13A		13.800	B1	58.8	35.3	50.0	-25.0	1.0100	67.9	0.8570	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	56.8	35.2	50.0	-25.0	1.0100	66.2	0.8501	96.0			61	6
108		BAY13C		13.800	B3	56.8	35.2	50.0	-25.0	1.0100	66.2	0.8501	100.0			61	6
116		PACORA13		13.800	P1	14.5	8.8	8.8	0.0	1.0137	16.8	0.8543	21.7			61	6
116		PACORA13		13.800	P2	17.5	8.8	8.8	0.0	1.0137	19.4	0.8929	21.7			61	6
142		CANJ13A		13.800	C1	57.1	16.8	29.0	-29.0	0.9800	60.8	0.9592	69.0			64	6
143		CANJ13B		13.800	C2	57.1	16.8	29.0	-29.0	0.9800	60.8	0.9592	69.0			64	6
150		GUALACA	13-213.800	G2	14.0	-0.4	7.4	7.4	-7.4	0.9900	14.1	0.9995	14.8			64	6
151		GUALACA	13.8	G1	14.0	-0.4	7.4	7.4	-7.4	0.9900	14.1	0.9995	14.8			64	6
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9589	11.2	0.8854	13.5			64	6
302		PASOANCH	13.8	P1	4.8	2.0	2.0	2.0	-2.0	0.9570	5.4	0.9219	6.2			64	6
304		ALGA13.8		13.800	A1	4.8	-2.3	2.3	-2.3	1.0658	5.0	0.9063	5.7			64	6
304		ALGA13.8		13.800	A2	4.8	-2.3	2.3	-2.3	1.0658	5.0	0.9063	5.7			64	6
317		MENDRE	13.8	M1	9.5	0.0	0.0	0.0	0.0	1.0679	8.9	1.0000	35.3			64	6
317		MENDRE	13.8	M2	9.5	0.0	0.0	0.0	0.0	1.0679	8.9	1.0000	35.3			64	6
350		MACANO	13.8	G1	3.3	-1.0	2.0	2.0	-1.0	1.0526	3.2	0.9562	6.2			64	6

523	TCATIVÁ	13A	13.800	G1	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
523	TCATIVÁ	13A	13.800	G2	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
523	TCATIVÁ	13A	13.800	G3	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
523	TCATIVÁ	13A	13.800	G4	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
523	TCATIVÁ	13A	13.800	G5	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
524	TCATIVÁ	13B	13.800	G0	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
524	TCATIVÁ	13B	13.800	G6	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
524	TCATIVÁ	13B	13.800	G7	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
524	TCATIVÁ	13B	13.800	G8	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
524	TCATIVÁ	13B	13.800	G9	6.3	4.4	6.6	-6.6	1.0000	7.7	0.8168	10.9	62	6
703	BJOMIN13A		13.800	G1	25.1	2.3	13.0	-13.0	0.9900	25.4	0.9958	30.5	64	6
704	BJOMIN13B		13.800	G2	25.1	2.3	13.0	-13.0	0.9900	25.4	0.9958	30.5	64	6
720	PLANETA13.8		13.800	G1	4.5	2.0	2.0	-2.0	0.9570	5.1	0.9138	6.2	64	6
SUBSYSTEM TOTALS					1002.1	265.4	620.6	-423.9				1369.6		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

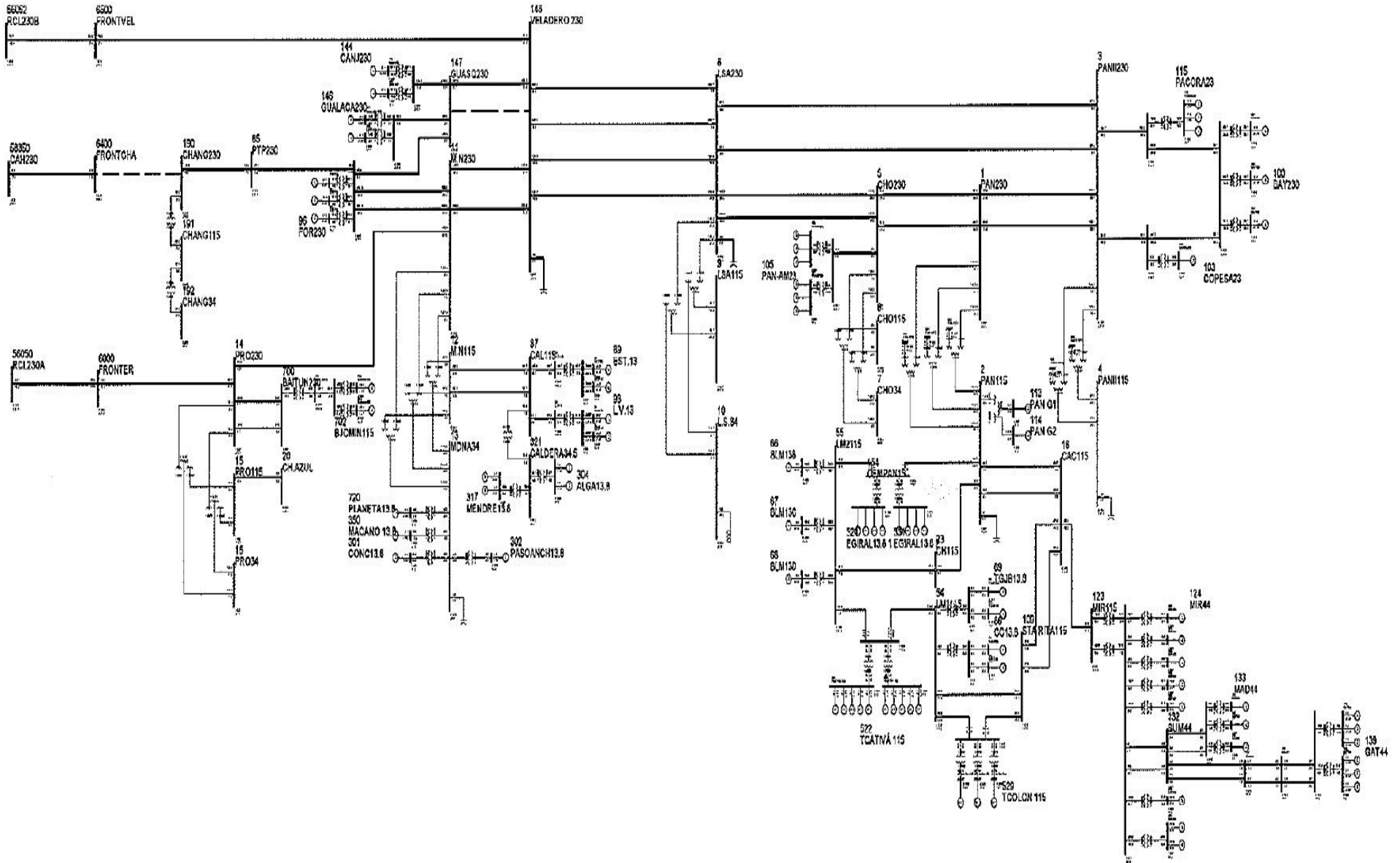
AREA 7 [ACANAL] MACHINE SUMMARY:

BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	13.2	6.2	15.0	0.0	1.0000	14.5	0.9053	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0038	17.1	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9582	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9582	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9582	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9462	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9462	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9462	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0184	18.0	0.9284	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0275	17.9	0.9284	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0275	17.9	0.9284	23.0			65	7
SUBSYSTEM TOTALS						98.8	20.9	71.5	5.5				171.3				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:37
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII 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	1377.4	1330.8	0.0	0.0	0.0	2.6	44.0	0.0
GUATEMAL	201.0	275.1	-198.6	0.0	277.7	-0.4	402.6	
2	869.7	855.0	0.0	0.0	0.0	1.0	13.7	0.0
SALVADOR	73.3	224.2	-70.8	0.0	229.1	-26.3	175.3	
3	1237.6	1203.0	0.0	0.0	0.0	0.8	33.9	0.0
HONDURAS	461.7	321.1	-47.3	0.0	294.0	54.1	427.9	
4	532.3	525.2	0.0	0.0	0.0	0.2	6.8	0.0
NICARAGU	33.3	207.6	-57.7	0.0	182.2	-47.2	113.0	
5	1350.0	1280.2	0.0	0.0	0.0	50.6	19.3	49.0
COSTA RI	227.5	520.4	-230.1	0.0	417.2	23.5	330.8	
6	1002.1	1065.9	0.0	0.0	0.0	-114.6	50.8	-109.0
PANAMA	265.4	216.4	-62.6	0.0	393.8	-6.5	511.9	
7	98.8	38.9	0.0	0.0	0.0	59.4	0.5	60.0
ACANAL	20.9	7.9	0.0	0.0	0.0	2.7	10.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6468.0	6299.0	0.0	0.0	0.0	0.0	169.0	0.0
	1283.1	1772.6	-667.2	0.0	1793.9	0.0	1971.7	

1.1.3. Contingencia Guasquitas - Veladero



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:39
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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)
14		PRO230		230.00	6	1.0067	231.53	100		BAY230		230.00	6	1.0254	235.84
115		PACORA23		230.00	6	1.0021	230.48	700		BAITUN230		230.00	6	1.0068	231.57
6000		FRONTER		230.00	6	1.0078	231.80	6400		FRONTCHA		230.00	6	1.0360	238.28
6500		FRONTVEL		230.00	6	1.0096	232.21								

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	0.9846	226.46	3		PANII230		230.00	6	0.9900	227.69
5		CHO230		230.00	6	0.9815	225.74	8		LSA230		230.00	6	0.9817	225.80
11		M.N230		230.00	6	0.9962	229.13	85		PTP230		230.00	6	0.9811	225.66
96		FOR230		230.00	6	0.9952	228.89	103		COPESA23		230.00	6	0.9957	229.01
105		PAN-AM23		230.00	6	0.9815	225.74	144		CANJ230		230.00	6	0.9937	228.55
146		GUALACA230		230.00	6	0.9951	228.87	147		GUASQ230		230.00	6	0.9937	228.54
148		VELADERO		230230.00	6	0.9896	227.61	190		CHANG230		230.00	6	0.9781	224.96

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:39
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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)
9		LSA115		115.00	6	1.0225	117.59	15		PRO115		115.00	6	1.0085	115.97
20		CH.AZUL		115.00	6	1.0092	116.06	54		LM1115		115.00	6	1.0194	117.23
55		LM2115		115.00	6	1.0203	117.34	61		FFIELD		115.00	6	1.0166	116.91
87		CAL115		115.00	6	1.0072	115.83	88		EST115		115.00	6	1.0108	116.24
92		L.V115		115.00	6	1.0086	115.99	109		STA RITA115		115.00	6	1.0160	116.84
154		CEMPAN15		115.00	6	1.0100	116.15	522		TCATIVÁ		115.00	6	1.0201	117.31
529		TCOLON		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)
2		PAN115		115.00	6	0.9878	113.60	4		PANII115		115.00	6	0.9926	114.15

6	CHO115	115.00	6	0.9827	113.01	12	M.N115	115.00	6	0.9923	114.12
18	CAC115	115.00	6	0.9877	113.58	19	C.V115	115.00	6	0.9834	113.09
21	C.BAN115	115.00	6	0.9791	112.60	23	CH115	115.00	6	0.9933	114.23
26	LOC115	115.00	6	0.9801	112.71	30	MAR115	115.00	6	0.9789	112.58
33	STM115	115.00	6	0.9860	113.40	37	SAN115	115.00	6	0.9782	112.49
48	TINAJ115	115.00	6	0.9856	113.34	50	M.O115	115.00	6	0.9857	113.36
52	TOC115	115.00	6	0.9900	113.85	123	MIR115	115.00	7	0.9951	114.44
191	CHANG115	115.00	6	0.9738	111.99	701	BAITUN115	115.00	6	0.9878	113.60
702	BJOMIN115	115.00	6	0.9901	113.87						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:39
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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	14.4	25.0	0.0	1.0000	40.6	0.9356	47.0			62	6
67		BLM13C		13.800	V3	38.0	14.4	25.0	0.0	1.0000	40.6	0.9356	47.0			62	6
68		BLM13D		13.800	V4	38.0	14.9	25.0	0.0	1.0000	40.8	0.9308	47.0			62	6
90		EST-13L		13.800	E1	22.8	6.1	12.0	-5.0	0.9800	24.1	0.9661	27.0			64	6
91		EST-13T		13.800	E2	22.8	6.1	12.0	-5.0	0.9800	24.1	0.9661	27.0			64	6
94		LV-13.8L		13.800	L1	25.7	7.0	12.0	-5.0	0.9800	27.1	0.9651	27.0			64	6
95		LV-13.8T		13.800	L2	25.7	7.0	12.0	-5.0	0.9800	27.1	0.9651	27.0			64	6
97		FOR13A		13.800	F1	93.5	-8.6	50.0	-50.0	0.9800	95.9	0.9958	111.0			64	6
98		FOR13B		13.800	F2	93.5	-8.6	50.0	-50.0	0.9800	95.9	0.9958	111.0			64	6
99		FOR13C		13.800	F3	93.5	-8.6	50.0	-50.0	0.9800	95.9	0.9958	111.0			64	6
101		BAY13A		13.800	B1	58.7	28.7	50.0	-25.0	1.0100	64.6	0.8985	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	56.7	28.5	50.0	-25.0	1.0100	62.9	0.8936	96.0			61	6
108		BAY13C		13.800	B3	56.7	28.5	50.0	-25.0	1.0100	62.9	0.8936	100.0			61	6
116		PACORA13		13.800	P1	14.5	6.4	8.8	0.0	1.0200	15.5	0.9146	21.7			61	6
116		PACORA13		13.800	P2	17.5	7.7	8.8	0.0	1.0200	18.8	0.9146	21.7			61	6
142		CANJ13A		13.800	C1	57.1	16.5	29.0	-29.0	0.9800	60.6	0.9605	69.0			64	6
143		CANJ13B		13.800	C2	57.1	16.5	29.0	-29.0	0.9800	60.6	0.9605	69.0			64	6
150		GUALACA	13-213.800	G2	14.0	-0.9	7.4	-7.4	0.9900	14.2	0.9981	14.8			64	6	
151		GUALACA	13.8	G1	14.0	-0.9	7.4	-7.4	0.9900	14.2	0.9981	14.8			64	6	
301		CONC13.8		13.800	G1	9.5	5.0	5.0	-5.0	0.9600	11.2	0.8852	13.5			64	6
302		PASOANCH	13.8	P1	4.8	2.0	2.0	-2.0	0.9581	5.4	0.9218	6.2			64	6	
304		ALGA13.8		13.800	A1	4.8	-2.3	2.3	-2.3	1.0664	5.0	0.9063	5.7			64	6
304		ALGA13.8		13.800	A2	4.8	-2.3	2.3	-2.3	1.0664	5.0	0.9063	5.7			64	6
317		MENDRE	13.8	M1	9.4	0.0	0.0	0.0	0.0	1.0684	8.8	1.0000	35.3			64	6
317		MENDRE	13.8	M2	9.4	0.0	0.0	0.0	0.0	1.0684	8.8	1.0000	35.3			64	6
350		MACANO	13.8	G1	3.3	-1.0	2.0	-1.0	1.0538	3.2	0.9561	6.2			64	6	

523	TCATIVÁ	13A	13.800	G1	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
523	TCATIVÁ	13A	13.800	G2	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
523	TCATIVÁ	13A	13.800	G3	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
523	TCATIVÁ	13A	13.800	G4	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
523	TCATIVÁ	13A	13.800	G5	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
524	TCATIVÁ	13B	13.800	G0	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
524	TCATIVÁ	13B	13.800	G6	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
524	TCATIVÁ	13B	13.800	G7	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
524	TCATIVÁ	13B	13.800	G8	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
524	TCATIVÁ	13B	13.800	G9	6.3	3.7	6.6	-6.6	1.0000	7.3	0.8605	10.9	62	6
703	BJOMIN13A		13.800	G1	25.0	2.2	13.0	-13.0	0.9900	25.4	0.9962	30.5	64	6
704	BJOMIN13B		13.800	G2	25.0	2.2	13.0	-13.0	0.9900	25.4	0.9962	30.5	64	6
720	PLANETA13.8		13.800	G1	4.5	2.0	2.0	-2.0	0.9581	5.1	0.9138	6.2	64	6
SUBSYSTEM TOTALS					1001.3	220.2	620.6	-423.9				1369.6		

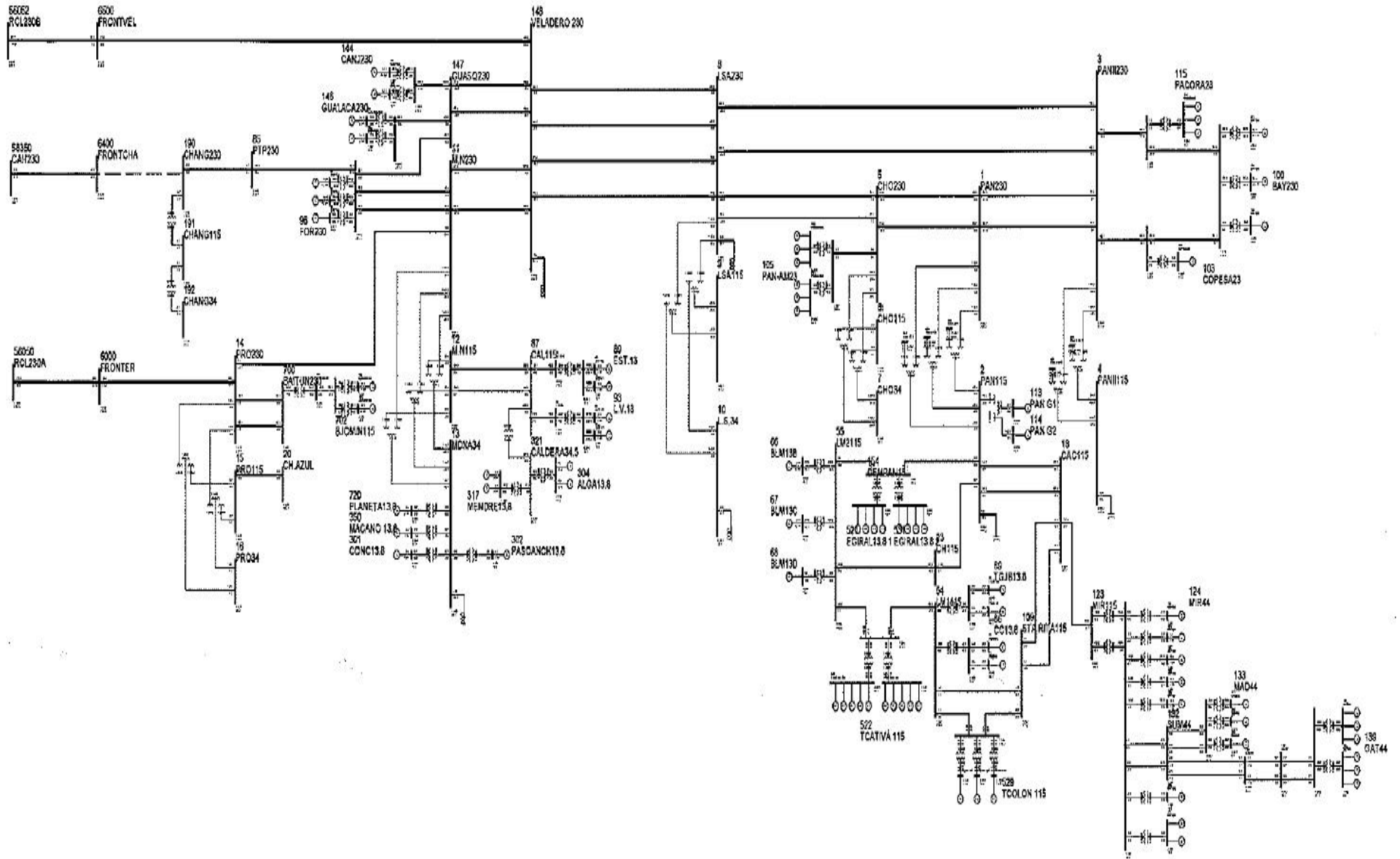
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:39
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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																	
129		MIR13D		13.800	G4	13.1	3.3	15.0	0.0	1.0000	13.5	0.9700	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0110	16.9	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9247	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9247	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9247	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9286	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9286	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9286	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0254	17.9	0.9283	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0345	17.7	0.9283	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0345	17.7	0.9283	23.0			65	7
SUBSYSTEM TOTALS						98.7	16.7	71.5	5.5				171.3				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2010 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL 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	1376.3	1330.8	0.0	0.0	0.0	1.6	43.9	0.0
GUATEMAL	200.8	275.1	-198.7	0.0	277.7	-0.2	402.3	
2	869.3	855.0	0.0	0.0	0.0	0.6	13.7	0.0
SALVADOR	73.3	224.2	-70.8	0.0	229.1	-26.2	175.2	
3	1237.3	1203.0	0.0	0.0	0.0	0.5	33.8	0.0
HONDURAS	461.7	321.1	-47.3	0.0	294.0	54.1	427.8	
4	532.2	525.2	0.0	0.0	0.0	0.1	6.8	0.0
NICARAGU	33.2	207.6	-57.8	0.0	182.3	-47.2	112.8	
5	1349.5	1280.2	0.0	0.0	0.0	50.1	19.2	49.0
COSTA RI	225.7	520.4	-230.2	0.0	417.3	23.1	329.7	
6	1001.3	1065.9	0.0	0.0	0.0	-112.2	47.5	-109.0
PANAMA	220.2	216.4	-63.9	0.0	420.9	-2.4	491.0	
7	98.7	38.9	0.0	0.0	0.0	59.4	0.5	60.0
ACANAL	16.7	7.9	0.0	0.0	0.0	-1.1	10.0	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6464.5	6299.0	0.0	0.0	0.0	0.0	165.6	0.0
	1231.5	1772.6	-668.6	0.0	1821.3	0.0	1948.8	

1.2 Demanda Mínima de Invierno



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)
2		PAN115		115.00	6	0.9937	114.28	4		PANIII115		115.00	6	0.9967	114.62
18		CAC115		115.00	6	0.9934	114.25	19		C.V115		115.00	6	0.9902	113.87
21		C.BAN115		115.00	6	0.9874	113.55	23		CH115		115.00	6	0.9918	114.06
26		LOC115		115.00	6	0.9881	113.63	30		MAR115		115.00	6	0.9873	113.54
33		STM115		115.00	6	0.9925	114.13	37		SAN115		115.00	6	0.9867	113.47
48		TINAJ115		115.00	6	0.9922	114.10	50		M.O115		115.00	6	0.9923	114.11
52		TOC115		115.00	6	0.9948	114.40	123		MIR115		115.00	7	0.9971	114.66
154		CEMPAN15		115.00	6	0.9998	114.98								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:54
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MIN-INVIERNO

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	31.5	12.1	25.0	0.0	0.9800	34.4	0.9336	47.0			62	6
67		BLM13C		13.800	V3	31.5	12.1	25.0	0.0	0.9800	34.4	0.9336	47.0			62	6
90		EST-13L		13.800	E1	19.9	3.4	12.0	-5.0	0.9800	20.6	0.9857	27.0			64	6
91		EST-13T		13.800	E2	19.9	3.4	12.0	-5.0	0.9800	20.6	0.9857	27.0			64	6
94		LV-13.8L		13.800	L1	21.9	4.0	12.0	-5.0	0.9800	22.8	0.9840	27.0			64	6
95		LV-13.8T		13.800	L2	22.6	4.0	12.0	-5.0	0.9800	23.4	0.9845	27.0			64	6
97		FOR13A		13.800	F1	40.5	-12.0	50.0	-50.0	1.0000	42.2	0.9590	111.0			64	6
98		FOR13B		13.800	F2	40.5	-12.0	50.0	-50.0	1.0000	42.2	0.9590	111.0			64	6
101		BAY13A		13.800	B1	52.5	10.1	50.0	-25.0	0.9800	54.6	0.9821	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	52.4	10.1	50.0	-25.0	0.9800	54.5	0.9821	96.0			61	6
142		CANJ13A		13.800	C1	52.5	11.5	29.0	-29.0	0.9800	54.8	0.9770	69.0			64	6
143		CANJ13B		13.800	C2	52.5	11.5	29.0	-29.0	0.9800	54.8	0.9770	69.0			64	6
150		GUALACA 13-213.800		13.800	G2	11.5	-3.5	7.4	-7.4	1.0000	12.0	0.9566	14.8			64	6
151		GUALACA13.8		13.800	G1	11.5	-3.5	7.4	-7.4	1.0000	12.0	0.9566	14.8			64	6
301		CONC13.8		13.800	G1	9.1	5.0	5.0	-5.0	0.9600	10.8	0.8756	13.5			64	6
302		PASOANCH13.813.800		13.800	P1	4.5	2.0	2.0	-2.0	0.9581	5.2	0.9149	6.2			64	6
304		ALGA13.8		13.800	A1	4.6	-2.3	2.3	-2.3	1.0779	4.8	0.8984	5.7			64	6
304		ALGA13.8		13.800	A2	4.6	-2.3	2.3	-2.3	1.0779	4.8	0.8984	5.7			64	6
317		MENDRE13.8		13.800	M1	8.6	0.0	0.0	0.0	1.0800	8.0	1.0000	35.3			64	6
317		MENDRE13.8		13.800	M2	8.6	0.0	0.0	0.0	1.0800	8.0	1.0000	35.3			64	6
350		MACANO 13.8		13.800	G1	3.2	-1.0	1.0	-1.0	1.0538	3.2	0.9558	6.2			64	6
703		BJOMIN13A		13.800	G1	18.1	-1.8	13.0	-13.0	0.9800	18.6	0.9952	30.5			64	6
704		BJOMIN13B		13.800	G2	18.1	-1.8	13.0	-13.0	0.9800	18.6	0.9952	30.5			64	6
720		PLANETA13.8		13.800	G1	4.3	2.0	2.0	-2.0	0.9581	4.9	0.9065	6.2			64	6

SUBSYSTEM TOTALS 545.0 51.1 411.3 -283.3 958.8

 PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:54
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2010 ESC-MOD DEMANDA-MIN-INVIERNO

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

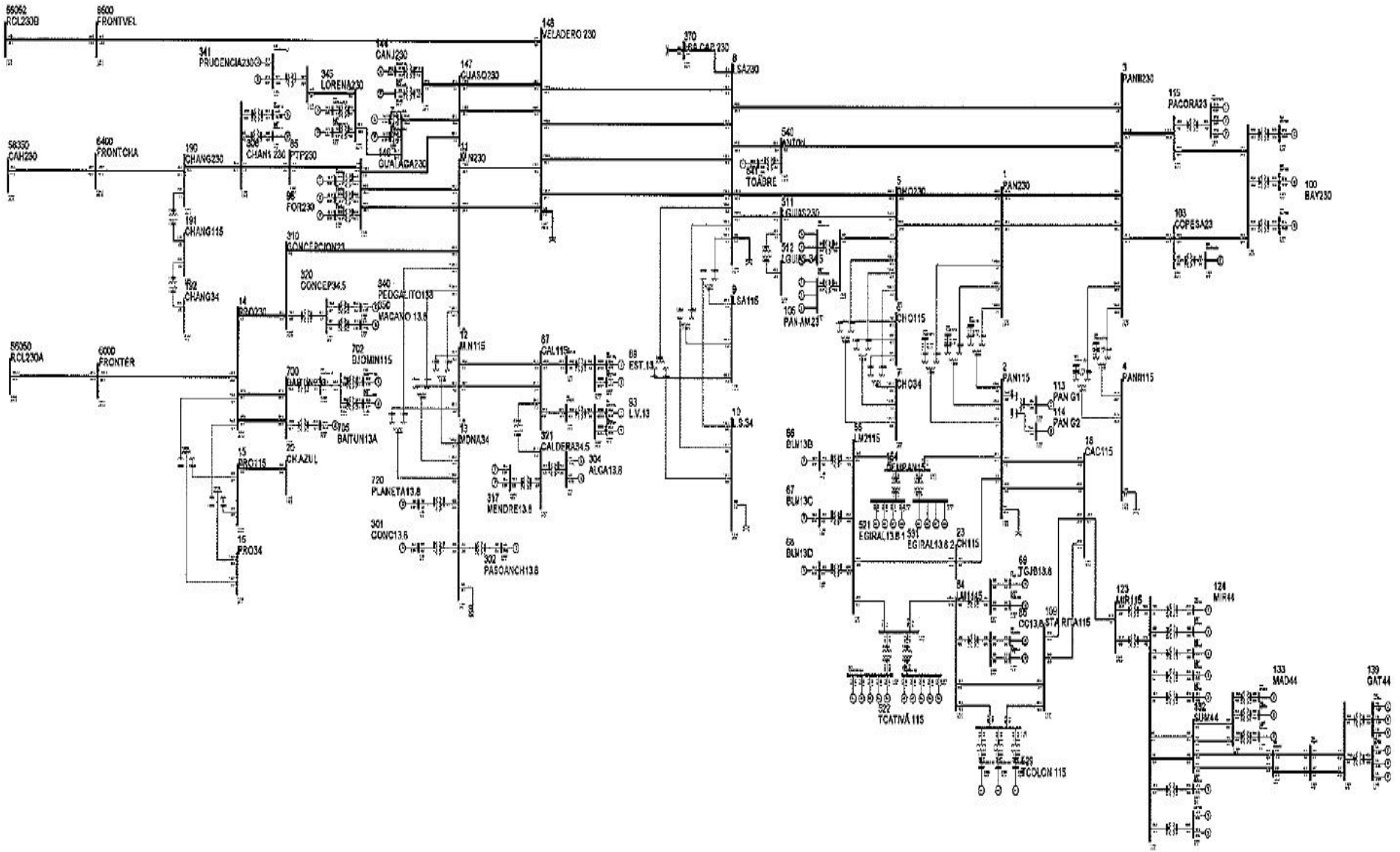
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
127		MIR13B		12.000	G2	8.0	0.0	5.0	0.0	1.0567	7.6	1.0000	13.5			65	7
128		MIR13C		12.000	G3	20.0	4.6	11.0	0.0	1.0000	20.5	0.9741	29.4			65	7
129		MIR13D		13.800	G4	25.1	6.7	15.0	0.0	1.0000	25.9	0.9662	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	16.3	0.6	8.0	0.0	1.0000	16.3	0.9994	27.7			65	7
SUBSYSTEM TOTALS						69.4	11.9	39.0	0.0				114.7				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:54
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2010 ESC-MOD DEMANDA-MIN-INVIERNO 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	1383.7	1330.8	0.0	0.0	0.0	8.9	44.0	9.0
GUATEMAL	199.4	275.1	-198.7	0.0	277.7	-1.1	401.9	
2	868.7	855.0	0.0	0.0	0.0	0.0	13.7	0.0
SALVADOR	73.2	224.2	-70.8	0.0	229.1	-26.4	175.3	
3	1236.8	1203.0	0.0	0.0	0.0	0.0	33.9	0.0
HONDURAS	461.8	321.1	-47.3	0.0	294.0	54.2	427.8	
4	532.0	525.2	0.0	0.0	0.0	-0.1	6.9	0.0
NICARAGU	33.5	207.6	-57.7	0.0	182.2	-47.2	113.2	
5	1296.6	1280.2	0.0	0.0	0.0	-0.3	16.7	0.0
COSTA RI	201.1	520.4	-230.9	0.0	419.6	26.8	304.4	
6	545.0	585.7	0.0	0.0	0.0	-55.5	14.8	-56.0
PANAMA	51.1	212.6	99.5	0.0	451.8	-2.7	193.5	
7	69.4	21.4	0.0	0.0	0.0	47.1	0.9	47.0
ACANAL	11.9	7.8	0.0	0.0	0.0	-3.6	7.7	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	5932.2	5801.3	0.0	0.0	0.0	0.0	131.0	0.0
	1032	1768.6	-506.1	0.0	1854.4	0.0	1623	

2. Año 2011

2.1 Demanda Máxima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:05
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO

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	1.0040	230.91	3		PANII230		230.00	6	1.0089	232.05
5		CHO230		230.00	6	1.0025	230.58	8		LSA230		230.00	6	1.0085	231.96
11		M.N230		230.00	6	1.0077	231.76	14		PRO230		230.00	6	1.0140	233.23
85		PTP230		230.00	6	1.0066	231.53	96		FOR230		230.00	6	1.0059	231.35
100		BAY230		230.00	6	1.0366	238.41	103		COPESA23		230.00	6	1.0135	233.11
105		PAN-AM23		230.00	6	1.0025	230.58	115		PACORA23		230.00	6	1.0188	234.33
144		CANJ230		230.00	6	1.0037	230.86	146		GUALACA230		230.00	6	1.0074	231.71
147		GUASQ230		230.00	6	1.0037	230.86	148		VELADERO 230		230.00	6	1.0106	232.45
190		CHANG230		230.00	6	1.0107	232.46	306		CHAN1 230		230.00	6	1.0085	231.95
310		CONCEPCION23		230.00	6	1.0124	232.84	341		PRUDENCIA230		230.00	6	1.0130	232.98
345		LORENA230		230.00	6	1.0109	232.51	370		LSA CAP 230		230.00	6	1.0085	231.96
511		LGUIAS230		230.00	6	1.0044	231.02	540		ANTON		230.00	6	1.0242	235.57
700		BAITUN230		230.00	6	1.0129	232.96	6000		FRONTER		230.00	6	1.0154	233.55
6400		FRONTCHA		230.00	6	1.0126	232.91	6500		FRONTVEL		230.00	6	1.0205	234.72

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)
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* NONE *

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:05
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO

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	115.59	4		PANII115		115.00	6	1.0111	116.28
6		CHO115		115.00	6	1.0033	115.37	9		LSA115		115.00	6	1.0556	121.40
12		M.N115		115.00	6	1.0005	115.05	15		PRO115		115.00	6	1.0159	116.83
18		CAC115		115.00	6	1.0050	115.57	19		C.V115		115.00	6	1.0016	115.18
20		CH.AZUL		115.00	6	1.0166	116.91	23		CH115		115.00	6	1.0091	116.05
33		STM115		115.00	6	1.0034	115.39	48		TINAJ115		115.00	6	1.0030	115.34
50		M.O115		115.00	6	1.0031	115.35	52		TOC115		115.00	6	1.0086	115.99
54		LM115		115.00	6	1.0335	118.86	55		LM2115		115.00	6	1.0345	118.97
61		FFIELD		115.00	6	1.0306	118.52	87		CAL115		115.00	6	1.0126	116.45
88		EST115		115.00	6	1.0156	116.79	92		L.V115		115.00	6	1.0138	116.59
109		STA RITA115		115.00	6	1.0305	118.51	123		MIR115		115.00	7	1.0110	116.27
154		CEMPAN15		115.00	6	1.0284	118.27	191		CHANG115		115.00	6	1.0065	115.75
522		TCATIVÁ 115		115.00	6	1.0343	118.95	529		TCOLON 115		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)
21		C.BAN115		115.00	6	0.9965	114.60	26		LOC115		115.00	6	0.9974	114.71
30		MAR115		115.00	6	0.9962	114.57	37		SAN115		115.00	6	0.9957	114.51
701		BAITUN115		115.00	6	0.9900	113.85	702		BJOMIN115		115.00	6	0.9922	114.10

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:41
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO

AREA 6 [PANAMA] MACHINE SUMMARY:

AREA SWING	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
6	66		BLM13B		13.800	V2	38.0	8.3	25.0	0.0	1.0000	38.9	0.9772	47.0			62
6	67		BLM13C		13.800	V3	38.0	8.3	25.0	0.0	1.0000	38.9	0.9772	47.0			62
6	68		BLM13D		13.800	V4	38.0	8.5	25.0	0.0	1.0000	38.9	0.9758	47.0			62
6	90		EST-13L		13.800	E1	22.0	4.7	12.0	-5.0	0.9800	22.9	0.9784	27.0			64
6	91		EST-13T		13.800	E2	22.0	4.7	12.0	-5.0	0.9800	22.9	0.9784	27.0			64
6	94		LV-13.8L		13.800	L1	25.0	5.4	12.0	-5.0	0.9800	26.1	0.9773	27.0			64
6	95		LV-13.8T		13.800	L2	25.0	5.4	12.0	-5.0	0.9800	26.1	0.9773	27.0			64
6	97		FOR13A		13.800	F1	82.0	-10.5	50.0	-50.0	0.9900	83.5	0.9918	111.0			64
6	98		FOR13B		13.800	F2	82.0	-10.5	50.0	-50.0	0.9900	83.5	0.9918	111.0			64
6	99		FOR13C		13.800	F3	82.0	-10.5	50.0	-50.0	0.9900	83.5	0.9918	111.0			64
6	101		BAY13A		13.800	B1	52.0	19.8	50.0	-25.0	1.0100	55.1	0.9348	96.0			61
6	102		BAY13B		13.800	B2	52.0	19.8	50.0	-25.0	1.0100	55.1	0.9348	96.0			61
6	108		BAY13C		13.800	B3	52.0	19.8	50.0	-25.0	1.0100	55.1	0.9348	100.0			61
6	116		PACORA13		13.800	P1	17.5	3.9	8.8	0.0	1.0300	17.4	0.9763	21.7			61
6	116		PACORA13		13.800	P2	17.5	3.9	8.8	0.0	1.0300	17.4	0.9763	21.7			61
6	116		PACORA13		13.800	P3	17.5	3.9	8.8	0.0	1.0300	17.4	0.9763	21.7			61

6	142	CANJ13A	13.800	C1	57.0	14.8	29.0	-29.0	0.9800	60.1	0.9677	69.0	64
6	150	GUALACA 13-213	13.800	G2	14.1	-6.3	7.4	-7.4	0.9800	15.7	0.9122	14.8	64
6	151	GUALACA13.8	13.800	G1	14.1	-6.3	7.4	-7.4	0.9800	15.7	0.9122	14.8	64
6	301	CONC13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9628	10.6	0.8716	13.5	64
6	302	PASOANCH13.813	13.800	P1	4.6	2.0	2.0	-2.0	0.9610	5.2	0.9180	6.2	64
6	304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0724	4.9	0.9019	5.7	64
6	304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0724	4.9	0.9019	5.7	64
6	307	CHAN1 A	13.800	G1	60.0	-15.7	50.0	-50.0	0.9900	62.7	0.9673	118.6	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0745	8.8	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0745	8.8	1.0000	35.3	64
6	340	PEDGALITO13813	13.800	P1	15.0	6.3	12.0	-5.0	0.9800	16.6	0.9229	27.0	64
6	342	LORENA13.8	13.800	L1	11.3	-5.0	10.5	-5.0	0.9953	12.4	0.9138	19.9	64
6	343	PRUDENCIA_1	13.800	G1	21.8	-8.0	9.8	-9.8	0.9800	23.7	0.9389	33.0	64
6	343	PRUDENCIA_1	13.800	G2	21.8	-8.0	9.8	-9.8	0.9800	23.7	0.9389	33.0	64
6	346	LORENA 13-2	13.800	L2	11.3	-5.0	10.5	-5.0	0.9953	12.4	0.9138	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0650	3.0	0.9514	6.2	64
6	521	EGIRAL13.8	113.800	G1	3.6	1.7	2.8	1.3	1.0100	4.0	0.8990	4.8	63
6	521	EGIRAL13.8	113.800	G2	3.6	1.7	2.8	1.3	1.0100	4.0	0.8990	4.8	63
6	521	EGIRAL13.8	113.800	G3	3.6	1.7	2.8	1.3	1.0100	4.0	0.8990	4.8	63
6	521	EGIRAL13.8	113.800	G4	3.6	1.7	2.8	1.3	1.0100	4.0	0.8990	4.8	63
6	523	TCATIVÁ 13A	13.800	G1	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62

6	523	TCATIVÁ 13A	13.800	G5	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	4.5	6.6	-6.6	1.0181	9.2	0.8802	10.9	62
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0253	24.4	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	26.6	2.2	13.0	-13.0	0.9900	27.0	0.9966	30.5	64
6	704	BJOMIN13B	13.800	G2	26.6	2.2	13.0	-13.0	0.9900	27.0	0.9966	30.5	64
6	705	BAITUN13A	13.800	G1	40.9	-8.1	26.6	-26.6	0.9900	42.1	0.9810	50.6	64
6	706	BAITUN13B	13.800	G2	40.9	-8.1	26.6	-26.6	0.9900	42.1	0.9810	50.6	64
6	720	PLANETA13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9610	4.3	0.8730	6.2	64
6	SUBSYSTEM TOTALS				1194.1	94.4	766.6	-527.6				1783.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:41
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO

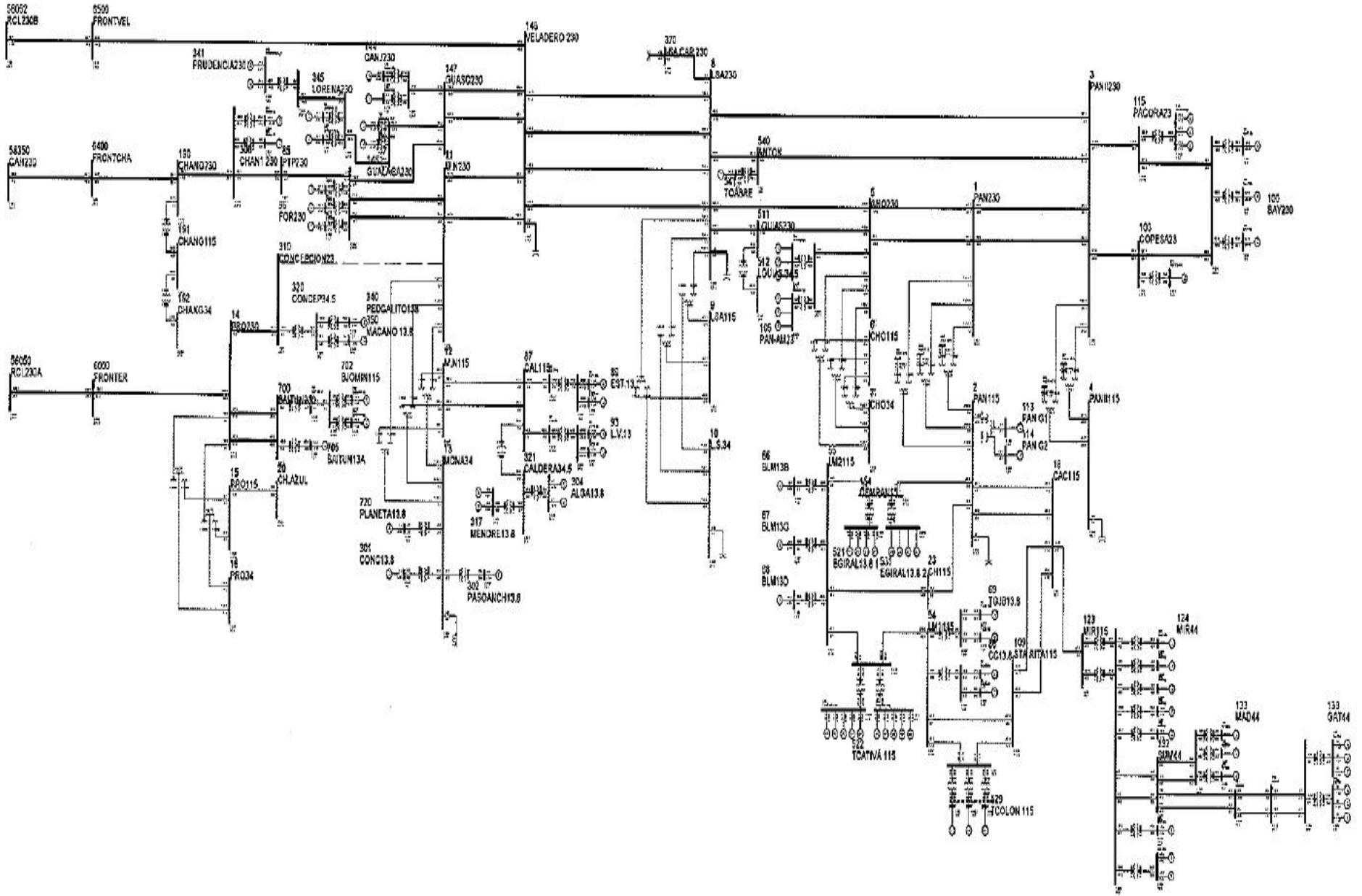
AREA 7 [ACANAL] MACHINE SUMMARY:																	
	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																	
7	129		MIR13D		13.800	G4	15.9	0.0	15.0	0.0	1.0027	15.9	1.0000	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0209	16.8	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-1.2	2.0	-2.0	1.0000	2.3	0.8484	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-1.2	2.0	-2.0	1.0000	2.3	0.8484	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-1.2	2.0	-2.0	1.0000	2.3	0.8484	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-2.0	3.0	-3.0	1.0000	4.3	0.8917	5.6			65

7	141 GAT6B	6.9000 G5	3.9	-2.0	3.0	-3.0	1.0000	4.3	0.8917	6.2	65
7	141 GAT6B	6.9000 G6	3.9	-2.0	3.0	-3.0	1.0000	4.3	0.8917	6.2	65
7	170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0352	17.7	0.9281	23.0	65
7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0442	17.5	0.9281	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0442	17.5	0.9281	23.0	65
7	SUBSYSTEM TOTALS		101.4	10.9	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:05
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO 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	1271.8 190.5	1330.8 275.1	0.0 -198.9	0.0 0.0	0.0 278.0	-100.0 18.9	41.0 373.6	-100.0
2 SALVADOR	870.1 78.0	855.0 224.2	0.0 -70.7	0.0 0.0	0.0 228.7	0.0 -28.6	15.2 181.9	0.0
3 HONDURAS	1237.5 467.7	1203.0 321.1	0.0 -47.2	0.0 0.0	0.0 293.5	-0.1 52.7	34.5 434.7	0.0
4 NICARAGU	532.5 38.3	525.2 207.6	0.0 -57.6	0.0 0.0	0.0 181.8	-0.2 -48.2	7.5 118.3	0.0
5 COSTA RI	1297.1 213.1	1280.2 520.4	0.0 -230.2	0.0 0.0	0.0 417.1	-0.3 43.5	17.3 296.6	0.0
6 PANAMA	1194.1 94.4	1112.7 225.9	0.0 -64.4	0.0 0.0	0.0 474.0	39.6 -30.8	41.7 437.7	40.0
7 ACANAL	101.4 10.9	39.9 8.1	0.0 0.0	0.0 0.0	0.0 0.0	61.0 -7.4	0.5 10.3	60.0
10 MEXICO	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0
TOTALS	6504.6 1093.0	6346.8 1782.3	0.0 -669.0	0.0 0.0	0.0 1873.2	0.0 0.0	157.8 1852.9	0.0

2.1.1. Contingencia Mata de Nance - Concepción



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	0.9972	114.67	21		C.BAN115		115.00	6	0.9952	114.44
26		LOC115		115.00	6	0.9961	114.55	30		MAR115		115.00	6	0.9949	114.41
37		SAN115		115.00	6	0.9943	114.35	701		BAITUN115		115.00	6	0.9926	114.15
702		BJOMIN115		115.00	6	0.9945	114.37								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:14

PLAN DE EXPANSION DEL SIN JUNIO-2010

AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-CONC

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																				
6		66		BLM13B		13.800	V2	38.0	8.5	25.0	0.0	1.0000	38.9	0.9758					47.0	62
6		67		BLM13C		13.800	V3	38.0	8.5	25.0	0.0	1.0000	38.9	0.9758					47.0	62
6		68		BLM13D		13.800	V4	38.0	8.8	25.0	0.0	1.0000	39.0	0.9743					47.0	62
6		90		EST-13L		13.800	E1	22.0	5.2	12.0	-5.0	0.9800	23.1	0.9730					27.0	64
6		91		EST-13T		13.800	E2	22.0	5.2	12.0	-5.0	0.9800	23.1	0.9730					27.0	64
6		94		LV-13.8L		13.800	L1	25.0	6.0	12.0	-5.0	0.9800	26.2	0.9721					27.0	64
6		95		LV-13.8T		13.800	L2	25.0	6.0	12.0	-5.0	0.9800	26.2	0.9721					27.0	64
6		97		FOR13A		13.800	F1	82.0	-7.3	50.0	-50.0	0.9900	83.2	0.9960					111.0	64
6		98		FOR13B		13.800	F2	82.0	-7.3	50.0	-50.0	0.9900	83.2	0.9960					111.0	64
6		99		FOR13C		13.800	F3	82.0	-7.3	50.0	-50.0	0.9900	83.2	0.9960					111.0	64
6		101		BAY13A		13.800	B1	52.0	20.4	50.0	-25.0	1.0100	55.3	0.9310					96.0	61
6		102		BAY13B		13.800	B2	52.0	20.4	50.0	-25.0	1.0100	55.3	0.9309					96.0	61
6		108		BAY13C		13.800	B3	52.0	20.4	50.0	-25.0	1.0100	55.3	0.9309					100.0	61
6		116		PACORA13		13.800	P1	17.5	4.1	8.8	0.0	1.0300	17.4	0.9735					21.7	61
6		116		PACORA13		13.800	P2	17.5	4.1	8.8	0.0	1.0300	17.4	0.9735					21.7	61
6		116		PACORA13		13.800	P3	17.5	4.1	8.8	0.0	1.0300	17.4	0.9735					21.7	61

6	142	CANJ13A	13.800	C1	57.0	15.4	29.0	-29.0	0.9800	60.2	0.9656	69.0	64
6	150	GUALACA 13-213	13.800	G2	14.1	-5.6	7.4	-7.4	0.9800	15.4	0.9293	14.8	64
6	151	GUALACA13.8	13.800	G1	14.1	-5.6	7.4	-7.4	0.9800	15.4	0.9293	14.8	64
6	301	CONC13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9574	10.7	0.8716	13.5	64
6	302	PASOANCH13.813	13.800	P1	4.6	2.0	2.0	-2.0	0.9555	5.3	0.9180	6.2	64
6	304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0700	4.9	0.9019	5.7	64
6	304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0700	4.9	0.9019	5.7	64
6	307	CHAN1 A	13.800	G1	60.0	-17.2	50.0	-50.0	0.9900	63.1	0.9612	118.6	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0720	8.8	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0720	8.8	1.0000	35.3	64
6	340	PEDGALITO13813	13.800	P1	15.0	4.4	12.0	-5.0	0.9800	15.9	0.9604	27.0	64
6	342	LORENA13.8	13.800	L1	11.3	-5.0	10.5	-5.0	0.9923	12.4	0.9138	19.9	64
6	343	PRUDENCIA_1	13.800	G1	21.8	-7.2	9.8	-9.8	0.9800	23.5	0.9492	33.0	64
6	343	PRUDENCIA_1	13.800	G2	21.8	-7.2	9.8	-9.8	0.9800	23.5	0.9492	33.0	64
6	346	LORENA 13-2	13.800	L2	11.3	-5.0	10.5	-5.0	0.9923	12.4	0.9138	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0695	3.0	0.9514	6.2	64
6	521	EGIRAL13.8	113.800	G1	3.6	1.8	2.8	1.3	1.0100	4.0	0.8952	4.8	63
6	521	EGIRAL13.8	113.800	G2	3.6	1.8	2.8	1.3	1.0100	4.0	0.8952	4.8	63
6	521	EGIRAL13.8	113.800	G3	3.6	1.8	2.8	1.3	1.0100	4.0	0.8952	4.8	63
6	521	EGIRAL13.8	113.800	G4	3.6	1.8	2.8	1.3	1.0100	4.0	0.8952	4.8	63
6	523	TCATIVÁ 13A	13.800	G1	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62

6	523	TCATIVÁ 13A	13.800	G5	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	4.5	6.6	-6.6	1.0181	9.3	0.8770	10.9	62
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0230	24.4	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	26.6	1.8	13.0	-13.0	0.9900	26.9	0.9976	30.5	64
6	704	BJOMIN13B	13.800	G2	26.6	1.8	13.0	-13.0	0.9900	26.9	0.9976	30.5	64
6	705	BAITUN13A	13.800	G1	40.9	-9.9	26.6	-26.6	0.9900	42.5	0.9721	50.6	64
6	706	BAITUN13B	13.800	G2	40.9	-9.9	26.6	-26.6	0.9900	42.5	0.9721	50.6	64
6	720	PLANETA13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9555	4.3	0.8730	6.2	64
6	SUBSYSTEM TOTALS				1194.3	106.6	766.6	-527.6				1783.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:14
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-CONC

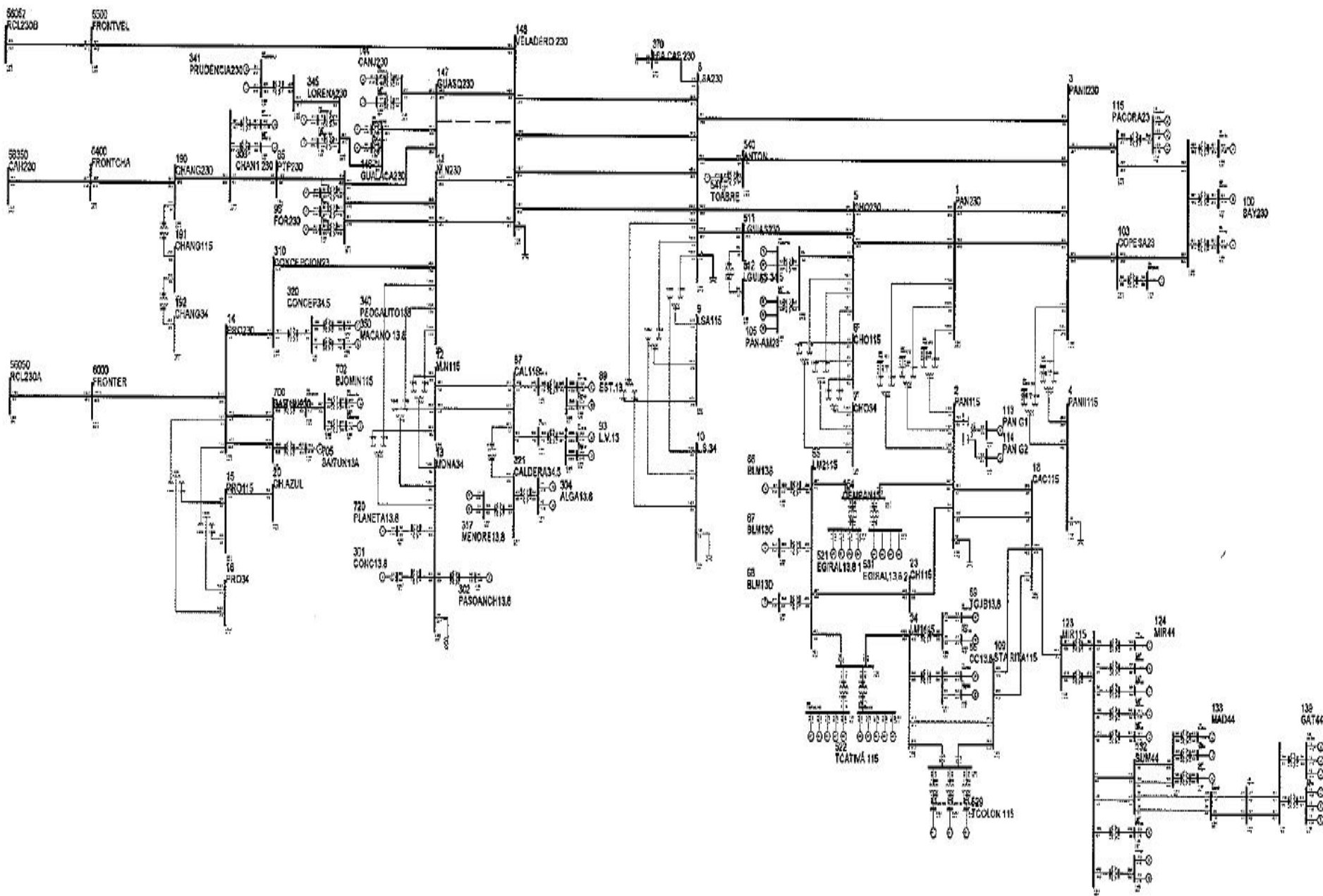
AREA 7 [ACANAL] MACHINE SUMMARY:																	
	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																	
7	129		MIR13D		13.800	G4	15.9	0.0	15.0	0.0	1.0015	15.9	1.0000	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0198	16.8	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-1.2	2.0	-2.0	1.0000	2.3	0.8538	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-1.2	2.0	-2.0	1.0000	2.3	0.8538	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-1.2	2.0	-2.0	1.0000	2.3	0.8538	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.9	3.0	-3.0	1.0000	4.3	0.8943	5.6			65

7	141 GAT6B	6.9000 G5	3.9	-1.9	3.0	-3.0	1.0000	4.3	0.8943	6.2	65
7	141 GAT6B	6.9000 G6	3.9	-1.9	3.0	-3.0	1.0000	4.3	0.8943	6.2	65
7	170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0341	17.7	0.9281	23.0	65
7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0431	17.6	0.9281	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0431	17.6	0.9281	23.0	65
7	SUBSYSTEM TOTALS		101.4	11.1	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:20
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-CONC 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	1272.0	1330.8	0.0	0.0	0.0	-99.8	41.0	-100.0
GUATEMAL	190.5	275.1	-198.9	0.0	278.0	18.8	373.6	
2	870.2	855.0	0.0	0.0	0.0	0.0	15.2	0.0
SALVADOR	78.0	224.2	-70.7	0.0	228.7	-28.6	181.8	
3	1237.5	1203.0	0.0	0.0	0.0	0.0	34.5	0.0
HONDURAS	467.7	321.1	-47.2	0.0	293.5	52.7	434.6	
4	532.5	525.2	0.0	0.0	0.0	-0.2	7.5	0.0
NICARAGU	38.2	207.6	-57.6	0.0	181.8	-48.2	118.2	
5	1297.2	1280.2	0.0	0.0	0.0	-0.3	17.4	0.0
COSTA RI	211.4	520.4	-230.3	0.0	417.4	41.8	296.8	
6	1194.3	1112.7	0.0	0.0	0.0	39.3	42.3	40.0
PANAMA	106.6	225.9	-64.4	0.0	467.4	-29.2	441.7	
7	101.4	39.9	0.0	0.0	0.0	61.0	0.5	60.0
ACANAL	11.1	8.1	0.0	0.0	0.0	-7.3	10.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6505.1	6346.8	0.0	0.0	0.0	0.0	158.4	0.0
	1103.5	1782.3	-669.1	0.0	1866.8	0.0	1857.1	

2.1.2. Contingencia Guasquitas – Veladero



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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	1.0002	230.05	3		PANII230		230.00	6	1.0053	231.22
8		LSA230		230.00	6	1.0014	230.33	11		M.N230		230.00	6	1.0016	230.38
14		PRO230		230.00	6	1.0097	232.22	85		PTP230		230.00	6	1.0032	230.73
96		FOR230		230.00	6	1.0013	230.30	100		BAY230		230.00	6	1.0345	237.93
103		COPESA23		230.00	6	1.0101	232.33	115		PACORA23		230.00	6	1.0158	233.64
146		GUALACA230		230.00	6	1.0012	230.28	148		VELADERO 230		230.00	6	1.0023	230.53
190		CHANG230		230.00	6	1.0077	231.77	306		CHAN1 230		230.00	6	1.0053	231.23
310		CONCEPCION23		230.00	6	1.0073	231.69	341		PRUDENCIA230		230.00	6	1.0070	231.62
345		LORENA230		230.00	6	1.0049	231.12	370		LSA CAP 230		230.00	6	1.0014	230.33
540		ANTON		230.00	6	1.0187	234.31	700		BAITUN230		230.00	6	1.0090	232.06
6000		FRONTER		230.00	6	1.0109	232.52	6400		FRONTCHA		230.00	6	1.0098	232.25
6500		FRONTVEL		230.00	6	1.0150	233.46								

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)
5		CHO230		230.00	6	0.9979	229.52	105		PAN-AM23		230.00	6	0.9979	229.52
144		CANJ230		230.00	6	0.9973	229.38	147		GUASQ230		230.00	6	0.9973	229.38
511		LGUIAS230		230.00	6	0.9983	229.61								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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	1.0076	115.87
9		LSA115		115.00	6	1.0480	120.53	15		PRO115		115.00	6	1.0115	116.32
18		CAC115		115.00	6	1.0017	115.20	20		CH.AZUL		115.00	6	1.0122	116.41
23		CH115		115.00	6	1.0066	115.76	33		STM115		115.00	6	1.0001	115.02
52		TOC115		115.00	6	1.0050	115.57	54		LM1115		115.00	6	1.0321	118.69
55		LM2115		115.00	6	1.0331	118.80	61		FFIELD		115.00	6	1.0291	118.35
87		CAL115		115.00	6	1.0102	116.17	88		EST115		115.00	6	1.0134	116.55
92		L.V115		115.00	6	1.0115	116.32	109		STA RITA115		115.00	6	1.0289	118.32
123		MIR115		115.00	7	1.0079	115.91	154		CEMPAN15		115.00	6	1.0266	118.06
191		CHANG115		115.00	6	1.0035	115.40	522		TCATIVÁ 115		115.00	6	1.0329	118.78
529		TCOLON 115		115.00	6	1.0305	118.50								

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)
6		CHO115		115.00	6	0.9987	114.85	12		M.N115		115.00	6	0.9969	114.64
19		C.V115		115.00	6	0.9981	114.78	21		C.BAN115		115.00	6	0.9932	114.22
26		LOC115		115.00	6	0.9941	114.33	30		MAR115		115.00	6	0.9929	114.19

37 SAN115	115.00	6 0.9924	114.12	48 TINAJ115	115.00	6 0.9997	114.96
50 M.O115	115.00	6 0.9998	114.98	701 BAITUN115	115.00	6 0.9875	113.56
702 BJOMIN115	115.00	6 0.9899	113.83				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL

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																
6	66	BLM13B		13.800	V2	38.0	8.9	25.0	0.0	1.0000	39.0	0.9737	47.0			62
6	67	BLM13C		13.800	V3	38.0	8.9	25.0	0.0	1.0000	39.0	0.9737	47.0			62
6	68	BLM13D		13.800	V4	38.0	9.2	25.0	0.0	1.0000	39.1	0.9720	47.0			62
6	90	EST-13L		13.800	E1	22.0	5.3	12.0	-5.0	0.9800	23.1	0.9725	27.0			64
6	91	EST-13T		13.800	E2	22.0	5.3	12.0	-5.0	0.9800	23.1	0.9725	27.0			64
6	94	LV-13.8L		13.800	L1	25.0	6.1	12.0	-5.0	0.9800	26.3	0.9717	27.0			64
6	95	LV-13.8T		13.800	L2	25.0	6.1	12.0	-5.0	0.9800	26.3	0.9717	27.0			64
6	97	FOR13A		13.800	F1	82.1	-6.4	50.0	-50.0	0.9900	83.2	0.9970	111.0			64
6	98	FOR13B		13.800	F2	82.1	-6.4	50.0	-50.0	0.9900	83.2	0.9970	111.0			64
6	99	FOR13C		13.800	F3	82.1	-6.4	50.0	-50.0	0.9900	83.2	0.9970	111.0			64
6	101	BAY13A		13.800	B1	52.1	21.3	50.0	-25.0	1.0100	55.7	0.9254	96.0			61
6	102	BAY13B		13.800	B2	52.1	21.3	50.0	-25.0	1.0100	55.7	0.9253	96.0			61
6	108	BAY13C		13.800	B3	52.1	21.3	50.0	-25.0	1.0100	55.7	0.9253	100.0			61
6	116	PACORA13		13.800	P1	17.5	4.4	8.8	0.0	1.0300	17.5	0.9694	21.7			61
6	116	PACORA13		13.800	P2	17.5	4.4	8.8	0.0	1.0300	17.5	0.9694	21.7			61
6	116	PACORA13		13.800	P3	17.5	4.4	8.8	0.0	1.0300	17.5	0.9694	21.7			61
6	142	CANJ13A		13.800	C1	57.1	15.9	29.0	-29.0	0.9800	60.4	0.9632	69.0			64
6	150	GUALACA	13-213.800	G2		14.1	-4.8	7.4	-7.4	0.9800	15.2	0.9465	14.8			64
6	151	GUALACA13.8	13.800	G1		14.1	-4.8	7.4	-7.4	0.9800	15.2	0.9465	14.8			64

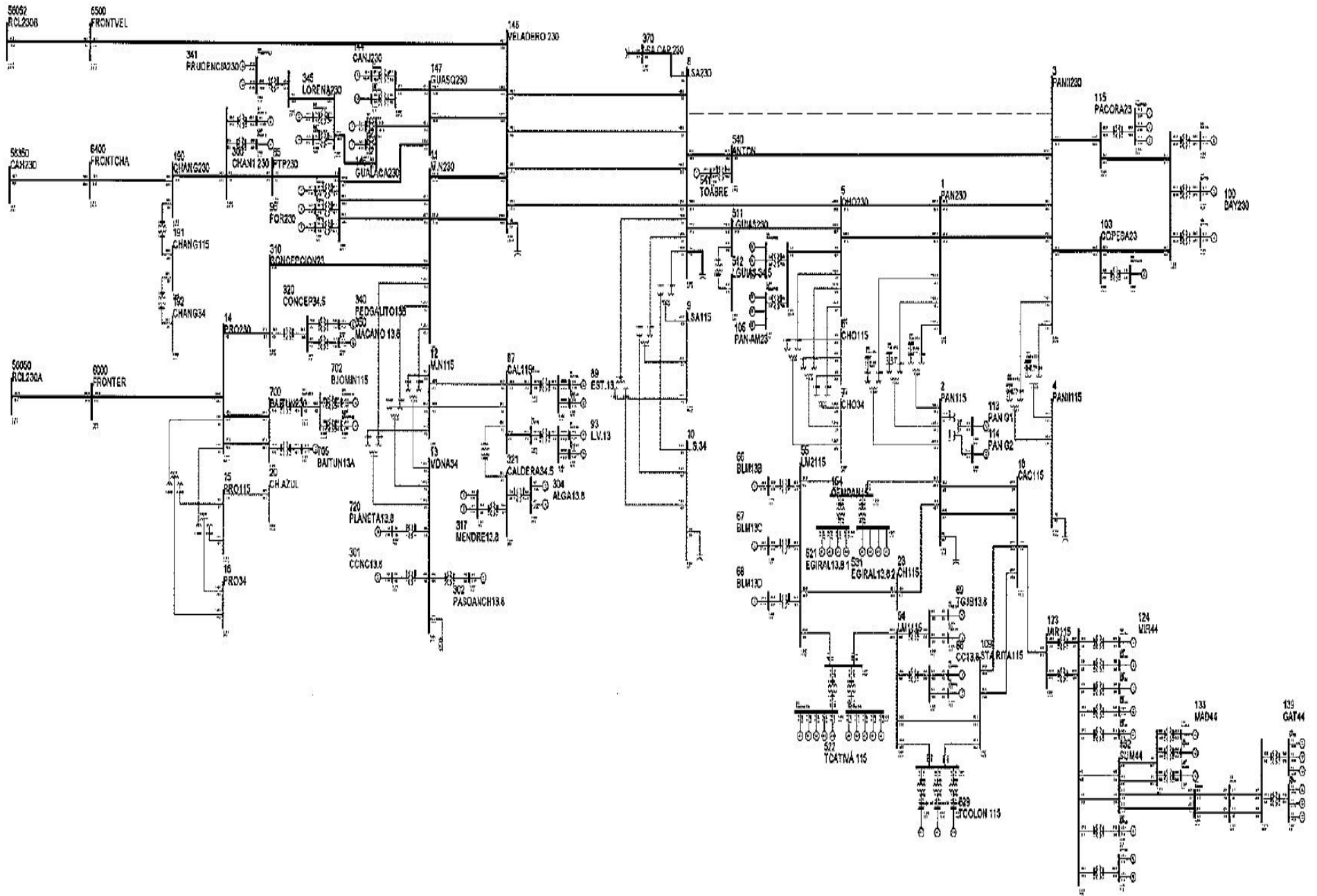
6	301	CONC13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9570	10.7	0.8718	13.5	64
6	302	PASOANCH13.8	13.800	P1	4.6	2.0	2.0	-2.0	0.9551	5.3	0.9182	6.2	64
6	304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0698	4.9	0.9019	5.7	64
6	304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0698	4.9	0.9019	5.7	64
6	307	CHAN1 A	13.800	G1	60.1	-12.7	50.0	-50.0	0.9900	62.0	0.9783	118.6	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0718	8.8	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0718	8.8	1.0000	35.3	64
6	340	PEDGALITO138	13.800	P1	15.0	7.4	12.0	-5.0	0.9800	17.1	0.8965	27.0	64
6	342	LORENA13.8	13.800	L1	11.3	-5.0	10.5	-5.0	0.9891	12.5	0.9140	19.9	64
6	343	PRUDENCIA_1	13.800	G1	21.9	-6.4	9.8	-9.8	0.9800	23.2	0.9597	33.0	64
6	343	PRUDENCIA_1	13.800	G2	21.9	-6.4	9.8	-9.8	0.9800	23.2	0.9597	33.0	64
6	346	LORENA 13-2	13.800	L2	11.3	-5.0	10.5	-5.0	0.9891	12.5	0.9140	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0622	3.1	0.9516	6.2	64
6	521	EGIRAL13.8	113.800	G1	3.6	1.8	2.8	1.3	1.0100	4.0	0.8898	4.8	63
6	521	EGIRAL13.8	113.800	G2	3.6	1.8	2.8	1.3	1.0100	4.0	0.8898	4.8	63
6	521	EGIRAL13.8	113.800	G3	3.6	1.8	2.8	1.3	1.0100	4.0	0.8898	4.8	63
6	521	EGIRAL13.8	113.800	G4	3.6	1.8	2.8	1.3	1.0100	4.0	0.8898	4.8	63
6	523	TCATIVÁ 13A	13.800	G1	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62
6	523	TCATIVÁ 13A	13.800	G5	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	8.3	4.6	6.6	-6.6	1.0181	9.3	0.8724	10.9	62

7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0415	17.6	0.9282	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0415	17.6	0.9282	23.0	65
	SUBSYSTEM TOTALS		101.5	11.4	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:52
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT GUAS-VEL 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	1273.1 190.5	1330.8 275.1	0.0 -198.9	0.0 0.0	0.0 278.0	-98.8 18.6	41.0 373.8	-100.0
2 SALVADOR	870.6 77.8	855.0 224.2	0.0 -70.7	0.0 0.0	0.0 228.7	0.5 -28.6	15.1 181.7	0.0
3 HONDURAS	1237.9 467.4	1203.0 321.1	0.0 -47.2	0.0 0.0	0.0 293.5	0.4 52.7	34.5 434.4	0.0
4 NICARAGU	532.6 38.0	525.2 207.6	0.0 -57.6	0.0 0.0	0.0 181.8	0.0 -48.1	7.4 118.0	0.0
5 COSTA RI	1297.7 217.3	1280.2 520.4	0.0 -230.0	0.0 0.0	0.0 416.5	0.3 46.4	17.3 297.1	0.0
6 PANAMA	1195.3 135.5	1112.7 225.9	0.0 -64.2	0.0 0.0	0.0 453.5	36.7 -33.8	45.9 461.0	40.0
7 ACANAL	101.5 11.4	39.9 8.1	0.0 0.0	0.0 0.0	0.0 0.0	61.1 -7.1	0.5 10.3	60.0
10 MEXICO	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0
TOTALS	6508.7 1137.9	6346.8 1782.3	0.0 -668.7	0.0 0.0	0.0 1852.1	0.0 0.0	161.9 1876.3	0.0

2.1.3. Contingencia Llano Sánchez – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:55
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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	1.0007	230.15	14	PRO230	230.00	6	1.0090	232.06				
85	PTP230	230.00	6	1.0039	230.89	96	FOR230	230.00	6	1.0003	230.07				
100	BAY230	230.00	6	1.0261	236.00	115	PACORA23	230.00	6	1.0039	230.90				
146	GUALACA230	230.00	6	1.0008	230.18	190	CHANG230	230.00	6	1.0088	232.02				
306	CHAN1 230	230.00	6	1.0064	231.48	310	CONCEPCION23	230.00	6	1.0065	231.50				
341	PRUDENCIA230	230.00	6	1.0067	231.53	345	LORENA230	230.00	6	1.0045	231.03				
540	ANTON	230.00	6	1.0013	230.30	700	BAITUN230	230.00	6	1.0083	231.92				
6000	FRONTER	230.00	6	1.0102	232.35	6400	FRONTCHA	230.00	6	1.0108	232.48				
6500	FRONTVEL	230.00	6	1.0138	233.18										

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)
1	PAN230	230.00	6	0.9854	226.64	3	PANII230	230.00	6	0.9909	227.91				
5	CHO230	230.00	6	0.9805	225.51	8	LSA230	230.00	6	0.9869	226.99				
103	COPESA23	230.00	6	0.9966	229.22	105	PAN-AM23	230.00	6	0.9805	225.52				
144	CANJ230	230.00	6	0.9969	229.28	147	GUASQ230	230.00	6	0.9969	229.28				
148	VELADERO	230.00	6	0.9976	229.44	370	LSA CAP 230	230.00	6	0.9869	226.99				
511	LGUIAS230	230.00	6	0.9801	225.42										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:55
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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)
9	LSA115	115.00	6	1.0325	118.74	15	PRO115	115.00	6	1.0108	116.24				
20	CH.AZUL	115.00	6	1.0115	116.33	54	LM115	115.00	6	1.0264	118.04				
55	LM2115	115.00	6	1.0275	118.16	61	FFIELD	115.00	6	1.0235	117.70				
87	CAL115	115.00	6	1.0098	116.13	88	EST115	115.00	6	1.0131	116.50				
92	L.V115	115.00	6	1.0111	116.28	109	STA RITA115	115.00	6	1.0225	117.58				
154	CEMPAN15	115.00	6	1.0195	117.24	191	CHANG115	115.00	6	1.0046	115.52				
522	TCATIVÁ	115.00	6	1.0272	118.13	529	TCOLON 115	115.00	6	1.0244	117.81				

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)
2	PAN115	115.00	6	0.9894	113.78	4	PANII115	115.00	6	0.9934	114.24				
6	CHO115	115.00	6	0.9813	112.85	12	M.N115	115.00	6	0.9963	114.57				
18	CAC115	115.00	6	0.9893	113.77	19	C.V115	115.00	6	0.9843	113.19				
21	C.BAN115	115.00	6	0.9804	112.75	23	CH115	115.00	6	0.9969	114.64				
26	LOC115	115.00	6	0.9814	112.86	30	MAR115	115.00	6	0.9803	112.73				

33	STM115	115.00	6	0.9876	113.58	37	SAN115	115.00	6	0.9794	112.63
48	TINAJ115	115.00	6	0.9872	113.52	50	M.O115	115.00	6	0.9873	113.54
52	TOC115	115.00	6	0.9907	113.94	123	MIR115	115.00	7	0.9966	114.61
701	BAITUN115	115.00	6	0.9871	113.51	702	BJOMIN115	115.00	6	0.9895	113.79

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:55
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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
66		BLM13B		13.800	V2	38.0	11.3	25.0	0.0	1.0000	39.7	0.9586	47.0							62
67		BLM13C		13.800	V3	38.0	11.3	25.0	0.0	1.0000	39.7	0.9586	47.0							62
68		BLM13D		13.800	V4	38.0	11.7	25.0	0.0	1.0000	39.8	0.9557	47.0							62
90		EST-13L		13.800	E1	22.0	5.4	12.0	-5.0	0.9800	23.1	0.9715	27.0							64
91		EST-13T		13.800	E2	22.0	5.4	12.0	-5.0	0.9800	23.1	0.9715	27.0							64
94		LV-13.8L		13.800	L1	25.0	6.2	12.0	-5.0	0.9800	26.3	0.9708	27.0							64
95		LV-13.8T		13.800	L2	25.0	6.2	12.0	-5.0	0.9800	26.3	0.9708	27.0							64
97		FOR13A		13.800	F1	82.1	-5.5	50.0	-50.0	0.9900	83.2	0.9977	111.0							64
98		FOR13B		13.800	F2	82.1	-5.5	50.0	-50.0	0.9900	83.2	0.9977	111.0							64
99		FOR13C		13.800	F3	82.1	-5.5	50.0	-50.0	0.9900	83.2	0.9977	111.0							64
101		BAY13A		13.800	B1	52.2	27.7	50.0	-25.0	1.0100	58.5	0.8835	96.0							61
102		BAY13B		13.800	B2	52.1	27.7	50.0	-25.0	1.0100	58.4	0.8833	96.0							61
108		BAY13C		13.800	B3	52.1	27.7	50.0	-25.0	1.0100	58.4	0.8833	100.0							61
116		PACORA13		13.800	P1	17.5	6.6	8.8	0.0	1.0300	18.2	0.9348	21.7							61
116		PACORA13		13.800	P2	17.5	6.6	8.8	0.0	1.0300	18.2	0.9348	21.7							61
116		PACORA13		13.800	P3	17.5	6.6	8.8	0.0	1.0300	18.2	0.9348	21.7							61
142		CANJ13A		13.800	C1	57.1	16.0	29.0	-29.0	0.9800	60.5	0.9629	69.0							64
150		GUALACA	13-213.800	G2		14.1	-4.7	7.4	-7.4	0.9800	15.1	0.9486	14.8							64

6	151	GUALACA13.8	13.800	G1	14.1	-4.7	7.4	-7.4	0.9800	15.1	0.9486	14.8	64
6	301	CONC13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9560	10.7	0.8720	13.5	64
6	302	PASOANCH13.8	13.800	P1	4.6	2.0	2.0	-2.0	0.9542	5.3	0.9183	6.2	64
6	304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0693	4.9	0.9019	5.7	64
6	304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0693	4.9	0.9019	5.7	64
6	307	CHAN1 A	13.800	G1	60.1	-13.8	50.0	-50.0	0.9900	62.3	0.9747	118.6	64
6	317	MENDRE13.8	13.800	M1	9.5	0.0	0.0	0.0	1.0713	8.8	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.5	0.0	0.0	0.0	1.0713	8.8	1.0000	35.3	64
6	340	PEDGALITO138	13.800	P1	15.0	7.6	12.0	-5.0	0.9800	17.2	0.8920	27.0	64
6	342	LORENA13.8	13.800	L1	11.3	-5.0	10.5	-5.0	0.9887	12.5	0.9141	19.9	64
6	343	PRUDENCIA_1	13.800	G1	21.9	-6.3	9.8	-9.8	0.9800	23.2	0.9609	33.0	64
6	343	PRUDENCIA_1	13.800	G2	21.9	-6.3	9.8	-9.8	0.9800	23.2	0.9609	33.0	64
6	346	LORENA 13-2	13.800	L2	11.3	-5.0	10.5	-5.0	0.9887	12.5	0.9141	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0618	3.1	0.9516	6.2	64
6	521	EGIRAL13.8	113.800	G1	3.6	2.2	2.8	1.3	1.0100	4.2	0.8526	4.8	63
6	521	EGIRAL13.8	113.800	G2	3.6	2.2	2.8	1.3	1.0100	4.2	0.8526	4.8	63
6	521	EGIRAL13.8	113.800	G3	3.6	2.2	2.8	1.3	1.0100	4.2	0.8526	4.8	63
6	521	EGIRAL13.8	113.800	G4	3.6	2.2	2.8	1.3	1.0100	4.2	0.8526	4.8	63
6	523	TCATIVÁ 13A	13.800	G1	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	523	TCATIVÁ 13A	13.800	G5	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62

6	524	TCATIVÁ 13B	13.800	G6	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	5.3	6.6	-6.6	1.0181	9.7	0.8416	10.9	62
6	541	TOABRE	0.6000	1	25.1	0.0	0.0	0.0	1.0024	25.0	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	26.6	2.6	13.0	-13.0	0.9900	27.0	0.9953	30.5	64
6	704	BJOMIN13B	13.800	G2	26.6	2.6	13.0	-13.0	0.9900	27.0	0.9953	30.5	64
6	705	BAITUN13A	13.800	G1	40.9	-6.1	26.6	-26.6	0.9900	41.8	0.9891	50.6	64
6	706	BAITUN13B	13.800	G2	40.9	-6.1	26.6	-26.6	0.9900	41.8	0.9891	50.6	64
6	720	PLANETA13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9542	4.3	0.8730	6.2	64
6	SUBSYSTEM TOTALS				1196.1	180.0	766.6	-527.6				1783.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:55
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

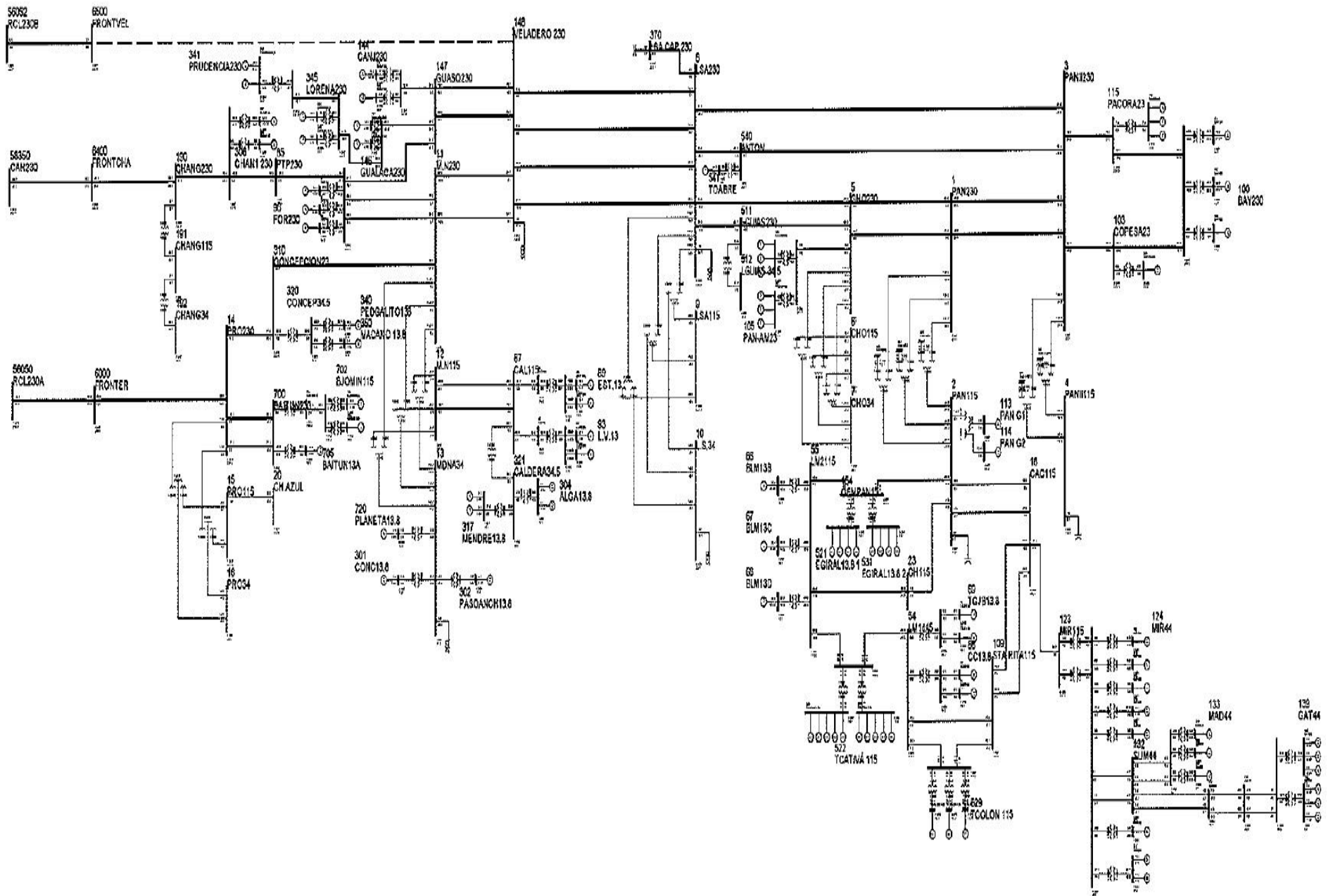
AREA 7 [ACANAL] MACHINE SUMMARY:																	
	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																	
7	129		MIR13D		13.800	G4	16.0	2.8	15.0	0.0	1.0000	16.2	0.9853	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0113	16.9	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9004	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9004	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9004	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9166	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9166	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9166	6.2			65

7	170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0257	17.9	0.9283	23.0	65
7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0348	17.7	0.9283	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0348	17.7	0.9283	23.0	65
	SUBSYSTEM TOTALS		101.6	15.4	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 11:58
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII 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	1273.8	1330.8	0.0	0.0	0.0	-98.1	41.1	-100.0
GUATEMAL	190.5	275.1	-198.9	0.0	278.0	18.5	373.9	
2	870.8	855.0	0.0	0.0	0.0	0.7	15.1	0.0
SALVADOR	77.7	224.2	-70.7	0.0	228.7	-28.6	181.6	
3	1238.1	1203.0	0.0	0.0	0.0	0.6	34.5	0.0
HONDURAS	467.2	321.1	-47.2	0.0	293.6	52.7	434.3	
4	532.7	525.2	0.0	0.0	0.0	0.1	7.4	0.0
NICARAGU	37.8	207.6	-57.6	0.0	181.8	-48.1	117.8	
5	1298.1	1280.2	0.0	0.0	0.0	0.8	17.2	0.0
COSTA RI	217.0	520.4	-230.0	0.0	416.5	46.8	296.4	
6	1196.1	1112.7	0.0	0.0	0.0	34.7	48.7	40.0
PANAMA	180.0	225.9	-62.5	0.0	424.7	-37.9	479.2	
7	101.6	39.9	0.0	0.0	0.0	61.1	0.6	60.0
ACANAL	15.4	8.1	0.0	0.0	0.0	-3.3	10.5	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6511.3	6346.8	0.0	0.0	0.0	0.0	164.5	0.0
	1185.7	1782.3	-667.0	0.0	1823.4	0.0	1893.7	

2.2 Demanda Mínima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MIN-INVIERNO

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	1.0094	232.16	14	PRO230	230.00	6	1.0187	234.29				
85	PTP230	230.00	6	1.0069	231.58	96	FOR230	230.00	6	1.0099	232.27				
100	BAY230	230.00	6	1.0141	233.24	115	PACORA23	230.00	6	1.0001	230.03				
144	CANJ230	230.00	6	1.0070	231.60	146	GUALACA230	230.00	6	1.0097	232.23				
147	GUASQ230	230.00	6	1.0069	231.59	148	VELADERO 230	230.00	6	1.0027	230.61				
190	CHANG230	230.00	6	1.0085	231.95	306	CHAN1 230	230.00	6	1.0065	231.50				
310	CONCEPCION23	230.00	6	1.0158	233.63	341	PRUDENCIA230	230.00	6	1.0127	232.92				
345	LORENA230	230.00	6	1.0118	232.72	540	ANTON	230.00	6	1.0118	232.71				
700	BAITUN230	230.00	6	1.0187	234.30	6000	FRONTER	230.00	6	1.0193	234.43				
6400	FRONTCHA	230.00	6	1.0101	232.33	6500	FRONTVEL	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	0.9907	227.87	3	PANII230	230.00	6	0.9946	228.75				
5	CHO230	230.00	6	0.9924	228.26	8	LSA230	230.00	6	0.9959	229.05				
103	COPESA23	230.00	6	0.9980	229.54	105	PAN-AM23	230.00	6	0.9924	228.26				
370	LSA CAP 230	230.00	6	0.9959	229.05	511	LGUIAS230	230.00	6	0.9956	228.99				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MIN-INVIERNO

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)
9	LSA115	115.00	6	1.0441	120.07	12	M.N115	115.00	6	1.0156	116.80				
15	PRO115	115.00	6	1.0205	117.36	20	CH.AZUL	115.00	6	1.0212	117.44				
54	LM115	115.00	6	1.0039	115.45	55	LM2115	115.00	6	1.0048	115.55				
61	FFIELD	115.00	6	1.0023	115.26	87	CAL115	115.00	6	1.0272	118.13				
88	EST115	115.00	6	1.0307	118.53	92	L.V115	115.00	6	1.0279	118.21				
109	STA RITA115	115.00	6	1.0019	115.22	191	CHANG115	115.00	6	1.0049	115.56				
522	TCATIVÁ 115	115.00	6	1.0044	115.50	529	TCOLON 115	115.00	6	1.0029	115.33				
701	BAITUN115	115.00	6	1.0110	116.26	702	BJOMIN115	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)
2	PAN115	115.00	6	0.9837	113.13	4	PANII115	115.00	6	0.9951	114.44				
6	CHO115	115.00	6	0.9931	114.21	18	CAC115	115.00	6	0.9837	113.12				
19	C.V115	115.00	6	0.9861	113.41	21	C.BAN115	115.00	6	0.9783	112.50				
23	CH115	115.00	6	0.9865	113.44	26	LOC115	115.00	6	0.9788	112.56				
30	MAR115	115.00	6	0.9776	112.42	33	STM115	115.00	6	0.9825	112.98				

37 SAN115	115.00	6 0.9780	112.47	48 TINAJ115	115.00	6 0.9822	112.95
50 M.O115	115.00	6 0.9822	112.96	52 TOC115	115.00	6 0.9931	114.21
123 MIR115	115.00	7 0.9896	113.81	154 CEMPAN15	115.00	6 0.9981	114.78

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MIN-INVIERNO

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																
6		66		BLM13B		13.800	V2	38.0	16.4	25.0	0.0	0.9900	41.8	0.9181	47.0	62
6		67		BLM13C		13.800	V3	38.0	16.4	25.0	0.0	0.9900	41.8	0.9181	47.0	62
6		68		BLM13D		13.800	V4	38.0	17.1	25.0	0.0	0.9900	42.1	0.9121	47.0	62
6		90		EST-13L		13.800	E1	19.0	6.2	12.0	-5.0	1.0000	20.0	0.9505	27.0	64
6		91		EST-13T		13.800	E2	19.0	6.2	12.0	-5.0	1.0000	20.0	0.9505	27.0	64
6		94		LV-13.8L		13.800	L1	22.6	7.6	12.0	-5.0	1.0000	23.9	0.9484	27.0	64
6		97		FOR13A		13.800	F1	64.2	-6.7	50.0	-50.0	1.0000	64.5	0.9945	111.0	64
6		98		FOR13B		13.800	F2	64.2	-6.7	50.0	-50.0	1.0000	64.5	0.9945	111.0	64
6		101		BAY13A		13.800	B1	59.9	21.2	50.0	-25.0	0.9900	64.2	0.9429	96.0	61
6		102		BAY13B		13.800	B2	46.5	20.2	50.0	-25.0	0.9900	51.2	0.9172	96.0	61
6		142		CANJ13A		13.800	C1	52.0	14.0	29.0	-29.0	0.9900	54.4	0.9657	69.0	64
6		150		GUALACA 13-213.800	G2	14.0		14.0	-4.5	7.4	-7.4	0.9900	14.8	0.9524	14.8	64
6		151		GUALACA13.8	13.800	G1		14.0	-4.5	7.4	-7.4	0.9900	14.8	0.9524	14.8	64
6		301		CONC13.8	13.800	G1		8.4	5.0	5.0	-5.0	0.9556	10.2	0.8589	13.5	64
6		302		PASOANCH13.8	13.800	P1		4.3	2.0	2.0	-2.0	0.9537	5.0	0.9072	6.2	64
6		304		ALGA13.8	13.800	A1		4.4	-2.3	2.3	-2.3	1.0891	4.5	0.8894	5.7	64
6		304		ALGA13.8	13.800	A2		4.4	-2.3	2.3	-2.3	1.0891	4.5	0.8894	5.7	64
6		307		CHAN1 A	13.800	G1		63.0	-13.7	50.0	-50.0	0.9900	65.1	0.9772	118.6	64
6		317		MENDRE13.8	13.800	M1		8.8	0.0	0.0	0.0	1.0912	8.0	1.0000	35.3	64

6	317	MENDRE13.8	13.800	M2	8.8	0.0	0.0	0.0	1.0912	8.0	1.0000	35.3	64
6	340	PEDGALITO13813.800	P1	20.1	8.4	12.0	-5.0	0.9900	22.0	0.9235	27.0	64	
6	342	LORENA13.8	13.800	L1	10.5	-5.0	10.5	-5.0	0.9963	11.7	0.9025	19.9	64
6	343	PRUDENCIA_1	13.800	G1	20.3	-9.8	9.8	-9.8	0.9942	22.7	0.9016	33.0	64
6	346	LORENA 13-2	13.800	L2	10.5	-5.0	10.5	-5.0	0.9963	11.7	0.9025	19.9	64
6	350	MACANO 13.8	13.800	G1	2.9	-1.0	1.0	-1.0	1.0717	2.8	0.9446	6.2	64
6	541	TOABRE	0.6000	1	20.0	0.0	0.0	0.0	1.0126	19.8	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	20.5	-0.3	13.0	-13.0	1.0000	20.5	0.9999	30.5	64
6	705	BAITUN13A	13.800	G1	38.0	-6.6	26.6	-26.6	1.0000	38.6	0.9852	50.6	64
6	720	PLANETA13.8	13.800	G1	3.3	2.0	2.0	-2.0	0.9537	4.1	0.8576	6.2	64
6	SUBSYSTEM TOTALS				737.6	74.3	501.8	-337.8				1237.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:15
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2011 ESC-MOD DEMANDA-MIN-INVIERNO

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																	
7	129		MIR13D		13.800	G4	21.2	5.9	15.0	0.0	1.0000	22.0	0.9636	44.1			65
7	140		GAT6A		6.9000	G1	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9561	4.1			65
7	140		GAT6A		6.9000	G2	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9561	4.1			65
7	140		GAT6A		6.9000	G3	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9561	4.1			65
7	141		GAT6B		6.9000	G4	3.6	-1.3	3.0	-3.0	1.0000	3.8	0.9399	5.6			65
7	141		GAT6B		6.9000	G5	3.6	-1.3	3.0	-3.0	1.0000	3.8	0.9399	6.2			65
7	141		GAT6B		6.9000	G6	3.6	-1.3	3.0	-3.0	1.0000	3.8	0.9399	6.2			65
7	171		MIR13H		13.800	M1	15.8	6.8	11.2	6.8	1.0258	16.8	0.9185	23.0			65

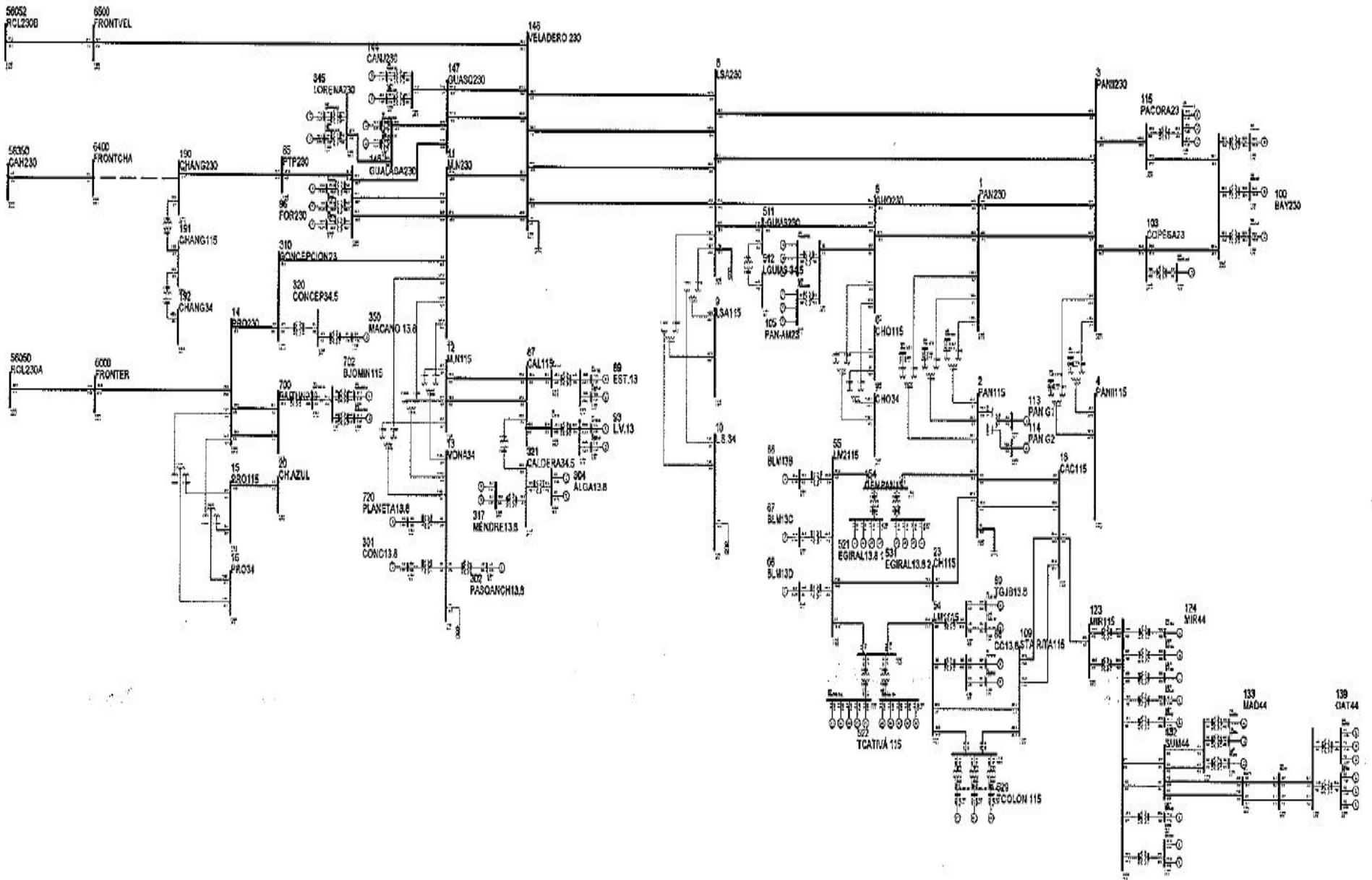
171 MIR13H	13.800 M2	15.8	6.8	11.2	6.8	1.0258	16.8	0.9185	23.0
7									
SUBSYSTEM TOTALS		69.1	13.9	52.3	-1.4				120.6

65

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MIN-INVIERNO 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	1213.4	1330.8	0.0	0.0	0.0	-158.5	41.0	-158.5
GUATEMAL	196.1	275.1	-197.8	0.0	276.6	27.4	368.1	
2	872.4	855.0	0.0	0.0	0.0	0.0	17.4	0.0
SALVADOR	91.6	224.2	-70.5	0.0	227.7	-28.4	194.0	
3	1239.0	1203.0	0.0	0.0	0.0	0.0	36.0	0.0
HONDURAS	480.8	321.1	-47.0	0.0	292.2	52.2	446.8	
4	534.6	525.2	0.0	0.0	0.0	0.0	9.3	0.0
NICARAGU	51.0	207.6	-57.2	0.0	180.7	-49.7	131.0	
5	1300.7	1280.2	0.0	0.0	0.0	0.0	20.5	0.0
COSTA RI	227.8	520.4	-229.5	0.0	416.0	39.9	313.0	
6	737.6	612.0	0.0	0.0	0.0	111.7	13.9	111.5
PANAMA	74.3	222.1	155.8	0.0	437.8	-40.6	174.7	
7	69.1	21.9	0.0	0.0	0.0	46.7	0.4	47.0
ACANAL	13.9	8.0	0.0	0.0	0.0	-0.8	6.7	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	5966.6	5828.1	0.0	0.0	0.0	0.0	138.5	0.0
	1135.5	1778.3	-446.2	0.0	1831.0	0.0	1634.4	

2.3 Demanda Máxima de Verano



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:26

PLAN DE EXPANSION DEL SIN JUNIO-2010

AÑO 2011 ESC-MOD DEMANDA-MAX-VERANO

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	230.06	11		M.N230		230.00	6	1.0080	231.85
14		PRO230		230.00	6	1.0199	234.58	96		FOR230		230.00	6	1.0049	231.12
100		BAY230		230.00	6	1.0269	236.19	103		COPESA23		230.00	6	1.0047	231.07
115		PACORA23		230.00	6	1.0085	231.95	144		CANJ230		230.00	6	1.0067	231.55
146		GUALACA230		230.00	6	1.0088	232.02	147		GUASQ230		230.00	6	1.0066	231.52
148		VELADERO	230	230.00	6	1.0093	232.15	310		CONCEPCION23	230	230.00	6	1.0145	233.34
345		LORENA230		230.00	6	1.0101	232.33	700		BAITUN230		230.00	6	1.0200	234.60
6000		FRONTER		230.00	6	1.0214	234.93	6400		FRONTCHA		230.00	6	1.0402	239.25
6500		FRONTVEL		230.00	6	1.0256	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	0.9967	229.25	5		CHO230		230.00	6	0.9952	228.90
8		LSA230		230.00	6	0.9949	228.82	85		PTP230		230.00	6	0.9900	227.70
105		PAN-AM23		230.00	6	0.9952	228.90	190		CHANG230		230.00	6	0.9868	226.97
511		LGUIAS230		230.00	6	0.9948	228.81								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:26

PLAN DE EXPANSION DEL SIN JUNIO-2010

AÑO 2011 ESC-MOD DEMANDA-MAX-VERANO

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)
4		PANII115		115.00	6	1.0019	115.21	9		LSA115		115.00	6	1.0357	119.11
12		M.N115		115.00	6	1.0024	115.27	15		PRO115		115.00	6	1.0217	117.50
20		CH.AZUL		115.00	6	1.0225	117.59	23		CH115		115.00	6	1.0042	115.49
54		LM1115		115.00	6	1.0363	119.17	55		LM2115		115.00	6	1.0366	119.21
61		FFIELD		115.00	6	1.0334	118.84	87		CAL115		115.00	6	1.0138	116.59
88		EST115		115.00	6	1.0166	116.91	92		L.V115		115.00	6	1.0149	116.72
109		STA RITA115		115.00	6	1.0348	119.00	123		MIR115		115.00	7	1.0035	115.41
154		CEMPAN15		115.00	6	1.0325	118.74	522		TCATIVÁ	115	115.00	6	1.0367	119.22
529		TCOLON	115	115.00	6	1.0388	119.46	702		BJOMIN115		115.00	6	1.0009	115.10

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)
2		PAN115		115.00	6	0.9972	114.68	6		CHO115		115.00	6	0.9964	114.59
18		CAC115		115.00	6	0.9971	114.67	19		C.V115		115.00	6	0.9925	114.14
21		C.BAN115		115.00	6	0.9881	113.63	26		LOC115		115.00	6	0.9891	113.74
30		MAR115		115.00	6	0.9880	113.62	33		STM115		115.00	6	0.9954	114.47
37		SAN115		115.00	6	0.9872	113.53	48		TINAJ115		115.00	6	0.9949	114.41
50		M.O115		115.00	6	0.9950	114.43	52		TOC115		115.00	6	0.9992	114.91

191 CHANG115 115.00 6 0.9823 112.97 701 BAITUN115 115.00 6 0.9986 114.84

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:26
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-VERANO

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
6	66	BLM13B	13.800	V2	38.0	5.1	25.0	0.0	0.9950	38.5	0.9911	47.0		62
6	67	BLM13C	13.800	V3	38.0	5.1	25.0	0.0	0.9950	38.5	0.9911	47.0		62
6	68	BLM13D	13.800	V4	38.0	5.2	25.0	0.0	0.9950	38.5	0.9908	47.0		62
6	90	EST-13L	13.800	E1	19.9	4.2	12.0	-5.0	0.9800	20.8	0.9783	27.0		64
6	91	EST-13T	13.800	E2	19.9	4.2	12.0	-5.0	0.9800	20.8	0.9783	27.0		64
6	94	LV-13.8L	13.800	L1	23.2	4.9	12.0	-5.0	0.9800	24.2	0.9780	27.0		64
6	95	LV-13.8T	13.800	L2	23.2	4.9	12.0	-5.0	0.9800	24.2	0.9780	27.0		64
6	97	FOR13A	13.800	F1	73.0	-19.2	50.0	-50.0	0.9800	77.0	0.9671	111.0		64
6	98	FOR13B	13.800	F2	73.0	-19.2	50.0	-50.0	0.9800	77.0	0.9671	111.0		64
6	99	FOR13C	13.800	F3	73.0	-19.2	50.0	-50.0	0.9800	77.0	0.9671	111.0		64
6	101	BAY13A	13.800	B1	58.5	19.4	50.0	-25.0	1.0000	61.7	0.9490	96.0		61
6	102	BAY13B	13.800	B2	58.5	19.4	50.0	-25.0	1.0000	61.7	0.9490	96.0		61
6	108	BAY13C	13.800	B3	58.5	19.4	50.0	-25.0	1.0000	61.7	0.9490	100.0		61
6	116	PACORA13	13.800	P1	17.0	0.3	8.8	0.0	1.0000	17.0	0.9998	21.7		61
6	116	PACORA13	13.800	P2	17.0	0.3	8.8	0.0	1.0000	17.0	0.9998	21.7		61
6	116	PACORA13	13.800	P3	17.0	0.3	8.8	0.0	1.0000	17.0	0.9998	21.7		61
6	142	CANJ13A	13.800	C1	35.7	7.6	29.0	-29.0	0.9800	37.2	0.9781	69.0		64
6	143	CANJ13B	13.800	C2	35.7	7.6	29.0	-29.0	0.9800	37.2	0.9781	69.0		64
6	150	GUALACA	13-213.800	G2	14.0	-4.3	7.4	-7.4	0.9900	14.8	0.9567	14.8		64

6	151	GUALACA13.8	13.800	G1	14.0	-4.3	7.4	-7.4	0.9900	14.8	0.9567	14.8	64
6	301	CONC13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9629	10.6	0.8716	13.5	64
6	302	PASOANCH13.8	13.800	P1	4.6	2.0	2.0	-2.0	0.9611	5.2	0.9180	6.2	64
6	304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0738	4.9	0.9019	5.7	64
6	304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0738	4.9	0.9019	5.7	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0758	8.7	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0758	8.7	1.0000	35.3	64
6	342	LORENA13.8	13.800	L1	11.3	-3.2	10.5	-5.0	1.0000	11.7	0.9621	19.9	64
6	346	LORENA 13-2	13.800	L2	11.3	-3.2	10.5	-5.0	1.0000	11.7	0.9621	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0556	3.1	0.9514	6.2	64
6	521	EGIRAL13.8	113.800	G1	3.6	1.3	2.8	1.3	1.0056	3.8	0.9400	4.8	63
6	521	EGIRAL13.8	113.800	G2	3.6	1.3	2.8	1.3	1.0056	3.8	0.9400	4.8	63
6	521	EGIRAL13.8	113.800	G3	3.6	1.3	2.8	1.3	1.0056	3.8	0.9400	4.8	63
6	521	EGIRAL13.8	113.800	G4	3.6	1.3	2.8	1.3	1.0056	3.8	0.9400	4.8	63
6	523	TCATIVÁ 13A	13.800	G1	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	523	TCATIVÁ 13A	13.800	G5	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	0.6	6.6	-6.6	0.9900	8.4	0.9972	10.9	62

6	525	TCOLON 13A	13.800	G1	36.9	19.3	19.3	19.3	1.0263	40.5	0.8862	44.4	62
6	526	TCOLON 13B	13.800	G2	36.9	19.3	19.3	19.3	1.0263	40.5	0.8862	44.4	62
6	527	TCOLON 13C	13.800	V1	36.9	19.3	19.3	19.3	1.0263	40.5	0.8862	44.4	62
6	531	EGIRAL13.8	213.800	G5	8.2	3.0	6.4	3.0	1.0065	8.7	0.9391	10.9	62
6	531	EGIRAL13.8	213.800	G6	8.2	3.0	6.4	3.0	1.0065	8.7	0.9391	10.9	62
6	531	EGIRAL13.8	213.800	G7	8.2	3.0	6.4	3.0	1.0065	8.7	0.9391	10.9	62
6	531	EGIRAL13.8	213.800	G8	8.2	3.0	6.4	3.0	1.0065	8.7	0.9391	10.9	62
6	703	BJOMIN13A	13.800	G1	26.6	2.3	13.0	-13.0	1.0000	26.7	0.9962	30.5	64
6	704	BJOMIN13B	13.800	G2	26.6	2.3	13.0	-13.0	1.0000	26.7	0.9962	30.5	64
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9611	5.1	0.9145	6.2	64
6	SUBSYSTEM TOTALS				1110.6	125.0	744.1	-358.9				1627.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:26
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MAX-VERANO

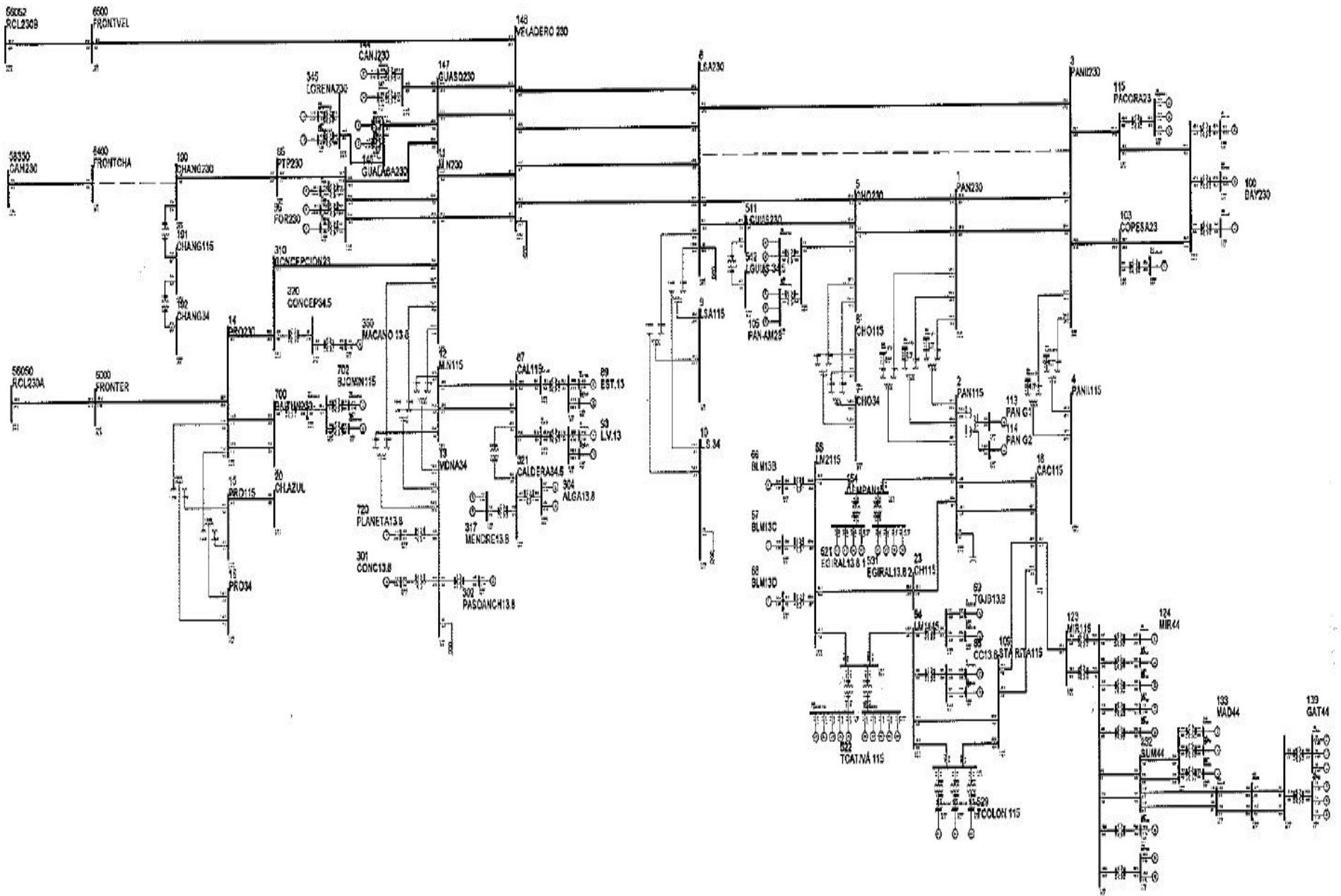
AREA 7 [ACANAL] MACHINE SUMMARY:																	
	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																	
7	129		MIR13D		13.800	G4	16.0	1.8	15.0	0.0	1.0000	16.1	0.9937	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0137	16.9	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9164	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9164	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9164	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9244	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9244	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9244	6.2			65

7	170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0281	17.8	0.9281	23.0	65
7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0371	17.7	0.9281	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0371	17.7	0.9281	23.0	65
	SUBSYSTEM TOTALS		101.5	14.9	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E TUE, MAY 25 2010 9:14
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MAX-VERANO 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	1371.7 200.0	1330.8 275.1	0.0 -198.7	0.0 0.0	0.0 277.7	-2.9 0.5	43.8 400.8	-3.0
2 SALVADOR	868.7 73.1	855.0 224.2	0.0 -70.8	0.0 0.0	0.0 229.1	0.0 -26.2	13.7 175.0	0.0
3 HONDURAS	1236.8 461.5	1203.0 321.1	0.0 -47.3	0.0 0.0	0.0 294.0	0.0 54.1	33.8 427.6	0.0
4 NICARAGU	532.0 32.9	525.2 207.6	0.0 -57.8	0.0 0.0	0.0 182.3	0.0 -47.2	6.7 112.6	0.0
5 COSTA RI	1296.6 200.2	1280.2 520.4	0.0 -230.9	0.0 0.0	0.0 419.4	0.0 29.4	16.4 300.7	0.0
6 PANAMA	1110.6 125.0	1137.9 231.1	0.0 14.8	0.0 0.0	0.0 448.5	-57.5 -6.9	30.2 334.5	-57.0
7 ACANAL	101.5 14.9	40.8 8.3	0.0 0.0	0.0 0.0	0.0 0.0	60.3 -3.9	0.5 10.5	60.0
10 MEXICO	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0
TOTALS	6517.9 1107.6	6372.8 1787.6	0.0 -590.7	0.0 0.0	0.0 1851.0	0.0 0.0	145.1 1761.7	0.0

2.4 Demanda Mínima de Verano



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:29
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MIN-VERANO

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	1.0057	231.31	14	PRO230	230.00	6	1.0157	233.62				
96	FOR230	230.00	6	1.0054	231.23	100	BAY230	230.00	6	1.0097	232.23				
144	CANJ230	230.00	6	1.0066	231.51	146	GUALACA230	230.00	6	1.0076	231.75				
147	GUASQ230	230.00	6	1.0065	231.50	148	VELADERO 230	230.00	6	1.0058	231.33				
310	CONCEPCION230	230.00	6	1.0110	232.54	345	LORENA230	230.00	6	1.0085	231.95				
700	BAITUN230	230.00	6	1.0161	233.69	6000	FRONTER	230.00	6	1.0168	233.87				
6400	FRONTCHA	230.00	6	1.0345	237.94	6500	FRONTVEL	230.00	6	1.0203	234.68				

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	PAN230	230.00	6	0.9907	227.85	3	PANII230	230.00	6	0.9926	228.31				
5	CHO230	230.00	6	0.9930	228.38	8	LSA230	230.00	6	0.9959	229.06				
85	PTP230	230.00	6	0.9995	229.87	103	COPESA23	230.00	6	0.9957	229.00				
105	PAN-AM23	230.00	6	0.9930	228.38	115	PACORA23	230.00	6	0.9984	229.62				
190	CHANG230	230.00	6	0.9978	229.49	511	LGUIAS230	230.00	6	0.9965	229.19				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:29
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MIN-VERANO

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)
9	LSA115	115.00	6	1.0390	119.48	12	M.N115	115.00	6	1.0086	115.99				
15	PRO115	115.00	6	1.0176	117.02	20	CH.AZUL	115.00	6	1.0183	117.11				
54	LM115	115.00	6	1.0159	116.83	55	LM2115	115.00	6	1.0169	116.94				
61	FFIELD	115.00	6	1.0144	116.66	87	CAL115	115.00	6	1.0146	116.68				
88	EST115	115.00	6	1.0160	116.84	92	L.V115	115.00	6	1.0151	116.74				
109	STA RITA115	115.00	6	1.0124	116.42	154	CEMPAN15	115.00	6	1.0158	116.82				
522	TCATIVÁ 115	115.00	6	1.0167	116.92	529	TCOLON 115	115.00	6	1.0142	116.63				
701	BAITUN115	115.00	6	1.0057	115.65	702	BJOMIN115	115.00	6	1.0061	115.70				

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)
2	PAN115	115.00	6	0.9842	113.19	4	PANII115	115.00	6	0.9930	114.20				
6	CHO115	115.00	6	0.9940	114.31	18	CAC115	115.00	6	0.9843	113.20				
19	C.V115	115.00	6	0.9847	113.24	21	C.BAN115	115.00	6	0.9783	112.50				
23	CH115	115.00	6	0.9910	113.97	26	LOC115	115.00	6	0.9789	112.57				
30	MAR115	115.00	6	0.9779	112.45	33	STM115	115.00	6	0.9829	113.03				
37	SAN115	115.00	6	0.9779	112.46	48	TINAJ115	115.00	6	0.9826	113.00				
50	M.O115	115.00	6	0.9827	113.01	52	TOC115	115.00	6	0.9910	113.97				
123	MIR115	115.00	7	0.9918	114.05	191	CHANG115	115.00	6	0.9940	114.31				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:29
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2011 ESC-MOD DEMANDA-MIN-VERANO

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																
6		66		BLM13B		13.800	V2	38.0	6.8	25.0	0.0	0.9800	39.4	0.9845	47.0	62
6		67		BLM13C		13.800	V3	38.0	6.8	25.0	0.0	0.9800	39.4	0.9845	47.0	62
6		68		BLM13D		13.800	V4	38.0	7.0	25.0	0.0	0.9800	39.4	0.9837	47.0	62
6		90		EST-13L		13.800	E1	19.2	4.5	12.0	-5.0	0.9800	20.1	0.9736	27.0	64
6		94		LV-13.8L		13.800	L1	21.6	4.9	12.0	-5.0	0.9800	22.6	0.9749	27.0	64
6		97		FOR13A		13.800	F1	74.2	-19.5	50.0	-50.0	0.9800	78.3	0.9671	111.0	64
6		98		FOR13B		13.800	F2	74.2	-19.5	50.0	-50.0	0.9800	78.3	0.9671	111.0	64
6		101		BAY13A		13.800	B1	48.1	15.7	50.0	-25.0	0.9800	51.7	0.9508	96.0	61
6		102		BAY13B		13.800	B2	47.8	15.7	50.0	-25.0	0.9800	51.3	0.9502	96.0	61
6		116		PACORA13		13.800	P1	17.0	0.0	8.8	0.0	0.9890	17.2	1.0000	21.7	61
6		116		PACORA13		13.800	P2	17.0	0.0	8.8	0.0	0.9890	17.2	1.0000	21.7	61
6		116		PACORA13		13.800	P3	17.0	0.0	8.8	0.0	0.9890	17.2	1.0000	21.7	61
6		142		CANJ13A		13.800	C1	48.0	11.1	29.0	-29.0	0.9800	50.3	0.9743	69.0	64
6		150		GUALACA	13-213.800	G2		12.0	-6.5	7.4	-7.4	0.9800	13.9	0.8800	14.8	64
6		301		CONC13.8		13.800	G1	8.0	4.0	4.0	-4.0	0.9509	9.4	0.8944	13.5	64
6		302		PASOANCH13.8		13.800	P1	4.0	2.0	2.0	-2.0	0.9497	4.7	0.8944	6.2	64
6		304		ALGA13.8		13.800	A1	4.1	-2.3	2.3	-2.3	1.0776	4.3	0.8748	5.7	64
6		304		ALGA13.8		13.800	A2	4.1	-2.3	2.3	-2.3	1.0776	4.3	0.8748	5.7	64
6		317		MENDRE13.8		13.800	M1	7.9	0.0	0.0	0.0	1.0803	7.3	1.0000	35.3	64
6		342		LORENA13.8		13.800	L1	13.5	-2.6	10.5	-5.0	1.0000	13.8	0.9826	19.9	64

6	350	MACANO	13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0520	3.1	0.9514	6.2	64
6	521	EGIRAL	13.8	113.800	G1	3.6	1.6	2.8	1.3	0.9950	3.9	0.9162	4.8	63
6	521	EGIRAL	13.8	113.800	G2	3.6	1.6	2.8	1.3	0.9950	3.9	0.9162	4.8	63
6	521	EGIRAL	13.8	113.800	G3	3.6	1.6	2.8	1.3	0.9950	3.9	0.9162	4.8	63
6	521	EGIRAL	13.8	113.800	G4	3.6	1.6	2.8	1.3	0.9950	3.9	0.9162	4.8	63
6	523	TCATIVÁ	13A	13.800	G1	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	523	TCATIVÁ	13A	13.800	G2	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	523	TCATIVÁ	13A	13.800	G3	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	523	TCATIVÁ	13A	13.800	G4	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	523	TCATIVÁ	13A	13.800	G5	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	524	TCATIVÁ	13B	13.800	G0	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	524	TCATIVÁ	13B	13.800	G6	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	524	TCATIVÁ	13B	13.800	G7	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	524	TCATIVÁ	13B	13.800	G8	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	524	TCATIVÁ	13B	13.800	G9	8.3	3.0	6.6	-6.6	0.9900	8.9	0.9413	10.9	62
6	531	EGIRAL	13.8	213.800	G5	8.2	3.0	6.4	3.0	0.9909	8.8	0.9391	10.9	62
6	531	EGIRAL	13.8	213.800	G6	8.2	3.0	6.4	3.0	0.9909	8.8	0.9391	10.9	62
6	531	EGIRAL	13.8	213.800	G7	8.2	3.0	6.4	3.0	0.9909	8.8	0.9391	10.9	62
6	531	EGIRAL	13.8	213.800	G8	8.2	3.0	6.4	3.0	0.9909	8.8	0.9391	10.9	62
6	703	BJOMIN	13A	13.800	G1	22.4	-0.6	13.0	-13.0	0.9900	22.6	0.9997	30.5	64
6	720	PLANETA	13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9497	5.2	0.9145	6.2	64
6	SUBSYSTEM TOTALS					711.5	74.1	501.4	-276.3				1059.6	

AÑO 2011 ESC-MOD DEMANDA-MIN-VERANO

AREA 7 [ACANAL] MACHINE SUMMARY:

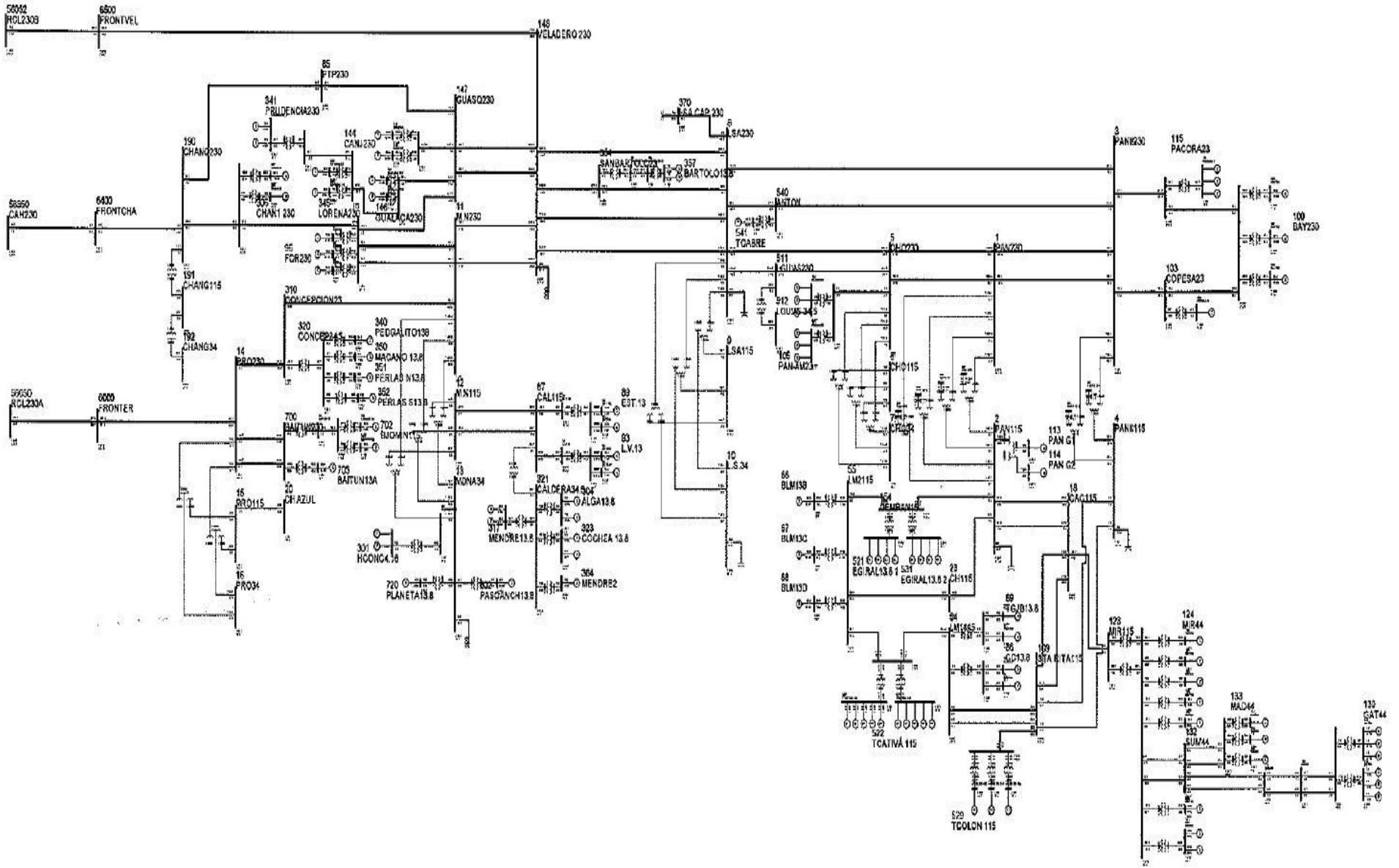
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																
129		MIR13D		13.800	G4	7.3	5.1	15.0	0.0	1.0000	8.9	0.8202	44.1			65
7		AREA														
140		GAT6A		6.9000	G1	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9588	4.1			65
7																
140		GAT6A		6.9000	G2	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9588	4.1			65
7																
140		GAT6A		6.9000	G3	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9588	4.1			65
7																
141		GAT6B		6.9000	G4	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9465	5.6			65
7																
141		GAT6B		6.9000	G5	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9465	6.2			65
7																
141		GAT6B		6.9000	G6	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9465	6.2			65
7																
170		MIR13G		13.800	M1	15.0	6.8	11.2	6.8	1.0234	16.1	0.9103	23.0			65
7																
171		MIR13H		13.800	M1	15.0	6.8	11.2	6.8	1.0328	16.0	0.9103	23.0			65
7																
171		MIR13H		13.800	M2	15.0	6.8	11.2	6.8	1.0328	16.0	0.9103	23.0			65
7																
SUBSYSTEM TOTALS						69.7	19.9	63.5	5.5				143.6			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:29
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2011 ESC-MOD DEMANDA-MIN-VERANO 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		1257.1	1330.8	0.0	0.0	0.0	-115.8	42.0	-123.5
			202.3	275.1	-198.2	0.0	277.2	20.1	382.6	
2	SALVADOR		868.9	855.0	0.0	0.0	0.0	-1.8	15.7	0.0
			82.3	224.2	-70.6	0.0	228.4	-27.4	184.6	
3	HONDURAS		1236.8	1203.0	0.0	0.0	0.0	-1.1	34.9	0.0
			471.2	321.1	-47.2	0.0	293.2	52.9	437.5	
4	NICARAGU		531.9	525.2	0.0	0.0	0.0	-1.3	8.0	0.0
			41.7	207.6	-57.5	0.0	181.5	-48.6	121.7	
5	COSTA RI		1296.1	1280.2	0.0	0.0	0.0	-3.1	19.0	0.0
			206.5	520.4	-230.3	0.0	418.0	29.8	304.7	

6	711.5	625.8	0.0	0.0	0.0	76.0	9.6	76.5
PANAMA	74.1	227.1	155.3	0.0	409.8	-31.8	133.2	
7	69.7	22.4	0.0	0.0	0.0	47.0	0.3	47.0
ACANAL	19.9	8.1	0.0	0.0	0.0	5.0	6.7	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	5971.9	5842.4	0.0	0.0	0.0	0.0	129.5	0.0
	1097.9	1783.5	-448.5	0.0	1808.1	0.0	1570.9	

3.1 Demanda Máxima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 13:09

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
3		PANII230		230.00	6	1.0013	230.31
14		PRO230		230.00	6	1.0111	232.54
96		FOR230		230.00	6	1.0025	230.58
103		COPESA23		230.00	6	1.0056	231.29
144		CANJ230		230.00	6	1.0005	230.11
147		GUASQ230		230.00	6	1.0004	230.09
306		CHAN1 230		230.00	6	1.0121	232.77
341		PRUDENCIA230		230.00	6	1.0107	232.47
540		ANTON		230.00	6	1.0127	232.92
6000		FRONTER		230.00	6	1.0121	232.78
6500		FRONTVEL		230.00	6	1.0141	233.25

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
11		M.N230		230.00	6	1.0013	230.31
85		PTP230		230.00	6	1.0060	231.39
100		BAY230		230.00	6	1.0266	236.12
115		PACORA23		230.00	6	1.0081	231.87
146		GUALACA230		230.00	6	1.0045	231.03
190		CHANG230		230.00	6	1.0137	233.15
310		CONCEPCION230		230.00	6	1.0090	232.07
345		LORENA230		230.00	6	1.0084	231.94
700		BAITUN230		230.00	6	1.0105	232.41
6400		FRONTCHA		230.00	6	1.0157	233.61

BUSES WITH VOLTAGE LESS THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
1		PAN230		230.00	6	0.9946	228.76
8		LSA230		230.00	6	0.9992	229.82
148		VELADERO 230		230.00	6	0.9965	229.20
370		LSA CAP 230		230.00	6	0.9992	229.82

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
5		CHO230		230.00	6	0.9900	227.70
105		PAN-AM23		230.00	6	0.9900	227.70
354		SANBARTOLO230		230.00	6	0.9956	228.99
511		LGUIAS230		230.00	6	0.9908	227.88

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 13:09

BUSES WITH VOLTAGE GREATER THAN 1.0000:

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
4		PANII115		115.00	6	1.0211	117.43
12		M.N115		115.00	6	1.0004	115.04
19		C.V115		115.00	6	1.0064	115.73
52		TOC115		115.00	6	1.0185	117.12
55		LM2115		115.00	6	1.0184	117.12
87		CAL115		115.00	6	1.0177	117.03
92		L.V115		115.00	6	1.0191	117.20
123		MIR115		115.00	7	1.0033	115.38
191		CHANG115		115.00	6	1.0093	116.07

BUS#	X--	NAME	--X	BASKV	AREA	V(PU)	V(KV)
9		LSA115		115.00	6	1.0452	120.19
15		PRO115		115.00	6	1.0129	116.48
20		CH.AZUL		115.00	6	1.0136	116.57
54		LM1115		115.00	6	1.0175	117.01
61		FFIELD		115.00	6	1.0144	116.66
88		EST115		115.00	6	1.0214	117.46
109		STA RITA115		115.00	6	1.0161	116.86
154		CEMPAN15		115.00	6	1.0113	116.30
522		TCATIVÁ 115		115.00	6	1.0181	117.08

317	MENDRE13.8	13.800	M2	9.2	0.0	0.0	0.0	1.0854	8.5	1.0000	35.3	64	6	
323	COCHEA	13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0858	5.0	1.0000	35.3	64	6
323	COCHEA	13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0858	5.0	1.0000	35.3	64	6
340	PEDGALITO13813.800	P1	21.0	6.4	12.0	-5.0	0.9920	22.1	0.9571	27.0	64	6		
342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	0.9927	13.1	0.9228	19.9	64	6	
343	PRUDENCIA_1	13.800	G1	21.8	-4.2	9.8	-9.8	0.9920	22.4	0.9816	33.0	64	6	
343	PRUDENCIA_1	13.800	G2	21.8	-4.2	9.8	-9.8	0.9920	22.4	0.9816	33.0	64	6	
346	LORENA 13-2	13.800	L2	12.0	-5.0	10.5	-5.0	0.9927	13.1	0.9228	19.9	64	6	
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0787	3.0	0.9514	6.2	64	6	
351	PERLAS N13.813.800	G1	9.0	5.0	5.0	-5.0	0.9825	10.5	0.8742	13.5	64	6		
352	PERLAS S13.813.800	G1	9.0	5.0	5.0	-5.0	0.9825	10.5	0.8742	13.5	64	6		
357	BARTOLO13.8	13.800	G1	7.2	0.3	3.7	-3.7	0.9920	7.3	0.9990	8.5	64	6	
357	BARTOLO13.8	13.800	G2	7.2	0.3	3.7	-3.7	0.9920	7.3	0.9990	8.5	64	6	
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9875	8.6	0.8911	8.9	64	6	
523	TCATIVÁ 13A	13.800	G1	8.3	1.6	6.6	-6.6	0.9800	8.6	0.9827	10.9	62	6	
523	TCATIVÁ 13A	13.800	G2	8.3	1.6	6.6	-6.6	0.9800	8.6	0.9827	10.9	62	6	
523	TCATIVÁ 13A	13.800	G3	8.3	1.6	6.6	-6.6	0.9800	8.6	0.9827	10.9	62	6	
523	TCATIVÁ 13A	13.800	G4	8.3	1.6	6.6	-6.6	0.9800	8.6	0.9827	10.9	62	6	
523	TCATIVÁ 13A	13.800	G5	8.3	1.6	6.6	-6.6	0.9800	8.6	0.9827	10.9	62	6	
541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0137	24.7	1.0000	88.9	64	6	
703	BJOMIN13A	13.800	G1	25.0	2.0	13.0	-13.0	0.9920	25.3	0.9967	30.5	64	6	
704	BJOMIN13B	13.800	G2	25.0	2.0	13.0	-13.0	0.9920	25.3	0.9967	30.5	64	6	
705	BAITUN13A	13.800	G1	40.0	-6.2	26.6	-26.6	0.9920	40.8	0.9880	50.6	64	6	
706	BAITUN13B	13.800	G2	40.0	-6.2	26.6	-26.6	0.9920	40.8	0.9880	50.6	64	6	
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9523	5.2	0.9145	6.2	64	6	
SUBSYSTEM TOTALS				1177.0	123.6	741.2	-545.2				1823.0			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:09
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO

AREA 7 [ACANAL] MACHINE SUMMARY:

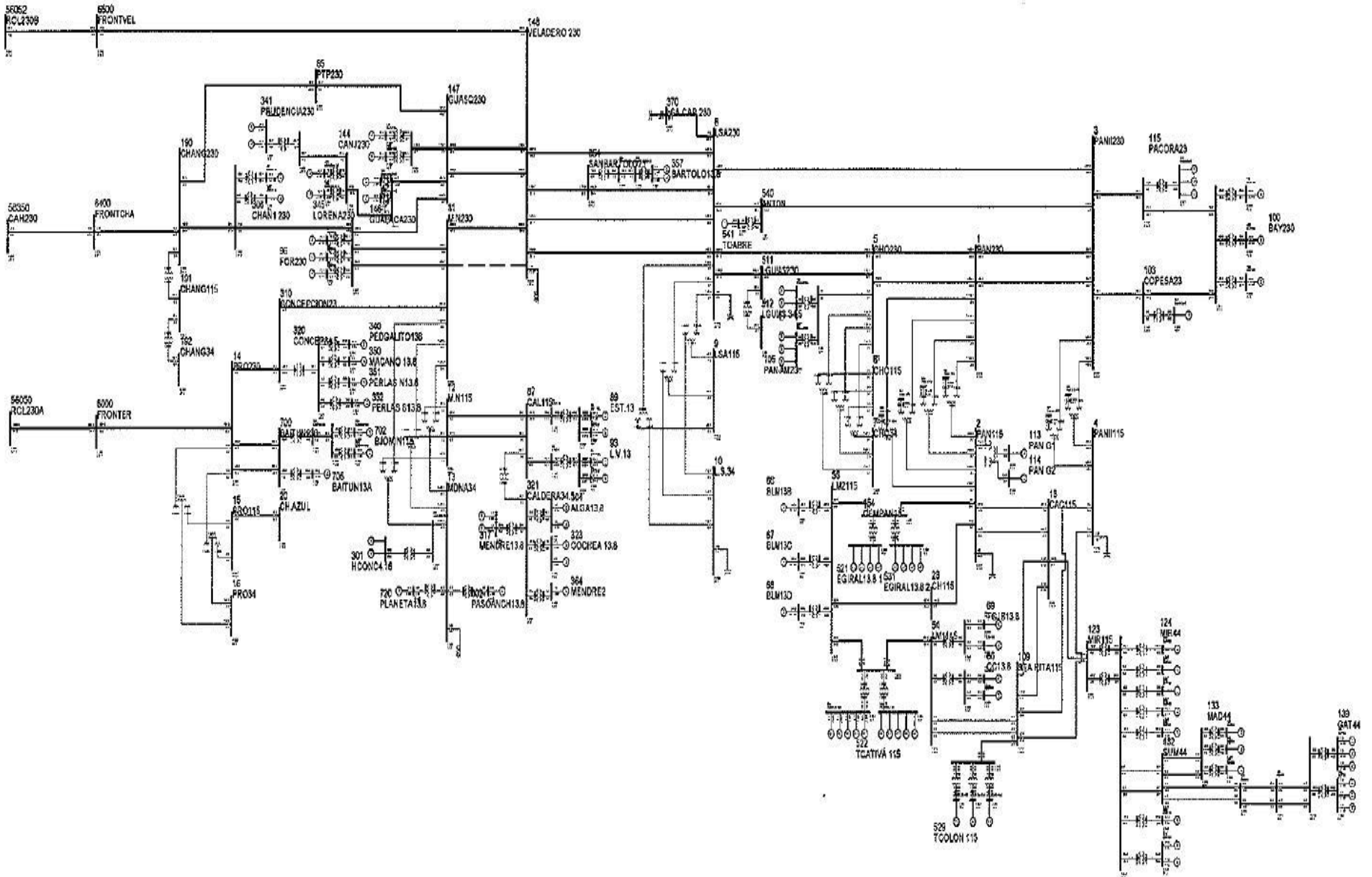
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	16.4	1.3	15.0	0.0	1.0000	16.4	0.9970	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0148	16.9	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.7	2.0	-2.0	1.0000	2.1	0.9348	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.7	2.0	-2.0	1.0000	2.1	0.9348	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.7	2.0	-2.0	1.0000	2.1	0.9348	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.1	0.9337	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.1	0.9337	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.1	0.9337	6.2			65	7

170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0292	17.8	0.9281	23.0	65	7
171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0383	17.6	0.9281	23.0	65	7
171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0383	17.6	0.9281	23.0	65	7
SUBSYSTEM TOTALS		101.9	15.1	71.5	5.5				171.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:09
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO 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	1363.4	1330.8	0.0	0.0	0.0	-10.9	43.4	-10.8
GUATEMAL	198.2	275.1	-198.7	0.0	277.8	2.0	397.7	
2	868.7	855.0	0.0	0.0	0.0	0.0	13.7	0.0
SALVADOR	72.9	224.2	-70.8	0.0	229.1	-26.3	174.9	
3	1236.8	1203.0	0.0	0.0	0.0	0.0	33.8	0.0
HONDURAS	461.3	321.1	-47.3	0.0	294.0	54.1	427.6	
4	531.9	525.2	0.0	0.0	0.0	0.0	6.7	0.0
NICARAGU	32.9	207.6	-57.8	0.0	182.3	-47.0	112.3	
5	1296.3	1280.2	0.0	0.0	0.0	-0.3	16.4	0.0
COSTA RI	217.8	520.4	-230.3	0.0	417.0	44.2	300.5	
6	1177.0	1158.8	0.0	0.0	0.0	-48.6	66.8	-49.2
PANAMA	123.6	235.3	-227.0	0.0	494.2	-23.4	632.9	
7	101.9	41.5	0.0	0.0	0.0	59.8	0.6	60.0
ACANAL	15.1	8.4	0.0	0.0	0.0	-3.5	10.2	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6576.0	6394.5	0.0	0.0	0.0	0.0	181.5	0.0
	1121.8	1792.0	-831.9	0.0	1894.4	0.0	2056.1	

3.1.1. Contingencia Mata de Nance - Veladero



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:23
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

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)
14		PRO230		230.00	6	1.0054	231.24	100		BAY230		230.00	6	1.0226	235.19
115		PACORA23		230.00	6	1.0022	230.51	190		CHANG230		230.00	6	1.0095	232.18
306		CHAN1 230		230.00	6	1.0081	231.87	310		CONCEPCION23		230.00	6	1.0032	230.73
341		PRUDENCIA230		230.00	6	1.0043	230.98	345		LORENA230		230.00	6	1.0018	230.41
540		ANTON		230.00	6	1.0033	230.75	700		BAITUN230		230.00	6	1.0054	231.24
6000		FRONTER		230.00	6	1.0060	231.39	6400		FRONTCHA		230.00	6	1.0117	232.68
6500		FRONTVEL		230.00	6	1.0058	231.34								

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	0.9877	227.18	3		PANII230		230.00	6	0.9947	228.78
5		CHO230		230.00	6	0.9818	225.82	8		LSA230		230.00	6	0.9878	227.19
11		M.N230		230.00	6	0.9948	228.81	85		PTP230		230.00	6	0.9996	229.92
96		FOR230		230.00	6	0.9966	229.21	103		COPESA23		230.00	6	0.9993	229.84
105		PAN-AM23		230.00	6	0.9818	225.82	144		CANJ230		230.00	6	0.9932	228.43
146		GUALACA230		230.00	6	0.9975	229.43	147		GUASQ230		230.00	6	0.9930	228.40
148		VELADERO 230		230.00	6	0.9844	226.42	354		SANBARTOLO23		230.00	6	0.9839	226.30
370		LSA CAP 230		230.00	6	0.9878	227.19	511		LGUIAS230		230.00	6	0.9804	225.50

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:23
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

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)
4		PANII115		115.00	6	1.0148	116.70	9		LSA115		115.00	6	1.0329	118.78
15		PRO115		115.00	6	1.0072	115.83	20		CH.AZUL		115.00	6	1.0080	115.92
52		TOC115		115.00	6	1.0121	116.39	54		LM1115		115.00	6	1.0136	116.57
55		LM2115		115.00	6	1.0146	116.68	61		FFIELD		115.00	6	1.0106	116.21
87		CAL115		115.00	6	1.0150	116.73	88		EST115		115.00	6	1.0190	117.19
92		L.V115		115.00	6	1.0165	116.90	109		STA RITA115		115.00	6	1.0118	116.35
154		CEMPAN15		115.00	6	1.0068	115.78	191		CHANG115		115.00	6	1.0050	115.58
522		TCATIVÁ 115		115.00	6	1.0142	116.64	529		TCOLON 115		115.00	6	1.0118	116.36

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)
2		PAN115		115.00	6	0.9910	113.96	6		CHO115		115.00	6	0.9826	113.00
12		M.N115		115.00	6	0.9964	114.59	18		CAC115		115.00	6	0.9908	113.94
19		C.V115		115.00	6	1.0000	115.00	21		C.BAN115		115.00	6	0.9840	113.16
23		CH115		115.00	6	0.9922	114.10	26		LOC115		115.00	6	0.9845	113.21
30		MAR115		115.00	6	0.9824	112.97	33		STM115		115.00	6	0.9891	113.75
37		SAN115		115.00	6	0.9842	113.18	48		TINAJ115		115.00	6	0.9886	113.69
50		M.O115		115.00	6	0.9887	113.70	123		MIR115		115.00	7	0.9976	114.73
701		BAITUN115		115.00	6	0.9877	113.59	702		BJOMIN115		115.00	6	0.9902	113.88

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:23
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

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	16.8	25.0	0.0	1.0000	41.6	0.9146	47.0			62	6
67		BLM13C		13.800	V3	38.0	16.8	25.0	0.0	1.0000	41.6	0.9146	47.0			62	6
68		BLM13D		13.800	V4	38.0	17.5	25.0	0.0	1.0000	41.9	0.9083	47.0			62	6
90		EST-13L		13.800	E1	22.0	7.3	12.0	-5.0	0.9920	23.4	0.9488	27.0			64	6
91		EST-13T		13.800	E2	22.0	7.3	12.0	-5.0	0.9920	23.4	0.9488	27.0			64	6
94		LV-13.8L		13.800	L1	23.2	8.1	12.0	-5.0	0.9920	24.8	0.9436	27.0			64	6
95		LV-13.8T		13.800	L2	23.2	8.1	12.0	-5.0	0.9920	24.8	0.9436	27.0			64	6
97		FOR13A		13.800	F1	78.1	-0.7	50.0	-50.0	0.9920	78.7	1.0000	111.0			64	6
98		FOR13B		13.800	F2	78.1	-0.7	50.0	-50.0	0.9920	78.7	1.0000	111.0			64	6
99		FOR13C		13.800	F3	78.1	-0.7	50.0	-50.0	0.9920	78.7	1.0000	111.0			64	6
101		BAY13A		13.800	B1	50.0	22.1	50.0	-25.0	1.0000	54.6	0.9147	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	48.5	22.0	50.0	-25.0	1.0000	53.2	0.9108	96.0			61	6
108		BAY13C		13.800	B3	48.5	22.0	50.0	-25.0	1.0000	53.2	0.9108	100.0			61	6
142		CANJ13A		13.800	C1	55.1	17.7	29.0	-29.0	0.9920	58.3	0.9520	69.0			64	6
143		CANJ13B		13.800	C2	55.1	17.7	29.0	-29.0	0.9920	58.3	0.9520	69.0			64	6
150		GUALACA 13-213.800		13.800	G2	13.0	-1.5	7.4	-7.4	0.9900	13.2	0.9933	14.8			64	6
151		GUALACA13.8		13.800	G1	13.0	-1.5	7.4	-7.4	0.9900	13.2	0.9933	14.8			64	6
302		PASOANCH13.8		13.800	P1	4.8	2.0	2.0	-2.0	0.9460	5.5	0.9218	6.2			64	6
304		ALGA13.8		13.800	A1	4.6	-2.3	2.3	-2.3	1.0803	4.8	0.8981	5.7			64	6
304		ALGA13.8		13.800	A2	4.6	-2.3	2.3	-2.3	1.0803	4.8	0.8981	5.7			64	6
307		CHAN1 A		13.800	G1	80.1	-12.1	50.0	-50.0	0.9920	81.7	0.9888	118.6			64	6
317		MENDRE13.8		13.800	M1	9.2	0.0	0.0	0.0	1.0824	8.5	1.0000	35.3			64	6
317		MENDRE13.8		13.800	M2	9.2	0.0	0.0	0.0	1.0824	8.5	1.0000	35.3			64	6

323	COCHEA	13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0829	5.1	1.0000	35.3	64	6
323	COCHEA	13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0829	5.1	1.0000	35.3	64	6
340	PEDGALITO13813	13.800	P1	21.0	7.7	12.0	-5.0	0.9920	22.6	0.9385	27.0	64	6	
342	LORENA13.8	13.800	L1	12.0	-3.0	10.5	-5.0	0.9920	12.5	0.9697	19.9	64	6	
343	PRUDENCIA_1	13.800	G1	21.9	-2.5	9.8	-9.8	0.9920	22.2	0.9937	33.0	64	6	
343	PRUDENCIA_1	13.800	G2	21.9	-2.5	9.8	-9.8	0.9920	22.2	0.9937	33.0	64	6	
346	LORENA 13-2	13.800	L2	12.0	-3.0	10.5	-5.0	0.9920	12.5	0.9697	19.9	64	6	
350	MACANO	13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0755	3.0	0.9516	6.2	64	6
351	PERLAS N13.813	13.800	G1	9.0	5.0	5.0	-5.0	0.9796	10.5	0.8744	13.5	64	6	
352	PERLAS S13.813	13.800	G1	9.0	5.0	5.0	-5.0	0.9796	10.5	0.8744	13.5	64	6	
357	BARTOLO13.8	13.800	G1	7.3	1.0	3.7	-3.7	0.9920	7.4	0.9906	8.5	64	6	
357	BARTOLO13.8	13.800	G2	7.3	1.0	3.7	-3.7	0.9920	7.4	0.9906	8.5	64	6	
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9848	8.7	0.8911	8.9	64	6	
523	TCATIVÁ 13A	13.800	G1	8.3	2.0	6.6	-6.6	0.9800	8.7	0.9719	10.9	62	6	
523	TCATIVÁ 13A	13.800	G2	8.3	2.0	6.6	-6.6	0.9800	8.7	0.9719	10.9	62	6	
523	TCATIVÁ 13A	13.800	G3	8.3	2.0	6.6	-6.6	0.9800	8.7	0.9719	10.9	62	6	
523	TCATIVÁ 13A	13.800	G4	8.3	2.0	6.6	-6.6	0.9800	8.7	0.9719	10.9	62	6	
523	TCATIVÁ 13A	13.800	G5	8.3	2.0	6.6	-6.6	0.9800	8.7	0.9719	10.9	62	6	
541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0043	24.9	1.0000	88.9	64	6	
703	BJOMIN13A	13.800	G1	25.0	2.5	13.0	-13.0	0.9920	25.3	0.9952	30.5	64	6	
704	BJOMIN13B	13.800	G2	25.0	2.5	13.0	-13.0	0.9920	25.3	0.9952	30.5	64	6	
705	BAITUN13A	13.800	G1	40.0	-4.0	26.6	-26.6	0.9920	40.6	0.9950	50.6	64	6	
706	BAITUN13B	13.800	G2	40.0	-4.0	26.6	-26.6	0.9920	40.6	0.9950	50.6	64	6	
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9460	5.2	0.9145	6.2	64	6	
SUBSYSTEM TOTALS					1178.4	184.2	741.2	-545.2				1823.0		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:23
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

AREA 7 [ACANAL] MACHINE SUMMARY:

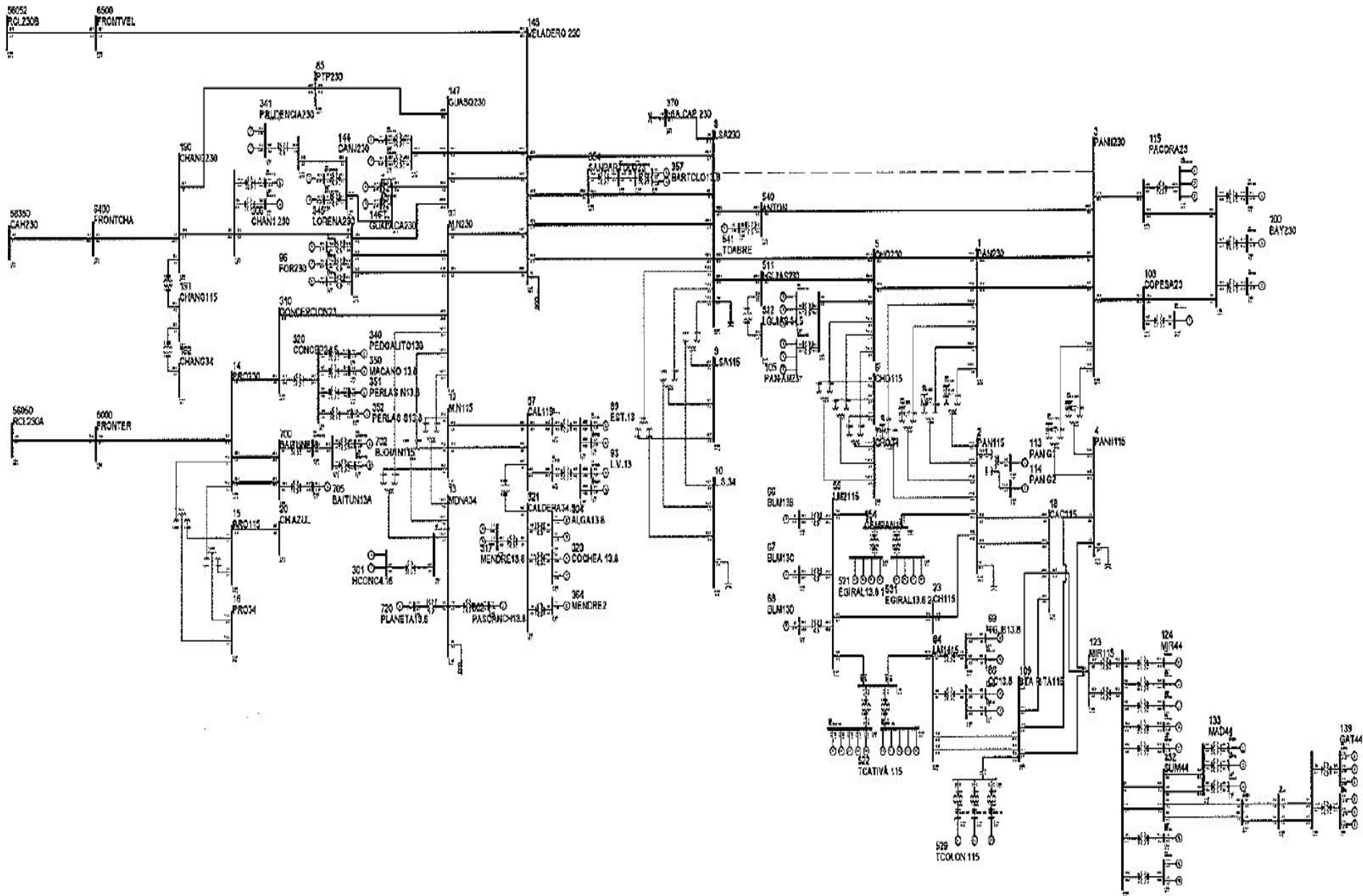
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	16.4	2.7	15.0	0.0	1.0000	16.6	0.9869	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0113	16.9	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9537	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9537	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9537	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9436	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9436	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9436	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0258	17.9	0.9282	23.0			65	7

171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0348	17.7	0.9282	23.0	65	7
171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0348	17.7	0.9282	23.0	65	7
SUBSYSTEM TOTALS		102.0	17.2	71.5	5.5				171.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL 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	1364.7	1330.8	0.0	0.0	0.0	-9.6	43.5	-10.8
GUATEMAL	198.3	275.1	-198.7	0.0	277.8	1.8	398.0	
2	869.2	855.0	0.0	0.0	0.0	0.5	13.7	0.0
SALVADOR	73.0	224.2	-70.8	0.0	229.1	-26.4	175.0	
3	1237.2	1203.0	0.0	0.0	0.0	0.4	33.8	0.0
HONDURAS	461.4	321.1	-47.3	0.0	294.0	54.0	427.6	
4	532.0	525.2	0.0	0.0	0.0	0.1	6.7	0.0
NICARAGU	33.0	207.6	-57.8	0.0	182.3	-47.0	112.4	
5	1297.0	1280.2	0.0	0.0	0.0	0.2	16.6	0.0
COSTA RI	224.7	520.4	-230.0	0.0	416.1	48.0	302.4	
6	1178.4	1158.8	0.0	0.0	0.0	-51.5	71.1	-49.2
PANAMA	184.2	235.3	-223.6	0.0	469.6	-29.0	671.1	
7	102.0	41.5	0.0	0.0	0.0	59.9	0.6	60.0
ACANAL	17.2	8.4	0.0	0.0	0.0	-1.5	10.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6580.6	6394.5	0.0	0.0	0.0	0.0	186.1	0.0
	1191.8	1792.0	-828.2	0.0	1868.8	0.0	2096.8	

3.1.2. Contingencia Llano Sánchez – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:33
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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)
100		BAY230		230.00	6	1.0018	230.42	190		CHANG230		230.00	6	1.0060	231.37
306		CHAN1		230.00	6	1.0048	231.11	700		BAITUN230		230.00	6	1.0003	230.06
6000		FRONTER		230.00	6	1.0003	230.07	6400		FRONTCHA		230.00	6	1.0083	231.91

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	0.9517	218.89	3		PANII230		230.00	6	0.9604	220.89
5		CHO230		230.00	6	0.9388	215.92	8		LSA230		230.00	6	0.9507	218.67
11		M.N230		230.00	6	0.9861	226.81	14		PRO230		230.00	6	0.9997	229.93
85		PTP230		230.00	6	0.9944	228.71	96		FOR230		230.00	6	0.9911	227.95
103		COPESA23		230.00	6	0.9671	222.43	105		PAN-AM23		230.00	6	0.9388	215.92
115		PACORA23		230.00	6	0.9717	223.49	144		CANJ230		230.00	6	0.9871	227.03
146		GUALACA230		230.00	6	0.9917	228.10	147		GUASQ230		230.00	6	0.9869	226.99
148		VELADERO		230230.00	6	0.9674	222.51	310		CONCEPCION23		230.00	6	0.9961	229.10
341		PRUDENCIA230		230.00	6	0.9989	229.75	345		LORENA230		230.00	6	0.9963	229.16
354		SANBARTOLO23		230.00	6	0.9597	220.74	370		LSA CAP 230		230.00	6	0.9507	218.67
511		LGUIAS230		230.00	6	0.9346	214.96	540		ANTON		230.00	6	0.9590	220.57
6500		FRONTVEL		230.00	6	0.9988	229.72								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:33
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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)
15		PRO115		115.00	6	1.0015	115.17	20		CH.AZUL		115.00	6	1.0022	115.26
87		CAL115		115.00	6	1.0114	116.31	88		EST115		115.00	6	1.0158	116.82
92		L.V115		115.00	6	1.0131	116.50	191		CHANG115		115.00	6	1.0015	115.18

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)
2		PAN115		115.00	6	0.9583	110.21	4		PANII115		115.00	6	0.9818	112.91

6	CHO115	115.00	6	0.9396	108.06	9	LSA115	115.00	6	0.9932	114.22
12	M.N115	115.00	6	0.9910	113.97	18	CAC115	115.00	6	0.9583	110.20
19	C.V115	115.00	6	0.9668	111.18	21	C.BAN115	115.00	6	0.9510	109.36
23	CH115	115.00	6	0.9644	110.90	26	LOC115	115.00	6	0.9515	109.42
30	MAR115	115.00	6	0.9494	109.19	33	STM115	115.00	6	0.9564	109.99
37	SAN115	115.00	6	0.9511	109.38	48	TINAJ115	115.00	6	0.9558	109.92
50	M.O115	115.00	6	0.9560	109.94	52	TOC115	115.00	6	0.9791	112.59
54	LM1115	115.00	6	0.9931	114.20	55	LM2115	115.00	6	0.9942	114.34
61	FFIELD	115.00	6	0.9901	113.86	109	STA RITA115	115.00	6	0.9887	113.70
123	MIR115	115.00	7	0.9686	111.38	154	CEMPAN15	115.00	6	0.9828	113.02
522	TCATIVÁ 115	115.00	6	0.9938	114.29	529	TCOLON 115	115.00	6	0.9887	113.70
701	BAITUN115	115.00	6	0.9844	113.21	702	BJOMIN115	115.00	6	0.9872	113.53

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:33
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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	38.1	25.0	25.0	0.0	0.9988	45.6	0.8360	47.0			62	6
67	BLM13C	13.800	V3	38.1	25.0	25.0	0.0	0.9988	45.6	0.8360	47.0			62	6
68	BLM13D	13.800	V4	38.1	25.0	25.0	0.0	0.9965	45.7	0.8360	47.0			62	6
90	EST-13L	13.800	E1	22.1	8.3	12.0	-5.0	0.9920	23.8	0.9365	27.0			64	6
91	EST-13T	13.800	E2	22.1	8.3	12.0	-5.0	0.9920	23.8	0.9365	27.0			64	6
94	LV-13.8L	13.800	L1	23.3	9.2	12.0	-5.0	0.9920	25.2	0.9306	27.0			64	6
95	LV-13.8T	13.800	L2	23.3	9.2	12.0	-5.0	0.9920	25.2	0.9306	27.0			64	6
97	FOR13A	13.800	F1	78.4	4.3	50.0	-50.0	0.9920	79.2	0.9985	111.0			64	6
98	FOR13B	13.800	F2	78.4	4.3	50.0	-50.0	0.9920	79.2	0.9985	111.0			64	6
99	FOR13C	13.800	F3	78.4	4.3	50.0	-50.0	0.9920	79.2	0.9985	111.0			64	6
101	BAY13A	13.800	B1	50.2	37.6	50.0	-25.0	1.0000	62.7	0.8007	96.0			61	6
SYST															
102	BAY13B	13.800	B2	48.7	37.5	50.0	-25.0	1.0000	61.5	0.7927	96.0			61	6
108	BAY13C	13.800	B3	48.7	37.5	50.0	-25.0	1.0000	61.5	0.7927	100.0			61	6
142	CANJ13A	13.800	C1	55.2	18.8	29.0	-29.0	0.9920	58.8	0.9468	69.0			64	6
143	CANJ13B	13.800	C2	55.2	18.8	29.0	-29.0	0.9920	58.8	0.9468	69.0			64	6
150	GUALACA 13-213.800	G2	13.1	-0.1	7.4	-7.4	0.9900	13.2	1.0000	14.8				64	6
151	GUALACA13.8	13.800	G1	13.1	-0.1	7.4	-7.4	0.9900	13.2	1.0000	14.8			64	6
302	PASOANCH13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9375	5.5	0.9223	6.2			64	6
304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0762	4.8	0.8981	5.7			64	6
304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0762	4.8	0.8981	5.7			64	6
307	CHAN1 A	13.800	G1	80.4	-8.9	50.0	-50.0	0.9920	81.6	0.9940	118.6			64	6
317	MENDRE13.8	13.800	M1	9.3	0.0	0.0	0.0	1.0782	8.7	1.0000	35.3			64	6
317	MENDRE13.8	13.800	M2	9.3	0.0	0.0	0.0	1.0782	8.7	1.0000	35.3			64	6

323	COCHEA	13.8	13.800	C1	5.6	0.0	0.0	0.0	1.0787	5.2	1.0000	35.3	64	6
323	COCHEA	13.8	13.800	C2	5.6	0.0	0.0	0.0	1.0787	5.2	1.0000	35.3	64	6
340	PEDGALITO13813.800	13.800	P1	21.1	9.4	12.0	-5.0	0.9920	23.3	0.9135	27.0	64	6	
342	LORENA13.8	13.800	L1	12.1	-1.2	10.5	-5.0	0.9920	12.2	0.9950	19.9	64	6	
343	PRUDENCIA_1	13.800	G1	22.0	-1.0	9.8	-9.8	0.9920	22.2	0.9990	33.0	64	6	
343	PRUDENCIA_1	13.800	G2	22.0	-1.0	9.8	-9.8	0.9920	22.2	0.9990	33.0	64	6	
346	LORENA 13-2	13.800	L2	12.1	-1.2	10.5	-5.0	0.9920	12.2	0.9950	19.9	64	6	
350	MACANO	13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0716	3.1	0.9521	6.2	64	6
351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9760	10.6	0.8753	13.5	64	6	
352	PERLAS S13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9760	10.6	0.8753	13.5	64	6	
357	BARTOLO13.8	13.800	G1	7.3	2.4	3.7	-3.7	0.9920	7.7	0.9499	8.5	64	6	
357	BARTOLO13.8	13.800	G2	7.3	2.4	3.7	-3.7	0.9920	7.7	0.9499	8.5	64	6	
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9810	8.7	0.8911	8.9	64	6	
523	TCATIVÁ 13A	13.800	G1	8.3	4.4	6.6	-6.6	0.9800	9.6	0.8842	10.9	62	6	
523	TCATIVÁ 13A	13.800	G2	8.3	4.4	6.6	-6.6	0.9800	9.6	0.8842	10.9	62	6	
523	TCATIVÁ 13A	13.800	G3	8.3	4.4	6.6	-6.6	0.9800	9.6	0.8842	10.9	62	6	
523	TCATIVÁ 13A	13.800	G4	8.3	4.4	6.6	-6.6	0.9800	9.6	0.8842	10.9	62	6	
523	TCATIVÁ 13A	13.800	G5	8.3	4.4	6.6	-6.6	0.9800	9.6	0.8842	10.9	62	6	
541	TOABRE	0.6000	1	25.2	0.0	0.0	0.0	0.9601	26.2	1.0000	88.9	64	6	
703	BJOMIN13A	13.800	G1	25.1	2.9	13.0	-13.0	0.9920	25.5	0.9933	30.5	64	6	
704	BJOMIN13B	13.800	G2	25.1	2.9	13.0	-13.0	0.9920	25.5	0.9933	30.5	64	6	
705	BAITUN13A	13.800	G1	40.2	-1.8	26.6	-26.6	0.9920	40.5	0.9990	50.6	64	6	
706	BAITUN13B	13.800	G2	40.2	-1.8	26.6	-26.6	0.9920	40.5	0.9990	50.6	64	6	
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9375	5.3	0.9145	6.2	64	6	
SUBSYSTEM TOTALS					1183.2	310.1	741.2	-545.2				1823.0		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:33
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

AREA 7 [ACANAL] MACHINE SUMMARY:

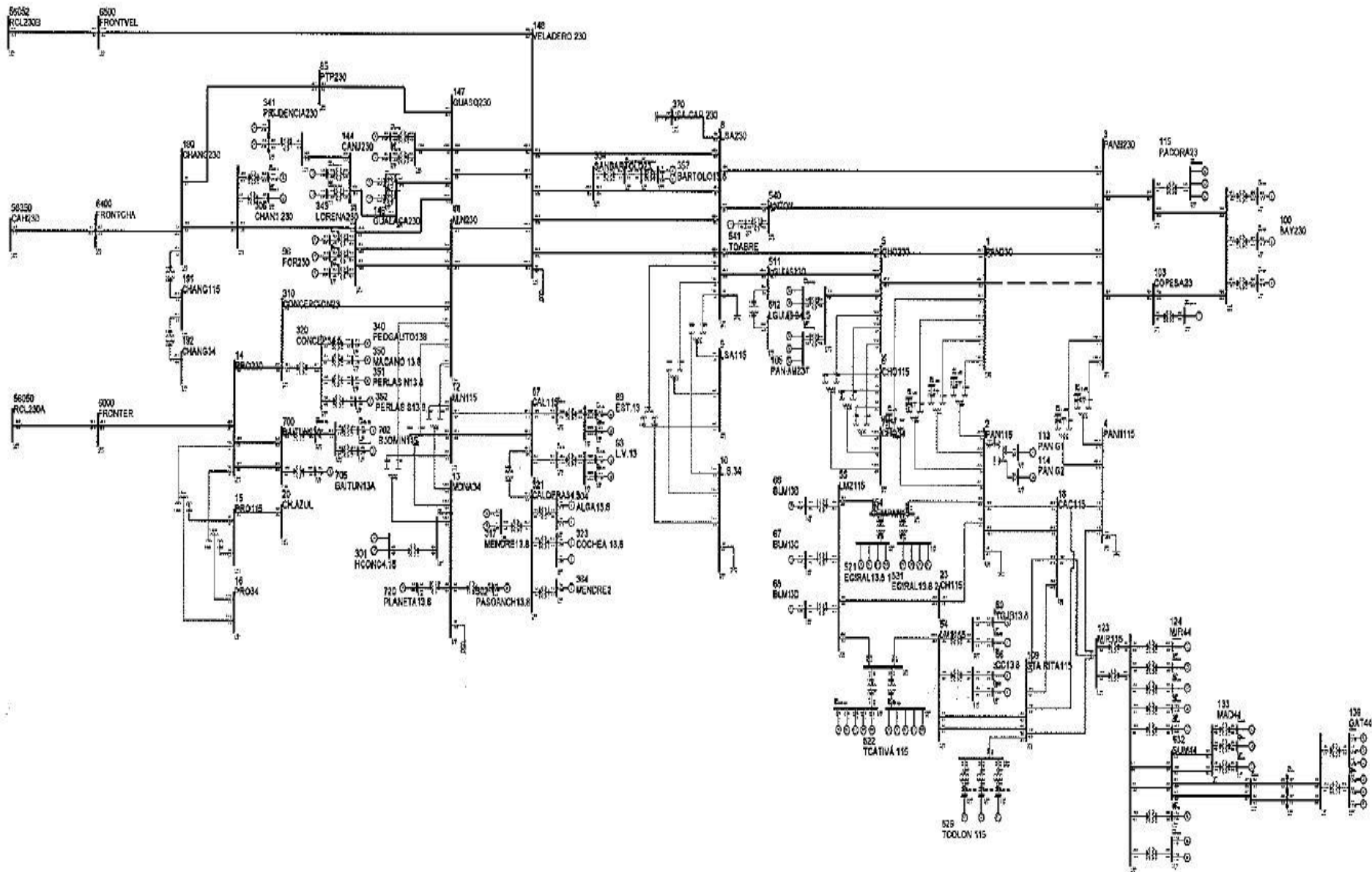
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	16.5	9.2	15.0	0.0	1.0000	18.9	0.8737	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.2	2.2	8.0	0.0	1.0000	17.3	0.9916	27.7			65	7
140		GAT6A		6.9000	G1	1.9	0.0	2.0	-2.0	1.0000	1.9	0.9999	4.1			65	7
140		GAT6A		6.9000	G2	1.9	0.0	2.0	-2.0	1.0000	1.9	0.9999	4.1			65	7
140		GAT6A		6.9000	G3	1.9	0.0	2.0	-2.0	1.0000	1.9	0.9999	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-0.7	3.0	-3.0	1.0000	3.9	0.9835	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-0.7	3.0	-3.0	1.0000	3.9	0.9835	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-0.7	3.0	-3.0	1.0000	3.9	0.9835	6.2			65	7
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0098	18.2	0.9287	23.0			65	7

171 MIR13H	13.800 M1	17.1	6.8	11.2	6.8	1.0189	18.1	0.9287	23.0	65	7
171 MIR13H	13.800 M2	17.1	6.8	11.2	6.8	1.0189	18.1	0.9287	23.0	65	7
SUBSYSTEM TOTALS		102.4	29.9	71.5	5.5				171.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:35
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII 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	1369.3	1330.8	0.0	0.0	0.0	-5.1	43.6	-10.8
GUATEMAL	198.8	275.1	-198.6	0.0	277.7	1.1	399.0	
2	870.8	855.0	0.0	0.0	0.0	2.1	13.7	0.0
SALVADOR	73.1	224.2	-70.7	0.0	229.1	-26.6	175.4	
3	1238.6	1203.0	0.0	0.0	0.0	1.8	33.8	0.0
HONDURAS	461.6	321.1	-47.3	0.0	294.0	53.9	427.9	
4	532.5	525.2	0.0	0.0	0.0	0.5	6.8	0.0
NICARAGU	33.4	207.6	-57.7	0.0	182.2	-47.0	112.8	
5	1299.3	1280.2	0.0	0.0	0.0	2.4	16.8	0.0
COSTA RI	232.2	520.4	-229.7	0.0	415.2	52.0	304.7	
6	1183.2	1158.8	0.0	0.0	0.0	-61.8	86.2	-49.2
PANAMA	310.1	235.3	-207.5	0.0	429.3	-43.5	755.1	
7	102.4	41.5	0.0	0.0	0.0	60.2	0.7	60.0
ACANAL	29.9	8.4	0.0	0.0	0.0	10.1	11.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6596.1	6394.5	0.0	0.0	0.0	0.0	201.6	0.0
	1339.2	1792.0	-811.5	0.0	1827.5	0.0	2186.2	

3.1.3. Contingencia Panamá – Panamá II



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)
2		PAN115		115.00	6	0.9924	114.13	6		CHO115		115.00	6	0.9853	113.31
12		M.N115		115.00	6	0.9998	114.98	18		CAC115		115.00	6	0.9923	114.11
21		C.BAN115		115.00	6	0.9859	113.38	23		CH115		115.00	6	0.9937	114.27
26		LOC115		115.00	6	0.9863	113.42	30		MAR115		115.00	6	0.9840	113.16
33		STM115		115.00	6	0.9906	113.92	37		SAN115		115.00	6	0.9862	113.42
48		TINAJ115		115.00	6	0.9901	113.86	50		M.O115		115.00	6	0.9902	113.87
123		MIR115		115.00	7	0.9990	114.88	701		BAITUN115		115.00	6	0.9906	113.92
702		BJOMIN115		115.00	6	0.9928	114.18								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:43
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	1.0000	41.3	0.9202	47.0			62	6
67		BLM13C		13.800	V3	38.0	16.2	25.0	0.0	1.0000	41.3	0.9202	47.0			62	6
68		BLM13D		13.800	V4	38.0	16.8	25.0	0.0	1.0000	41.6	0.9143	47.0			62	6
90		EST-13L		13.800	E1	22.0	6.7	12.0	-5.0	0.9920	23.2	0.9563	27.0			64	6
91		EST-13T		13.800	E2	22.0	6.7	12.0	-5.0	0.9920	23.2	0.9563	27.0			64	6
94		LV-13.8L		13.800	L1	23.2	7.5	12.0	-5.0	0.9920	24.6	0.9515	27.0			64	6
95		LV-13.8T		13.800	L2	23.2	7.5	12.0	-5.0	0.9920	24.6	0.9515	27.0			64	6
97		FOR13A		13.800	F1	78.0	-5.5	50.0	-50.0	0.9920	78.8	0.9975	111.0			64	6
98		FOR13B		13.800	F2	78.0	-5.5	50.0	-50.0	0.9920	78.8	0.9975	111.0			64	6
99		FOR13C		13.800	F3	78.0	-5.5	50.0	-50.0	0.9920	78.8	0.9975	111.0			64	6
101		BAY13A		13.800	B1	49.9	19.3	50.0	-25.0	1.0000	53.5	0.9328	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	48.4	19.2	50.0	-25.0	1.0000	52.1	0.9297	96.0			61	6
108		BAY13C		13.800	B3	48.4	19.2	50.0	-25.0	1.0000	52.1	0.9297	100.0			61	6
142		CANJ13A		13.800	C1	55.0	16.6	29.0	-29.0	0.9920	57.9	0.9574	69.0			64	6
143		CANJ13B		13.800	C2	55.0	16.6	29.0	-29.0	0.9920	57.9	0.9574	69.0			64	6
150		GUALACA	13-	213.800	G2	13.0	-3.1	7.4	-7.4	0.9900	13.5	0.9734	14.8			64	6
151		GUALACA	13.8	13.800	G1	13.0	-3.1	7.4	-7.4	0.9900	13.5	0.9734	14.8			64	6
302		PASOANCH	13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9515	5.4	0.9217	6.2			64	6
304		ALGA	13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0829	4.7	0.8981	5.7			64	6
304		ALGA	13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0829	4.7	0.8981	5.7			64	6
307		CHAN1	A	13.800	G1	80.0	-15.4	50.0	-50.0	0.9920	82.2	0.9819	118.6			64	6
317		MENDRE	13.8	13.800	M1	9.2	0.0	0.0	0.0	1.0850	8.5	1.0000	35.3			64	6

317	MENDRE13.8	13.800	M2	9.2	0.0	0.0	0.0	1.0850	8.5	1.0000	35.3	64	6	
323	COCHEA	13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0854	5.1	1.0000	35.3	64	6
323	COCHEA	13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0854	5.1	1.0000	35.3	64	6
340	PEDGALITO13813.800	P1	21.0	6.5	12.0	-5.0	0.9920	22.2	0.9549	22.2	0.9549	27.0	64	6
342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	0.9920	13.1	0.9236	19.9	64	6	
343	PRUDENCIA_1	13.800	G1	21.8	-4.1	9.8	-9.8	0.9920	22.4	0.9832	33.0	64	6	
343	PRUDENCIA_1	13.800	G2	21.8	-4.1	9.8	-9.8	0.9920	22.4	0.9832	33.0	64	6	
346	LORENA 13-2	13.800	L2	12.0	-5.0	10.5	-5.0	0.9920	13.1	0.9236	19.9	64	6	
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0783	3.0	0.9515	6.2	64	6	
351	PERLAS N13.813.800	G1	9.0	5.0	5.0	-5.0	0.9821	10.5	0.8742	13.5	64	6		
352	PERLAS S13.813.800	G1	9.0	5.0	5.0	-5.0	0.9821	10.5	0.8742	13.5	64	6		
357	BARTOLO13.8	13.800	G1	7.2	0.4	3.7	-3.7	0.9920	7.3	0.9982	8.5	64	6	
357	BARTOLO13.8	13.800	G2	7.2	0.4	3.7	-3.7	0.9920	7.3	0.9982	8.5	64	6	
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9871	8.6	0.8911	8.9	64	6	
523	TCATIVÁ 13A	13.800	G1	8.3	1.8	6.6	-6.6	0.9800	8.6	0.9764	10.9	62	6	
523	TCATIVÁ 13A	13.800	G2	8.3	1.8	6.6	-6.6	0.9800	8.6	0.9764	10.9	62	6	
523	TCATIVÁ 13A	13.800	G3	8.3	1.8	6.6	-6.6	0.9800	8.6	0.9764	10.9	62	6	
523	TCATIVÁ 13A	13.800	G4	8.3	1.8	6.6	-6.6	0.9800	8.6	0.9764	10.9	62	6	
523	TCATIVÁ 13A	13.800	G5	8.3	1.8	6.6	-6.6	0.9800	8.6	0.9764	10.9	62	6	
541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0124	24.7	1.0000	88.9	64	6	
703	BJOMIN13A	13.800	G1	25.0	2.1	13.0	-13.0	0.9920	25.3	0.9966	30.5	64	6	
704	BJOMIN13B	13.800	G2	25.0	2.1	13.0	-13.0	0.9920	25.3	0.9966	30.5	64	6	
705	BAITUN13A	13.800	G1	40.0	-6.0	26.6	-26.6	0.9920	40.8	0.9890	50.6	64	6	
706	BAITUN13B	13.800	G2	40.0	-6.0	26.6	-26.6	0.9920	40.8	0.9890	50.6	64	6	
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9515	5.2	0.9145	6.2	64	6	
SUBSYSTEM TOTALS				1177.4	133.3	741.2	-545.2				1823.0			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:43
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

AREA 7 [ACANAL] MACHINE SUMMARY:

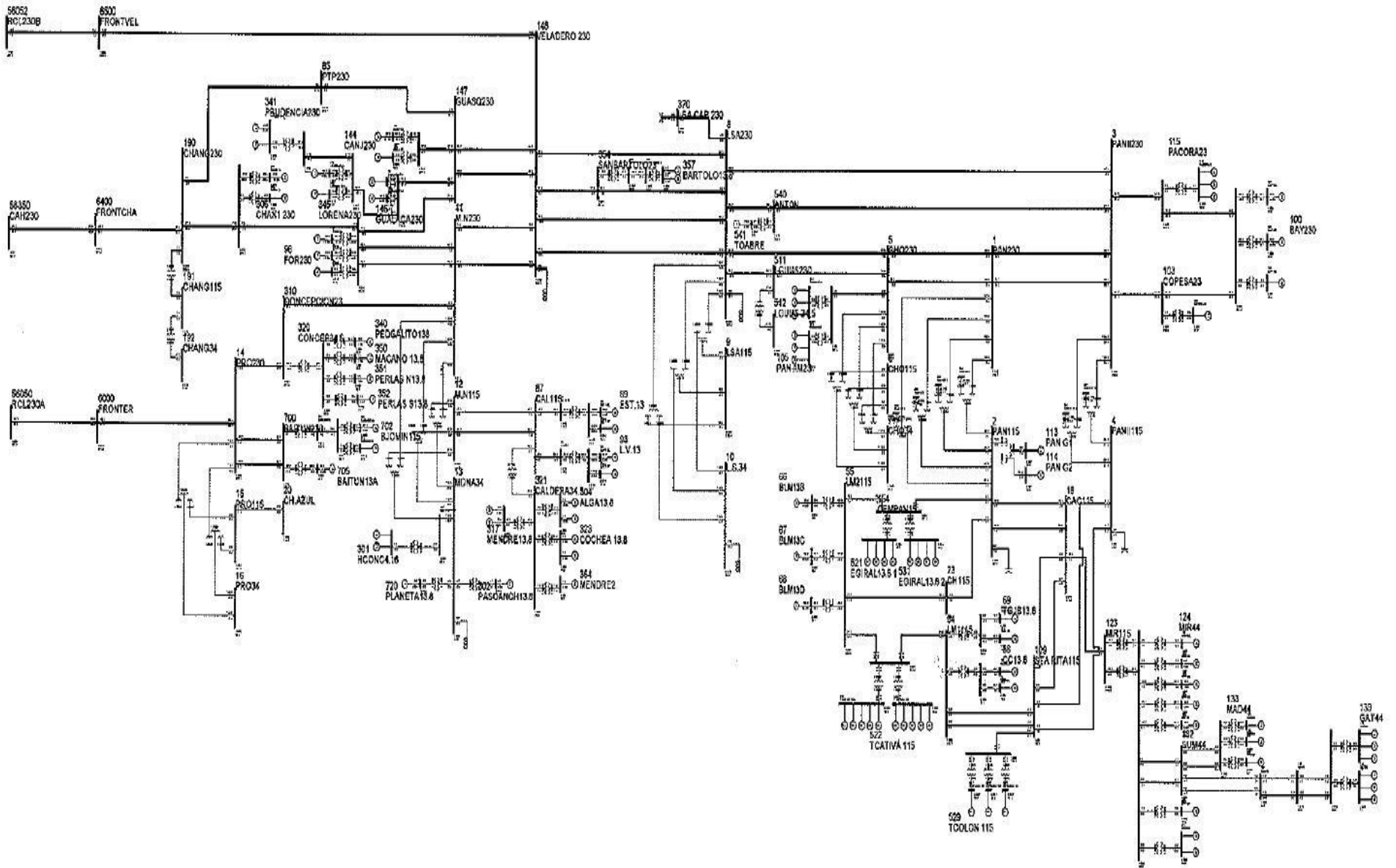
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	16.4	2.3	15.0	0.0	1.0000	16.5	0.9899	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0122	16.9	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9471	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9471	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9471	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9401	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9401	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9401	6.2			65	7

170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0266	17.8	0.9281	23.0	65	7
171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0357	17.7	0.9281	23.0	65	7
171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0357	17.7	0.9281	23.0	65	7
SUBSYSTEM TOTALS		101.9	16.6	71.5	5.5				171.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:45
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII 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	1363.7	1330.8	0.0	0.0	0.0	-10.5	43.4	-10.8
GUATEMAL	198.2	275.1	-198.7	0.0	277.8	1.9	397.7	
2	868.9	855.0	0.0	0.0	0.0	0.1	13.7	0.0
SALVADOR	72.9	224.2	-70.8	0.0	229.1	-26.3	175.0	
3	1236.9	1203.0	0.0	0.0	0.0	0.1	33.8	0.0
HONDURAS	461.3	321.1	-47.3	0.0	294.0	54.1	427.6	
4	531.9	525.2	0.0	0.0	0.0	0.0	6.7	0.0
NICARAGU	32.9	207.6	-57.8	0.0	182.3	-47.0	112.3	
5	1296.5	1280.2	0.0	0.0	0.0	-0.1	16.5	0.0
COSTA RI	218.6	520.4	-230.3	0.0	416.9	44.6	300.7	
6	1177.4	1158.8	0.0	0.0	0.0	-49.4	68.0	-49.2
PANAMA	133.3	235.3	-225.6	0.0	489.8	-25.3	638.6	
7	101.9	41.5	0.0	0.0	0.0	59.8	0.6	60.0
ACANAL	16.6	8.4	0.0	0.0	0.0	-2.1	10.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6577.2	6394.5	0.0	0.0	0.0	0.0	182.7	0.0
	1133.8	1792.0	-830.5	0.0	1889.9	0.0	2062.2	

3.2 Demanda Mínima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MIN-INVIERNO

MON, MAY 24 2010 13:59

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	1.0125	232.86	14		PRO230		230.00	6	1.0234	235.37
85		PTP230		230.00	6	1.0177	234.06	96		FOR230		230.00	6	1.0128	232.94
100		BAY230		230.00	6	1.0198	234.55	103		COPESA23		230.00	6	1.0026	230.59
115		PACORA23		230.00	6	1.0049	231.13	144		CANJ230		230.00	6	1.0132	233.03
146		GUALACA230		230.00	6	1.0148	233.41	147		GUASQ230		230.00	6	1.0131	233.02
148		VELADERO	230	230.00	6	1.0090	232.07	190		CHANG230		230.00	6	1.0215	234.95
306		CHAN1	230	230.00	6	1.0203	234.66	310		CONCEPCION23	230.00	6	1.0207	234.76	
341		PRUDENCIA230	230.00	6	1.0176	234.04	345		LORENA230		230.00	6	1.0166	233.82	
354		SANBARTOLO23	230.00	6	1.0069	231.58	540		ANTON		230.00	6	1.0155	233.57	
700		BAITUN230		230.00	6	1.0231	235.32	6000		FRONTER		230.00	6	1.0241	235.55
6400		FRONTCHA		230.00	6	1.0224	235.15	6500		FRONTVEL		230.00	6	1.0264	236.07

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	228.74	3		PANII230		230.00	6	0.9989	229.75
5		CHO230		230.00	6	0.9955	228.96	8		LSA230		230.00	6	0.9992	229.82
105		PAN-AM23		230.00	6	0.9955	228.96	370		LSA CAP	230	230.00	6	0.9992	229.82
511		LGUIAS230		230.00	6	0.9982	229.58								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MIN-INVIERNO

MON, MAY 24 2010 13:59

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)
4		PANII115		115.00	6	1.0009	115.11	9		LSA115		115.00	6	1.0472	120.43
12		M.N115		115.00	6	1.0129	116.49	15		PRO115		115.00	6	1.0252	117.90
20		CH.AZUL		115.00	6	1.0259	117.98	54		LM115		115.00	6	1.0064	115.73
55		LM2115		115.00	6	1.0072	115.82	61		FFIELD		115.00	6	1.0046	115.53
87		CAL115		115.00	6	1.0215	117.47	88		EST115		115.00	6	1.0231	117.66
92		L.V115		115.00	6	1.0221	117.54	109		STA RITA115		115.00	6	1.0045	115.52
154		CEMPAN15		115.00	6	1.0016	115.18	191		CHANG115		115.00	6	1.0178	117.05
522		TCATIVÁ	115	115.00	6	1.0068	115.78	529		TCOLON	115	115.00	6	1.0045	115.52
701		BAITUN115		115.00	6	1.0118	116.35	702		BJOMIN115		115.00	6	1.0124	116.43

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)
2		PAN115		115.00	6	0.9899	113.84	6		CHO115		115.00	6	0.9962	114.56
18		CAC115		115.00	6	0.9897	113.82	19		C.V115		115.00	6	0.9918	114.06
21		C.BAN115		115.00	6	0.9841	113.17	23		CH115		115.00	6	0.9908	113.95
26		LOC115		115.00	6	0.9846	113.23	30		MAR115		115.00	6	0.9834	113.09
33		STM115		115.00	6	0.9885	113.68	37		SAN115		115.00	6	0.9838	113.13
48		TINAJ115		115.00	6	0.9882	113.64	50		M.O115		115.00	6	0.9883	113.66
52		TOC115		115.00	6	0.9989	114.87	123		MIR115		115.00	7	0.9942	114.33

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:59
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MIN-INVIERNO

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																
6		66		BLM13B		13.800	V2	30.0	14.8	25.0	0.0	0.9900	33.8	0.8973	47.0	62
6		67		BLM13C		13.800	V3	30.0	14.8	25.0	0.0	0.9900	33.8	0.8973	47.0	62
6		68		BLM13D		13.800	V4	30.0	15.4	25.0	0.0	0.9900	34.1	0.8894	47.0	62
6		90		EST-13L		13.800	E1	18.0	5.5	12.0	-5.0	0.9900	19.0	0.9565	27.0	64
6		94		LV-13.8L		13.800	L1	20.0	5.9	12.0	-5.0	0.9900	21.1	0.9588	27.0	64
6		97		FOR13A		13.800	F1	74.4	-17.5	50.0	-50.0	0.9900	77.2	0.9735	111.0	64
6		98		FOR13B		13.800	F2	74.4	-17.5	50.0	-50.0	0.9900	77.2	0.9735	111.0	64
6		101		BAY13A		13.800	B1	43.1	23.7	50.0	-25.0	1.0000	49.2	0.8761	96.0	61
SYST																
6		102		BAY13B		13.800	B2	43.1	23.7	50.0	-25.0	1.0000	49.2	0.8761	96.0	61
6		142		CANJ13A		13.800	C1	57.0	16.4	29.0	-29.0	1.0000	59.3	0.9611	69.0	64
6		150		GUALACA	13-213.800	G2		11.0	-5.9	7.4	-7.4	0.9900	12.6	0.8810	14.8	64
6		302		PASOANCH13.813.800	P1			4.7	2.0	2.0	-2.0	0.9545	5.4	0.9216	6.2	64
6		304		ALGA13.8		13.800	A1	4.6	-2.3	2.3	-2.3	1.0875	4.7	0.8981	5.7	64
6		304		ALGA13.8		13.800	A2	4.6	-2.3	2.3	-2.3	1.0875	4.7	0.8981	5.7	64
6		307		CHAN1 A		13.800	G1	85.0	-15.8	50.0	-50.0	1.0000	86.5	0.9831	118.6	64

6	317	MENDRE13.8	13.800	M1	9.2	0.0	0.0	0.0	1.0896	8.5	1.0000	35.3	64	
6	317	MENDRE13.8	13.800	M2	9.2	0.0	0.0	0.0	1.0896	8.5	1.0000	35.3	64	
6	323	COCHEA	13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0901	5.0	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0901	5.0	1.0000	35.3	64
6	340	PEDGALITO13813.800		P1	18.0	5.3	12.0	-5.0	1.0000	18.8	0.9587	27.0	64	
6	342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	1.0010	13.0	0.9228	19.9	64	
6	343	PRUDENCIA_1	13.800	G1	21.0	-9.3	9.8	-9.8	1.0000	23.0	0.9150	33.0	64	
6	350	MACANO	13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0897	3.0	0.9514	6.2	64
6	351	PERLAS N13.813.800		G1	9.0	5.0	5.0	-5.0	0.9924	10.4	0.8742	13.5	64	
6	352	PERLAS S13.813.800		G1	9.0	5.0	5.0	-5.0	0.9924	10.4	0.8742	13.5	64	
6	357	BARTOLO13.8	13.800	G1	6.0	0.0	3.7	-3.7	1.0000	6.0	1.0000	8.5	64	
6	357	BARTOLO13.8	13.800	G2	6.0	0.0	3.7	-3.7	1.0000	6.0	1.0000	8.5	64	
6	364	MENDRE2		13.800	G1	7.6	3.9	3.9	-3.9	0.9913	8.6	0.8911	8.9	64
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0166	24.6	1.0000	88.9	64	
6	703	BJOMIN13A	13.800	G1	26.6	0.6	13.0	-13.0	1.0000	26.6	0.9997	30.5	64	
6	705	BAITUN13A	13.800	G1	40.8	-8.3	26.6	-26.6	1.0000	41.7	0.9799	50.6	64	
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9545	5.2	0.9145	6.2	64	
6	SUBSYSTEM TOTALS					748.0	59.3	488.1	-336.6			1285.5		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:59
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MIN-INVIERNO

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
127		MIR13B		12.000	G2	8.0	0.0	5.0	0.0	1.0569	7.6	1.0000	13.5			65

7	128 MIR13C	12.000 G3	20.0	4.6	11.0	0.0	1.0000	20.5	0.9747	29.4	65
7	129 MIR13D	13.800 G4	26.0	6.5	15.0	0.0	1.0000	26.8	0.9704	44.1	65
7	130 MIR13F	13.800 G5	16.3	0.5	8.0	0.0	1.0000	16.3	0.9996	27.7	65
7	SUBSYSTEM TOTALS		70.3	11.5	39.0	0.0				114.7	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 13:59
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MIN-INVIERNO 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	1231.8 206.8	1330.8 275.1	0.0 -197.6	0.0 0.0	0.0 276.6	-142.1 23.9	43.1 382.2	-141.0
2 SALVADOR	872.0 87.9	855.0 224.2	0.0 -70.5	0.0 0.0	0.0 228.0	0.3 -27.9	16.7 190.1	0.0
3 HONDURAS	1238.6 476.3	1203.0 321.1	0.0 -47.1	0.0 0.0	0.0 292.6	0.2 52.8	35.5 442.2	0.0
4 NICARAGU	534.2 46.3	525.2 207.6	0.0 -57.4	0.0 0.0	0.0 181.1	0.3 -49.3	8.7 126.6	0.0
5 COSTA RI	1301.1 212.3	1280.2 520.4	0.0 -230.1	0.0 0.0	0.0 417.6	1.7 33.6	19.3 306.1	0.0
6 PANAMA	748.0 59.3	637.6 231.4	0.0 142.3	0.0 0.0	0.0 499.1	93.1 -28.2	17.3 212.9	94.0
7 ACANAL	70.3 11.5	22.8 8.3	0.0 0.0	0.0 0.0	0.0 0.0	46.5 -4.8	1.0 8.0	47.0
10 MEXICO	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0
TOTALS	5996.1 1100.5	5854.6 1788.0	0.0 -460.4	0.0 0.0	0.0 1895.1	0.0 0.0	141.4 1668.0	0.0

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	0.9927	114.16	12		M.N115		115.00	6	0.9951	114.43
21		C.BAN115		115.00	6	0.9931	114.20	26		LOC115		115.00	6	0.9936	114.26
30		MAR115		115.00	6	0.9916	114.03	33		STM115		115.00	6	0.9985	114.83
37		SAN115		115.00	6	0.9931	114.20	48		TINAJ115		115.00	6	0.9980	114.77
50		M.O115		115.00	6	0.9982	114.79	701		BAITUN115		115.00	6	0.9946	114.38
702		BJOMIN115		115.00	6	0.9973	114.69								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:13
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-VERANO

AREA 6 [PANAMA] MACHINE SUMMARY:

AREA	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
6	66		BLM13B		13.800	V2	38.0	11.1	25.0	0.0	1.0000	39.6	0.9599	47.0			62
6	67		BLM13C		13.800	V3	38.0	11.1	25.0	0.0	1.0000	39.6	0.9599	47.0			62
6	68		BLM13D		13.800	V4	38.0	11.5	25.0	0.0	1.0000	39.7	0.9571	47.0			62
6	90		EST-13L		13.800	E1	21.8	5.6	12.0	-5.0	0.9800	23.0	0.9683	27.0			64
6	91		EST-13T		13.800	E2	21.8	5.6	12.0	-5.0	0.9800	23.0	0.9683	27.0			64
6	94		LV-13.8L		13.800	L1	24.7	6.4	12.0	-5.0	0.9800	26.0	0.9675	27.0			64
6	95		LV-13.8T		13.800	L2	24.7	6.4	12.0	-5.0	0.9800	26.0	0.9675	27.0			64
6	97		FOR13A		13.800	F1	82.0	-16.8	50.0	-50.0	0.9800	85.4	0.9796	111.0			64
6	98		FOR13B		13.800	F2	82.0	-16.8	50.0	-50.0	0.9800	85.4	0.9796	111.0			64
6	101		BAY13A		13.800	B1	42.2	17.4	50.0	-25.0	1.0000	45.6	0.9246	96.0			61
6	102		BAY13B		13.800	B2	42.2	17.4	50.0	-25.0	1.0000	45.6	0.9245	96.0			61
6	108		BAY13C		13.800	B3	42.2	17.4	50.0	-25.0	1.0000	45.6	0.9245	100.0			61
6	116		PACORA13		13.800	P1	17.5	0.0	8.8	0.0	1.0007	17.5	1.0000	21.7			61
6	116		PACORA13		13.800	P2	17.5	0.0	8.8	0.0	1.0007	17.5	1.0000	21.7			61

6	116	PACORA13	13.800	P3	17.5	0.0	8.8	0.0	1.0007	17.5	1.0000	21.7	61
6	142	CANJ13A	13.800	C1	55.0	14.3	29.0	-29.0	0.9800	58.0	0.9677	69.0	64
6	143	CANJ13B	13.800	C2	55.0	14.3	29.0	-29.0	0.9800	58.0	0.9677	69.0	64
6	150	GUALACA 13-2	13.800	G2	13.1	-3.9	7.4	-7.4	0.9900	13.8	0.9585	14.8	64
6	151	GUALACA13.8	13.800	G1	13.1	-3.9	7.4	-7.4	0.9900	13.8	0.9585	14.8	64
6	302	PASOANCH13.8	13.800	P1	4.6	2.0	2.0	-2.0	0.9638	5.2	0.9180	6.2	64
6	304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0651	4.9	0.9019	5.7	64
6	304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0651	4.9	0.9019	5.7	64
6	307	CHAN1 A	13.800	G1	60.0	-18.7	50.0	-50.0	0.9900	63.5	0.9546	118.6	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0672	8.8	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.0672	8.8	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.9	0.0	0.0	0.0	1.0676	5.6	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.9	0.0	0.0	0.0	1.0676	5.6	1.0000	35.3	64
6	340	PEDGALITO138	13.800	P1	22.8	7.3	12.0	-5.0	0.9800	24.4	0.9522	27.0	64
6	342	LORENA13.8	13.800	L1	16.0	-3.7	10.5	-5.0	1.0000	16.4	0.9737	19.9	64
6	343	PRUDENCIA_1	13.800	G1	26.6	-2.9	9.8	-9.8	1.0000	26.8	0.9939	33.0	64
6	343	PRUDENCIA_1	13.800	G2	26.6	-2.9	9.8	-9.8	1.0000	26.8	0.9939	33.0	64
6	346	LORENA 13-2	13.800	L2	16.0	-3.7	10.5	-5.0	1.0000	16.4	0.9737	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0633	3.1	0.9514	6.2	64
6	523	TCATIVÁ 13A	13.800	G1	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	523	TCATIVÁ 13A	13.800	G5	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62

6	524	TCATIVÁ	13B	13.800	G0	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	524	TCATIVÁ	13B	13.800	G6	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	524	TCATIVÁ	13B	13.800	G7	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	524	TCATIVÁ	13B	13.800	G8	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	524	TCATIVÁ	13B	13.800	G9	8.3	2.9	6.6	-6.6	1.0000	8.8	0.9423	10.9	62
6	531	EGIRAL	13.8	213.800	G5	8.2	3.0	6.4	3.0	1.0000	8.7	0.9380	10.9	62
6	531	EGIRAL	13.8	213.800	G6	8.2	3.0	6.4	3.0	1.0000	8.7	0.9380	10.9	62
6	531	EGIRAL	13.8	213.800	G7	8.2	3.0	6.4	3.0	1.0000	8.7	0.9380	10.9	62
6	531	EGIRAL	13.8	213.800	G8	8.2	3.0	6.4	3.0	1.0000	8.7	0.9380	10.9	62
6	541	TOABRE		0.6000	1	30.0	0.0	0.0	0.0	1.0124	29.6	1.0000	88.9	64
6	703	BJOMIN	13A	13.800	G1	26.6	2.9	13.0	-13.0	1.0000	26.8	0.9943	30.5	64
6	704	BJOMIN	13B	13.800	G2	26.6	2.9	13.0	-13.0	1.0000	26.8	0.9943	30.5	64
6	705	BAITUN	13A	13.800	G1	40.9	-4.2	26.6	-26.6	1.0000	41.1	0.9948	50.6	64
6	706	BAITUN	13B	13.800	G2	40.9	-4.2	26.6	-26.6	1.0000	41.1	0.9948	50.6	64
6	720	PLANETA	13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9638	4.3	0.8730	6.2	64
6	SUBSYSTEM TOTALS					1185.8	109.8	754.8	-494.8				1822.5	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:13
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MAX-VERANO

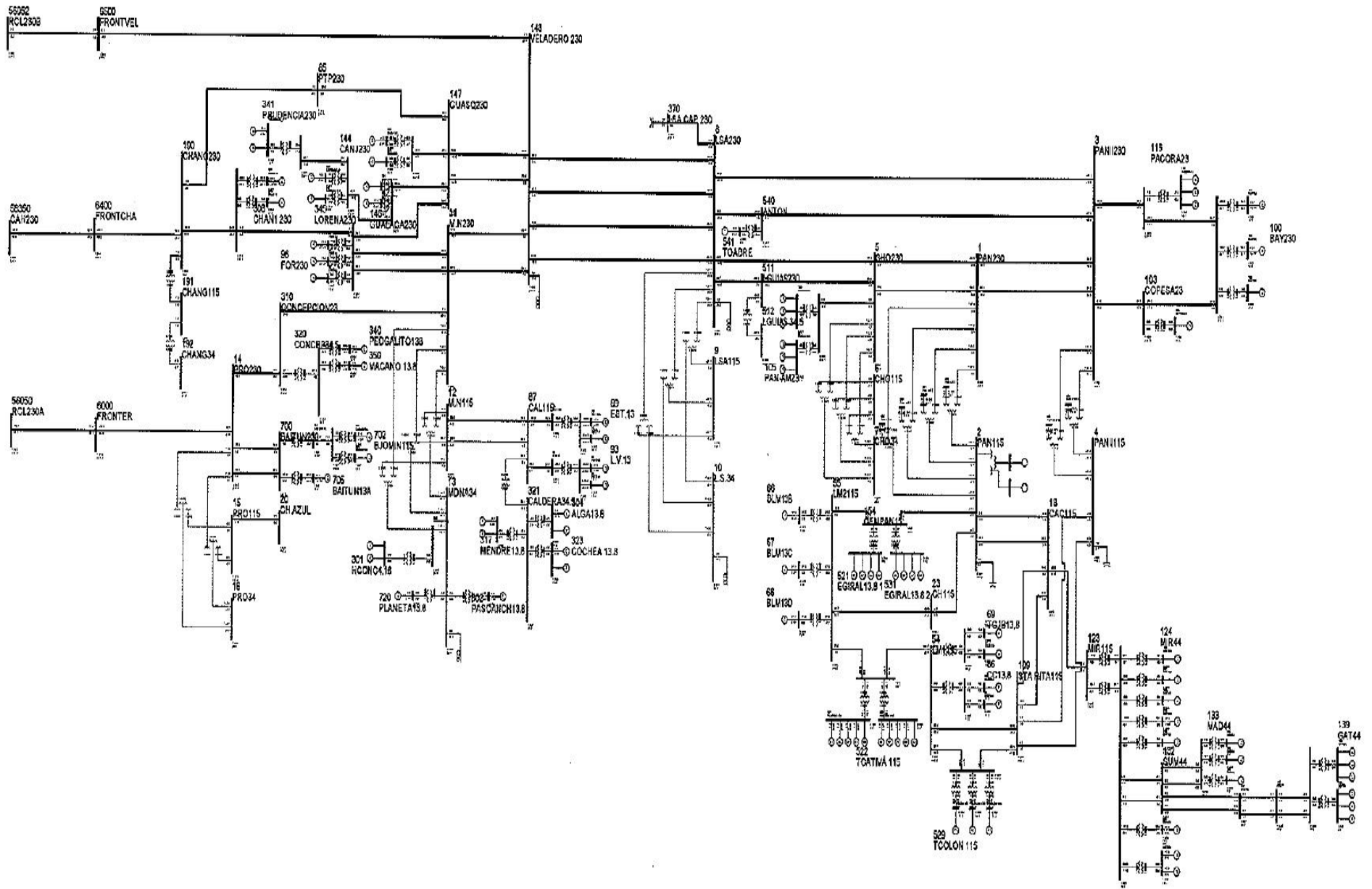
AREA 7 [ACANAL] MACHINE SUMMARY:																
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																
129		MIR13D		13.800	G4	18.2	0.5	15.0	0.0	1.0000	18.2	0.9996	44.1			65
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0161	16.8	1.0000	27.7			65
140		GAT6A		6.9000	G1	1.9	-0.9	2.0	-2.0	1.0000	2.2	0.8978	4.1			65

7	140 GAT6A	6.9000 G2	1.9	-0.9	2.0	-2.0	1.0000	2.2	0.8978	4.1	65
7	140 GAT6A	6.9000 G3	1.9	-0.9	2.0	-2.0	1.0000	2.2	0.8978	4.1	65
7	141 GAT6B	6.9000 G4	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9154	5.6	65
7	141 GAT6B	6.9000 G5	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9154	6.2	65
7	141 GAT6B	6.9000 G6	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9154	6.2	65
7	170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0305	17.8	0.9281	23.0	65
7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0396	17.6	0.9281	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0396	17.6	0.9281	23.0	65
7	SUBSYSTEM TOTALS		103.7	13.0	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:13
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MAX-VERANO 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	1364.0	1330.8	0.0	0.0	0.0	-10.3	43.5	-9.7
GUATEMAL	198.3	275.1	-198.8	0.0	277.8	1.8	398.0	
2	868.7	855.0	0.0	0.0	0.0	0.0	13.7	0.0
SALVADOR	73.0	224.2	-70.8	0.0	229.1	-26.3	174.9	
3	1236.8	1203.0	0.0	0.0	0.0	0.0	33.8	0.0
HONDURAS	461.3	321.1	-47.3	0.0	294.0	54.1	427.6	
4	532.0	525.2	0.0	0.0	0.0	0.1	6.7	0.0
NICARAGU	32.8	207.6	-57.8	0.0	182.3	-47.0	112.3	
5	1296.9	1280.2	0.0	0.0	0.0	0.4	16.4	0.0
COSTA RI	216.3	520.4	-230.3	0.0	417.3	43.4	300.2	
6	1185.8	1183.9	0.0	0.0	0.0	-50.8	52.7	-50.3
PANAMA	109.8	240.4	-143.3	0.0	493.8	-19.9	526.4	
7	103.7	42.4	0.0	0.0	0.0	60.6	0.6	60.0
ACANAL	13.0	8.6	0.0	0.0	0.0	-6.1	10.5	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6587.8	6420.5	0.0	0.0	0.0	0.0	167.3	0.0
	1104.6	1797.3	-748.3	0.0	1894.3	0.0	1949.9	

3.4 Demanda Mínima de Verano



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MIN-VERANO

MON, MAY 24 2010 14:18

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	1.0013	230.29	11		M.N230		230.00	6	1.0076	231.74
14		PRO230		230.00	6	1.0174	234.00	85		PTP230		230.00	6	1.0121	232.79
96		FOR230		230.00	6	1.0073	231.69	100		BAY230		230.00	6	1.0142	233.27
103		COPESA23		230.00	6	1.0021	230.48	115		PACORA23		230.00	6	1.0036	230.83
144		CANJ230		230.00	6	1.0089	232.04	146		GUALACA230		230.00	6	1.0111	232.55
147		GUASQ230		230.00	6	1.0089	232.04	148		VELADERO 230		230.00	6	1.0081	231.86
190		CHANG230		230.00	6	1.0136	233.13	306		CHAN1 230		230.00	6	1.0108	232.47
310		CONCEPCION23		230.00	6	1.0140	233.22	341		PRUDENCIA230		230.00	6	1.0147	233.39
345		LORENA230		230.00	6	1.0135	233.10	370		LSA CAP 230		230.00	6	1.0013	230.29
511		LGUIAS230		230.00	6	1.0008	230.19	540		ANTON		230.00	6	1.0172	233.96
700		BAITUN230		230.00	6	1.0169	233.88	6000		FRONTER		230.00	6	1.0187	234.30
6400		FRONTCHA		230.00	6	1.0152	233.49	6500		FRONTVEL		230.00	6	1.0227	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	0.9957	229.01	3		PANII230		230.00	6	0.9994	229.86
5		CHO230		230.00	6	0.9975	229.41	105		PAN-AM23		230.00	6	0.9975	229.41

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2012 ESC-MOD DEMANDA-MIN-VERANO

MON, MAY 24 2010 14:18

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	1.0013	230.29	11		M.N230		230.00	6	1.0076	231.74
14		PRO230		230.00	6	1.0174	234.00	85		PTP230		230.00	6	1.0121	232.79
96		FOR230		230.00	6	1.0073	231.69	100		BAY230		230.00	6	1.0142	233.27
103		COPESA23		230.00	6	1.0021	230.48	115		PACORA23		230.00	6	1.0036	230.83
144		CANJ230		230.00	6	1.0089	232.04	146		GUALACA230		230.00	6	1.0111	232.55
147		GUASQ230		230.00	6	1.0089	232.04	148		VELADERO 230		230.00	6	1.0081	231.86
190		CHANG230		230.00	6	1.0136	233.13	306		CHAN1 230		230.00	6	1.0108	232.47
310		CONCEPCION23		230.00	6	1.0140	233.22	341		PRUDENCIA230		230.00	6	1.0147	233.39
345		LORENA230		230.00	6	1.0135	233.10	370		LSA CAP 230		230.00	6	1.0013	230.29
511		LGUIAS230		230.00	6	1.0008	230.19	540		ANTON		230.00	6	1.0172	233.96
700		BAITUN230		230.00	6	1.0169	233.88	6000		FRONTER		230.00	6	1.0187	234.30
6400		FRONTCHA		230.00	6	1.0152	233.49	6500		FRONTVEL		230.00	6	1.0227	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	0.9957	229.01	3		PANII230		230.00	6	0.9994	229.86
5		CHO230		230.00	6	0.9975	229.41	105		PAN-AM23		230.00	6	0.9975	229.41

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:18
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MIN-VERANO

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																				
6		66		BLM13B		13.800	V2	31.0	9.2	25.0	0.0	0.9850	32.8	0.9590						62
6		67		BLM13C		13.800	V3	31.0	9.2	25.0	0.0	0.9850	32.8	0.9590						62
6		68		BLM13D		13.800	V4	31.0	9.5	25.0	0.0	0.9850	32.9	0.9559						62
6		90		EST-13L		13.800	E1	18.0	3.6	12.0	-5.0	0.9800	18.7	0.9803						64
6		94		LV-13.8L		13.800	L1	20.0	4.0	12.0	-5.0	0.9800	20.8	0.9807						64
6		97		FOR13A		13.800	F1	75.0	-21.2	50.0	-50.0	0.9800	79.5	0.9622						64
6		98		FOR13B		13.800	F2	75.0	-21.2	50.0	-50.0	0.9800	79.5	0.9622						64
6		101		BAY13A		13.800	B1	53.2	12.7	50.0	-25.0	0.9800	55.8	0.9726						61
SYST																				
6		102		BAY13B		13.800	B2	53.1	12.7	50.0	-25.0	0.9800	55.7	0.9726						61
6		142		CANJ13A		13.800	C1	45.0	9.8	29.0	-29.0	0.9800	47.0	0.9772						64
6		150		GUALACA	13-213	13.800	G2	11.0	-5.0	7.4	-7.4	0.9900	12.2	0.9111						64
6		302		PASOANCH	13.813	13.800	P1	4.6	2.0	2.0	-2.0	0.9495	5.3	0.9180						64
6		304		ALGA13.8		13.800	A1	4.7	-2.3	2.3	-2.3	1.0871	4.8	0.9019						64
6		307		CHAN1 A		13.800	G1	60.0	-27.1	50.0	-50.0	0.9800	67.2	0.9112						64
6		317		MENDRE13.8		13.800	M1	9.4	0.0	0.0	0.0	1.0883	8.6	1.0000						64
6		323		COCHEA	13.8	13.800	C1	5.9	0.0	0.0	0.0	1.0884	5.5	1.0000						64

6	340	PEDGALITO138	13.800	P1	18.0	6.1	12.0	-5.0	0.9800	19.4	0.9473	27.0	64
6	342	LORENA13.8	13.800	L1	16.0	-5.0	10.5	-5.0	0.9973	16.8	0.9545	19.9	64
6	343	PRUDENCIA_1	13.800	G1	26.6	-9.8	9.8	-9.8	0.9958	28.5	0.9388	33.0	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0657	3.0	0.9514	6.2	64
6	523	TCATIVÁ 13A	13.800	G1	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	3.8	6.6	-6.6	0.9900	9.2	0.9076	10.9	62
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0182	24.6	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	21.0	-0.9	13.0	-13.0	0.9900	21.2	0.9990	30.5	64
6	705	BAITUN13A	13.800	G1	32.2	-10.5	26.6	-26.6	0.9900	34.3	0.9506	50.6	64
6	720	PLANETA13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9495	4.3	0.8730	6.2	64
6	SUBSYSTEM TOTALS				739.6	7.3	517.1	-365.6				1243.8	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:18
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2012 ESC-MOD DEMANDA-MIN-VERANO

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																
129		MIR13D		13.800	G4	19.1	0.9	15.0	0.0	1.0000	19.1	0.9988	44.1			65
7 AREA																
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0292	17.8	0.9281	23.0			65

7

7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0382	17.6	0.9281	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0382	17.6	0.9281	23.0	65
	SUBSYSTEM TOTALS		70.1	21.4	48.5	20.5				113.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 14:18
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2012 ESC-MOD DEMANDA-MIN-VERANO 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	1252.6	1330.8	0.0	0.0	0.0	-122.6	44.4	-122.6
GUATEMAL	219.7	275.1	-196.3	0.0	274.5	9.6	405.9	
2	870.9	855.0	0.0	0.0	0.0	0.0	15.9	0.0
SALVADOR	93.2	224.2	-70.5	0.0	227.6	-18.4	185.6	
3	1237.9	1203.0	0.0	0.0	0.0	0.0	34.9	0.0
HONDURAS	474.0	321.1	-47.1	0.0	292.7	54.7	438.0	
4	533.3	525.2	0.0	0.0	0.0	0.0	8.0	0.0
NICARAGU	42.5	207.6	-57.5	0.0	181.4	-48.5	122.3	
5	1298.4	1280.2	0.0	0.0	0.0	0.0	18.3	0.0
COSTA RI	214.2	520.4	-230.1	0.0	417.2	40.1	300.9	
6	739.6	651.1	0.0	0.0	0.0	76.4	12.1	75.6
PANAMA	7.3	236.3	156.4	0.0	497.8	-42.5	154.9	
7	70.1	23.3	0.0	0.0	0.0	46.2	0.5	47.0
ACANAL	21.4	8.5	0.0	0.0	0.0	5.0	7.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6002.8	5868.7	0.0	0.0	0.0	0.0	134.1	0.0
	1072.3	1793.0	-445.1	0.0	1891.2	0.0	1615.5	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 15:19

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	1.0097	232.23
11		M.N230		230.00	6	1.0069	231.60	14		PRO230		230.00	6	1.0213	234.91
85		PTP230		230.00	6	1.0087	232.01	96		FOR230		230.00	6	1.0049	231.13
100		BAY230		230.00	6	1.0360	238.27	103		COPESA23		230.00	6	1.0141	233.24
115		PACORA23		230.00	6	1.0172	233.95	144		CANJ230		230.00	6	1.0038	230.87
146		GUALACA230		230.00	6	1.0083	231.91	147		GUASQ230		230.00	6	1.0037	230.86
148		VELADERO	230230.00	6	1.0021	230.49		149		BBLANCO		230.00	6	1.0007	230.15
190		CHANG230		230.00	6	1.0152	233.50	306		CHAN1	230	230.00	6	1.0130	232.99
310		CONCEPCION23	230.00	6	1.0161	233.70		311		PANDO230		230.00	6	1.0404	239.29
341		PRUDENCIA230	230.00	6	1.0156	233.58		345		LORENA230		230.00	6	1.0128	232.95
371		CAISAN230		230.00	6	1.0391	239.00	540		ANTON		230.00	6	1.0167	233.84
700		BAITUN230		230.00	6	1.0206	234.73	6000		FRONTER		230.00	6	1.0243	235.58
6400		FRONTCHA		230.00	6	1.0173	233.97	6500		FRONT CAISAN230		230.00	6	1.0380	238.73

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)
5		CHO230		230.00	6	0.9953	228.92	8		LSA230		230.00	6	0.9994	229.86
105		PAN-AM23		230.00	6	0.9953	228.92	354		SANBARTOLO23	230.00	6	0.9990	229.77	
370		LSA CAP	230	230.00	6	0.9994	229.86	511		LGUIAS230		230.00	6	0.9926	228.29

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
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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	1.0051	115.59	4		PANII115		115.00	6	1.0349	119.01
9		LSA115		115.00	6	1.0446	120.13	15		PRO115		115.00	6	1.0232	117.67
18		CAC115		115.00	6	1.0049	115.56	19		C.V115		115.00	6	1.0181	117.08
20		CH.AZUL		115.00	6	1.0240	117.75	23		CH115		115.00	6	1.0061	115.70
33		STM115		115.00	6	1.0032	115.36	48		TINAJ115		115.00	6	1.0026	115.30
50		M.O115		115.00	6	1.0027	115.32	52		TOC115		115.00	6	1.0321	118.69
54		LM1115		115.00	6	1.0284	118.26	55		LM2115		115.00	6	1.0293	118.37
61		FFIELD		115.00	6	1.0249	117.86	87		CAL115		115.00	6	1.0121	116.39

88	EST115	115.00	6	1.0151	116.74	92	L.V115	115.00	6	1.0133	116.53
109	STA RITA115	115.00	6	1.0270	118.10	123	MIR115	115.00	7	1.0104	116.20
154	CEMPAN15	115.00	6	1.0212	117.44	191	CHANG115	115.00	6	1.0065	115.75
522	TCATIVÁ 115	115.00	6	1.0290	118.34	529	TCOLON 115	115.00	6	1.0270	118.10
701	BAITUN115	115.00	6	1.0024	115.28	702	BJOMIN115	115.00	6	1.0043	115.50

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)
6	CHO115	115.00	6	0.9961	114.56	12	M.N115	115.00	6	0.9976	114.72
21	C.BAN115	115.00	6	0.9984	114.82	26	LOC115	115.00	6	0.9987	114.85
30	MAR115	115.00	6	0.9963	114.58	37	SAN115	115.00	6	0.9989	114.87

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:19
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 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO

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	10.5	25.0	0.0	1.0000	39.4	0.9638	47.0			62	6
67	BLM13C	13.800	V3	38.0	10.5	25.0	0.0	1.0000	39.4	0.9638	47.0			62	6
68	BLM13D	13.800	V4	38.0	10.9	25.0	0.0	1.0000	39.5	0.9613	47.0			62	6
90	EST-13L	13.800	E1	21.0	4.7	12.0	-5.0	0.9800	22.0	0.9756	27.0			64	6
91	EST-13T	13.800	E2	21.0	4.7	12.0	-5.0	0.9800	22.0	0.9756	27.0			64	6
94	LV-13.8L	13.800	L1	23.2	5.4	12.0	-5.0	0.9800	24.3	0.9738	27.0			64	6
95	LV-13.8T	13.800	L2	23.2	5.4	12.0	-5.0	0.9800	24.3	0.9738	27.0			64	6
97	FOR13A	13.800	F1	86.5	-18.0	50.0	-50.0	0.9800	90.2	0.9790	111.0			64	6
98	FOR13B	13.800	F2	86.5	-18.0	50.0	-50.0	0.9800	90.2	0.9790	111.0			64	6
101	BAY13A	13.800	B1	48.4	20.0	50.0	-25.0	1.0100	51.8	0.9244	96.0			61	6
SYST															
102	BAY13B	13.800	B2	48.3	20.0	50.0	-25.0	1.0100	51.8	0.9242	96.0			61	6
108	BAY13C	13.800	B3	48.3	20.0	50.0	-25.0	1.0100	51.8	0.9242	100.0			61	6
116	PACORA13	13.800	P1	17.1	0.0	8.8	0.0	1.0085	17.0	1.0000	21.7			61	6
142	CANJ13A	13.800	C1	52.0	12.9	29.0	-29.0	0.9800	54.7	0.9704	69.0			64	6
143	CANJ13B	13.800	C2	52.0	12.9	29.0	-29.0	0.9800	54.7	0.9704	69.0			64	6
150	GUALACA 13-213	13.800	G2	14.0	-4.1	7.4	-7.4	0.9900	14.7	0.9589	14.8			64	6
151	GUALACA13.8	13.800	G1	14.0	-4.1	7.4	-7.4	0.9900	14.7	0.9589	14.8			64	6
193	GEBONYIC	13.800	G1	8.0	-0.4	4.0	-4.0	1.0000	8.0	0.9987	35.3			64	6
193	GEBONYIC	13.800	G2	8.0	-0.4	4.0	-4.0	1.0000	8.0	0.9987	35.3			64	6
193	GEBONYIC	13.800	G3	8.0	-0.4	4.0	-4.0	1.0000	8.0	0.9987	35.3			64	6
302	PASOANCH13.813	13.800	P1	4.8	2.0	2.0	-2.0	0.9662	5.3	0.9216	6.2			64	6
304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0809	4.8	0.8981	5.7			64	6

304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0809	4.8	0.8981	5.7	64	6
305	ELALTO	13.800	G1	14.0	-5.0	12.0	-5.0	1.0335	14.4	0.9417	20.6	64	6
307	CHAN1 A	13.800	G1	62.0	-19.9	50.0	-50.0	0.9900	65.8	0.9520	118.6	64	6
312	PANDO13.8	13.800	G1	9.0	-2.8	10.0	-5.0	1.0000	9.4	0.9539	19.9	64	6
312	PANDO13.8	13.800	G2	9.0	-2.8	10.0	-5.0	1.0000	9.4	0.9539	19.9	64	6
316	MTE LIRIO13.8	13.800	G1	17.0	-5.0	12.0	-5.0	1.0148	17.5	0.9594	27.0	64	6
316	MTE LIRIO13.8	13.800	G2	17.0	-5.0	12.0	-5.0	1.0148	17.5	0.9594	27.0	64	6
317	MENDRE13.8	13.800	M1	9.2	0.0	0.0	0.0	1.0830	8.5	1.0000	35.3	64	6
317	MENDRE13.8	13.800	M2	9.2	0.0	0.0	0.0	1.0830	8.5	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0835	5.1	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0835	5.1	1.0000	35.3	64	6
340	PEDGALITO13.8	13.800	P1	20.0	3.2	12.0	-5.0	0.9800	20.7	0.9877	27.0	64	6
342	LORENA13.8	13.800	L1	12.0	-4.1	10.5	-5.0	1.0000	12.6	0.9472	19.9	64	6
343	PRUDENCIA_1	13.800	G1	25.0	-3.2	9.8	-9.8	1.0000	25.2	0.9921	33.0	64	6
343	PRUDENCIA_1	13.800	G2	25.0	-3.2	9.8	-9.8	1.0000	25.2	0.9921	33.0	64	6
346	LORENA 13-2	13.800	L2	12.0	-4.1	10.5	-5.0	1.0000	12.6	0.9472	19.9	64	6
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0728	3.0	0.9514	6.2	64	6
351	PERLAS N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9772	10.5	0.8742	13.5	64	6
352	PERLAS S13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9772	10.5	0.8742	13.5	64	6
357	BARTOLO13.8	13.800	G1	7.2	1.4	3.7	-3.7	1.0000	7.4	0.9811	8.5	64	6
357	BARTOLO13.8	13.800	G2	7.2	1.4	3.7	-3.7	1.0000	7.4	0.9811	8.5	64	6
359	CRUCES13.8	13.800	G1	4.6	0.5	2.3	-2.3	1.0000	4.6	0.9941	5.6	64	6
359	CRUCES13.8	13.800	G2	4.6	0.5	2.3	-2.3	1.0000	4.6	0.9941	5.6	64	6
361	ESTRECHO4.164	1.600	G1	4.9	0.4	2.5	-2.5	1.0000	5.0	0.9973	5.6	64	6
361	ESTRECHO4.164	1.600	G2	4.9	0.4	2.5	-2.5	1.0000	5.0	0.9973	5.6	64	6
363	LAGUNA 13.8	13.800	G1	4.7	0.1	2.4	-2.4	1.0000	4.7	0.9995	5.8	64	6
363	LAGUNA 13.8	13.800	G2	4.7	0.1	2.4	-2.4	1.0000	4.7	0.9995	5.8	64	6
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9853	8.7	0.8911	8.9	64	6
368	RP-490	13.800	G1	4.7	-1.7	2.4	-2.4	1.0000	5.0	0.9378	5.5	64	6
368	RP-490	13.800	G2	4.7	-1.7	2.4	-2.4	1.0000	5.0	0.9378	5.5	64	6
369	HCALDERA13.8	13.800	G1	3.8	1.9	1.9	-1.9	0.9841	4.3	0.8909	4.3	64	6
372	BJO FRIO 13	13.800	G1	24.0	-4.8	9.8	-9.8	1.0000	24.5	0.9803	33.0	64	6
372	BJO FRIO 13	13.800	G2	24.0	-4.8	9.8	-9.8	1.0000	24.5	0.9803	33.0	64	6
373	TIZINGAL13.8	13.800	G1	4.4	2.2	2.2	-2.2	0.9755	5.1	0.8909	21.6	64	6
523	TCATIVÁ 13A	13.800	G1	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
523	TCATIVÁ 13A	13.800	G2	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
523	TCATIVÁ 13A	13.800	G3	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
523	TCATIVÁ 13A	13.800	G4	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
524	TCATIVÁ 13B	13.800	G0	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
524	TCATIVÁ 13B	13.800	G6	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
524	TCATIVÁ 13B	13.800	G7	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
524	TCATIVÁ 13B	13.800	G8	8.3	3.3	6.6	-6.6	1.0000	8.9	0.9276	10.9	62	6
541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0177	24.6	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	23.0	1.2	13.0	-13.0	1.0000	23.0	0.9987	30.5	64	6
704	BJOMIN13B	13.800	G2	23.0	1.2	13.0	-13.0	1.0000	23.0	0.9987	30.5	64	6

705 BAITUN13A	13.800	G1	38.0	-7.4	26.6	-26.6	1.0000	38.7	0.9814	50.6	64	6			
706 BAITUN13B	13.800	G2	38.0	-7.4	26.6	-26.6	1.0000	38.7	0.9814	50.6	64	6			
720 PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9662	5.1	0.9145	6.2	64	6			
SUBSYSTEM TOTALS											1313.7	62.9	830.8	-594.9	2123.8

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:19
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO

AREA 7 [ACANAL] MACHINE SUMMARY:

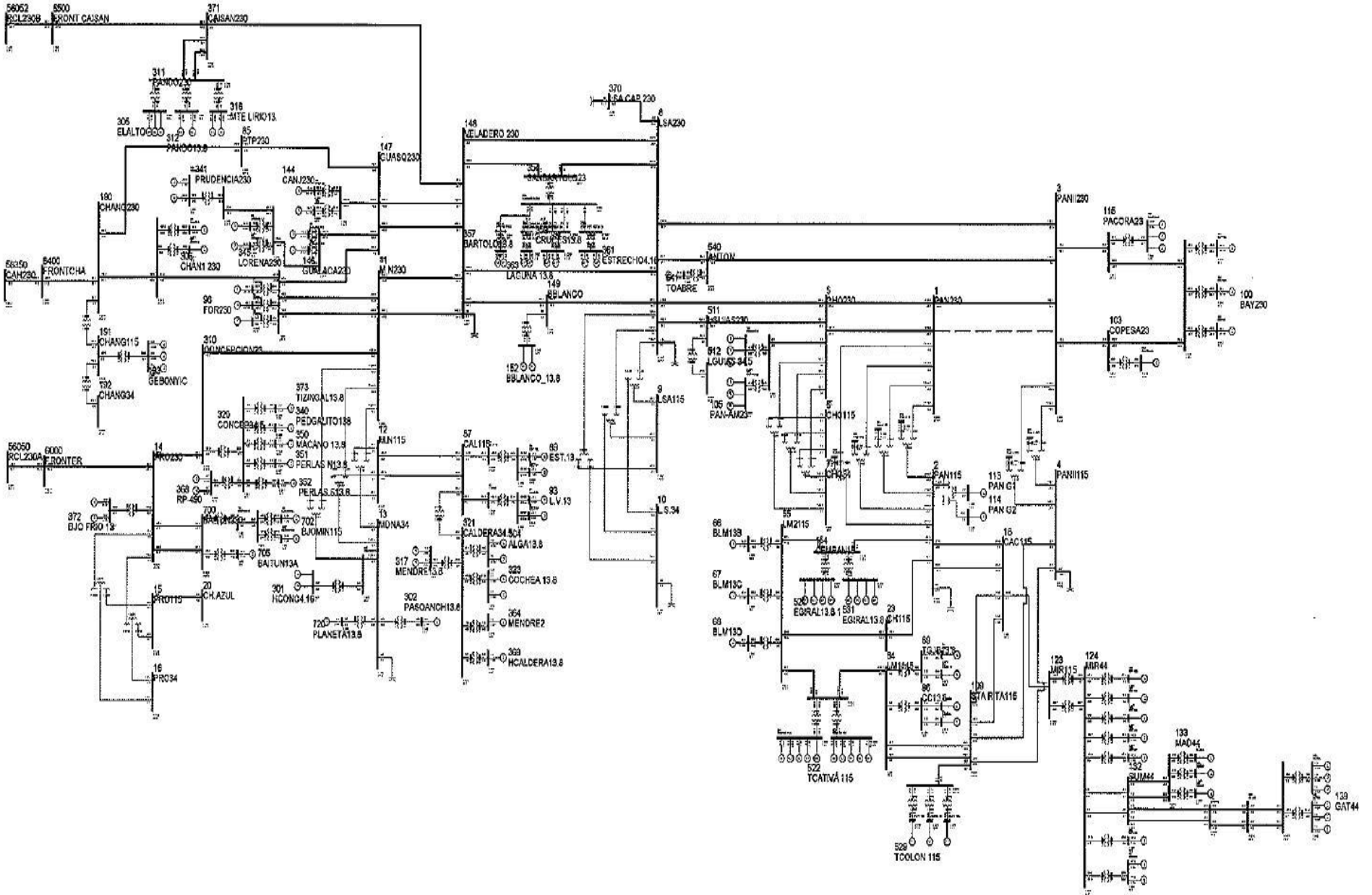
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
129		MIR13D		13.800	G4	19.8	0.0	15.0	0.0	1.0021	19.8	1.0000	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0190	16.8	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8955	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8955	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8955	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9143	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9143	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9143	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0333	17.7	0.9281	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0424	17.6	0.9281	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0424	17.6	0.9281	23.0			65	7
SUBSYSTEM TOTALS											105.3	12.4	71.5	5.5	171.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:19
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO 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		1299.4	1330.8	0.0	0.0	0.0	-73.0	41.5	-73.7
			191.7	275.1	-198.9	0.0	278.0	13.5	380.1	
2	SALVADOR		869.0	855.0	0.0	0.0	0.0	-0.5	14.5	0.0
			75.1	224.2	-70.7	0.0	228.9	-27.6	178.2	
3	HONDURAS		1236.8	1203.0	0.0	0.0	0.0	-0.3	34.1	0.0
			464.2	321.1	-47.3	0.0	293.8	53.2	431.0	
4			531.9	525.2	0.0	0.0	0.0	-0.3	7.0	0.0

NICARAGU	34.9	207.6	-57.7	0.0	182.1	-47.8	114.8	
5	1296.5	1280.2	0.0	0.0	0.0	-0.1	16.4	0.0
COSTA RI	200.8	520.4	-230.7	0.0	418.9	37.0	293.1	
6	1313.7	1230.4	0.0	0.0	0.0	13.5	69.8	13.7
PANAMA	62.9	249.8	-287.9	0.0	539.4	-21.0	661.4	
7	105.3	44.1	0.0	0.0	0.0	60.6	0.7	60.0
ACANAL	12.4	9.0	0.0	0.0	0.0	-7.2	10.7	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6652.7	6468.7	0.0	0.0	0.0	0.0	184.0	0.0
	1042.1	1807.0	-893.2	0.0	1941.2	0.0	2069.5	

4.1.1. Contingencia Panamá – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:28
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	1.0094	232.16	11		M.N230		230.00	6	1.0061	231.40
14		PRO230		230.00	6	1.0208	234.78	85		PTP230		230.00	6	1.0081	231.86
96		FOR230		230.00	6	1.0042	230.97	100		BAY230		230.00	6	1.0358	238.23
103		COPESA23		230.00	6	1.0138	233.17	115		PACORA23		230.00	6	1.0169	233.89
144		CANJ230		230.00	6	1.0030	230.69	146		GUALACA230		230.00	6	1.0076	231.74
147		GUASQ230		230.00	6	1.0030	230.68	148		VELADERO	230	230.00	6	1.0005	230.12
190		CHANG230		230.00	6	1.0148	233.41	306		CHAN1	230	230.00	6	1.0126	232.90
310		CONCEPCION23		230.00	6	1.0154	233.55	311		PANDO230		230.00	6	1.0396	239.11
341		PRUDENCIA230		230.00	6	1.0149	233.42	345		LORENA230		230.00	6	1.0121	232.79
371		CAISAN230		230.00	6	1.0383	238.82	540		ANTON		230.00	6	1.0153	233.53
700		BAITUN230		230.00	6	1.0201	234.62	6000		FRONTER		230.00	6	1.0237	235.45
6400		FRONTCHA		230.00	6	1.0169	233.88	6500		FRONT CAISAN230		230.00	6	1.0372	238.56

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		PAN230		230.00	6	0.9957	229.02	5		CHO230		230.00	6	0.9894	227.56
8		LSA230		230.00	6	0.9967	229.25	105		PAN-AM23		230.00	6	0.9894	227.56
149		BBLANCO		230.00	6	0.9989	229.76	354		SANBARTOLO23		230.00	6	0.9970	229.32
370		LSA CAP	230	230.00	6	0.9967	229.25	511		LGUIAS230		230.00	6	0.9883	227.30

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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)
4		PANII115		115.00	6	1.0331	118.81	9		LSA115		115.00	6	1.0417	119.80
15		PRO115		115.00	6	1.0227	117.61	19		C.V115		115.00	6	1.0153	116.76
20		CH.AZUL		115.00	6	1.0234	117.69	23		CH115		115.00	6	1.0021	115.24
52		TOC115		115.00	6	1.0303	118.49	54		LM1115		115.00	6	1.0261	118.01
55		LM2115		115.00	6	1.0271	118.11	61		FFIELD		115.00	6	1.0227	117.61
87		CAL115		115.00	6	1.0117	116.35	88		EST115		115.00	6	1.0148	116.70
92		L.V115		115.00	6	1.0129	116.49	109		STA RITA115		115.00	6	1.0245	117.82
123		MIR115		115.00	7	1.0057	115.65	154		CEMPAN15		115.00	6	1.0181	117.08

191	CHANG115	115.00	6	1.0062	115.72	522	TCATIVA 115	115.00	6	1.0268	118.09
529	TCOLON 115	115.00	6	1.0245	117.82	701	BAITUN115	115.00	6	1.0021	115.25
702	BJOMIN115	115.00	6	1.0040	115.46						

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)
2		PAN115		115.00	6	0.9999	114.99	6		CHO115		115.00	6	0.9903	113.88
12		M.N115		115.00	6	0.9971	114.66	18		CAC115		115.00	6	0.9998	114.98
21		C.BAN115		115.00	6	0.9936	114.27	26		LOC115		115.00	6	0.9939	114.30
30		MAR115		115.00	6	0.9913	114.00	33		STM115		115.00	6	0.9980	114.77
37		SAN115		115.00	6	0.9942	114.34	48		TINAJ115		115.00	6	0.9974	114.70
50		M.O115		115.00	6	0.9976	114.72								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	11.5	25.0	0.0	1.0000	39.7	0.9574	47.0			62	6
67		BLM13C		13.800	V3	38.0	11.5	25.0	0.0	1.0000	39.7	0.9574	47.0			62	6
68		BLM13D		13.800	V4	38.0	11.9	25.0	0.0	1.0000	39.8	0.9544	47.0			62	6
90		EST-13L		13.800	E1	21.0	4.8	12.0	-5.0	0.9800	22.0	0.9747	27.0			64	6
91		EST-13T		13.800	E2	21.0	4.8	12.0	-5.0	0.9800	22.0	0.9747	27.0			64	6
94		LV-13.8L		13.800	L1	23.2	5.5	12.0	-5.0	0.9800	24.3	0.9729	27.0			64	6
95		LV-13.8T		13.800	L2	23.2	5.5	12.0	-5.0	0.9800	24.3	0.9729	27.0			64	6
97		FOR13A		13.800	F1	86.5	-17.4	50.0	-50.0	0.9800	90.1	0.9804	111.0			64	6
98		FOR13B		13.800	F2	86.5	-17.4	50.0	-50.0	0.9800	90.1	0.9804	111.0			64	6
101		BAY13A		13.800	B1	48.4	20.1	50.0	-25.0	1.0100	51.9	0.9235	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	48.3	20.1	50.0	-25.0	1.0100	51.8	0.9233	96.0			61	6
108		BAY13C		13.800	B3	48.3	20.1	50.0	-25.0	1.0100	51.8	0.9233	100.0			61	6
116		PACORA13		13.800	P1	17.1	0.0	8.8	0.0	1.0082	17.0	1.0000	21.7			61	6
142		CANJ13A		13.800	C1	52.0	13.1	29.0	-29.0	0.9800	54.7	0.9699	69.0			64	6
143		CANJ13B		13.800	C2	52.0	13.1	29.0	-29.0	0.9800	54.7	0.9699	69.0			64	6
150		GUALACA 13-213		13.800	G2	14.0	-4.0	7.4	-7.4	0.9900	14.7	0.9623	14.8			64	6
151		GUALACA13.8		13.800	G1	14.0	-4.0	7.4	-7.4	0.9900	14.7	0.9623	14.8			64	6
193		GEBONYIC		13.800	G1	8.0	-0.4	4.0	-4.0	1.0000	8.0	0.9989	35.3			64	6
193		GEBONYIC		13.800	G2	8.0	-0.4	4.0	-4.0	1.0000	8.0	0.9989	35.3			64	6
193		GEBONYIC		13.800	G3	8.0	-0.4	4.0	-4.0	1.0000	8.0	0.9989	35.3			64	6
302		PASOANCH13.813		13.800	P1	4.8	2.0	2.0	-2.0	0.9654	5.3	0.9217	6.2			64	6

304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0805	4.8	0.8981	5.7	64	6
304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0805	4.8	0.8981	5.7	64	6
305	ELALTO	13.800	G1	14.0	-5.0	12.0	-5.0	1.0327	14.4	0.9418	20.6	64	6
307	CHAN1 A	13.800	G1	62.0	-19.6	50.0	-50.0	0.9900	65.7	0.9537	118.6	64	6
312	PANDO13.8	13.800	G1	9.0	-2.8	10.0	-5.0	1.0000	9.4	0.9559	19.9	64	6
312	PANDO13.8	13.800	G2	9.0	-2.8	10.0	-5.0	1.0000	9.4	0.9559	19.9	64	6
316	MTE LIRIO13.8	13.800	G1	17.0	-5.0	12.0	-5.0	1.0140	17.5	0.9594	27.0	64	6
316	MTE LIRIO13.8	13.800	G2	17.0	-5.0	12.0	-5.0	1.0140	17.5	0.9594	27.0	64	6
317	MENDRE13.8	13.800	M1	9.2	0.0	0.0	0.0	1.0826	8.5	1.0000	35.3	64	6
317	MENDRE13.8	13.800	M2	9.2	0.0	0.0	0.0	1.0826	8.5	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0830	5.1	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0830	5.1	1.0000	35.3	64	6
340	PEDGALITO13.8	13.800	P1	20.0	3.3	12.0	-5.0	0.9800	20.7	0.9867	27.0	64	6
342	LORENA13.8	13.800	L1	12.0	-3.8	10.5	-5.0	1.0000	12.6	0.9527	19.9	64	6
343	PRUDENCIA_1	13.800	G1	25.0	-3.0	9.8	-9.8	1.0000	25.2	0.9930	33.0	64	6
343	PRUDENCIA_1	13.800	G2	25.0	-3.0	9.8	-9.8	1.0000	25.2	0.9930	33.0	64	6
346	LORENA 13-2	13.800	L2	12.0	-3.8	10.5	-5.0	1.0000	12.6	0.9527	19.9	64	6
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0725	3.0	0.9515	6.2	64	6
351	PERLAS N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9769	10.5	0.8742	13.5	64	6
352	PERLAS S13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9769	10.5	0.8742	13.5	64	6
357	BARTOLO13.8	13.800	G1	7.2	1.5	3.7	-3.7	1.0000	7.4	0.9794	8.5	64	6
357	BARTOLO13.8	13.800	G2	7.2	1.5	3.7	-3.7	1.0000	7.4	0.9794	8.5	64	6
359	CRUCES13.8	13.800	G1	4.6	0.5	2.3	-2.3	1.0000	4.6	0.9932	5.6	64	6
359	CRUCES13.8	13.800	G2	4.6	0.5	2.3	-2.3	1.0000	4.6	0.9932	5.6	64	6
361	ESTRECHO4.164	1.600	G1	4.9	0.4	2.5	-2.5	1.0000	5.0	0.9967	5.6	64	6
361	ESTRECHO4.164	1.600	G2	4.9	0.4	2.5	-2.5	1.0000	5.0	0.9967	5.6	64	6
363	LAGUNA 13.8	13.800	G1	4.7	0.2	2.4	-2.4	1.0000	4.7	0.9993	5.8	64	6
363	LAGUNA 13.8	13.800	G2	4.7	0.2	2.4	-2.4	1.0000	4.7	0.9993	5.8	64	6
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9849	8.7	0.8911	8.9	64	6
368	RP-490	13.800	G1	4.7	-1.7	2.4	-2.4	1.0000	5.0	0.9395	5.5	64	6
368	RP-490	13.800	G2	4.7	-1.7	2.4	-2.4	1.0000	5.0	0.9395	5.5	64	6
369	HCALDERA13.8	13.800	G1	3.8	1.9	1.9	-1.9	0.9838	4.3	0.8909	4.3	64	6
372	BJO FRIO 13	13.800	G1	24.0	-4.7	9.8	-9.8	1.0000	24.5	0.9814	33.0	64	6
372	BJO FRIO 13	13.800	G2	24.0	-4.7	9.8	-9.8	1.0000	24.5	0.9814	33.0	64	6
373	TIZINGAL13.8	13.800	G1	4.4	2.2	2.2	-2.2	0.9752	5.1	0.8911	21.6	64	6
523	TCATIVÁ 13A	13.800	G1	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
523	TCATIVÁ 13A	13.800	G2	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
523	TCATIVÁ 13A	13.800	G3	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
523	TCATIVÁ 13A	13.800	G4	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
524	TCATIVÁ 13B	13.800	G0	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
524	TCATIVÁ 13B	13.800	G6	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
524	TCATIVÁ 13B	13.800	G7	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
524	TCATIVÁ 13B	13.800	G8	8.3	3.7	6.6	-6.6	1.0000	9.0	0.9146	10.9	62	6
541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0164	24.6	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	23.0	1.2	13.0	-13.0	1.0000	23.0	0.9986	30.5	64	6

704	BJOMIN13B	13.800	G2	23.0	1.2	13.0	-13.0	1.0000	23.0	0.9986	30.5	64	6
705	BAITUN13A	13.800	G1	38.0	-7.2	26.6	-26.6	1.0000	38.7	0.9824	50.6	64	6
706	BAITUN13B	13.800	G2	38.0	-7.2	26.6	-26.6	1.0000	38.7	0.9824	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9654	5.1	0.9145	6.2	64	6
SUBSYSTEM TOTALS				1314.1	73.9	830.8	-594.9				2123.8		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:27
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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																	
129		MIR13D		13.800	G4	19.8	0.6	15.0	0.0	1.0000	19.8	0.9996	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0154	16.8	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9119	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9119	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.9	2.0	-2.0	1.0000	2.1	0.9119	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9222	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9222	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9222	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0298	17.8	0.9281	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0388	17.6	0.9281	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0388	17.6	0.9281	23.0			65	7
SUBSYSTEM TOTALS						105.4	13.6	71.5	5.5				171.3				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:29
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

AREA TOTALS IN MW/MVAR										
X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	DESIRED NET INT	LOSSES
1	GUATEMAL		1299.7	1330.8	0.0	0.0	0.0	-72.6	-73.7	41.5
			191.7	275.1	-198.9	0.0	278.0	13.4		380.2
2	SALVADOR		869.1	855.0	0.0	0.0	0.0	-0.4	0.0	14.5
			75.1	224.2	-70.7	0.0	228.9	-27.6		178.2
3	HONDURAS		1237.0	1203.0	0.0	0.0	0.0	-0.1	0.0	34.1
			464.1	321.1	-47.3	0.0	293.8	53.2		431.0

4	532.0	525.2	0.0	0.0	0.0	-0.2	7.0	0.0
NICARAGU	34.8	207.6	-57.7	0.0	182.1	-47.7	114.8	
5	1296.7	1280.2	0.0	0.0	0.0	0.1	16.4	0.0
COSTA RI	201.4	520.4	-230.7	0.0	418.8	37.4	293.1	
6	1314.1	1230.4	0.0	0.0	0.0	12.6	71.1	13.7
PANAMA	73.9	249.8	-286.3	0.0	534.9	-22.5	667.8	
7	105.4	44.1	0.0	0.0	0.0	60.6	0.7	60.0
ACANAL	13.6	9.0	0.0	0.0	0.0	-6.2	10.8	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6654.0	6468.7	0.0	0.0	0.0	0.0	185.3	0.0
	1054.7	1807.0	-891.6	0.0	1936.6	0.0	2075.9	

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)
2		PAN115		115.00	6	0.9706	111.61	6		CHO115		115.00	6	0.9483	109.05
9		LSA115		115.00	6	0.9936	114.26	12		M.N115		115.00	6	0.9882	113.64
18		CAC115		115.00	6	0.9705	111.61	19		C.V115		115.00	6	0.9831	113.05
21		C.BAN115		115.00	6	0.9635	110.80	23		CH115		115.00	6	0.9778	112.45
26		LOC115		115.00	6	0.9638	110.84	30		MAR115		115.00	6	0.9615	110.57
33		STM115		115.00	6	0.9685	111.38	37		SAN115		115.00	6	0.9639	110.84
48		TINAJ115		115.00	6	0.9679	111.31	50		M.O115		115.00	6	0.9681	111.33
52		TOC115		115.00	6	0.9973	114.69	123		MIR115		115.00	7	0.9792	112.60
154		CEMPAN15		115.00	6	0.9978	114.74	701		BAITUN115		115.00	6	0.9970	114.65
702		BJOMIN115		115.00	6	0.9993	114.92								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:36
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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	38.1	18.6	25.0	0.0	1.0000	42.4	0.8986	47.0			62	6
67		BLM13C		13.800	V3	38.1	18.6	25.0	0.0	1.0000	42.4	0.8986	47.0			62	6
68		BLM13D		13.800	V4	38.1	19.4	25.0	0.0	1.0000	42.7	0.8911	47.0			62	6
90		EST-13L		13.800	E1	21.1	6.4	12.0	-5.0	0.9800	22.5	0.9575	27.0			64	6
91		EST-13T		13.800	E2	21.1	6.4	12.0	-5.0	0.9800	22.5	0.9575	27.0			64	6
94		LV-13.8L		13.800	L1	23.3	7.2	12.0	-5.0	0.9800	24.9	0.9557	27.0			64	6
95		LV-13.8T		13.800	L2	23.3	7.2	12.0	-5.0	0.9800	24.9	0.9557	27.0			64	6
97		FOR13A		13.800	F1	86.9	-6.9	50.0	-50.0	0.9800	88.9	0.9968	111.0			64	6
98		FOR13B		13.800	F2	86.9	-6.9	50.0	-50.0	0.9800	88.9	0.9968	111.0			64	6
101		BAY13A		13.800	B1	48.8	36.3	50.0	-25.0	1.0100	60.2	0.8021	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	48.7	36.3	50.0	-25.0	1.0100	60.1	0.8014	96.0			61	6
108		BAY13C		13.800	B3	48.7	36.3	50.0	-25.0	1.0100	60.1	0.8015	100.0			61	6
116		PACORA13		13.800	P1	17.2	7.1	8.8	0.0	0.9900	18.8	0.9249	21.7			61	6
142		CANJ13A		13.800	C1	52.2	15.3	29.0	-29.0	0.9800	55.5	0.9599	69.0			64	6
143		CANJ13B		13.800	C2	52.2	15.3	29.0	-29.0	0.9800	55.5	0.9599	69.0			64	6
150		GUALACA 13-213		13.800	G2	14.0	-0.9	7.4	-7.4	0.9900	14.2	0.9980	14.8			64	6
151		GUALACA13.8		13.800	G1	14.0	-0.9	7.4	-7.4	0.9900	14.2	0.9980	14.8			64	6
193		GEBONYIC		13.800	G1	8.1	0.2	4.0	-4.0	1.0000	8.1	0.9998	35.3			64	6
193		GEBONYIC		13.800	G2	8.1	0.2	4.0	-4.0	1.0000	8.1	0.9998	35.3			64	6
193		GEBONYIC		13.800	G3	8.1	0.2	4.0	-4.0	1.0000	8.1	0.9998	35.3			64	6

302	PASOANCH13.813.800	P1	4.8	2.0	2.0	-2.0	0.9512	5.4	0.9223	6.2	64	6
304	ALGA13.8	13.800 A1	4.6	-2.3	2.3	-2.3	1.0737	4.8	0.8981	5.7	64	6
304	ALGA13.8	13.800 A2	4.6	-2.3	2.3	-2.3	1.0737	4.8	0.8981	5.7	64	6
305	ELALTO	13.800 G1	14.1	-5.0	12.0	-5.0	1.0193	14.6	0.9423	20.6	64	6
307	CHAN1 A	13.800 G1	62.4	-13.2	50.0	-50.0	0.9900	64.4	0.9784	118.6	64	6
312	PANDO13.8	13.800 G1	9.1	-1.7	10.0	-5.0	1.0000	9.2	0.9835	19.9	64	6
312	PANDO13.8	13.800 G2	9.1	-1.7	10.0	-5.0	1.0000	9.2	0.9835	19.9	64	6
316	MTE LIRIO13.13.800	G1	17.0	-5.0	12.0	-5.0	1.0004	17.7	0.9594	27.0	64	6
316	MTE LIRIO13.13.800	G2	17.0	-5.0	12.0	-5.0	1.0004	17.7	0.9594	27.0	64	6
317	MENDRE13.8	13.800 M1	9.3	0.0	0.0	0.0	1.0757	8.7	1.0000	35.3	64	6
317	MENDRE13.8	13.800 M2	9.3	0.0	0.0	0.0	1.0757	8.7	1.0000	35.3	64	6
323	COCHEA 13.8	13.800 C1	5.6	0.0	0.0	0.0	1.0762	5.2	1.0000	35.3	64	6
323	COCHEA 13.8	13.800 C2	5.6	0.0	0.0	0.0	1.0762	5.2	1.0000	35.3	64	6
340	PEDGALITO13813.800	P1	20.1	5.6	12.0	-5.0	0.9800	21.3	0.9639	27.0	64	6
342	LORENA13.8	13.800 L1	12.0	0.1	10.5	-5.0	1.0000	12.1	1.0000	19.9	64	6
343	PRUDENCIA_1	13.800 G1	25.1	0.2	9.8	-9.8	1.0000	25.1	1.0000	33.0	64	6
343	PRUDENCIA_1	13.800 G2	25.1	0.2	9.8	-9.8	1.0000	25.1	1.0000	33.0	64	6
346	LORENA 13-2	13.800 L2	12.0	0.1	10.5	-5.0	1.0000	12.1	1.0000	19.9	64	6
350	MACANO 13.8	13.800 G1	3.1	-1.0	1.0	-1.0	1.0672	3.1	0.9521	6.2	64	6
351	PERLAS N13.813.800	G1	9.0	5.0	5.0	-5.0	0.9720	10.6	0.8752	13.5	64	6
352	PERLAS S13.813.800	G1	9.0	5.0	5.0	-5.0	0.9720	10.6	0.8752	13.5	64	6
357	BARTOLO13.8	13.800 G1	7.3	2.6	3.7	-3.7	1.0000	7.7	0.9424	8.5	64	6
357	BARTOLO13.8	13.800 G2	7.3	2.6	3.7	-3.7	1.0000	7.7	0.9424	8.5	64	6
359	CRUCES13.8	13.800 G1	4.6	1.2	2.3	-2.3	1.0000	4.7	0.9692	5.6	64	6
359	CRUCES13.8	13.800 G2	4.6	1.2	2.3	-2.3	1.0000	4.7	0.9692	5.6	64	6
361	ESTRECHO4.164.1600	G1	4.9	1.0	2.5	-2.5	1.0000	5.0	0.9797	5.6	64	6
361	ESTRECHO4.164.1600	G2	4.9	1.0	2.5	-2.5	1.0000	5.0	0.9797	5.6	64	6
363	LAGUNA 13.8	13.800 G1	4.7	0.7	2.4	-2.4	1.0000	4.7	0.9875	5.8	64	6
363	LAGUNA 13.8	13.800 G2	4.7	0.7	2.4	-2.4	1.0000	4.7	0.9875	5.8	64	6
364	MENDRE2	13.800 G1	7.6	3.9	3.9	-3.9	0.9788	8.7	0.8911	8.9	64	6
368	RP-490	13.800 G1	4.7	-1.3	2.4	-2.4	1.0000	4.9	0.9641	5.5	64	6
368	RP-490	13.800 G2	4.7	-1.3	2.4	-2.4	1.0000	4.9	0.9641	5.5	64	6
369	HCALDERA13.813.800	G1	3.8	1.9	1.9	-1.9	0.9776	4.4	0.8909	4.3	64	6
372	BJO FRIO 13	13.800 G1	24.1	-2.2	9.8	-9.8	1.0000	24.2	0.9960	33.0	64	6
372	BJO FRIO 13	13.800 G2	24.1	-2.2	9.8	-9.8	1.0000	24.2	0.9960	33.0	64	6
373	TIZINGAL13.813.800	G1	4.5	2.2	2.2	-2.2	0.9704	5.2	0.8940	21.6	64	6
523	TCATIVÁ 13A	13.800 G1	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
523	TCATIVÁ 13A	13.800 G2	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
523	TCATIVÁ 13A	13.800 G3	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
523	TCATIVÁ 13A	13.800 G4	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
524	TCATIVÁ 13B	13.800 G0	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
524	TCATIVÁ 13B	13.800 G6	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
524	TCATIVÁ 13B	13.800 G7	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
524	TCATIVÁ 13B	13.800 G8	8.3	6.1	6.6	-6.6	1.0000	10.3*	0.8047	10.9	62	6
541	TOABRE	0.6000 1	25.2	0.0	0.0	0.0	0.9664	26.1	1.0000	88.9	64	6

703	BJOMIN13A	13.800	G1	23.1	1.9	13.0	-13.0	1.0000	23.2	0.9965	30.5	64	6
704	BJOMIN13B	13.800	G2	23.1	1.9	13.0	-13.0	1.0000	23.2	0.9965	30.5	64	6
705	BAITUN13A	13.800	G1	38.2	-3.6	26.6	-26.6	1.0000	38.3	0.9955	50.6	64	6
706	BAITUN13B	13.800	G2	38.2	-3.6	26.6	-26.6	1.0000	38.3	0.9955	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9512	5.2	0.9145	6.2	64	6
SUBSYSTEM TOTALS				1320.3	255.8	830.8	-594.9				2123.8		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:36
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

AREA 7 [ACANAL] MACHINE SUMMARY:

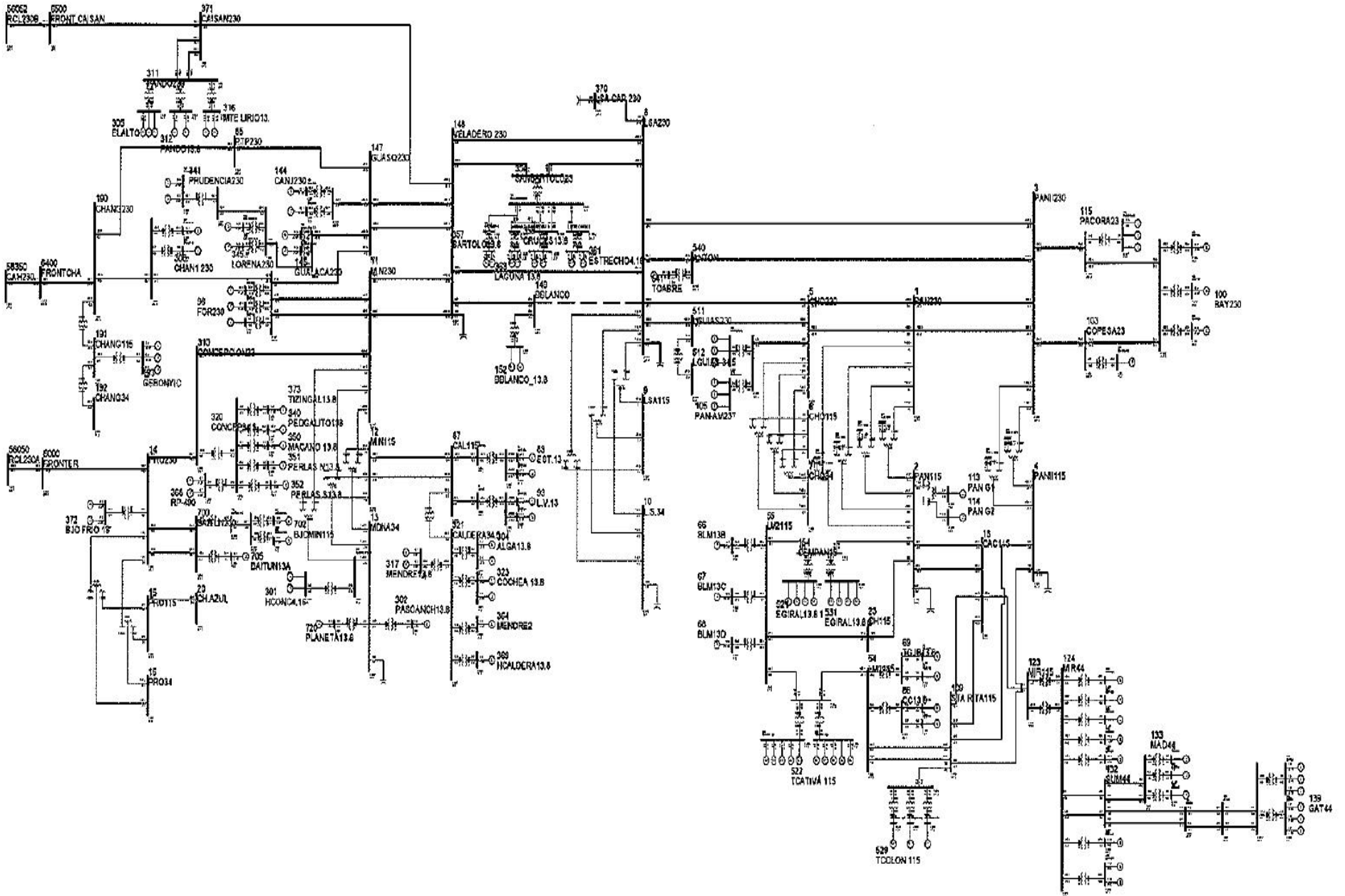
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	20.0	7.0	15.0	0.0	1.0000	21.2	0.9431	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.2	0.3	8.0	0.0	1.0000	17.2	0.9998	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.3	2.0	-2.0	1.0000	2.0	0.9873	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.3	2.0	-2.0	1.0000	2.0	0.9873	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.3	2.0	-2.0	1.0000	2.0	0.9873	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.1	3.0	-3.0	1.0000	4.0	0.9649	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.1	3.0	-3.0	1.0000	4.0	0.9649	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.1	3.0	-3.0	1.0000	4.0	0.9649	6.2			65	7
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0139	18.1	0.9287	23.0			65	7
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0231	18.0	0.9287	23.0			65	7
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0231	18.0	0.9287	23.0			65	7
SUBSYSTEM TOTALS						105.8	23.7	71.5	5.5				171.3				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:38
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII 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			1305.1	1330.8	0.0	0.0	0.0	-67.3	41.6	-73.7
	GUATEMAL		191.8	275.1	-198.8	0.0	278.0	12.5	381.2	
2			871.0	855.0	0.0	0.0	0.0	1.7	14.4	0.0
	SALVADOR		74.6	224.2	-70.7	0.0	229.0	-27.8	177.9	
3			1238.6	1203.0	0.0	0.0	0.0	1.6	34.0	0.0

HONDURAS	463.4	321.1	-47.3	0.0	293.9	53.0	430.4	
4	532.5	525.2	0.0	0.0	0.0	0.4	6.9	0.0
NICARAGU	34.2	207.6	-57.7	0.0	182.1	-47.6	114.0	
5	1299.4	1280.2	0.0	0.0	0.0	3.0	16.3	0.0
COSTA RI	211.3	520.4	-230.3	0.0	417.4	44.9	293.8	
6	1320.3	1230.4	0.0	0.0	0.0	-0.4	90.2	13.7
PANAMA	255.8	249.8	-267.4	0.0	475.5	-38.3	787.1	
7	105.8	44.1	0.0	0.0	0.0	61.0	0.7	60.0
ACANAL	23.7	9.0	0.0	0.0	0.0	3.3	11.5	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6672.8	6468.7	0.0	0.0	0.0	0.0	204.1	0.0
	1254.9	1807.0	-872.3	0.0	1875.9	0.0	2195.9	

4.1.3. Contingencia Llano Sánchez – Barro Blanco



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:46
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-BBL

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)
14		PRO230		230.00	6	1.0154	233.53	85		PTP230		230.00	6	1.0015	230.34
100		BAY230		230.00	6	1.0281	236.45	103		COPESA23		230.00	6	1.0018	230.42
115		PACORA23		230.00	6	1.0056	231.28	146		GUALACA230		230.00	6	1.0002	230.05
190		CHANG230		230.00	6	1.0107	232.45	306		CHAN1 230		230.00	6	1.0086	231.98
310		CONCEPCION23		230.00	6	1.0086	231.98	311		PANDO230		230.00	6	1.0317	237.29
341		PRUDENCIA230		230.00	6	1.0080	231.85	345		LORENA230		230.00	6	1.0051	231.18
371		CAISAN230		230.00	6	1.0304	236.98	700		BAITUN230		230.00	6	1.0152	233.50
6000		FRONTER		230.00	6	1.0180	234.14	6400		FRONTCHA		230.00	6	1.0130	232.98
6500		FRONT CAISAN		230.00	6	1.0295	236.78								

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)
1		PAN230		230.00	6	0.9886	227.38	3		PANII230		230.00	6	0.9966	229.22
5		CHO230		230.00	6	0.9792	225.22	8		LSA230		230.00	6	0.9767	224.65
11		M.N230		230.00	6	0.9974	229.41	96		FOR230		230.00	6	0.9973	229.38
105		PAN-AM23		230.00	6	0.9792	225.22	144		CANJ230		230.00	6	0.9952	228.91
147		GUASQ230		230.00	6	0.9952	228.89	148		VELADERO 230		230.00	6	0.9841	226.35
149		BBLANCO		230.00	6	0.9841	226.35	354		SANBARTOLO23		230.00	6	0.9761	224.51
370		LSA CAP 230		230.00	6	0.9767	224.65	511		LGUIAS230		230.00	6	0.9721	223.58
540		ANTON		230.00	6	0.9980	229.55								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:46
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-BBL

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)
4		PANII115		115.00	6	1.0226	117.59	9		LSA115		115.00	6	1.0202	117.33
15		PRO115		115.00	6	1.0172	116.98	19		C.V115		115.00	6	1.0057	115.65
20		CH.AZUL		115.00	6	1.0180	117.07	52		TOC115		115.00	6	1.0197	117.27
54		LM1115		115.00	6	1.0217	117.49	55		LM2115		115.00	6	1.0227	117.61
61		FFIELD		115.00	6	1.0182	117.10	87		CAL115		115.00	6	1.0082	115.94
88		EST115		115.00	6	1.0116	116.33	92		L.V115		115.00	6	1.0095	116.10
109		STA RITA115		115.00	6	1.0191	117.20	154		CEMPAN15		115.00	6	1.0129	116.49

191	CHANG115	115.00	6	1.0033	115.38	522	TCATIVÁ	115	115.00	6	1.0224	117.57
529	TCOLON	115.00	6	1.0191	117.20	702	BJOMIN115	115.00	6	1.0012	115.14	

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)
2		PAN115		115.00	6	0.9929	114.19	6		CHO115		115.00	6	0.9801	112.71
12		M.N115		115.00	6	0.9918	114.06	18		CAC115		115.00	6	0.9928	114.17
21		C.BAN115		115.00	6	0.9861	113.40	23		CH115		115.00	6	0.9961	114.56
26		LOC115		115.00	6	0.9864	113.44	30		MAR115		115.00	6	0.9840	113.16
33		STM115		115.00	6	0.9910	113.96	37		SAN115		115.00	6	0.9865	113.45
48		TINAJ115		115.00	6	0.9904	113.90	50		M.O115		115.00	6	0.9905	113.91
123		MIR115		115.00	7	0.9993	114.92	701		BAITUN115		115.00	6	0.9991	114.89

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:46
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-BBL

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	13.4	25.0	0.0	1.0000	40.3	0.9435	47.0			62	6
67		BLM13C		13.800	V3	38.0	13.4	25.0	0.0	1.0000	40.3	0.9435	47.0			62	6
68		BLM13D		13.800	V4	38.0	13.9	25.0	0.0	1.0000	40.5	0.9393	47.0			62	6
90		EST-13L		13.800	E1	21.0	5.7	12.0	-5.0	0.9800	22.2	0.9649	27.0			64	6
91		EST-13T		13.800	E2	21.0	5.7	12.0	-5.0	0.9800	22.2	0.9649	27.0			64	6
94		LV-13.8L		13.800	L1	23.2	6.5	12.0	-5.0	0.9800	24.6	0.9631	27.0			64	6
95		LV-13.8T		13.800	L2	23.2	6.5	12.0	-5.0	0.9800	24.6	0.9631	27.0			64	6
97		FOR13A		13.800	F1	86.6	-11.2	50.0	-50.0	0.9800	89.1	0.9918	111.0			64	6
98		FOR13B		13.800	F2	86.6	-11.2	50.0	-50.0	0.9800	89.1	0.9918	111.0			64	6
101		BAY13A		13.800	B1	48.6	25.9	50.0	-25.0	1.0100	54.5	0.8821	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	48.4	25.9	50.0	-25.0	1.0100	54.4	0.8816	96.0			61	6
108		BAY13C		13.800	B3	48.5	25.9	50.0	-25.0	1.0100	54.4	0.8817	100.0			61	6
116		PACORA13		13.800	P1	17.1	0.0	8.8	0.0	0.9967	17.2	1.0000	21.7			61	6
142		CANJ13A		13.800	C1	52.1	14.4	29.0	-29.0	0.9800	55.1	0.9641	69.0			64	6
143		CANJ13B		13.800	C2	52.1	14.4	29.0	-29.0	0.9800	55.1	0.9641	69.0			64	6
150		GUALACA	13-213.800	G2	14.0	-2.1	7.4	-7.4	0.9900	14.3	0.9886	14.8			64	6	
151		GUALACA13.8	13.800	G1	14.0	-2.1	7.4	-7.4	0.9900	14.3	0.9886	14.8			64	6	
193		GEBONYIC	13.800	G1	8.0	-0.1	4.0	-4.0	1.0000	8.0	1.0000	35.3			64	6	
193		GEBONYIC	13.800	G2	8.0	-0.1	4.0	-4.0	1.0000	8.0	1.0000	35.3			64	6	
193		GEBONYIC	13.800	G3	8.0	-0.1	4.0	-4.0	1.0000	8.0	1.0000	35.3			64	6	
302		PASOANCH13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9569	5.4	0.9219	6.2			64	6	

304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0766	4.8	0.8981	5.7	64	6
304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0766	4.8	0.8981	5.7	64	6
305	ELALTO	13.800	G1	14.0	-5.0	12.0	-5.0	1.0247	14.5	0.9419	20.6	64	6
307	CHAN1 A	13.800	G1	62.2	-15.7	50.0	-50.0	0.9900	64.8	0.9694	118.6	64	6
312	PANDO13.8	13.800	G1	9.0	-2.1	10.0	-5.0	1.0000	9.3	0.9737	19.9	64	6
312	PANDO13.8	13.800	G2	9.0	-2.1	10.0	-5.0	1.0000	9.3	0.9737	19.9	64	6
316	MTE LIRIO13.8	13.800	G1	17.0	-5.0	12.0	-5.0	1.0059	17.6	0.9594	27.0	64	6
316	MTE LIRIO13.8	13.800	G2	17.0	-5.0	12.0	-5.0	1.0059	17.6	0.9594	27.0	64	6
317	MENDRE13.8	13.800	M1	9.3	0.0	0.0	0.0	1.0786	8.6	1.0000	35.3	64	6
317	MENDRE13.8	13.800	M2	9.3	0.0	0.0	0.0	1.0786	8.6	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0791	5.1	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0791	5.1	1.0000	35.3	64	6
340	PEDGALITO13813.800	13.800	P1	20.0	4.6	12.0	-5.0	0.9800	21.0	0.9742	27.0	64	6
342	LORENA13.8	13.800	L1	12.0	-1.5	10.5	-5.0	1.0000	12.1	0.9924	19.9	64	6
343	PRUDENCIA_1	13.800	G1	25.0	-1.1	9.8	-9.8	1.0000	25.1	0.9991	33.0	64	6
343	PRUDENCIA_1	13.800	G2	25.0	-1.1	9.8	-9.8	1.0000	25.1	0.9991	33.0	64	6
346	LORENA 13-2	13.800	L2	12.0	-1.5	10.5	-5.0	1.0000	12.1	0.9924	19.9	64	6
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0693	3.0	0.9517	6.2	64	6
351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9740	10.6	0.8746	13.5	64	6
352	PERLAS S13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9740	10.6	0.8746	13.5	64	6
357	BARTOLO13.8	13.800	G1	7.3	2.2	3.7	-3.7	1.0000	7.6	0.9576	8.5	64	6
357	BARTOLO13.8	13.800	G2	7.3	2.2	3.7	-3.7	1.0000	7.6	0.9576	8.5	64	6
359	CRUCES13.8	13.800	G1	4.6	0.9	2.3	-2.3	1.0000	4.7	0.9798	5.6	64	6
359	CRUCES13.8	13.800	G2	4.6	0.9	2.3	-2.3	1.0000	4.7	0.9798	5.6	64	6
361	ESTRECHO4.164.1600	1.600	G1	4.9	0.8	2.5	-2.5	1.0000	5.0	0.9876	5.6	64	6
361	ESTRECHO4.164.1600	1.600	G2	4.9	0.8	2.5	-2.5	1.0000	5.0	0.9876	5.6	64	6
363	LAGUNA 13.8	13.800	G1	4.7	0.5	2.4	-2.4	1.0000	4.7	0.9934	5.8	64	6
363	LAGUNA 13.8	13.800	G2	4.7	0.5	2.4	-2.4	1.0000	4.7	0.9934	5.8	64	6
364	MENDRE2	13.800	G1	7.6	3.9	3.9	-3.9	0.9814	8.7	0.8911	8.9	64	6
368	RP-490	13.800	G1	4.7	-1.5	2.4	-2.4	1.0000	4.9	0.9547	5.5	64	6
368	RP-490	13.800	G2	4.7	-1.5	2.4	-2.4	1.0000	4.9	0.9547	5.5	64	6
369	HCALDERA13.813.800	13.800	G1	3.8	1.9	1.9	-1.9	0.9802	4.4	0.8909	4.3	64	6
372	BJO FRIO 13	13.800	G1	24.0	-3.2	9.8	-9.8	1.0000	24.3	0.9913	33.0	64	6
372	BJO FRIO 13	13.800	G2	24.0	-3.2	9.8	-9.8	1.0000	24.3	0.9913	33.0	64	6
373	TIZINGAL13.813.800	13.800	G1	4.4	2.2	2.2	-2.2	0.9723	5.1	0.8921	21.6	64	6
523	TCATIVÁ 13A	13.800	G1	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
523	TCATIVÁ 13A	13.800	G2	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
523	TCATIVÁ 13A	13.800	G3	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
523	TCATIVÁ 13A	13.800	G4	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
524	TCATIVÁ 13B	13.800	G0	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
524	TCATIVÁ 13B	13.800	G6	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
524	TCATIVÁ 13B	13.800	G7	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
524	TCATIVÁ 13B	13.800	G8	8.3	4.3	6.6	-6.6	1.0000	9.3	0.8868	10.9	62	6
541	TOABRE	0.6000	1	25.1	0.0	0.0	0.0	0.9991	25.1	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	23.0	1.7	13.0	-13.0	1.0000	23.1	0.9974	30.5	64	6

704	BJOMIN13B	13.800	G2	23.0	1.7	13.0	-13.0	1.0000	23.1	0.9974	30.5	64	6
705	BAITUN13A	13.800	G1	38.1	-5.1	26.6	-26.6	1.0000	38.4	0.9912	50.6	64	6
706	BAITUN13B	13.800	G2	38.1	-5.1	26.6	-26.6	1.0000	38.4	0.9912	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9569	5.2	0.9145	6.2	64	6
SUBSYSTEM TOTALS				1316.2	153.1	830.8	-594.9				2123.8		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:46
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-BBL

AREA 7 [ACANAL] MACHINE SUMMARY:

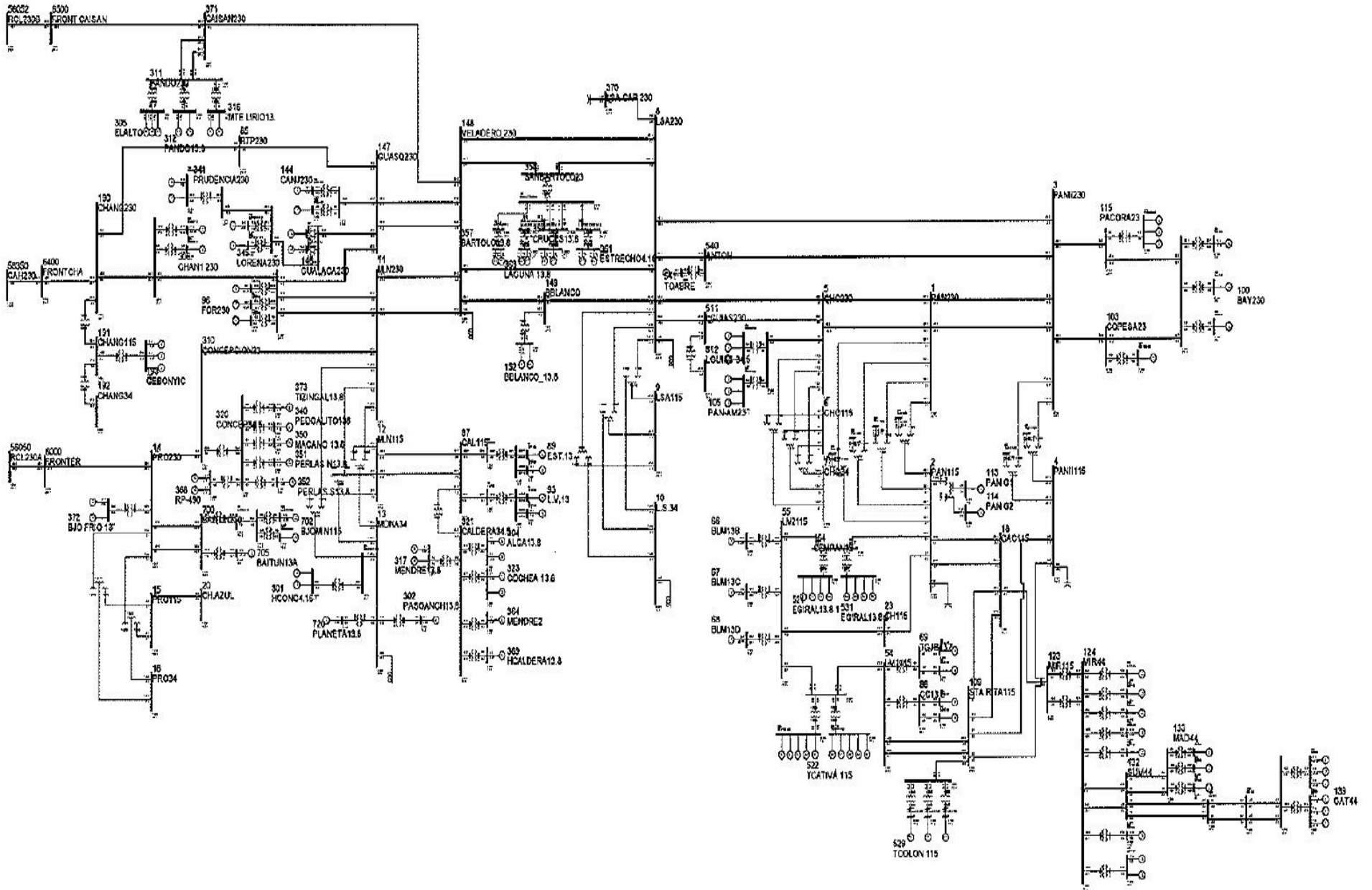
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	19.9	2.2	15.0	0.0	1.0000	20.0	0.9941	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0115	16.9	1.0000	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.7	2.0	-2.0	1.0000	2.1	0.9364	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.7	2.0	-2.0	1.0000	2.1	0.9364	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.7	2.0	-2.0	1.0000	2.1	0.9364	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.1	0.9345	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.1	0.9345	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.1	0.9345	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0259	17.9	0.9283	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0350	17.7	0.9283	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0350	17.7	0.9283	23.0			65	7
SUBSYSTEM TOTALS						105.5	16.0	71.5	5.5				171.3				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2013 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-BBL 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			1301.6	1330.8	0.0	0.0	0.0	-70.8	41.6	-73.7
	GUATEMAL		191.7	275.1	-198.9	0.0	278.0	13.1	380.5	
2			869.8	855.0	0.0	0.0	0.0	0.3	14.4	0.0
	SALVADOR		74.9	224.2	-70.7	0.0	228.9	-27.7	178.1	
3			1237.5	1203.0	0.0	0.0	0.0	0.5	34.1	0.0
	HONDURAS		463.9	321.1	-47.3	0.0	293.9	53.1	430.8	

4	532.1	525.2	0.0	0.0	0.0	0.0	6.9	0.0
NICARAGU	34.6	207.6	-57.7	0.0	182.1	-47.7	114.5	
5	1297.6	1280.2	0.0	0.0	0.0	1.1	16.4	0.0
COSTA RI	207.3	520.4	-230.5	0.0	418.0	42.0	293.4	
6	1316.2	1230.4	0.0	0.0	0.0	8.1	77.7	13.7
PANAMA	153.1	249.8	-279.7	0.0	525.0	-29.0	737.0	
7	105.5	44.1	0.0	0.0	0.0	60.8	0.7	60.0
ACANAL	16.0	9.0	0.0	0.0	0.0	-3.8	10.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6660.4	6468.7	0.0	0.0	0.0	0.0	191.7	0.0
	1141.6	1807.0	-884.8	0.0	1925.9	0.0	2145.2	

4.2 Demanda Mínima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2013 ESC-MOD DEMANDA-MIN-INVIERNO

MON, MAY 24 2010 16:16

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	1.0129	232.97	14		PRO230		230.00	6	1.0265	236.10
85		PTP230		230.00	6	1.0163	233.74	96		FOR230		230.00	6	1.0137	233.16
100		BAY230		230.00	6	1.0066	231.51	144		CANJ230		230.00	6	1.0132	233.03
146		GUALACA230		230.00	6	1.0150	233.46	147		GUASQ230		230.00	6	1.0131	233.02
148		VELADERO	230	230.00	6	1.0056	231.30	149		BBLANCO		230.00	6	1.0042	230.98
190		CHANG230		230.00	6	1.0176	234.06	306		CHAN1	230	230.00	6	1.0159	233.67
310		CONCEPCION232	230	230.00	6	1.0223	235.14	311		PANDO230		230.00	6	1.0462	240.64
341		PRUDENCIA230	230	230.00	6	1.0180	234.13	345		LORENA230		230.00	6	1.0169	233.89
354		SANBARTOLO232	230	230.00	6	1.0007	230.16	371		CAISAN230		230.00	6	1.0448	240.31
540		ANTON		230.00	6	1.0072	231.66	700		BAITUN230		230.00	6	1.0255	235.87
6000		FRONTER		230.00	6	1.0292	236.71	6400		FRONTCHA		230.00	6	1.0185	234.25
6500		FRONT CAISAN230		230.00	6	1.0434	239.98								

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	0.9881	227.27	3		PANII230		230.00	6	0.9920	228.16
5		CHO230		230.00	6	0.9880	227.23	8		LSA230		230.00	6	0.9907	227.85
103		COPESA23		230.00	6	0.9947	228.78	105		PAN-AM23		230.00	6	0.9880	227.23
115		PACORA23		230.00	6	0.9961	229.11	370		LSA CAP	230	230.00	6	0.9907	227.85
511		LGUIAS230		230.00	6	0.9895	227.58								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2013 ESC-MOD DEMANDA-MIN-INVIERNO

MON, MAY 24 2010 16:16

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)
9		LSA115		115.00	6	1.0374	119.30	12		M.N115		115.00	6	1.0171	116.97
15		PRO115		115.00	6	1.0284	118.27	20		CH.AZUL		115.00	6	1.0291	118.35
54		LM115		115.00	6	1.0066	115.76	55		LM2115		115.00	6	1.0076	115.88
61		FFIELD		115.00	6	1.0046	115.53	87		CAL115		115.00	6	1.0263	118.02
88		EST115		115.00	6	1.0283	118.25	92		L.V115		115.00	6	1.0270	118.11
109		STA RITA115		115.00	6	1.0039	115.45	154		CEMPAN15		115.00	6	1.0006	115.07
191		CHANG115		115.00	6	1.0090	116.04	522		TCATIVÁ	115	115.00	6	1.0071	115.82

529	TCOLON	115	115.00	6	1.0039	115.45	701	BAITUN115	115.00	6	1.0113	116.30
702	BJOMIN115		115.00	6	1.0115	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)
2		PAN115		115.00	6	0.9859	113.38	4		PAN1115		115.00	6	0.9979	114.75
6		CHO115		115.00	6	0.9887	113.70	18		CAC115		115.00	6	0.9858	113.37
19		C.V115		115.00	6	0.9881	113.63	21		C.BAN115		115.00	6	0.9797	112.66
23		CH115		115.00	6	0.9883	113.65	26		LOC115		115.00	6	0.9803	112.73
30		MAR115		115.00	6	0.9790	112.59	33		STM115		115.00	6	0.9845	113.22
37		SAN115		115.00	6	0.9794	112.63	48		TINAJ115		115.00	6	0.9841	113.17
50		M.O115		115.00	6	0.9842	113.18	52		TOC115		115.00	6	0.9957	114.50
123		MIR115		115.00	7	0.9915	114.02								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:16
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MIN-INVIERNO

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	19.8	25.0	0.0	1.0000	42.9	0.8867	47.0			62	6
67		BLM13C		13.800	V3	38.0	19.8	25.0	0.0	1.0000	42.9	0.8867	47.0			62	6
68		BLM13D		13.800	V4	38.0	20.7	25.0	0.0	1.0000	43.3	0.8784	47.0			62	6
91		EST-13T		13.800	E2	20.0	7.3	12.0	-5.0	1.0000	21.3	0.9395	27.0			64	6
95		LV-13.8T		13.800	L2	22.0	7.8	12.0	-5.0	1.0000	23.3	0.9424	27.0			64	6
97		FOR13A		13.800	F1	65.0	-10.2	50.0	-50.0	1.0000	65.8	0.9879	111.0			64	6
98		FOR13B		13.800	F2	65.0	-10.2	50.0	-50.0	1.0000	65.8	0.9879	111.0			64	6
101		BAY13A		13.800	B1	62.3	30.9	50.0	-25.0	0.9950	69.9	0.8957	96.0			61	6
SYST																	
142		CANJ13A		13.800	C1	48.0	13.2	29.0	-29.0	1.0000	49.8	0.9642	69.0			64	6
150		GUALACA	13-213	13.800	G2	12.0	-3.5	7.4	-7.4	1.0000	12.5	0.9605	14.8			64	6
152		BBLANCO	13.813	13.800	G1	13.7	-0.1	7.0	-7.0	1.0000	13.7	1.0000	16.0			64	6
193		GEBONYIC		13.800	G1	9.0	-1.2	4.0	-4.0	1.0000	9.1	0.9913	35.3			64	6
193		GEBONYIC		13.800	G2	9.0	-1.2	4.0	-4.0	1.0000	9.1	0.9913	35.3			64	6
302		PASOANCH	13.813	13.800	P1	4.7	2.0	2.0	-2.0	0.9544	5.4	0.9216	6.2			64	6
304		ALGA13.8		13.800	A1	4.6	-2.3	2.3	-2.3	1.0886	4.7	0.8981	5.7			64	6
304		ALGA13.8		13.800	A2	4.6	-2.3	2.3	-2.3	1.0886	4.7	0.8981	5.7			64	6
305		ELALTO		13.800	G1	18.0	-5.0	12.0	-5.0	1.0316	18.1	0.9635	20.6			64	6
305		ELALTO		13.800	G2	18.0	-5.0	12.0	-5.0	1.0316	18.1	0.9635	20.6			64	6
307		CHAN1 A		13.800	G1	61.0	-22.8	50.0	-50.0	0.9900	65.8	0.9367	118.6			64	6
312		PANDO13.8		13.800	G1	9.0	-5.0	10.0	-5.0	1.0148	10.1	0.8742	19.9			64	6

316	MTE LIRIO	13.13.800	G1	17.0	-5.0	12.0	-5.0	1.0344	17.1	0.9594	27.0	64	6
317	MENDRE	13.8 13.800	M1	9.2	0.0	0.0	0.0	1.0911	8.4	1.0000	35.3	64	6
323	COCHEA	13.8 13.800	C1	5.5	0.0	0.0	0.0	1.0913	5.0	1.0000	35.3	64	6
340	PEDGALITO	13813.800	P1	19.0	7.3	12.0	-5.0	1.0000	20.4	0.9334	27.0	64	6
342	LORENA	13.8 13.800	L1	12.0	-5.0	10.5	-5.0	1.0013	13.0	0.9228	19.9	64	6
343	PRUDENCIA	1 13.800	G1	23.0	-9.8	9.8	-9.8	0.9994	25.0	0.9205	33.0	64	6
350	MACANO	13.8 13.800	G1	3.1	-1.0	1.0	-1.0	1.0852	3.0	0.9514	6.2	64	6
351	PERLAS N1	3.813.800	G1	9.5	5.0	5.0	-5.0	0.9884	10.9	0.8849	13.5	64	6
352	PERLAS S1	3.813.800	G1	9.5	5.0	5.0	-5.0	0.9884	10.9	0.8849	13.5	64	6
357	BARTOLO	13.8 13.800	G1	6.8	1.0	3.7	-3.7	0.9900	6.9	0.9887	8.5	64	6
357	BARTOLO	13.8 13.800	G2	6.8	1.0	3.7	-3.7	0.9900	6.9	0.9887	8.5	64	6
359	CRUCES	13.8 13.800	G1	4.6	0.3	2.3	-2.3	0.9900	4.7	0.9983	5.6	64	6
359	CRUCES	13.8 13.800	G2	4.6	0.3	2.3	-2.3	0.9900	4.7	0.9983	5.6	64	6
361	ESTRECHO	4.164.1600	G1	4.9	0.1	2.5	-2.5	0.9900	5.0	0.9996	5.6	64	6
361	ESTRECHO	4.164.1600	G2	4.9	0.1	2.5	-2.5	0.9900	5.0	0.9996	5.6	64	6
363	LAGUNA	13.8 13.800	G1	4.7	-0.1	2.4	-2.4	0.9900	4.7	0.9999	5.8	64	6
363	LAGUNA	13.8 13.800	G2	4.7	-0.1	2.4	-2.4	0.9900	4.7	0.9999	5.8	64	6
364	MENDRE	2 13.800	G1	7.6	0.3	3.9	-3.9	0.9900	7.7	0.9995	8.9	64	6
368	RP-490	13.800	G1	4.7	-2.4	2.4	-2.4	1.0039	5.3	0.8906	5.5	64	6
368	RP-490	13.800	G2	4.7	-2.4	2.4	-2.4	1.0039	5.3	0.8906	5.5	64	6
369	HCALDERA	13.813.800	G1	3.8	0.2	1.9	-1.9	0.9900	3.8	0.9980	4.3	64	6
372	BJO FRIO	13 13.800	G1	23.0	-9.8	9.8	-9.8	1.0081	24.8	0.9205	33.0	64	6
373	TIZINGAL	13.813.800	G1	4.4	2.2	2.2	-2.2	0.9867	5.0	0.8909	21.6	64	6
541	TOABRE	0.6000	1	20.0	0.0	0.0	0.0	1.0081	19.8	1.0000	88.9	64	6
703	BJOMIN	13A 13.800	G1	26.0	-0.8	13.0	-13.0	0.9900	26.3	0.9996	30.5	64	6
705	BAITUN	13A 13.800	G1	40.0	-13.7	26.6	-26.6	0.9900	42.7	0.9462	50.6	64	6
720	PLANETA	13.8 13.800	G1	4.5	2.0	2.0	-2.0	0.9544	5.2	0.9145	6.2	64	6
SUBSYSTEM TOTALS				848.4	27.8	532.4	-379.9				1397.7		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:16
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2013 ESC-MOD DEMANDA-MIN-INVIERNO

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																	
129		MIR13D		13.800	G4	20.0	5.5	15.0	0.0	1.0000	20.7	0.9645	44.1			65	7
AREA																	
140		GAT6A		6.9000	G1	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9600	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9600	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.6	2.0	-2.0	1.0000	2.0	0.9600	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9472	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9472	6.2			65	7

141 GAT6B	6.9000 G6	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9472	6.2	65	7			
170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0178	18.0	0.9281	23.0	65	7			
171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0160	18.0	0.9281	23.0	65	7			
SUBSYSTEM TOTALS										71.4	13.5	52.3	-1.4	120.6

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:16
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2013 ESC-MOD DEMANDA-MIN-INVIERNO 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	1175.7	1330.8	0.0	0.0	0.0	-198.4	43.3	-198.4
GUATEMAL	219.7	275.1	-195.0	0.0	274.8	35.3	379.1	
2	874.6	855.0	0.0	0.0	0.0	0.0	19.6	0.0
SALVADOR	103.4	224.2	-70.3	0.0	226.9	-30.1	206.6	
3	1240.4	1203.0	0.0	0.0	0.0	0.0	37.4	0.0
HONDURAS	493.1	321.1	-46.8	0.0	291.1	51.4	458.4	
4	536.5	525.2	0.0	0.0	0.0	0.0	11.3	0.0
NICARAGU	63.8	207.6	-56.9	0.0	179.6	-51.4	144.1	
5	1304.0	1280.2	0.0	0.0	0.0	-0.1	23.9	0.0
COSTA RI	231.0	520.4	-229.3	0.0	416.8	24.8	331.9	
6	848.4	676.7	0.0	0.0	0.0	151.7	20.0	151.4
PANAMA	27.8	245.6	111.3	0.0	535.9	-28.9	235.6	
7	71.4	24.2	0.0	0.0	0.0	46.7	0.4	47.0
ACANAL	13.5	8.8	0.0	0.0	0.0	-1.2	5.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6051.0	5895.2	0.0	0.0	0.0	0.0	155.9	0.0
	1152.3	1802.7	-487.0	0.0	1925.1	0.0	1761.7	

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)
2		PAN115		115.00	6	0.9983	114.80	6		CHO115		115.00	6	0.9889	113.73
12		M.N115		115.00	6	0.9968	114.64	18		CAC115		115.00	6	0.9981	114.78
21		C.BAN115		115.00	6	0.9914	114.01	26		LOC115		115.00	6	0.9917	114.05
30		MAR115		115.00	6	0.9893	113.77	33		STM115		115.00	6	0.9963	114.57
37		SAN115		115.00	6	0.9918	114.06	48		TINAJ115		115.00	6	0.9957	114.51
50		M.O115		115.00	6	0.9959	114.52								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:22
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-VERANO

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	12.0	25.0	0.0	1.0000	39.9	0.9534	47.0			62
67		BLM13C		13.800	V3	38.0	12.0	25.0	0.0	1.0000	39.9	0.9534	47.0			62
68		BLM13D		13.800	V4	38.0	12.5	25.0	0.0	1.0000	40.0	0.9500	47.0			62
90		EST-13L		13.800	E1	22.0	4.9	12.0	-5.0	0.9800	23.0	0.9760	27.0			64
91		EST-13T		13.800	E2	22.0	4.9	12.0	-5.0	0.9800	23.0	0.9760	27.0			64
94		LV-13.8L		13.800	L1	23.2	5.5	12.0	-5.0	0.9800	24.3	0.9725	27.0			64
95		LV-13.8T		13.800	L2	23.2	5.5	12.0	-5.0	0.9800	24.3	0.9725	27.0			64
97		FOR13A		13.800	F1	80.7	-18.1	50.0	-50.0	0.9800	84.4	0.9757	111.0			64
98		FOR13B		13.800	F2	80.7	-18.1	50.0	-50.0	0.9800	84.4	0.9757	111.0			64
101		BAY13A		13.800	B1	47.3	18.4	50.0	-25.0	1.0000	50.7	0.9321	96.0			61
SYST																
102		BAY13B		13.800	B2	47.2	18.4	50.0	-25.0	1.0000	50.7	0.9319	96.0			61
108		BAY13C		13.800	B3	47.2	18.4	50.0	-25.0	1.0000	50.7	0.9319	100.0			61
116		PACORA13		13.800	P1	17.1	0.0	8.8	0.0	1.0006	17.1	1.0000	21.7			61
142		CANJ13A		13.800	C1	50.0	12.3	29.0	-29.0	0.9800	52.5	0.9710	69.0			64

6	143	CANJ13B	13.800	C2	50.0	12.3	29.0	-29.0	0.9800	52.5	0.9710	69.0	64
6	150	GUALACA 13-213	13.800	G2	13.0	-4.0	7.4	-7.4	0.9900	13.7	0.9551	14.8	64
6	151	GUALACA13.8	13.800	G1	13.0	-4.0	7.4	-7.4	0.9900	13.7	0.9551	14.8	64
6	193	GEBONYIC	13.800	G1	8.0	-0.9	4.0	-4.0	1.0000	8.1	0.9936	35.3	64
6	193	GEBONYIC	13.800	G2	8.0	-0.9	4.0	-4.0	1.0000	8.1	0.9936	35.3	64
6	302	PASOANCH13.813	13.800	P1	4.7	2.0	2.0	-2.0	0.9658	5.3	0.9216	6.2	64
6	304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0804	4.8	0.8981	5.7	64
6	304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0804	4.8	0.8981	5.7	64
6	305	ELALTO	13.800	G1	14.0	-5.0	12.0	-5.0	1.0340	14.4	0.9417	20.6	64
6	307	CHAN1 A	13.800	G1	62.0	-19.8	50.0	-50.0	0.9900	65.7	0.9528	118.6	64
6	312	PANDO13.8	13.800	G1	9.0	-2.9	10.0	-5.0	1.0000	9.4	0.9526	19.9	64
6	312	PANDO13.8	13.800	G2	9.0	-2.9	10.0	-5.0	1.0000	9.4	0.9526	19.9	64
6	316	MTE LIRIO13.13	13.800	G1	17.0	-5.0	12.0	-5.0	1.0154	17.5	0.9594	27.0	64
6	316	MTE LIRIO13.13	13.800	G2	17.0	-5.0	12.0	-5.0	1.0154	17.5	0.9594	27.0	64
6	317	MENDRE13.8	13.800	M1	9.2	0.0	0.0	0.0	1.0824	8.5	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.2	0.0	0.0	0.0	1.0824	8.5	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0829	5.1	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0829	5.1	1.0000	35.3	64
6	340	PEDGALITO13813	13.800	P1	22.0	4.0	12.0	-5.0	0.9800	22.8	0.9837	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-3.9	10.5	-5.0	1.0000	12.6	0.9520	19.9	64
6	343	PRUDENCIA_1	13.800	G1	25.0	-3.0	9.8	-9.8	1.0000	25.2	0.9929	33.0	64
6	343	PRUDENCIA_1	13.800	G2	25.0	-3.0	9.8	-9.8	1.0000	25.2	0.9929	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-3.9	10.5	-5.0	1.0000	12.6	0.9520	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0710	3.0	0.9514	6.2	64

6	351	PERLAS N13.813.800	G1	9.0	5.0	5.0	-5.0	0.9755	10.6	0.8742	13.5	64
6	352	PERLAS S13.813.800	G1	9.0	5.0	5.0	-5.0	0.9755	10.6	0.8742	13.5	64
6	357	BARTOLO13.8	13.800 G1	7.2	1.6	3.7	-3.7	1.0000	7.4	0.9779	8.5	64
6	357	BARTOLO13.8	13.800 G2	7.2	1.6	3.7	-3.7	1.0000	7.4	0.9779	8.5	64
6	359	CRUCES13.8	13.800 G1	4.6	0.6	2.3	-2.3	1.0000	4.6	0.9923	5.6	64
6	359	CRUCES13.8	13.800 G2	4.6	0.6	2.3	-2.3	1.0000	4.6	0.9923	5.6	64
6	361	ESTRECHO4.164.1600	G1	4.9	0.4	2.5	-2.5	1.0000	5.0	0.9962	5.6	64
6	361	ESTRECHO4.164.1600	G2	4.9	0.4	2.5	-2.5	1.0000	5.0	0.9962	5.6	64
6	363	LAGUNA	13.8 13.800 G1	4.7	0.2	2.4	-2.4	1.0000	4.7	0.9990	5.8	64
6	363	LAGUNA	13.8 13.800 G2	4.7	0.2	2.4	-2.4	1.0000	4.7	0.9990	5.8	64
6	364	MENDRE2	13.800 G1	7.6	3.9	3.9	-3.9	0.9848	8.7	0.8911	8.9	64
6	368	RP-490	13.800 G1	4.7	-1.6	2.4	-2.4	1.0000	5.0	0.9468	5.5	64
6	368	RP-490	13.800 G2	4.7	-1.6	2.4	-2.4	1.0000	5.0	0.9468	5.5	64
6	369	HCALDERA13.813.800	G1	3.8	1.9	1.9	-1.9	0.9836	4.3	0.8909	4.3	64
6	523	TCATIVÁ 13A	13.800 G1	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	523	TCATIVÁ 13A	13.800 G2	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	523	TCATIVÁ 13A	13.800 G3	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	523	TCATIVÁ 13A	13.800 G4	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	523	TCATIVÁ 13A	13.800 G5	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	524	TCATIVÁ 13B	13.800 G0	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	524	TCATIVÁ 13B	13.800 G6	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	524	TCATIVÁ 13B	13.800 G7	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	524	TCATIVÁ 13B	13.800 G8	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62
6	524	TCATIVÁ 13B	13.800 G9	8.2	3.2	6.6	-6.6	1.0000	8.8	0.9323	10.9	62

6	541 TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0108	29.7	1.0000	88.9	64
6	703 BJOMIN13A	13.800	G1	26.0	2.0	13.0	-13.0	1.0000	26.1	0.9971	30.5	64
6	704 BJOMIN13B	13.800	G2	26.0	2.0	13.0	-13.0	1.0000	26.1	0.9971	30.5	64
6	705 BAITUN13A	13.800	G1	37.0	-8.0	26.6	-26.6	1.0000	37.8	0.9776	50.6	64
6	706 BAITUN13B	13.800	G2	37.0	-8.0	26.6	-26.6	1.0000	37.8	0.9776	50.6	64
6	720 PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9658	5.1	0.9145	6.2	64
6	SUBSYSTEM TOTALS			1261.1	77.4	818.1	-582.3				2022.7	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:22
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MAX-VERANO

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																
7		129		MIR13D		13.800	G4	19.8	1.0	15.0	0.0	1.0000	19.9	0.9986	44.1	65
7		130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0143	16.9	1.0000	27.7	65
7		140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9193	4.1	65
7		140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9193	4.1	65
7		140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9193	4.1	65
7		141		GAT6B		6.9000	G4	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9259	5.6	65
7		141		GAT6B		6.9000	G5	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9259	6.2	65
7		141		GAT6B		6.9000	G6	3.9	-1.6	3.0	-3.0	1.0000	4.2	0.9259	6.2	65
7		170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0287	17.8	0.9281	23.0	65
7		171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0377	17.7	0.9281	23.0	65
7		171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0377	17.7	0.9281	23.0	65
7		SUBSYSTEM TOTALS				105.3		14.3		71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:22
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2013 ESC-MOD DEMANDA-MAX-VERANO 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	1359.8	1330.8	0.0	0.0	0.0	-14.3	43.3	-12.7
GUATEMAL	197.5	275.1	-198.8	0.0	277.8	2.6	396.5	
2	868.7	855.0	0.0	0.0	0.0	0.0	13.7	0.0
SALVADOR	72.9	224.2	-70.8	0.0	229.1	-26.3	175.0	
3	1236.9	1203.0	0.0	0.0	0.0	0.1	33.8	0.0
HONDURAS	461.3	321.1	-47.4	0.0	294.0	54.0	427.6	
4	532.1	525.2	0.0	0.0	0.0	0.2	6.7	0.0
NICARAGU	32.6	207.6	-57.8	0.0	182.3	-47.2	112.3	
5	1297.2	1280.2	0.0	0.0	0.0	0.9	16.2	0.0
COSTA RI	205.5	520.4	-230.8	0.0	418.9	36.5	298.3	
6	1261.1	1239.2	0.0	0.0	0.0	-47.1	69.1	-47.3
PANAMA	77.4	251.6	-254.5	0.0	558.7	-14.0	653.0	
7	105.3	44.4	0.0	0.0	0.0	60.3	0.7	60.0
ACANAL	14.3	9.0	0.0	0.0	0.0	-5.5	10.8	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6661.2	6477.8	0.0	0.0	0.0	0.0	183.5	0.0
	1061.4	1808.9	-859.9	0.0	1960.9	0.0	2073.4	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MIN-VERANO

MON, MAY 24 2010 16:26

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	1.0061	231.41	14		PRO230		230.00	6	1.0235	235.41
85		PTP230		230.00	6	1.0101	232.32	96		FOR230		230.00	6	1.0051	231.18
100		BAY230		230.00	6	1.0043	230.98	144		CANJ230		230.00	6	1.0054	231.24
146		GUALACA230		230.00	6	1.0074	231.70	147		GUASQ230		230.00	6	1.0054	231.24
148		VELADERO	230	230.00	6	1.0015	230.35	190		CHANG230		230.00	6	1.0147	233.39
306		CHAN1	230	230.00	6	1.0127	232.91	310		CONCEPCION230	230	230.00	6	1.0171	233.93
311		PANDO230		230.00	6	1.0440	240.12	341		PRUDENCIA230	230	230.00	6	1.0105	232.42
345		LORENA230		230.00	6	1.0094	232.16	371		CAISAN230		230.00	6	1.0427	239.83
540		ANTON		230.00	6	1.0052	231.20	700		BAITUN230		230.00	6	1.0221	235.08
6000		FRONTER		230.00	6	1.0267	236.13	6400		FRONTCHA		230.00	6	1.0166	233.82
6500		FRONT CAISAN	230	230.00	6	1.0414	239.53								

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		PAN230		230.00	6	0.9863	226.85	3		PANII230		230.00	6	0.9904	227.79
5		CHO230		230.00	6	0.9859	226.77	8		LSA230		230.00	6	0.9886	227.38
103		COPESA23		230.00	6	0.9930	228.38	105		PAN-AM23		230.00	6	0.9859	226.77
115		PACORA23		230.00	6	0.9943	228.70	354		SANBARTOLO230	230	230.00	6	0.9975	229.42
370		LSA CAP	230	230.00	6	0.9886	227.38	511		LGUIAS230		230.00	6	0.9873	227.09

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MIN-VERANO

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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)
9		LSA115		115.00	6	1.0351	119.04	12		M.N115		115.00	6	1.0087	116.00
15		PRO115		115.00	6	1.0254	117.92	20		CH.AZUL		115.00	6	1.0261	118.00
54		LM115		115.00	6	1.0026	115.29	55		LM2115		115.00	6	1.0035	115.40
61		FFIELD		115.00	6	1.0005	115.06	87		CAL115		115.00	6	1.0186	117.14
88		EST115		115.00	6	1.0205	117.35	92		L.V115		115.00	6	1.0193	117.22
109		STA RITA115		115.00	6	1.0005	115.06	191		CHANG115		115.00	6	1.0040	115.46
522		TCATIVÁ	115	115.00	6	1.0030	115.35	529		TCOLON	115	115.00	6	1.0005	115.06
701		BAITUN115		115.00	6	1.0071	115.82	702		BJOMIN115		115.00	6	1.0071	115.81

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)
2		PAN115		115.00	6	0.9838	113.14	4		PANII115		115.00	6	0.9982	114.80
6		CHO115		115.00	6	0.9867	113.47	18		CAC115		115.00	6	0.9837	113.12
19		C.V115		115.00	6	0.9877	113.59	21		C.BAN115		115.00	6	0.9778	112.45
23		CH115		115.00	6	0.9852	113.30	26		LOC115		115.00	6	0.9783	112.51
30		MAR115		115.00	6	0.9769	112.35	33		STM115		115.00	6	0.9824	112.97
37		SAN115		115.00	6	0.9776	112.43	48		TINAJ115		115.00	6	0.9820	112.93
50		M.O115		115.00	6	0.9821	112.94	52		TOC115		115.00	6	0.9960	114.55
123		MIR115		115.00	7	0.9893	113.77	154		CEMPAN15		115.00	6	0.9971	114.66

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:26
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MIN-VERANO

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																
6		66		BLM13B		13.800	V2	38.0	17.0	25.0	0.0	0.9900	42.0	0.9132	47.0	62
6		67		BLM13C		13.800	V3	38.0	17.0	25.0	0.0	0.9900	42.0	0.9132	47.0	62
6		68		BLM13D		13.800	V4	38.0	17.7	25.0	0.0	0.9900	42.3	0.9068	47.0	62
6		90		EST-13L		13.800	E1	20.1	6.4	12.0	-5.0	0.9900	21.3	0.9524	27.0	64
6		94		LV-13.8L		13.800	L1	21.1	6.8	12.0	-5.0	0.9900	22.4	0.9513	27.0	64
6		97		FOR13A		13.800	F1	62.0	-20.3	50.0	-50.0	0.9800	66.6	0.9506	111.0	64
6		98		FOR13B		13.800	F2	62.0	-20.3	50.0	-50.0	0.9800	66.6	0.9506	111.0	64
6		101		BAY13A		13.800	B1	61.1	28.5	50.0	-25.0	0.9900	68.1	0.9062	96.0	61
SYST																
6		142		CANJ13A		13.800	C1	47.4	11.1	29.0	-29.0	0.9800	49.7	0.9737	69.0	64
6		150		GUALACA	13-213.800	G2		13.4	-6.3	7.4	-7.4	0.9800	15.2	0.9043	14.8	64
6		193		GEBONYIC		13.800	G1	8.0	-2.0	4.0	-4.0	0.9900	8.3	0.9692	35.3	64
6		193		GEBONYIC		13.800	G2	8.0	-2.0	4.0	-4.0	0.9900	8.3	0.9692	35.3	64
6		302		PASOANCH13.8	13.800	P1		4.3	2.0	2.0	-2.0	0.9480	5.0	0.9078	6.2	64
6		304		ALGA13.8		13.800	A1	4.2	-2.3	2.3	-2.3	1.0869	4.4	0.8809	5.7	64

6	304	ALGA13.8	13.800	A2	4.2	-2.3	2.3	-2.3	1.0869	4.4	0.8809	5.7	64
6	305	ELALTO	13.800	G1	18.0	-5.0	12.0	-5.0	1.0370	18.0	0.9635	20.6	64
6	307	CHAN1 A	13.800	G1	62.0	-19.6	50.0	-50.0	0.9900	65.7	0.9535	118.6	64
6	312	PANDO13.8	13.800	G1	8.2	-4.7	10.0	-5.0	0.9800	9.7	0.8661	19.9	64
6	312	PANDO13.8	13.800	G2	8.2	-4.7	10.0	-5.0	0.9800	9.7	0.8661	19.9	64
6	316	MTE LIRIO13.8	13.800	G1	15.5	-5.0	12.0	-5.0	1.0323	15.8	0.9517	27.0	64
6	317	MENDRE13.8	13.800	M1	8.4	0.0	0.0	0.0	1.0891	7.7	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	8.4	0.0	0.0	0.0	1.0891	7.7	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.0	0.0	0.0	0.0	1.0895	4.6	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.0	0.0	0.0	0.0	1.0895	4.6	1.0000	35.3	64
6	340	PEDGALITO138	13.800	P1	20.1	6.8	12.0	-5.0	0.9900	21.4	0.9466	27.0	64
6	342	LORENA13.8	13.800	L1	12.8	-5.0	10.5	-5.0	0.9936	13.8	0.9311	19.9	64
6	343	PRUDENCIA_1	13.800	G1	24.0	-9.8	9.8	-9.8	0.9917	26.1*	0.9263	33.0	64
6	350	MACANO 13.8	13.800	G1	2.8	-1.0	1.0	-1.0	1.0753	2.8	0.9424	6.2	64
6	351	PERLAS N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9794	10.5	0.8742	13.5	64
6	352	PERLAS S13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9794	10.5	0.8742	13.5	64
6	357	BARTOLO13.8	13.800	G1	6.6	-0.1	3.7	-3.7	0.9800	6.7	0.9998	8.5	64
6	359	CRUCES13.8	13.800	G1	4.2	-0.4	2.3	-2.3	0.9800	4.3	0.9957	5.6	64
6	361	ESTRECHO4.164	1.600	G1	4.5	-0.5	2.5	-2.5	0.9800	4.6	0.9939	5.6	64
6	363	LAGUNA 13.8	13.800	G1	4.2	-0.6	2.4	-2.4	0.9800	4.4	0.9888	5.8	64
6	364	MENDRE2	13.800	G1	6.9	2.7	3.9	-3.9	0.9900	7.5	0.9307	8.9	64
6	368	RP-490	13.800	G1	4.3	-2.4	2.4	-2.4	0.9943	5.0	0.8724	5.5	64
6	368	RP-490	13.800	G2	4.3	-2.4	2.4	-2.4	0.9943	5.0	0.8724	5.5	64
6	369	HCALDERA13.8	13.800	G1	3.5	1.9	1.9	-1.9	0.9895	4.0	0.8727	4.3	64

6	541 TOABRE	0.6000	1	19.0	0.0	0.0	0.0	1.0060	18.9	1.0000	88.9	64
6	703 BJOMIN13A	13.800	G1	23.7	-1.9	13.0	-13.0	0.9800	24.3	0.9968	30.5	64
6	705 BAITUN13A	13.800	G1	36.5	-16.6	26.6	-26.6	0.9800	40.9	0.9097	50.6	64
6	720 PLANETA13.8	13.800	G1	4.1	2.0	2.0	-2.0	0.9480	4.8	0.8997	6.2	64
6	SUBSYSTEM TOTALS			768.0	-5.3	500.4	-349.9				1371.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:26
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2013 ESC-MOD DEMANDA-MIN-VERANO

AREA 7 [ACANAL] MACHINE SUMMARY:

AREA SWING	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
7	129		MIR13D		13.800	G4	24.8	6.0	15.0	0.0	1.0000	25.5	0.9715	44.1			65
7	140		GAT6A		6.9000	G1	1.8	-0.4	2.0	-2.0	1.0000	1.8	0.9724	4.1			65
7	140		GAT6A		6.9000	G2	1.8	-0.4	2.0	-2.0	1.0000	1.8	0.9724	4.1			65
7	140		GAT6A		6.9000	G3	1.8	-0.4	2.0	-2.0	1.0000	1.8	0.9724	4.1			65
7	141		GAT6B		6.9000	G4	3.5	-1.2	3.0	-3.0	1.0000	3.7	0.9482	5.6			65
7	141		GAT6B		6.9000	G5	3.5	-1.2	3.0	-3.0	1.0000	3.7	0.9482	6.2			65
7	141		GAT6B		6.9000	G6	3.5	-1.2	3.0	-3.0	1.0000	3.7	0.9482	6.2			65
7	171		MIR13H		13.800	M1	15.5	6.8	11.2	6.8	1.0244	16.5	0.9153	23.0			65
7	171		MIR13H		13.800	M2	15.5	6.8	11.2	6.8	1.0244	16.5	0.9153	23.0			65
7	SUBSYSTEM TOTALS						71.6	14.9	52.3	-1.4				120.6			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:26
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2013 ESC-MOD DEMANDA-MIN-VERANO 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	1260.6	1330.8	0.0	0.0	0.0	-112.0	41.8	-112.0
GUATEMAL	196.3	275.1	-198.1	0.0	277.3	19.3	377.3	
2	870.6	855.0	0.0	0.0	0.0	0.0	15.6	0.0
SALVADOR	81.5	224.2	-70.6	0.0	228.5	-27.5	183.9	
3	1237.8	1203.0	0.0	0.0	0.0	0.0	34.8	0.0
HONDURAS	470.0	321.1	-47.2	0.0	293.3	52.7	436.7	
4	533.0	525.2	0.0	0.0	0.0	0.0	7.7	0.0
NICARAGU	40.1	207.6	-57.5	0.0	181.6	-48.6	120.3	
5	1297.9	1280.2	0.0	0.0	0.0	0.0	17.7	0.0
COSTA RI	203.5	520.4	-230.5	0.0	418.7	34.4	297.9	
6	768.0	681.5	0.0	0.0	0.0	65.3	21.1	65.0
PANAMA	-5.3	247.4	95.3	0.0	555.5	-29.4	237.0	
7	71.6	24.4	0.0	0.0	0.0	46.7	0.5	47.0
ACANAL	14.9	8.9	0.0	0.0	0.0	-1.1	7.1	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MEXICO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6039.4	5900.2	0.0	0.0	0.0	0.0	139.2	0.0
	1001.0	1804.5	-508.7	0.0	1954.9	0.0	1660.1	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO

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	1.0060	231.38	11		M.N230		230.00	6	1.0142	233.27
14		PRO230		230.00	6	1.0271	236.24	85		PTP230		230.00	6	1.0161	233.70
96		FOR230		230.00	6	1.0152	233.49	100		BAY230		230.00	6	1.0368	238.47
103		COPESA23		230.00	6	1.0111	232.55	115		PACORA23		230.00	6	1.0142	233.27
144		CANJ230		230.00	6	1.0125	232.88	146		GUALACA230		230.00	6	1.0160	233.69
147		GUASQ230		230.00	6	1.0123	232.83	148		VELADERO	230	230.00	6	1.0043	230.98
149		BBLANCO		230.00	6	1.0025	230.57	190		CHANG230		230.00	6	1.0216	234.96
306		CHAN1	230	230.00	6	1.0204	234.70	310		CONCEPCION23230		230.00	6	1.0228	235.24
311		PANDO230		230.00	6	1.0428	239.85	341		PRUDENCIA230230		230.00	6	1.0225	235.18
345		LORENA230		230.00	6	1.0201	234.62	354		SANBARTOLO23230		230.00	6	1.0001	230.01
371		CAISAN230		230.00	6	1.0416	239.56	540		ANTON		230.00	6	1.0134	233.08
700		BAITUN230		230.00	6	1.0267	236.15	6000		FRONTER		230.00	6	1.0295	236.79
6400		FRONTCHA		230.00	6	1.0232	235.33	6500		FRONT CAISAN230		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	0.9978	229.49	5		CHO230		230.00	6	0.9901	227.73
8		LSA230		230.00	6	1.0000	230.00	105		PAN-AM23		230.00	6	0.9901	227.73
370		LSA CAP	230	230.00	6	1.0000	230.00	511		LGUIAS230		230.00	6	0.9890	227.48

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO

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	1.0015	115.17	4		PANII115		115.00	6	1.0320	118.67
9		LSA115		115.00	6	1.0443	120.10	12		M.N115		115.00	6	1.0092	116.06
15		PRO115		115.00	6	1.0290	118.34	18		CAC115		115.00	6	1.0013	115.15
19		C.V115		115.00	6	1.0143	116.64	20		CH.AZUL		115.00	6	1.0298	118.42
23		CH115		115.00	6	1.0056	115.65	52		TOC115		115.00	6	1.0290	118.33
54		LM1115		115.00	6	1.0337	118.87	55		LM2115		115.00	6	1.0348	119.00
61		FFIELD		115.00	6	1.0298	118.43	87		CAL115		115.00	6	1.0271	118.11
88		EST115		115.00	6	1.0308	118.54	92		L.V115		115.00	6	1.0285	118.28
109		STA RITA115		115.00	6	1.0305	118.51	123		MIR115		115.00	7	1.0068	115.79
154		CEMPAN15		115.00	6	1.0239	117.75	191		CHANG115		115.00	6	1.0113	116.29
522		TCATIVÁ	115	115.00	6	1.0345	118.97	529		TCOLON	115	115.00	6	1.0305	118.51
701		BAITUN115		115.00	6	1.0096	116.11	702		BJOMIN115		115.00	6	1.0118	116.35

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)
6 CHO115 115.00 6 0.9911 113.97	21 C.BAN115 115.00 6 0.9941 114.32
26 LOC115 115.00 6 0.9945 114.37	30 MAR115 115.00 6 0.9920 114.08
33 STM115 115.00 6 0.9994 114.93	37 SAN115 115.00 6 0.9945 114.37
48 TINAJ115 115.00 6 0.9988 114.86	50 M.O115 115.00 6 0.9989 114.88

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO

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
6 66 BLM13B 13.800 V2 38.0 16.5 25.0 0.0 1.0180 40.7 0.9175 47.0 62
6 67 BLM13C 13.800 V3 38.0 16.5 25.0 0.0 1.0180 40.7 0.9175 47.0 62
6 68 BLM13D 13.800 V4 38.0 17.2 25.0 0.0 1.0180 41.0 0.9113 47.0 62
6 90 EST-13L 13.800 E1 22.8 6.5 12.0 -5.0 1.0000 23.7 0.9621 27.0 64
6 91 EST-13T 13.800 E2 22.8 6.5 12.0 -5.0 1.0000 23.7 0.9621 27.0 64
6 94 LV-13.8L 13.800 L1 24.3 7.2 12.0 -5.0 1.0000 25.4 0.9584 27.0 64
6 95 LV-13.8T 13.800 L2 24.3 7.2 12.0 -5.0 1.0000 25.4 0.9584 27.0 64
6 97 FOR13A 13.800 F1 80.0 -1.3 50.0 -50.0 1.0100 79.2 0.9999 111.0 64
6 98 FOR13B 13.800 F2 80.0 -1.3 50.0 -50.0 1.0100 79.2 0.9999 111.0 64
6 101 BAY13A 13.800 B1 48.7 25.8 50.0 -25.0 1.0180 54.1 0.8834 96.0 61
6 102 BAY13B 13.800 B2 48.6 25.8 50.0 -25.0 1.0180 54.1 0.8831 96.0 61
6 108 BAY13C 13.800 B3 48.6 25.8 50.0 -25.0 1.0180 54.1 0.8831 100.0 61
6 142 CANJ13A 13.800 C1 45.0 14.0 29.0 -29.0 1.0100 46.7 0.9546 69.0 64
6 143 CANJ13B 13.800 C2 45.0 14.0 29.0 -29.0 1.0100 46.7 0.9546 69.0 64
6 150 GUALACA 13-213.800 G2 14.0 -1.1 7.4 -7.4 1.0100 13.9 0.9967 14.8 64
6 152 BBLANCO_13.813.800 G1 13.0 0.1 7.0 -7.0 1.0000 13.0 1.0000 16.0 64
6 193 GEBONYIC 13.800 G1 8.0 -1.6 4.0 -4.0 1.0000 8.2 0.9803 35.3 64
6 193 GEBONYIC 13.800 G2 8.0 -1.6 4.0 -4.0 1.0000 8.2 0.9803 35.3 64

6	300	SVC-LV	13.200	1	0.0	123.1	300.0	-225.0	1.0240	120.2	0.0000	250.0	63
6	302	PASOANCH13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9712	5.3	0.9216	6.2	64
6	304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0980	4.7	0.8981	5.7	64
6	304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0980	4.7	0.8981	5.7	64
6	305	ELALTO	13.800	G1	18.0	-5.0	12.0	-5.0	1.0358	18.0	0.9635	20.6	64
6	307	CHAN1 A	13.800	G1	60.0	-17.8	50.0	-50.0	1.0000	62.6	0.9586	118.6	64
6	312	PANDO13.8	13.800	G1	9.0	-3.0	10.0	-5.0	1.0000	9.5	0.9476	19.9	64
6	312	PANDO13.8	13.800	G2	9.0	-3.0	10.0	-5.0	1.0000	9.5	0.9476	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	17.0	-5.0	12.0	-5.0	1.0174	17.4	0.9594	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	17.0	-5.0	12.0	-5.0	1.0174	17.4	0.9594	27.0	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.1001	8.5	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.1001	8.5	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.1005	5.0	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.1005	5.0	1.0000	35.3	64
6	324	POTRER13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9996	4.4	0.8929	6.2	64
6	340	PEDGALITO13813.800	13.800	P1	22.0	7.5	12.0	-5.0	1.0000	23.2	0.9466	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	1.0045	12.9	0.9229	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-5.2	9.8	-9.8	1.0000	24.4	0.9770	33.0	64
6	343	PRUDENCIA_1	13.800	G2	23.8	-5.2	9.8	-9.8	1.0000	24.4	0.9770	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-5.0	10.5	-5.0	1.0045	12.9	0.9229	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0851	3.0	0.9514	6.2	64
6	351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9883	10.4	0.8742	13.5	64
6	352	PERLAS S13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9883	10.4	0.8742	13.5	64
6	357	BARTOLO13.8	13.800	G1	6.9	1.6	3.7	-3.7	1.0100	7.0	0.9740	8.5	64

6	357	BARTOLO	13.8	13.800	G2	6.9	1.6	3.7	-3.7	1.0100	7.0	0.9740	8.5	64
6	359	CRUCES	13.8	13.800	G1	4.4	0.6	2.3	-2.3	1.0100	4.4	0.9902	5.6	64
6	359	CRUCES	13.8	13.800	G2	4.4	0.6	2.3	-2.3	1.0100	4.4	0.9902	5.6	64
6	361	ESTRECHO	4.164	1.600	G1	4.7	0.5	2.5	-2.5	1.0100	4.7	0.9948	5.6	64
6	361	ESTRECHO	4.164	1.600	G2	4.7	0.5	2.5	-2.5	1.0100	4.7	0.9948	5.6	64
6	363	LAGUNA	13.8	13.800	G1	4.4	0.3	2.4	-2.4	1.0100	4.4	0.9983	5.8	64
6	363	LAGUNA	13.8	13.800	G2	4.4	0.3	2.4	-2.4	1.0100	4.4	0.9983	5.8	64
6	364	MENDRE	2	13.800	G1	7.6	2.6	3.9	-3.9	1.0000	8.0	0.9452	8.9	64
6	368	RP-490		13.800	G1	4.7	-2.4	2.4	-2.4	1.0037	5.3	0.8906	5.5	64
6	368	RP-490		13.800	G2	4.7	-2.4	2.4	-2.4	1.0037	5.3	0.8906	5.5	64
6	369	HCALDERA	13.813	13.800	G1	3.8	1.9	1.9	-1.9	0.9996	4.3	0.8909	4.3	64
6	372	BJO FRIO	13	13.800	G1	23.8	-9.8	9.8	-9.8	1.0086	25.5	0.9252	33.0	64
6	373	TIZINGAL	13.813	13.800	G1	4.4	2.2	2.2	-2.2	0.9866	5.0	0.8909	21.6	64
6	374	SLORENZO	13.813	13.800	G1	3.9	-1.7	2.0	-2.0	1.0000	4.2	0.9188	4.5	64
6	374	SLORENZO	13.813	13.800	G2	3.9	-1.7	2.0	-2.0	1.0000	4.2	0.9188	4.5	64
6	523	TCATIVÁ	13A	13.800	G1	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	523	TCATIVÁ	13A	13.800	G2	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	523	TCATIVÁ	13A	13.800	G3	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	523	TCATIVÁ	13A	13.800	G4	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	523	TCATIVÁ	13A	13.800	G5	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	524	TCATIVÁ	13B	13.800	G0	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	524	TCATIVÁ	13B	13.800	G6	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	524	TCATIVÁ	13B	13.800	G7	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	524	TCATIVÁ	13B	13.800	G8	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62

6	524	TCATIVÁ 13B	13.800	G9	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8988	10.9	62
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0144	24.6	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	23.8	1.7	13.0	-13.0	1.0100	23.6	0.9976	30.5	64
6	704	BJOMIN13B	13.800	G2	23.8	1.7	13.0	-13.0	1.0100	23.6	0.9976	30.5	64
6	705	BAITUN13A	13.800	G1	34.4	-6.1	26.6	-26.6	1.0100	34.6	0.9845	50.6	64
6	706	BAITUN13B	13.800	G2	34.4	-6.1	26.6	-26.6	1.0100	34.6	0.9845	50.6	64
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9712	5.1	0.9145	6.2	64
6	SUBSYSTEM TOTALS				1265.5	284.1	1126.8	-824.8				2322.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO

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																	
7	129		MIR13D		13.800	G4	22.3	0.3	15.0	0.0	1.0000	22.3	0.9999	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0154	16.8	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8953	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8953	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8953	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9142	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9142	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9142	6.2			65
7	170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0298	17.8	0.9281	23.0			65
7	171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0388	17.6	0.9281	23.0			65
7	171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0388	17.6	0.9281	23.0			65
7	SUBSYSTEM TOTALS				107.8	12.7	71.5	5.5						171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 15:15

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	1455.1	1330.8	0.0	0.0	0.0	76.6	47.7	70.2
GUATEMAL	230.8	275.1	-197.7	0.0	276.0	-13.8	443.2	
2	868.7	855.0	0.0	0.0	0.0	-0.8	14.5	0.0
SALVADOR	81.3	224.2	-70.7	0.0	228.5	-24.9	181.3	
3	1236.9	1203.0	0.0	0.0	0.0	-0.9	34.8	0.0
HONDURAS	470.0	321.1	-47.2	0.0	293.0	55.3	433.8	
4	532.1	525.2	0.0	0.0	0.0	-1.4	8.3	0.0
NICARAGU	42.7	207.6	-57.5	0.0	181.5	-47.5	121.6	
5	1296.9	1280.2	0.0	0.0	0.0	-3.0	19.7	0.0
COSTA RI	233.0	520.4	-230.1	0.0	417.8	28.0	332.5	
6	1265.5	1311.1	0.0	0.0	0.0	-130.7	85.1	-130.2
PANAMA	284.1	266.2	-211.9	0.0	541.1	11.0	759.9	
7	107.8	47.0	0.0	0.0	0.0	60.1	0.7	60.0
ACANAL	12.7	9.5	0.0	0.0	0.0	-8.1	11.2	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6763.0	6552.2	0.0	0.0	0.0	0.0	210.7	0.0
	1354.6	1824.0	-815.0	0.0	1938.0	0.0	2283.5	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONC MDN-CONC

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	231.40	11		M.N230		230.00	6	1.0055	231.27
14		PRO230		230.00	6	1.0289	236.65	85		PTP230		230.00	6	1.0100	232.30
96		FOR230		230.00	6	1.0093	232.13	100		BAY230		230.00	6	1.0369	238.48
103		COPESA23		230.00	6	1.0112	232.57	115		PACORA23		230.00	6	1.0143	233.29
144		CANJ230		230.00	6	1.0072	231.66	146		GUALACA230		230.00	6	1.0109	232.50
147		GUASQ230		230.00	6	1.0070	231.61	190		CHANG230		230.00	6	1.0155	233.57
306		CHAN1 230		230.00	6	1.0151	233.47	310		CONCEPCION23		230.00	6	1.0328	237.55
311		PANDO230		230.00	6	1.0306	237.04	341		PRUDENCIA230		230.00	6	1.0177	234.06
345		LORENA230		230.00	6	1.0151	233.47	371		CAISAN230		230.00	6	1.0292	236.72
540		ANTON		230.00	6	1.0134	233.09	700		BAITUN230		230.00	6	1.0283	236.51
6000		FRONTER		230.00	6	1.0286	236.57	6400		FRONTCHA		230.00	6	1.0167	233.83
6500		FRONT CAISAN		230.00	6	1.0290	236.67								

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	0.9979	229.51	5		CHO230		230.00	6	0.9902	227.75
8		LSA230		230.00	6	1.0000	230.00	105		PAN-AM23		230.00	6	0.9902	227.75
148		VELADERO		230.00	6	0.9985	229.65	149		BBLANCO		230.00	6	0.9972	229.35
354		SANBARTOLO		230.00	6	0.9964	229.18	370		LSA CAP 230		230.00	6	1.0000	230.00
511		LGUIAS230		230.00	6	0.9891	227.49								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONC MDN-CONC

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	1.0320	118.68
9		LSA115		115.00	6	1.0443	120.10	12		M.N115		115.00	6	1.0044	115.50
15		PRO115		115.00	6	1.0308	118.54	18		CAC115		115.00	6	1.0014	115.16
19		C.V115		115.00	6	1.0144	116.65	20		CH.AZUL		115.00	6	1.0315	118.63
23		CH115		115.00	6	1.0057	115.65	52		TOC115		115.00	6	1.0290	118.34
54		LM115		115.00	6	1.0337	118.88	55		LM2115		115.00	6	1.0348	119.00
61		FFIELD		115.00	6	1.0299	118.44	87		CAL115		115.00	6	1.0241	117.78
88		EST115		115.00	6	1.0281	118.23	92		L.V115		115.00	6	1.0257	117.95
109		STA RITA115		115.00	6	1.0306	118.52	123		MIR115		115.00	7	1.0069	115.79
154		CEMPAN15		115.00	6	1.0240	117.76	191		CHANG115		115.00	6	1.0070	115.81
522		TCATIVÁ		115.00	6	1.0346	118.97	529		TCOLON 115		115.00	6	1.0306	118.52
701		BAITUN115		115.00	6	1.0106	116.22	702		BJOMIN115		115.00	6	1.0127	116.46

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)
6 CHO115 115.00 6 0.9911 113.98	21 C.BAN115 115.00 6 0.9942 114.33
26 LOC115 115.00 6 0.9946 114.38	30 MAR115 115.00 6 0.9921 114.09
33 STM115 115.00 6 0.9995 114.94	37 SAN115 115.00 6 0.9946 114.38
48 TINAJ115 115.00 6 0.9989 114.87	50 M.O115 115.00 6 0.9990 114.89

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONC MDN-CONC

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														
6	66	BLM13B	13.800	V2	38.0	16.5	25.0	0.0	1.0180	40.7	0.9178	47.0		62
6	67	BLM13C	13.800	V3	38.0	16.5	25.0	0.0	1.0180	40.7	0.9178	47.0		62
6	68	BLM13D	13.800	V4	38.0	17.2	25.0	0.0	1.0180	41.0	0.9116	47.0		62
6	90	EST-13L	13.800	E1	22.8	7.2	12.0	-5.0	1.0000	24.0	0.9533	27.0		64
6	91	EST-13T	13.800	E2	22.8	7.2	12.0	-5.0	1.0000	24.0	0.9533	27.0		64
6	94	LV-13.8L	13.800	L1	24.4	8.1	12.0	-5.0	1.0000	25.7	0.9493	27.0		64
6	95	LV-13.8T	13.800	L2	24.4	8.1	12.0	-5.0	1.0000	25.7	0.9493	27.0		64
6	97	FOR13A	13.800	F1	80.2	4.1	50.0	-50.0	1.0100	79.5	0.9987	111.0		64
6	98	FOR13B	13.800	F2	80.2	4.1	50.0	-50.0	1.0100	79.5	0.9987	111.0		64
6	101	BAY13A	13.800	B1	48.9	25.8	50.0	-25.0	1.0180	54.3	0.8845	96.0		61
6	102	BAY13B	13.800	B2	48.8	25.8	50.0	-25.0	1.0180	54.2	0.8839	96.0		61
6	108	BAY13C	13.800	B3	48.8	25.8	50.0	-25.0	1.0180	54.2	0.8840	100.0		61
6	142	CANJ13A	13.800	C1	45.1	14.9	29.0	-29.0	1.0100	47.0	0.9493	69.0		64
6	143	CANJ13B	13.800	C2	45.1	14.9	29.0	-29.0	1.0100	47.0	0.9493	69.0		64
6	150	GUALACA	13-213.800	G2	14.0	0.2	7.4	-7.4	1.0100	13.9	0.9999	14.8		64
6	152	BBLANCO_13.8	13.800	G1	13.0	1.0	7.0	-7.0	1.0000	13.0	0.9972	16.0		64
6	193	GEBONYIC	13.800	G1	8.1	-0.9	4.0	-4.0	1.0000	8.1	0.9934	35.3		64

6	193	GEBONYIC	13.800	G2	8.1	-0.9	4.0	-4.0	1.0000	8.1	0.9934	35.3	64
6	300	SVC-LV	13.200	1	0.2	173.0	300.0	-225.0	1.2137	142.5	0.0012	250.0	63
6	302	PASOANCH13.813.800	13.800	P1	4.8	2.0	2.0	-2.0	0.9630	5.4	0.9219	6.2	64
6	304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0973	4.7	0.8981	5.7	64
6	304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0973	4.7	0.8981	5.7	64
6	305	ELALTO	13.800	G1	18.0	-5.0	12.0	-5.0	1.0235	18.3	0.9636	20.6	64
6	307	CHAN1 A	13.800	G1	60.2	-12.7	50.0	-50.0	1.0000	61.5	0.9786	118.6	64
6	312	PANDO13.8	13.800	G1	9.0	-2.0	10.0	-5.0	1.0000	9.3	0.9758	19.9	64
6	312	PANDO13.8	13.800	G2	9.0	-2.0	10.0	-5.0	1.0000	9.3	0.9758	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	17.0	-5.0	12.0	-5.0	1.0048	17.6	0.9594	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	17.0	-5.0	12.0	-5.0	1.0048	17.6	0.9594	27.0	64
6	317	MENDRE13.8	13.800	M1	9.5	0.0	0.0	0.0	1.0993	8.6	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.5	0.0	0.0	0.0	1.0993	8.6	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0998	5.0	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.0998	5.0	1.0000	35.3	64
6	324	POTRER13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9990	4.4	0.8929	6.2	64
6	340	PEDGALITO13813.800	13.800	P1	22.0	5.1	12.0	-5.0	1.0000	22.6	0.9741	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-4.8	10.5	-5.0	1.0000	12.9	0.9280	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-3.8	9.8	-9.8	1.0000	24.2	0.9873	33.0	64
6	343	PRUDENCIA_1	13.800	G2	23.8	-3.8	9.8	-9.8	1.0000	24.2	0.9873	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-4.8	10.5	-5.0	1.0000	12.9	0.9280	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0907	3.0	0.9517	6.2	64
6	351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9933	10.4	0.8746	13.5	64
6	352	PERLAS S13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9933	10.4	0.8746	13.5	64

6	357	BARTOLO13.8	13.800	G1	6.9	1.7	3.7	-3.7	1.0100	7.0	0.9702	8.5	64
6	357	BARTOLO13.8	13.800	G2	6.9	1.7	3.7	-3.7	1.0100	7.0	0.9702	8.5	64
6	359	CRUCES13.8	13.800	G1	4.4	0.7	2.3	-2.3	1.0100	4.4	0.9879	5.6	64
6	359	CRUCES13.8	13.800	G2	4.4	0.7	2.3	-2.3	1.0100	4.4	0.9879	5.6	64
6	361	ESTRECHO4.164.1600		G1	4.7	0.5	2.5	-2.5	1.0100	4.7	0.9933	5.6	64
6	361	ESTRECHO4.164.1600		G2	4.7	0.5	2.5	-2.5	1.0100	4.7	0.9933	5.6	64
6	363	LAGUNA 13.8	13.800	G1	4.4	0.3	2.4	-2.4	1.0100	4.4	0.9973	5.8	64
6	363	LAGUNA 13.8	13.800	G2	4.4	0.3	2.4	-2.4	1.0100	4.4	0.9973	5.8	64
6	364	MENDRE2	13.800	G1	7.6	3.7	3.9	-3.9	1.0000	8.5	0.8991	8.9	64
6	368	RP-490	13.800	G1	4.7	-2.4	2.4	-2.4	1.0092	5.3	0.8906	5.5	64
6	368	RP-490	13.800	G2	4.7	-2.4	2.4	-2.4	1.0092	5.3	0.8906	5.5	64
6	369	HCALDERA13.813.800		G1	3.8	1.9	1.9	-1.9	0.9990	4.3	0.8909	4.3	64
6	372	BJO FRIO 13	13.800	G1	23.8	-9.8	9.8	-9.8	1.0104	25.5	0.9255	33.0	64
6	373	TIZINGAL13.813.800		G1	4.4	2.2	2.2	-2.2	0.9916	5.0	0.8922	21.6	64
6	374	SLORENZO13.813.800		G1	3.9	-1.1	2.0	-2.0	1.0000	4.0	0.9599	4.5	64
6	374	SLORENZO13.813.800		G2	3.9	-1.1	2.0	-2.0	1.0000	4.0	0.9599	4.5	64
6	523	TCATIVÁ 13A	13.800	G1	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	523	TCATIVÁ 13A	13.800	G5	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	524	TCATIVÁ 13B	13.800	G0	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	524	TCATIVÁ 13B	13.800	G6	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62

6	524	TCATIVÁ 13B	13.800	G8	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8993	10.9	62
6	541	TOABRE	0.6000	1	25.1	0.0	0.0	0.0	1.0145	24.7	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	23.8	1.5	13.0	-13.0	1.0100	23.7	0.9979	30.5	64
6	704	BJOMIN13B	13.800	G2	23.8	1.5	13.0	-13.0	1.0100	23.7	0.9979	30.5	64
6	705	BAITUN13A	13.800	G1	34.5	-6.8	26.6	-26.6	1.0100	34.8	0.9809	50.6	64
6	706	BAITUN13B	13.800	G2	34.5	-6.8	26.6	-26.6	1.0100	34.8	0.9809	50.6	64
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9630	5.1	0.9145	6.2	64
6	SUBSYSTEM TOTALS				1268.4	362.3	1126.8	-824.8				2322.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:25
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONC MDN-CONC

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																	
7	129		MIR13D		13.800	G4	22.3	0.3	15.0	0.0	1.0000	22.3	0.9999	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0154	16.9	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8952	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8952	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8952	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9141	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9141	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9141	6.2			65
7	170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0298	17.8	0.9283	23.0			65
7	171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0389	17.7	0.9283	23.0			65

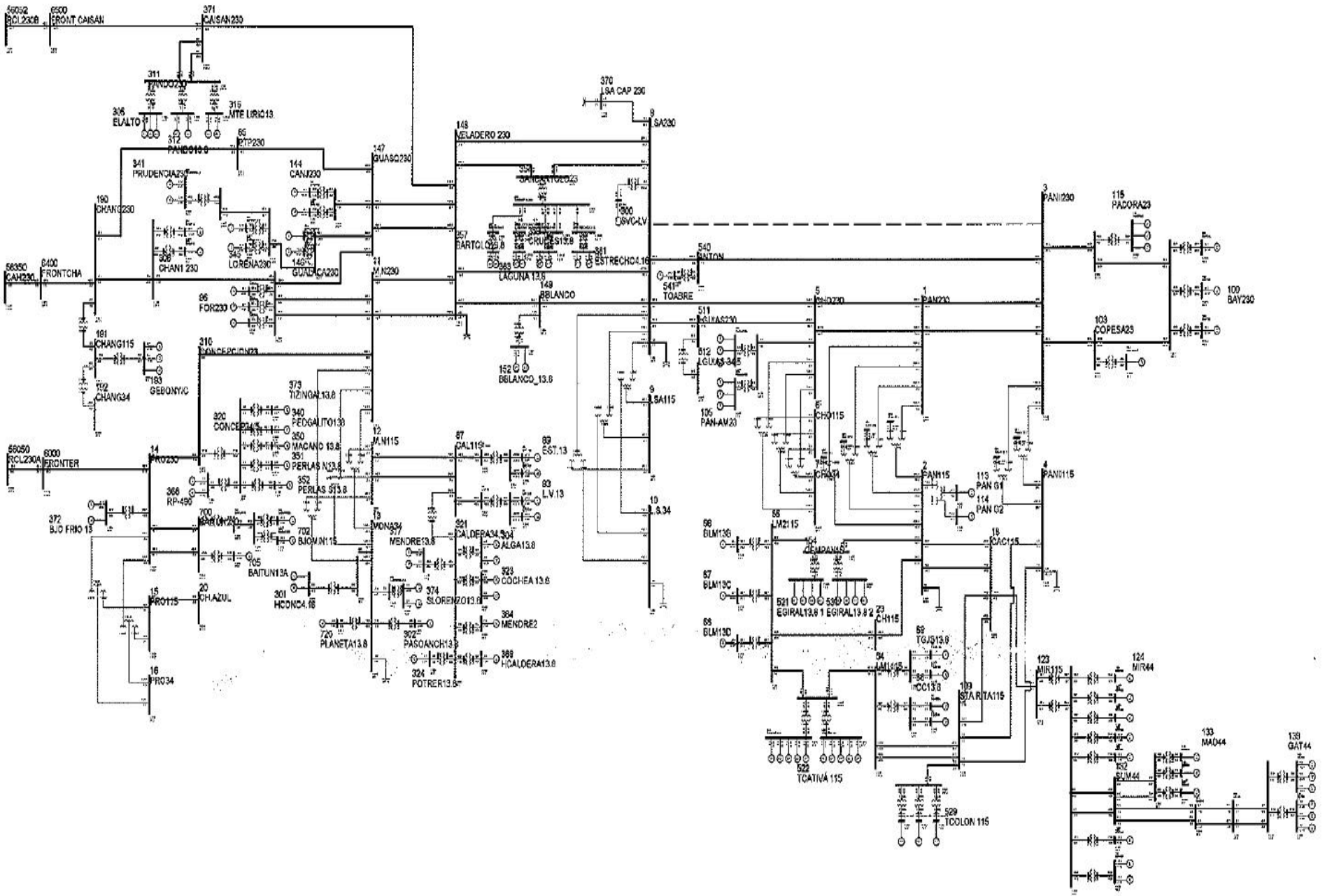
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0389	17.7	0.9283	23.0
	SUBSYSTEM TOTALS		108.0	12.7	71.5	5.5				171.3

65

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:28
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONC MDN-CONC 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	1457.1	1330.8	0.0	0.0	0.0	78.5	47.7	70.2
GUATEMAL	231.0	275.1	-197.6	0.0	276.0	-14.0	443.7	
2	869.6	855.0	0.0	0.0	0.0	0.0	14.6	0.0
SALVADOR	81.7	224.2	-70.7	0.0	228.5	-25.1	181.8	
3	1237.6	1203.0	0.0	0.0	0.0	-0.2	34.9	0.0
HONDURAS	470.6	321.1	-47.1	0.0	292.9	55.2	434.4	
4	532.4	525.2	0.0	0.0	0.0	-1.2	8.4	0.0
NICARAGU	43.6	207.6	-57.4	0.0	181.4	-47.5	122.3	
5	1298.0	1280.2	0.0	0.0	0.0	-3.3	21.2	0.0
COSTA RI	245.3	520.4	-229.6	0.0	416.5	26.4	344.6	
6	1268.4	1311.1	0.0	0.0	0.0	-133.9	91.2	-130.2
PANAMA	362.3	266.2	-211.9	0.0	532.5	13.1	827.4	
7	108.0	47.0	0.0	0.0	0.0	60.3	0.7	60.0
ACANAL	12.7	9.5	0.0	0.0	0.0	-8.1	11.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6771.0	6552.2	0.0	0.0	0.0	0.0	218.7	0.0
	1447.2	1824.0	-814.4	0.0	1927.8	0.0	2365.3	

5.1.2. Contingencia Llano Sánchez – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:34
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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	1.0133	233.05	14	PRO230	230.00	6	1.0262	236.04				
85	PTP230	230.00	6	1.0152	233.49	96	FOR230	230.00	6	1.0144	233.31				
100	BAY230	230.00	6	1.0268	236.16	144	CANJ230	230.00	6	1.0116	232.67				
146	GUALACA230	230.00	6	1.0152	233.49	147	GUASQ230	230.00	6	1.0114	232.62				
148	VELADERO	230230.00	6	1.0032	230.73	149	BBLANCO	230.00	6	1.0014	230.32				
190	CHANG230	230.00	6	1.0209	234.80	306	CHAN1	230	230.00	6	1.0198	234.55			
310	CONCEPCION230	230.00	6	1.0219	235.03	311	PANDO230	230.00	6	1.0417	239.58				
341	PRUDENCIA230	230.00	6	1.0217	235.00	345	LORENA230	230.00	6	1.0193	234.43				
371	CAISAN230	230.00	6	1.0404	239.29	700	BAITUN230	230.00	6	1.0259	235.97				
6000	FRONTER	230.00	6	1.0286	236.58	6400	FRONTCHA	230.00	6	1.0224	235.16				
6500	FRONT CAISAN230.00	6	1.0394	239.06											

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	0.9803	225.46	3	PANII230	230.00	6	0.9894	227.56				
5	CHO230	230.00	6	0.9696	223.00	103	COPESA23	230.00	6	0.9955	228.96				
105	PAN-AM23	230.00	6	0.9696	223.00	115	PACORA23	230.00	6	0.9994	229.87				
354	SANBARTOLO230	230.00	6	0.9992	229.81	511	LGUIAS230	230.00	6	0.9743	224.08				
540	ANTON	230.00	6	0.9964	229.17										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:34
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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)
4	PANII115	115.00	6	1.0161	116.85	9	LSA115	115.00	6	1.0443	120.10				
12	M.N115	115.00	6	1.0085	115.98	15	PRO115	115.00	6	1.0281	118.24				
20	CH.AZUL	115.00	6	1.0289	118.32	52	TOC115	115.00	6	1.0131	116.50				
54	LM1115	115.00	6	1.0250	117.88	55	LM2115	115.00	6	1.0262	118.02				
61	FFIELD	115.00	6	1.0212	117.44	87	CAL115	115.00	6	1.0266	118.06				
88	EST115	115.00	6	1.0304	118.49	92	L.V115	115.00	6	1.0281	118.23				
109	STA RITA115	115.00	6	1.0204	117.35	154	CEMPAN15	115.00	6	1.0133	116.53				
191	CHANG115	115.00	6	1.0108	116.24	522	TCATIVÁ	115	115.00	6	1.0259	117.98			
529	TCOLON	115	115.00	6	1.0204	117.35	701	BAITUN115	115.00	6	1.0090	116.04			
702	BJOMIN115	115.00	6	1.0113	116.29										

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)
2	PAN115	115.00	6	0.9859	113.37	6	CHO115	115.00	6	0.9705	111.61				

6	193	GEBONYIC	13.800	G1	8.1	-1.5	4.0	-4.0	1.0000	8.3	0.9828	35.3	64
6	193	GEBONYIC	13.800	G2	8.1	-1.5	4.0	-4.0	1.0000	8.3	0.9828	35.3	64
6	300	SVC-LV	13.200	1	0.5	277.7	300.0	-225.0	1.3164	211.0	0.0018	250.0	63
6	302	PASOANCH13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9703	5.3	0.9222	6.2	64
6	304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0979	4.7	0.8981	5.7	64
6	304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0979	4.7	0.8981	5.7	64
6	305	ELALTO	13.800	G1	18.1	-5.0	12.0	-5.0	1.0346	18.1	0.9638	20.6	64
6	307	CHAN1 A	13.800	G1	60.4	-17.2	50.0	-50.0	1.0000	62.8	0.9617	118.6	64
6	312	PANDO13.8	13.800	G1	9.1	-2.9	10.0	-5.0	1.0000	9.5	0.9516	19.9	64
6	312	PANDO13.8	13.800	G2	9.1	-2.9	10.0	-5.0	1.0000	9.5	0.9516	19.9	64
6	316	MTE LIRIO13.13.8	13.800	G1	17.0	-5.0	12.0	-5.0	1.0162	17.4	0.9594	27.0	64
6	316	MTE LIRIO13.13.8	13.800	G2	17.0	-5.0	12.0	-5.0	1.0162	17.4	0.9594	27.0	64
6	317	MENDRE13.8	13.800	M1	9.5	0.0	0.0	0.0	1.0999	8.7	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.5	0.0	0.0	0.0	1.0999	8.7	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.6	0.0	0.0	0.0	1.1004	5.1	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.6	0.0	0.0	0.0	1.1004	5.1	1.0000	35.3	64
6	324	POTRER13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9995	4.4	0.8929	6.2	64
6	340	PEDGALITO138	13.800	P1	22.1	7.7	12.0	-5.0	1.0000	23.4	0.9438	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	1.0037	13.0	0.9236	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.9	-5.0	9.8	-9.8	1.0000	24.4	0.9791	33.0	64
6	343	PRUDENCIA_1	13.800	G2	23.9	-5.0	9.8	-9.8	1.0000	24.4	0.9791	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-5.0	10.5	-5.0	1.0037	13.0	0.9236	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0846	3.0	0.9520	6.2	64
6	351	PERLAS N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9878	10.5	0.8752	13.5	64

6	352	PERLAS S13.813.800	G1	9.0	5.0	5.0	-5.0	0.9878	10.5	0.8752	13.5	64
6	357	BARTOLO13.8	13.800 G1	6.9	1.6	3.7	-3.7	1.0100	7.0	0.9732	8.5	64
6	357	BARTOLO13.8	13.800 G2	6.9	1.6	3.7	-3.7	1.0100	7.0	0.9732	8.5	64
6	359	CRUCES13.8	13.800 G1	4.4	0.6	2.3	-2.3	1.0100	4.4	0.9896	5.6	64
6	359	CRUCES13.8	13.800 G2	4.4	0.6	2.3	-2.3	1.0100	4.4	0.9896	5.6	64
6	361	ESTRECHO4.164.1600	G1	4.7	0.5	2.5	-2.5	1.0100	4.7	0.9944	5.6	64
6	361	ESTRECHO4.164.1600	G2	4.7	0.5	2.5	-2.5	1.0100	4.7	0.9944	5.6	64
6	363	LAGUNA 13.8	13.800 G1	4.4	0.3	2.4	-2.4	1.0100	4.4	0.9980	5.8	64
6	363	LAGUNA 13.8	13.800 G2	4.4	0.3	2.4	-2.4	1.0100	4.4	0.9980	5.8	64
6	364	MENDRE2	13.800 G1	7.6	2.8	3.9	-3.9	1.0000	8.1	0.9365	8.9	64
6	368	RP-490	13.800 G1	4.7	-2.4	2.4	-2.4	1.0032	5.3	0.8906	5.5	64
6	368	RP-490	13.800 G2	4.7	-2.4	2.4	-2.4	1.0032	5.3	0.8906	5.5	64
6	369	HICALDERA13.813.800	G1	3.8	1.9	1.9	-1.9	0.9995	4.3	0.8909	4.3	64
6	372	BJO FRIO 13	13.800 G1	23.9	-9.8	9.8	-9.8	1.0077	25.6	0.9258	33.0	64
6	373	TIZINGAL13.813.800	G1	4.5	2.2	2.2	-2.2	0.9861	5.1	0.8939	21.6	64
6	374	SLORENZO13.813.800	G1	3.9	-1.6	2.0	-2.0	1.0000	4.2	0.9236	4.5	64
6	374	SLORENZO13.813.800	G2	3.9	-1.6	2.0	-2.0	1.0000	4.2	0.9236	4.5	64
6	523	TCATIVÁ 13A	13.800 G1	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	523	TCATIVÁ 13A	13.800 G2	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	523	TCATIVÁ 13A	13.800 G3	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	523	TCATIVÁ 13A	13.800 G4	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	523	TCATIVÁ 13A	13.800 G5	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	524	TCATIVÁ 13B	13.800 G0	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	524	TCATIVÁ 13B	13.800 G6	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62

6	524	TCATIVÁ 13B	13.800	G7	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	5.1	6.6	-6.6	1.0150	9.6	0.8536	10.9	62
6	541	TOABRE	0.6000	1	25.2	0.0	0.0	0.0	0.9975	25.2	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	23.9	1.8	13.0	-13.0	1.0100	23.7	0.9973	30.5	64
6	704	BJOMIN13B	13.800	G2	23.9	1.8	13.0	-13.0	1.0100	23.7	0.9973	30.5	64
6	705	BAITUN13A	13.800	G1	34.6	-5.8	26.6	-26.6	1.0100	34.7	0.9863	50.6	64
6	706	BAITUN13B	13.800	G2	34.6	-5.8	26.6	-26.6	1.0100	34.7	0.9863	50.6	64
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9703	5.1	0.9145	6.2	64
6	SUBSYSTEM TOTALS				1272.1	489.6	1126.8	-824.8				2322.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:34
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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																	
7	129		MIR13D		13.800	G4	22.4	3.8	15.0	0.0	1.0000	22.7	0.9861	44.1			65
AREA																	
7	130		MIR13F		13.800	G5	17.2	0.0	8.0	0.0	1.0067	17.1	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9453	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9453	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9453	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9391	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9391	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9391	6.2			65
7	170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0212	18.0	0.9287	23.0			65

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:42
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT VEL-LSA

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	1.0109	232.52
14		PRO230		230.00	6	1.0246	235.66	85		PTP230		230.00	6	1.0133	233.06
96		FOR230		230.00	6	1.0124	232.86	100		BAY230		230.00	6	1.0369	238.49
103		COPESA23		230.00	6	1.0112	232.58	115		PACORA23		230.00	6	1.0143	233.30
144		CANJ230		230.00	6	1.0094	232.15	146		GUALACA230		230.00	6	1.0130	232.98
147		GUASQ230		230.00	6	1.0091	232.10	190		CHANG230		230.00	6	1.0197	234.53
306		CHAN1 230		230.00	6	1.0187	234.30	310		CONCEPCION23230.00		230.00	6	1.0200	234.59
311		PANDO230		230.00	6	1.0395	239.09	341		PRUDENCIA230230.00		230.00	6	1.0196	234.52
345		LORENA230		230.00	6	1.0171	233.94	371		CAISAN230		230.00	6	1.0382	238.79
540		ANTON		230.00	6	1.0135	233.11	700		BAITUN230		230.00	6	1.0245	235.63
6000		FRONTER		230.00	6	1.0269	236.20	6400		FRONTCHA		230.00	6	1.0213	234.91
6500		FRONT CAISAN230.00		230.00	6	1.0373	238.58								

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	0.9979	229.52	5		CHO230		230.00	6	0.9903	227.77
105		PAN-AM23		230.00	6	0.9903	227.77	148		VELADERO 230230.00		230.00	6	0.9988	229.72
149		BBLANCO		230.00	6	0.9961	229.09	354		SANBARTOLO23230.00		230.00	6	0.9922	228.22
511		LGUIAS230		230.00	6	0.9892	227.51								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:42
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT VEL-LSA

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	115.19	4		PANII115		115.00	6	1.0321	118.69
9		LSA115		115.00	6	1.0443	120.10	12		M.N115		115.00	6	1.0073	115.84
15		PRO115		115.00	6	1.0265	118.05	18		CAC115		115.00	6	1.0014	115.17
19		C.V115		115.00	6	1.0144	116.66	20		CH.AZUL		115.00	6	1.0272	118.13
23		CH115		115.00	6	1.0057	115.66	52		TOC115		115.00	6	1.0291	118.35
54		LM1115		115.00	6	1.0338	118.88	55		LM2115		115.00	6	1.0348	119.01
61		FFIELD		115.00	6	1.0299	118.44	87		CAL115		115.00	6	1.0259	117.98
88		EST115		115.00	6	1.0297	118.42	92		L.V115		115.00	6	1.0274	118.15
109		STA RITA115		115.00	6	1.0306	118.52	123		MIR115		115.00	7	1.0070	115.80
154		CEMPAN15		115.00	6	1.0240	117.76	191		CHANG115		115.00	6	1.0099	116.14
522		TCATIVÁ 115		115.00	6	1.0346	118.98	529		TCOLON 115		115.00	6	1.0306	118.52
701		BAITUN115		115.00	6	1.0081	115.94	702		BJOMIN115		115.00	6	1.0104	116.20

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)
6		CHO115		115.00	6	0.9912	113.99	21		C.BAN115		115.00	6	0.9942	114.34
26		LOC115		115.00	6	0.9946	114.38	30		MAR115		115.00	6	0.9921	114.10
33		STM115		115.00	6	0.9995	114.95	37		SAN115		115.00	6	0.9946	114.38
48		TINAJ115		115.00	6	0.9989	114.88	50		M.O115		115.00	6	0.9991	114.89

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:44
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT VEL-LSA

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																
6		66		BLM13B		13.800	V2	38.1	16.4	25.0	0.0	1.0180	40.7	0.9180	47.0	62
6		67		BLM13C		13.800	V3	38.1	16.4	25.0	0.0	1.0180	40.7	0.9180	47.0	62
6		68		BLM13D		13.800	V4	38.1	17.1	25.0	0.0	1.0180	41.0	0.9118	47.0	62
6		90		EST-13L		13.800	E1	22.9	6.8	12.0	-5.0	1.0000	23.9	0.9588	27.0	64
6		91		EST-13T		13.800	E2	22.9	6.8	12.0	-5.0	1.0000	23.9	0.9588	27.0	64
6		94		LV-13.8L		13.800	L1	24.4	7.6	12.0	-5.0	1.0000	25.5	0.9550	27.0	64
6		95		LV-13.8T		13.800	L2	24.4	7.6	12.0	-5.0	1.0000	25.5	0.9550	27.0	64
6		97		FOR13A		13.800	F1	80.3	1.2	50.0	-50.0	1.0100	79.5	0.9999	111.0	64
6		98		FOR13B		13.800	F2	80.3	1.2	50.0	-50.0	1.0100	79.5	0.9999	111.0	64
6		101		BAY13A		13.800	B1	49.0	25.8	50.0	-25.0	1.0180	54.4	0.8850	96.0	61
6		102		BAY13B		13.800	B2	48.9	25.8	50.0	-25.0	1.0180	54.3	0.8846	96.0	61
6		108		BAY13C		13.800	B3	48.9	25.8	50.0	-25.0	1.0180	54.3	0.8846	100.0	61
6		142		CANJ13A		13.800	C1	45.2	14.6	29.0	-29.0	1.0100	47.0	0.9515	69.0	64
6		143		CANJ13B		13.800	C2	45.2	14.6	29.0	-29.0	1.0100	47.0	0.9515	69.0	64
6		150		GUALACA	13-213.800	G2		14.0	-0.4	7.4	-7.4	1.0100	13.9	0.9997	14.8	64
6		152		BBLANCO_13.813.800	G1			13.0	1.2	7.0	-7.0	1.0000	13.1	0.9960	16.0	64

6	193	GEBONYIC	13.800	G1	8.1	-1.4	4.0	-4.0	1.0000	8.2	0.9854	35.3	64
6	193	GEBONYIC	13.800	G2	8.1	-1.4	4.0	-4.0	1.0000	8.2	0.9854	35.3	64
6	300	SVC-LV	13.200	1	0.4	251.6	300.0	-225.0	1.2920	194.7	0.0016	250.0	63
6	302	PASOANCH13.8	13.800	P1	4.8	2.0	2.0	-2.0	0.9681	5.3	0.9221	6.2	64
6	304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.0977	4.7	0.8981	5.7	64
6	304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.0977	4.7	0.8981	5.7	64
6	305	ELALTO	13.800	G1	18.1	-5.0	12.0	-5.0	1.0325	18.1	0.9637	20.6	64
6	307	CHAN1 A	13.800	G1	60.3	-16.1	50.0	-50.0	1.0000	62.4	0.9660	118.6	64
6	312	PANDO13.8	13.800	G1	9.1	-2.8	10.0	-5.0	1.0000	9.5	0.9567	19.9	64
6	312	PANDO13.8	13.800	G2	9.1	-2.8	10.0	-5.0	1.0000	9.5	0.9567	19.9	64
6	316	MTE LIRIO13.13.8	13.800	G1	17.0	-5.0	12.0	-5.0	1.0139	17.5	0.9594	27.0	64
6	316	MTE LIRIO13.13.8	13.800	G2	17.0	-5.0	12.0	-5.0	1.0139	17.5	0.9594	27.0	64
6	317	MENDRE13.8	13.800	M1	9.5	0.0	0.0	0.0	1.0997	8.6	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.5	0.0	0.0	0.0	1.0997	8.6	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.6	0.0	0.0	0.0	1.1002	5.1	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.6	0.0	0.0	0.0	1.1002	5.1	1.0000	35.3	64
6	324	POTRER13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9993	4.4	0.8929	6.2	64
6	340	PEDGALITO138	13.800	P1	22.1	8.2	12.0	-5.0	1.0000	23.5	0.9376	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	1.0015	13.0	0.9235	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.9	-4.4	9.8	-9.8	1.0000	24.3	0.9836	33.0	64
6	343	PRUDENCIA_1	13.800	G2	23.9	-4.4	9.8	-9.8	1.0000	24.3	0.9836	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-5.0	10.5	-5.0	1.0015	13.0	0.9235	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0835	3.0	0.9519	6.2	64
6	351	PERLAS N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9868	10.5	0.8750	13.5	64

6	352	PERLAS S13.813.800	G1	9.0	5.0	5.0	-5.0	0.9868	10.5	0.8750	13.5	64
6	357	BARTOLO13.8	13.800 G1	6.9	1.9	3.7	-3.7	1.0100	7.1	0.9655	8.5	64
6	357	BARTOLO13.8	13.800 G2	6.9	1.9	3.7	-3.7	1.0100	7.1	0.9655	8.5	64
6	359	CRUCES13.8	13.800 G1	4.4	0.8	2.3	-2.3	1.0100	4.4	0.9850	5.6	64
6	359	CRUCES13.8	13.800 G2	4.4	0.8	2.3	-2.3	1.0100	4.4	0.9850	5.6	64
6	361	ESTRECHO4.164.1600	G1	4.7	0.6	2.5	-2.5	1.0100	4.7	0.9912	5.6	64
6	361	ESTRECHO4.164.1600	G2	4.7	0.6	2.5	-2.5	1.0100	4.7	0.9912	5.6	64
6	363	LAGUNA 13.8	13.800 G1	4.4	0.4	2.4	-2.4	1.0100	4.4	0.9960	5.8	64
6	363	LAGUNA 13.8	13.800 G2	4.4	0.4	2.4	-2.4	1.0100	4.4	0.9960	5.8	64
6	364	MENDRE2	13.800 G1	7.6	3.1	3.9	-3.9	1.0000	8.2	0.9260	8.9	64
6	368	RP-490	13.800 G1	4.7	-2.4	2.4	-2.4	1.0022	5.3	0.8906	5.5	64
6	368	RP-490	13.800 G2	4.7	-2.4	2.4	-2.4	1.0022	5.3	0.8906	5.5	64
6	369	HICALDERA13.813.800	G1	3.8	1.9	1.9	-1.9	0.9993	4.3	0.8909	4.3	64
6	372	BJO FRIO 13	13.800 G1	23.9	-9.8	9.8	-9.8	1.0061	25.7	0.9257	33.0	64
6	373	TIZINGAL13.813.800	G1	4.5	2.2	2.2	-2.2	0.9851	5.1	0.8933	21.6	64
6	374	SLORENZO13.813.800	G1	3.9	-1.5	2.0	-2.0	1.0000	4.1	0.9354	4.5	64
6	374	SLORENZO13.813.800	G2	3.9	-1.5	2.0	-2.0	1.0000	4.1	0.9354	4.5	64
6	523	TCATIVÁ 13A	13.800 G1	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	523	TCATIVÁ 13A	13.800 G2	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	523	TCATIVÁ 13A	13.800 G3	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	523	TCATIVÁ 13A	13.800 G4	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	523	TCATIVÁ 13A	13.800 G5	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	524	TCATIVÁ 13B	13.800 G0	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	524	TCATIVÁ 13B	13.800 G6	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62

6	524	TCATIVÁ 13B	13.800	G7	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	4.0	6.6	-6.6	1.0150	9.1	0.8997	10.9	62
6	541	TOABRE	0.6000	1	25.1	0.0	0.0	0.0	1.0146	24.8	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	23.9	1.9	13.0	-13.0	1.0100	23.7	0.9969	30.5	64
6	704	BJOMIN13B	13.800	G2	23.9	1.9	13.0	-13.0	1.0100	23.7	0.9969	30.5	64
6	705	BAITUN13A	13.800	G1	34.5	-5.1	26.6	-26.6	1.0100	34.6	0.9892	50.6	64
6	706	BAITUN13B	13.800	G2	34.5	-5.1	26.6	-26.6	1.0100	34.6	0.9892	50.6	64
6	720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9681	5.1	0.9145	6.2	64
6	SUBSYSTEM TOTALS				1270.8	431.5	1126.8	-824.8				2322.2	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 15:44
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-INVIERNO CONT VEL-LSA

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																
7		129		MIR13D		13.800	G4	22.4	0.3	15.0	0.0	1.0000	22.4	0.9999	44.1	65
7		130		MIR13F		13.800	G5	17.2	0.0	8.0	0.0	1.0154	16.9	1.0000	27.7	65
7		140		GAT6A		6.9000	G1	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8951	4.1	65
7		140		GAT6A		6.9000	G2	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8951	4.1	65
7		140		GAT6A		6.9000	G3	1.9	-1.0	2.0	-2.0	1.0000	2.2	0.8951	4.1	65
7		141		GAT6B		6.9000	G4	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9141	5.6	65
7		141		GAT6B		6.9000	G5	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9141	6.2	65
7		141		GAT6B		6.9000	G6	3.9	-1.7	3.0	-3.0	1.0000	4.2	0.9141	6.2	65
7		170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0298	17.8	0.9286	23.0	65
7		171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0389	17.7	0.9286	23.0	65

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:13
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MIN INVIERNO

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	1.0087	231.99	14	PRO230	230.00	6	1.0275	236.34				
85	PTP230	230.00	6	1.0120	232.76	96	FOR230	230.00	6	1.0087	231.99				
100	BAY230	230.00	6	1.0149	233.43	115	PACORA23	230.00	6	1.0013	230.31				
144	CANJ230	230.00	6	1.0085	231.95	146	GUALACA230	230.00	6	1.0103	232.38				
147	GUASQ230	230.00	6	1.0084	231.94	148	VELADERO	230230.00	6	1.0026	230.61				
149	BBLANCO	230.00	6	1.0012	230.28	190	CHANG230	230.00	6	1.0146	233.37				
306	CHAN1	230	6	1.0118	232.71	310	CONCEPCION23	230.00	6	1.0198	234.55				
311	PANDO230	230.00	6	1.0476	240.94	341	PRUDENCIA230	230.00	6	1.0130	232.99				
345	LORENA230	230.00	6	1.0121	232.77	371	CAISAN230	230.00	6	1.0462	240.61				
540	ANTON	230.00	6	1.0091	232.10	700	BAITUN230	230.00	6	1.0276	236.35				
6000	FRONTER	230.00	6	1.0306	237.03	6400	FRONTCHA	230.00	6	1.0167	233.85				
6500	FRONT CAISAN	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	0.9911	227.95	3	PANII230	230.00	6	0.9960	229.09				
5	CHO230	230.00	6	0.9899	227.68	8	LSA230	230.00	6	0.9900	227.70				
103	COPESA23	230.00	6	0.9994	229.85	105	PAN-AM23	230.00	6	0.9899	227.68				
354	SANBARTOLO	23230.00	6	0.9988	229.73	370	LSA CAP	230	230.00	6	0.9900	227.70			
511	LGUIAS230	230.00	6	0.9898	227.66										

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:13
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MIN INVIERNO

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)
4	PANII115	115.00	6	1.0054	115.63	9	LSA115	115.00	6	1.0359	119.13				
12	M.N115	115.00	6	1.0102	116.17	15	PRO115	115.00	6	1.0294	118.38				
20	CH.AZUL	115.00	6	1.0302	118.47	52	TOC115	115.00	6	1.0031	115.36				
54	LM1115	115.00	6	1.0054	115.62	55	LM2115	115.00	6	1.0063	115.73				
61	FFIELD	115.00	6	1.0032	115.36	87	CAL115	115.00	6	1.0176	117.03				
88	EST115	115.00	6	1.0189	117.17	92	L.V115	115.00	6	1.0181	117.08				
109	STA RITA115	115.00	6	1.0039	115.45	154	CEMPAN15	115.00	6	1.0002	115.02				
191	CHANG115	115.00	6	1.0038	115.44	522	TCATIVÁ	115	115.00	6	1.0059	115.68			
529	TCOLON	115	6	1.0040	115.46	701	BAITUN115	115.00	6	1.0201	117.31				
702	BJOMIN115	115.00	6	1.0207	117.39										

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)
------	-----	------	-----	-------	------	-------	-------	------	-----	------	-----	-------	------	-------	-------

2	PAN115	115.00	6	0.9878	113.59	6	CHO115	115.00	6	0.9907	113.93
18	CAC115	115.00	6	0.9876	113.57	19	C.V115	115.00	6	0.9937	114.27
21	C.BAN115	115.00	6	0.9817	112.90	23	CH115	115.00	6	0.9883	113.66
26	LOC115	115.00	6	0.9822	112.95	30	MAR115	115.00	6	0.9806	112.77
33	STM115	115.00	6	0.9862	113.42	37	SAN115	115.00	6	0.9817	112.89
48	TINAJ115	115.00	6	0.9858	113.37	50	M.O115	115.00	6	0.9859	113.38
123	MIR115	115.00	7	0.9927	114.16						

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:13

PLAN DE EXPANSION DEL SIN JUNIO-2010

AÑO 2014 ESC-MOD DEMANDA-MIN INVIERNO

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	15.7	25.0	0.0	0.9900	41.5	0.9238	47.0			62
67		BLM13C		13.800	V3	38.0	15.7	25.0	0.0	0.9900	41.5	0.9238	47.0			62
68		BLM13D		13.800	V4	38.0	16.4	25.0	0.0	0.9900	41.8	0.9182	47.0			62
90		EST-13L		13.800	E1	18.0	3.6	12.0	-5.0	0.9800	18.7	0.9809	27.0			64
94		LV-13.8L		13.800	L1	20.2	3.9	12.0	-5.0	0.9800	21.1	0.9815	27.0			64
97		FOR13A		13.800	F1	80.0	-22.0	50.0	-50.0	0.9800	84.7	0.9643	111.0			64
101		BAY13A		13.800	B1	50.6	19.8	50.0	-25.0	0.9900	54.9	0.9309	96.0			61
102		BAY13B		13.800	B2	50.6	19.8	50.0	-25.0	0.9900	54.9	0.9310	96.0			61
142		CANJ13A		13.800	C1	45.0	11.4	29.0	-29.0	0.9900	46.9	0.9692	69.0			64
150		GUALACA	13-213.800	G2		14.0	-4.6	7.4	-7.4	0.9900	14.9	0.9493	14.8			64
152		BBLANCO_13.813.800		G1		13.0	-2.9	7.0	-7.0	0.9800	13.6	0.9762	16.0			64
193		GEBONYIC		G1		8.0	-2.0	4.0	-4.0	0.9900	8.3	0.9703	35.3			64
193		GEBONYIC		G2		8.0	-2.0	4.0	-4.0	0.9900	8.3	0.9703	35.3			64
300		SVC-LV		13.200	1	0.0	1.6	300.0	-225.0	0.9903	1.6	0.0000	250.0			63
302		PASOANCH13.813.800		P1		4.8	2.0	2.0	-2.0	0.9495	5.4	0.9216	6.2			64
304		ALGA13.8		A1		4.6	-2.3	2.3	-2.3	1.0897	4.7	0.8981	5.7			64

6	305	ELALTO	13.800	G1	18.0	-5.0	12.0	-5.0	1.0329	18.1	0.9635	20.6	64
6	305	ELALTO	13.800	G2	18.0	-5.0	12.0	-5.0	1.0329	18.1	0.9635	20.6	64
6	307	CHAN1 A	13.800	G1	60.0	-28.1	50.0	-50.0	0.9800	67.6	0.9057	118.6	64
6	312	PANDO13.8	13.800	G1	9.0	-5.0	10.0	-5.0	1.0161	10.1	0.8742	19.9	64
6	316	MTE LIRIO13.8	13.800	G1	17.0	-5.0	12.0	-5.0	1.0358	17.1	0.9594	27.0	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0909	8.6	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0910	5.0	1.0000	35.3	64
6	324	POTRER13.8	13.800	P1	4.0	0.6	2.0	-2.0	0.9900	4.1	0.9875	6.2	64
6	340	PEDGALITO13813.800	13.800	P1	18.0	4.5	12.0	-5.0	0.9800	18.9	0.9696	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-5.0	10.5	-5.0	0.9964	13.0	0.9229	19.9	64
6	343	PRUDENCIA_1	13.800	G1	21.0	-9.8	9.8	-9.8	0.9944	23.3	0.9068	33.0	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0694	3.0	0.9514	6.2	64
6	351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9740	10.6	0.8742	13.5	64
6	357	BARTOLO13.8	13.800	G1	6.9	-0.2	3.7	-3.7	0.9800	7.0	0.9997	8.5	64
6	359	CRUCES13.8	13.800	G1	4.4	-0.4	2.3	-2.3	0.9800	4.5	0.9953	5.6	64
6	361	ESTRECHO4.164.1600	13.800	G1	4.7	-0.5	2.5	-2.5	0.9800	4.8	0.9934	5.6	64
6	363	LAGUNA 13.8	13.800	G1	4.4	-0.7	2.4	-2.4	0.9800	4.6	0.9882	5.8	64
6	364	MENDRE2	13.800	G1	7.6	0.6	3.9	-3.9	0.9900	7.7	0.9964	8.9	64
6	368	RP-490	13.800	G1	4.7	-2.3	2.4	-2.4	0.9900	5.3	0.9012	5.5	64
6	368	RP-490	13.800	G2	4.7	-2.3	2.4	-2.4	0.9900	5.3	0.9012	5.5	64
6	369	HCALDERA13.813.800	13.800	G1	3.8	0.6	1.9	-1.9	0.9900	3.9	0.9864	4.3	64
6	372	BJO FRIO 13	13.800	G1	21.0	-9.8	9.8	-9.8	1.0093	22.9	0.9068	33.0	64
6	373	TIZINGAL13.813.800	13.800	G1	4.4	2.2	2.2	-2.2	0.9724	5.1	0.8909	21.6	64
6	374	SLORENZO13.813.800	13.800	G1	3.9	-1.3	2.0	-2.0	0.9900	4.1	0.9497	4.5	64

6	541 TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0102	24.7	1.0000	88.9	64
6	703 BJOMIN13A	13.800	G1	21.0	-0.1	13.0	-13.0	1.0100	20.8	1.0000	30.5	64
6	705 BAITUN13A	13.800	G1	32.2	-6.7	26.6	-26.6	1.0100	32.6	0.9792	50.6	64
6	720 PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9495	5.2	0.9145	6.2	64
	SUBSYSTEM TOTALS			787.9	2.0	818.2	-565.6				1598.7	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:13
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MIN INVIERNO

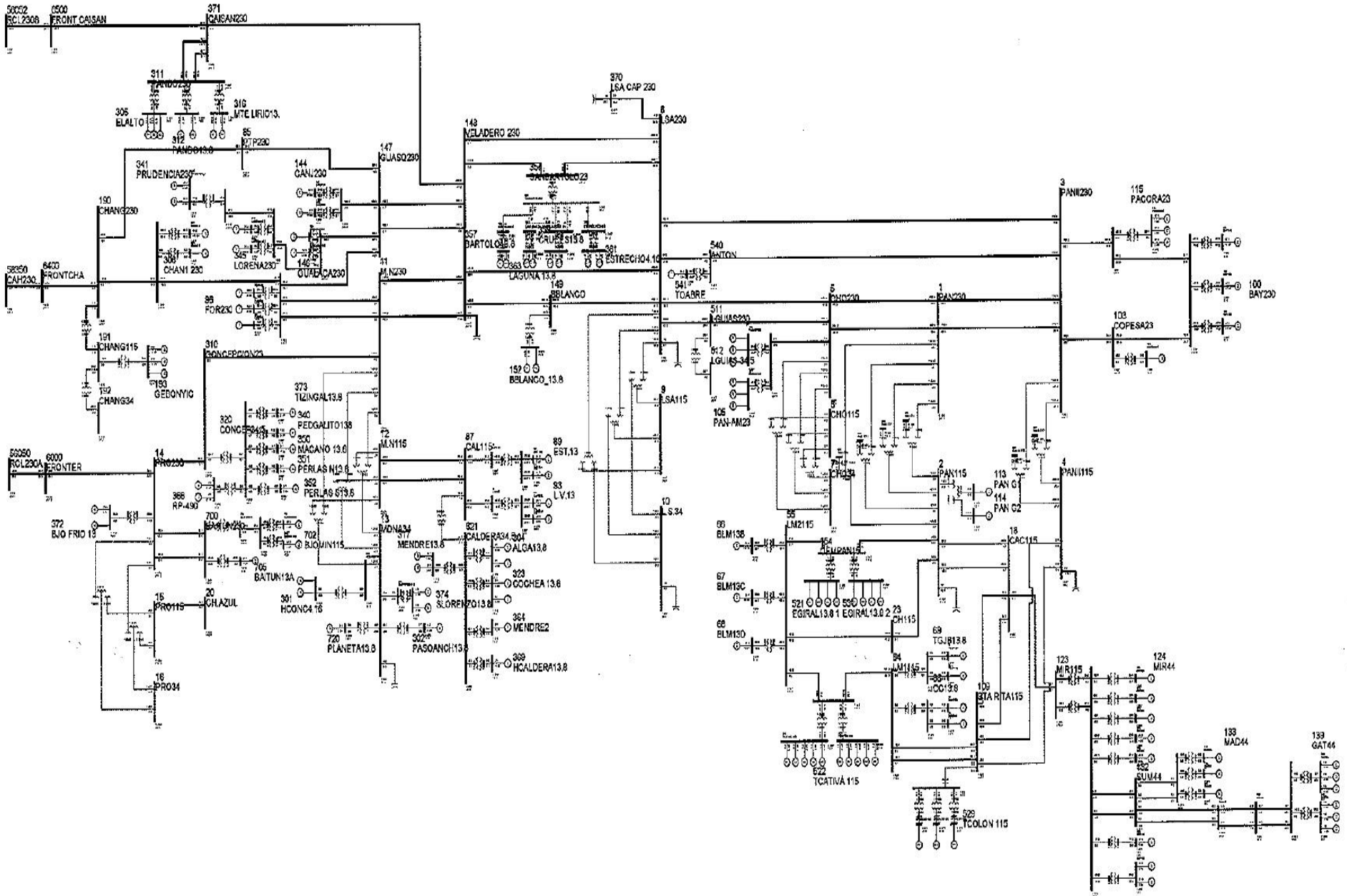
AREA 7 [ACANAL] MACHINE SUMMARY:

	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
7	129		MIR13D		13.800	G4	25.6	5.3	15.0	0.0	1.0000	26.2	0.9789	44.1			65
7	140		GAT6A		6.9000	G1	1.8	-0.5	2.0	-2.0	1.0000	1.9	0.9687	4.1			65
7	140		GAT6A		6.9000	G2	1.8	-0.5	2.0	-2.0	1.0000	1.9	0.9687	4.1			65
7	140		GAT6A		6.9000	G3	1.8	-0.5	2.0	-2.0	1.0000	1.9	0.9687	4.1			65
7	141		GAT6B		6.9000	G4	3.6	-1.2	3.0	-3.0	1.0000	3.8	0.9473	5.6			65
7	141		GAT6B		6.9000	G5	3.6	-1.2	3.0	-3.0	1.0000	3.8	0.9473	6.2			65
7	141		GAT6B		6.9000	G6	3.6	-1.2	3.0	-3.0	1.0000	3.8	0.9473	6.2			65
7	171		MIR13H		13.800	M1	15.8	6.8	11.2	6.8	1.0258	16.8	0.9181	23.0			65
7	171		MIR13H		13.800	M2	15.8	6.8	11.2	6.8	1.0258	16.8	0.9181	23.0			65
	SUBSYSTEM TOTALS						73.4	13.9	52.3	-1.4				120.6			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2014 ESC-MOD DEMANDA-MIN INVIERNO 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	1278.8	1330.8	0.0	0.0	0.0	-95.4	43.3	-93.2
GUATEMAL	218.8	275.1	-196.6	0.0	275.1	9.3	406.2	
2	870.5	855.0	0.0	0.0	0.0	0.4	15.1	0.0
SALVADOR	84.8	224.2	-70.6	0.0	228.3	-21.7	181.3	
3	1237.7	1203.0	0.0	0.0	0.0	0.3	34.4	0.0
HONDURAS	468.6	321.1	-47.2	0.0	293.2	54.3	433.6	
4	532.9	525.2	0.0	0.0	0.0	0.3	7.3	0.0
NICARAGU	37.4	207.6	-57.6	0.0	181.8	-48.1	117.4	
5	1297.7	1280.2	0.0	0.0	0.0	0.6	17.0	0.0
COSTA RI	198.9	520.4	-230.8	0.0	419.3	33.8	294.7	
6	787.9	721.1	0.0	0.0	0.0	46.8	20.0	46.2
PANAMA	2.0	261.7	79.8	0.0	535.7	-24.9	221.1	
7	73.4	25.8	0.0	0.0	0.0	47.0	0.5	47.0
ACANAL	13.9	9.4	0.0	0.0	0.0	-2.7	7.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6078.8	5941.1	0.0	0.0	0.0	0.0	137.7	0.0
	1024.5	1819.3	-523.0	0.0	1933.4	0.0	1661.6	

5.3 Demanda Máxima de Verano



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:20
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-VERANO

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	1.0026	230.61	8		LSA230		230.00	6	1.0026	230.60
11		M.N230		230.00	6	1.0217	235.00	14		PRO230		230.00	6	1.0319	237.35
85		PTP230		230.00	6	1.0233	235.35	96		FOR230		230.00	6	1.0220	235.06
100		BAY230		230.00	6	1.0281	236.47	103		COPESA23		230.00	6	1.0069	231.59
115		PACORA23		230.00	6	1.0114	232.63	144		CANJ230		230.00	6	1.0192	234.41
146		GUALACA230		230.00	6	1.0230	235.29	147		GUASQ230		230.00	6	1.0191	234.39
148		VELADERO 230		230.00	6	1.0113	232.61	149		BBLANCO		230.00	6	1.0095	232.17
190		CHANG230		230.00	6	1.0290	236.68	306		CHAN1 230		230.00	6	1.0282	236.49
310		CONCEPCION230		230.00	6	1.0288	236.63	311		PANDO230		230.00	6	1.0471	240.84
341		PRUDENCIA230		230.00	6	1.0300	236.90	345		LORENA230		230.00	6	1.0275	236.34
354		SANBARTOLO230		230.00	6	1.0058	231.32	370		LSA CAP 230		230.00	6	1.0026	230.60
371		CAISAN230		230.00	6	1.0461	240.60	540		ANTON		230.00	6	1.0144	233.31
700		BAITUN230		230.00	6	1.0310	237.13	6000		FRONTER		230.00	6	1.0344	237.90
6400		FRONTCHA		230.00	6	1.0303	236.97	6500		FRONT CAISAN		230.00	6	1.0452	240.39

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	0.9946	228.75	5		CHO230		230.00	6	0.9892	227.51
105		PAN-AM23		230.00	6	0.9892	227.51	511		LGUIAS230		230.00	6	0.9911	227.96

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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)
4		PANII115		115.00	6	1.0274	118.15	9		LSA115		115.00	6	1.0470	120.40
12		M.N115		115.00	6	1.0241	117.77	15		PRO115		115.00	6	1.0338	118.89
19		C.V115		115.00	6	1.0096	116.11	20		CH.AZUL		115.00	6	1.0346	118.98
52		TOC115		115.00	6	1.0244	117.81	54		LM1115		115.00	6	1.0259	117.98
55		LM2115		115.00	6	1.0270	118.10	61		FFIELD		115.00	6	1.0221	117.54
87		CALL115		115.00	6	1.0432	119.97	88		EST115		115.00	6	1.0473	120.44
92		L.V115		115.00	6	1.0448	120.15	109		STA RITA115		115.00	6	1.0234	117.69
123		MIR115		115.00	7	1.0027	115.31	154		CEMPAN15		115.00	6	1.0171	116.97
191		CHANG115		115.00	6	1.0195	117.24	522		TCATIVÁ 115		115.00	6	1.0267	118.07
529		TCOLON 115		115.00	6	1.0235	117.70	701		BAITUN115		115.00	6	1.0123	116.42
702		BJOMIN115		115.00	6	1.0142	116.64								

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)
------	-----	------	-----	-------	------	-------	-------	------	-----	------	-----	-------	------	-------	-------

2 PAN115	115.00	6 0.9970	114.66	6 CHO115	115.00	6 0.9901	113.86
18 CAC115	115.00	6 0.9968	114.63	21 C.BAN115	115.00	6 0.9895	113.79
23 CH115	115.00	6 0.9996	114.96	26 LOC115	115.00	6 0.9899	113.83
30 MAR115	115.00	6 0.9874	113.55	33 STM115	115.00	6 0.9949	114.42
37 SAN115	115.00	6 0.9898	113.83	48 TINAJ115	115.00	6 0.9943	114.34
50 M.O115	115.00	6 0.9944	114.36				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:22
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-VERANO

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
66		BLM13B		13.800	V2	38.0	16.1	25.0	0.0	1.0100	40.9	0.9207	47.0			62
67		BLM13C		13.800	V3	38.0	16.1	25.0	0.0	1.0100	40.9	0.9207	47.0			62
68		BLM13D		13.800	V4	38.0	16.8	25.0	0.0	1.0100	41.1	0.9147	47.0			62
90		EST-13L		13.800	E1	21.6	7.8	12.0	-5.0	1.0200	22.5	0.9410	27.0			64
91		EST-13T		13.800	E2	21.6	7.8	12.0	-5.0	1.0200	22.5	0.9410	27.0			64
94		LV-13.8L		13.800	L1	24.3	8.7	12.0	-5.0	1.0200	25.3	0.9412	27.0			64
95		LV-13.8T		13.800	L2	24.3	8.7	12.0	-5.0	1.0200	25.3	0.9412	27.0			64
97		FOR13A		13.800	F1	56.4	-4.8	50.0	-50.0	1.0150	55.7	0.9964	111.0			64
98		FOR13B		13.800	F2	56.4	-4.8	50.0	-50.0	1.0150	55.7	0.9964	111.0			64
101		BAY13A		13.800	B1	47.6	17.8	50.0	-25.0	1.0000	50.8	0.9368	96.0			61
102		BAY13B		13.800	B2	47.5	17.8	50.0	-25.0	1.0000	50.7	0.9366	96.0			61
108		BAY13C		13.800	B3	47.5	17.8	50.0	-25.0	1.0000	50.7	0.9366	96.0			61
116		PACORA13		13.800	P1	17.5	2.8	8.8	0.0	1.0150	17.4	0.9875	21.7			61
116		PACORA13		13.800	P2	17.5	2.8	8.8	0.0	1.0150	17.4	0.9875	21.7			61
116		PACORA13		13.800	P3	17.5	2.8	8.8	0.0	1.0150	17.4	0.9875	21.7			61
142		CANJ13A		13.800	C1	54.0	15.9	29.0	-29.0	1.0100	55.7	0.9595	69.0			64
143		CANJ13B		13.800	C2	54.0	15.9	29.0	-29.0	1.0100	55.7	0.9595	69.0			64

6	150	GUALACA	13-213.800	G2	12.6	-3.0	7.4	-7.4	1.0100	12.8	0.9731	14.8	64
6	152	BBLANCO_13.8	13.800	G1	14.0	0.7	7.0	-7.0	1.0100	13.9	0.9988	16.0	64
6	193	GEBOYIC	13.800	G1	8.0	-1.3	4.0	-4.0	1.0100	8.0	0.9861	35.3	64
6	193	GEBOYIC	13.800	G2	8.0	-1.3	4.0	-4.0	1.0100	8.0	0.9861	35.3	64
6	302	PASOANCH13.8	13.800	P1	4.7	2.0	2.0	-2.0	0.9781	5.3	0.9216	6.2	64
6	304	ALGA13.8	13.800	A1	4.6	-2.3	2.3	-2.3	1.1097	4.6	0.8981	5.7	64
6	304	ALGA13.8	13.800	A2	4.6	-2.3	2.3	-2.3	1.1097	4.6	0.8981	5.7	64
6	305	ELALTO	13.800	G1	17.0	-5.0	12.0	-5.0	1.0326	17.2	0.9594	20.6	64
6	305	ELALTO	13.800	G2	17.0	-5.0	12.0	-5.0	1.0326	17.2	0.9594	20.6	64
6	307	CHAN1 A	13.800	G1	65.0	-15.6	50.0	-50.0	1.0100	66.2	0.9724	118.6	64
6	312	PANDO13.8	13.800	G1	13.0	-2.9	10.0	-5.0	1.0000	13.3	0.9765	19.9	64
6	312	PANDO13.8	13.800	G2	13.0	-2.9	10.0	-5.0	1.0000	13.3	0.9765	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	18.8	-5.0	12.0	-5.0	1.0212	19.0	0.9663	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	18.8	-5.0	12.0	-5.0	1.0212	19.0	0.9663	27.0	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.1117	8.5	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	9.4	0.0	0.0	0.0	1.1117	8.5	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	5.5	0.0	0.0	0.0	1.1122	4.9	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	5.5	0.0	0.0	0.0	1.1122	4.9	1.0000	35.3	64
6	340	PEDGALITO138	13.800	P1	19.2	5.6	12.0	-5.0	1.0000	20.0	0.9604	27.0	64
6	342	LORENA13.8	13.800	L1	15.2	-5.0	10.5	-5.0	1.0117	15.8	0.9500	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-4.6	9.8	-9.8	1.0100	24.0	0.9821	33.0	64
6	343	PRUDENCIA_1	13.800	G2	23.8	-4.6	9.8	-9.8	1.0100	24.0	0.9821	33.0	64
6	346	LORENA 13-2	13.800	L2	15.2	-5.0	10.5	-5.0	1.0117	15.8	0.9500	19.9	64
6	350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0893	3.0	0.9514	6.2	64

6	351	PERLAS N13.813.800	G1	9.5	5.0	5.0	-5.0	0.9921	10.8	0.8849	13.5	64
6	352	PERLAS S13.813.800	G1	9.5	5.0	5.0	-5.0	0.9921	10.8	0.8849	13.5	64
6	357	BARTOLO13.8	13.800 G1	6.1	0.9	3.7	-3.7	1.0000	6.2	0.9897	8.5	64
6	357	BARTOLO13.8	13.800 G2	6.1	0.9	3.7	-3.7	1.0000	6.2	0.9897	8.5	64
6	359	CRUCES13.8	13.800 G1	3.9	0.2	2.3	-2.3	1.0000	3.9	0.9982	5.6	64
6	359	CRUCES13.8	13.800 G2	3.9	0.2	2.3	-2.3	1.0000	3.9	0.9982	5.6	64
6	361	ESTRECHO4.164.1600	G1	4.2	0.1	2.5	-2.5	1.0000	4.2	0.9996	5.6	64
6	361	ESTRECHO4.164.1600	G2	4.2	0.1	2.5	-2.5	1.0000	4.2	0.9996	5.6	64
6	363	LAGUNA	13.8 13.800 G1	3.9	-0.1	2.4	-2.4	1.0000	3.9	0.9999	5.8	64
6	363	LAGUNA	13.8 13.800 G2	3.9	-0.1	2.4	-2.4	1.0000	3.9	0.9999	5.8	64
6	364	MENDRE2	13.800 G1	6.4	1.7	3.9	-3.9	1.0100	6.6	0.9658	8.9	64
6	368	RP-490	13.800 G1	4.5	-2.3	2.4	-2.4	1.0100	5.0	0.8944	5.5	64
6	368	RP-490	13.800 G2	4.5	-2.3	2.4	-2.4	1.0100	5.0	0.8944	5.5	64
6	369	HCALDERA13.813.800	G1	3.8	1.7	1.9	-1.9	1.0100	4.1	0.9120	4.3	64
6	372	BJO FRIO 13	13.800 G1	25.0	-9.8	9.8	-9.8	1.0135	26.5	0.9315	33.0	64
6	373	TIZINGAL13.813.800	G1	4.4	2.2	2.2	-2.2	0.9904	5.0	0.8909	21.6	64
6	374	SLORENZO13.813.800	G1	3.9	-1.5	2.0	-2.0	1.0100	4.1	0.9318	4.5	64
6	374	SLORENZO13.813.800	G2	3.9	-1.5	2.0	-2.0	1.0100	4.1	0.9318	4.5	64
6	523	TCATIVÁ 13A	13.800 G1	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	523	TCATIVÁ 13A	13.800 G2	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	523	TCATIVÁ 13A	13.800 G3	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	523	TCATIVÁ 13A	13.800 G4	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	523	TCATIVÁ 13A	13.800 G5	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	524	TCATIVÁ 13B	13.800 G0	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62

6	524	TCATIVÁ 13B	13.800	G6	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	524	TCATIVÁ 13B	13.800	G7	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	524	TCATIVÁ 13B	13.800	G8	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	524	TCATIVÁ 13B	13.800	G9	8.3	3.0	6.6	-6.6	1.0000	8.8	0.9386	10.9	62
6	541	TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0157	29.5	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	23.8	1.3	13.0	-13.0	1.0100	23.6	0.9985	30.5	64
6	704	BJOMIN13B	13.800	G2	23.8	1.3	13.0	-13.0	1.0100	23.6	0.9985	30.5	64
6	705	BAITUN13A	13.800	G1	32.0	-8.2	26.6	-26.6	1.0100	32.7	0.9686	50.6	64
6	706	BAITUN13B	13.800	G2	32.0	-8.2	26.6	-26.6	1.0100	32.7	0.9686	50.6	64
6	720	PLANETA13.8	13.800	G1	3.8	2.0	2.0	-2.0	0.9781	4.4	0.8849	6.2	64
6	SUBSYSTEM TOTALS				1310.2	121.7	863.3	-602.8				2147.7	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:22
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MAX-VERANO

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																
7		129		MIR13D	13.800	G4	22.8	1.4	15.0	0.0	1.0000	22.8	0.9981	44.1		65
AREA																
7		130		MIR13F	13.800	G5	17.1	0.0	8.0	0.0	1.0124	16.9	1.0000	27.7		65
7		140		GAT6A	6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9312	4.1		65
7		140		GAT6A	6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9312	4.1		65
7		140		GAT6A	6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9312	4.1		65
7		141		GAT6B	6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9318	5.6		65
7		141		GAT6B	6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9318	6.2		65
7		141		GAT6B	6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9318	6.2		65

7	170 MIR13G	13.800 M1	17.0	6.8	11.2	6.8	1.0269	17.8	0.9281	23.0	65
7	171 MIR13H	13.800 M1	17.0	6.8	11.2	6.8	1.0359	17.7	0.9281	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0359	17.7	0.9281	23.0	65
7	SUBSYSTEM TOTALS		108.3	15.1	71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:22
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2014 ESC-MOD DEMANDA-MAX-VERANO 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	1405.0 212.3	1330.8 275.1	0.0 -198.8	0.0 0.0	0.0 277.3	28.6 -5.6	45.6 418.8	27.3
2 SALVADOR	868.7 75.3	855.0 224.2	0.0 -70.7	0.0 0.0	0.0 229.0	-0.1 -25.3	13.8 176.1	0.0
3 HONDURAS	1236.9 463.5	1203.0 321.1	0.0 -47.3	0.0 0.0	0.0 293.7	-0.2 54.6	34.0 428.8	0.0
4 NICARAGU	532.1 35.3	525.2 207.6	0.0 -57.7	0.0 0.0	0.0 182.1	-0.3 -47.3	7.1 114.7	0.0
5 COSTA RI	1296.7 206.0	1280.2 520.4	0.0 -230.9	0.0 0.0	0.0 419.8	-0.7 26.3	17.2 310.0	0.0
6 PANAMA	1310.2 121.7	1322.5 268.5	0.0 -300.4	0.0 0.0	0.0 544.2	-87.5 3.1	75.3 694.7	-87.3
7 ACANAL	108.3 15.1	47.4 9.6	0.0 0.0	0.0 0.0	0.0 0.0	60.2 -5.9	0.7 11.3	60.0
10 COLOMBIA	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	0.0
TOTALS	6757.9 1129.2	6564.1 1826.4	0.0 -905.8	0.0 0.0	0.0 1946.0	0.0 0.0	193.8 2154.5	0.0

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:28
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2014 ESC-MOD DEMANDA-MIN-VERANO

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	230.08	11		M.N230		230.00	6	1.0099	232.28
14		PRO230		230.00	6	1.0264	236.07	85		PTP230		230.00	6	1.0132	233.04
96		FOR230		230.00	6	1.0099	232.28	100		BAY230		230.00	6	1.0175	234.02
103		COPESA23		230.00	6	1.0034	230.78	115		PACORA23		230.00	6	1.0052	231.18
144		CANJ230		230.00	6	1.0098	232.24	146		GUALACA230		230.00	6	1.0118	232.71
147		GUASQ230		230.00	6	1.0097	232.24	148		VELADERO	230	230.00	6	1.0058	231.33
149		BBLANCO		230.00	6	1.0047	231.07	190		CHANG230		230.00	6	1.0157	233.60
306		CHAN1	230	230.00	6	1.0127	232.91	310		CONCEPCION23	230	230.00	6	1.0200	234.60
311		PANDO230		230.00	6	1.0498	241.44	341		PRUDENCIA230	230	230.00	6	1.0150	233.46
345		LORENA230		230.00	6	1.0139	233.20	354		SANBARTOLO23	230	230.00	6	1.0027	230.62
371		CAISAN230		230.00	6	1.0481	241.06	540		ANTON		230.00	6	1.0138	233.17
700		BAITUN230		230.00	6	1.0253	235.83	6000		FRONTER		230.00	6	1.0298	236.86
6400		FRONTCHA		230.00	6	1.0176	234.06	6500		FRONT CAISAN	230	230.00	6	1.0465	240.71

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)
1		PAN230		230.00	6	0.9963	229.16	5		CHO230		230.00	6	0.9952	228.89
8		LSA230		230.00	6	0.9943	228.69	105		PAN-AM23		230.00	6	0.9952	228.89
370		LSA CAP	230	230.00	6	0.9943	228.69	511		LGUIAS230		230.00	6	0.9947	228.79

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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)
4		PANII115		115.00	6	1.0059	115.68	9		LSA115		115.00	6	1.0404	119.65
12		M.N115		115.00	6	1.0117	116.35	15		PRO115		115.00	6	1.0283	118.25
20		CH.AZUL		115.00	6	1.0290	118.34	52		TOC115		115.00	6	1.0036	115.41
54		LM1115		115.00	6	1.0150	116.72	55		LM2115		115.00	6	1.0160	116.84
61		FFIELD		115.00	6	1.0127	116.46	87		CAL115		115.00	6	1.0185	117.13
88		EST115		115.00	6	1.0197	117.27	92		L.V115		115.00	6	1.0190	117.18
109		STA RITA115		115.00	6	1.0122	116.40	123		MIR115		115.00	7	1.0012	115.13
154		CEMPAN15		115.00	6	1.0090	116.03	191		CHANG115		115.00	6	1.0078	115.90
522		TCATIVÁ	115	115.00	6	1.0156	116.79	529		TCOLON	115	115.00	6	1.0122	116.41
701		BAITUN115		115.00	6	1.0121	116.40	702		BJOMIN115		115.00	6	1.0123	116.41

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)
2		PAN115		115.00	6	0.9945	114.37	6		CHO115		115.00	6	0.9960	114.54

18	CAC115	115.00	6	0.9944	114.36	19	C.V115	115.00	6	0.9958	114.52
21	C.BAN115	115.00	6	0.9877	113.58	23	CH115	115.00	6	0.9962	114.57
26	LOC115	115.00	6	0.9883	113.66	30	MAR115	115.00	6	0.9871	113.51
33	STM115	115.00	6	0.9930	114.20	37	SAN115	115.00	6	0.9873	113.54
48	TINAJ115	115.00	6	0.9926	114.15	50	M.O115	115.00	6	0.9927	114.16

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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
66		BLM13B		13.800	V2	38.0	16.2	25.0	0.0	1.0000	41.3	0.9196	47.0			62
67		BLM13C		13.800	V3	38.0	16.2	25.0	0.0	1.0000	41.3	0.9196	47.0			62
68		BLM13D		13.800	V4	38.0	16.9	25.0	0.0	1.0000	41.6	0.9137	47.0			62
90		EST-13L		13.800	E1	18.0	3.3	12.0	-5.0	0.9800	18.7	0.9834	27.0			64
94		LV-13.8L		13.800	L1	20.3	3.7	12.0	-5.0	0.9800	21.0	0.9838	27.0			64
97		FOR13A		13.800	F1	86.0	-22.5	50.0	-50.0	0.9800	90.7	0.9674	111.0			64
101		BAY13A		13.800	B1	42.1	17.4	50.0	-25.0	0.9900	46.0	0.9239	96.0			61
102		BAY13B		13.800	B2	42.1	17.4	50.0	-25.0	0.9900	46.0	0.9239	96.0			61
142		CANJ13A		13.800	C1	45.0	9.6	29.0	-29.0	0.9800	47.0	0.9778	69.0			64
150		GUALACA	13-213.800	G2		13.0	-7.4	7.4	-7.4	0.9801	15.3	0.8682	14.8			64
152		BBLANCO_13.813.800		G1		10.8	-0.4	7.0	-7.0	1.0000	10.8	0.9993	16.0			64
193		GEBONYIC		13.800	G1	9.5	-2.4	4.0	-4.0	1.0000	9.8	0.9703	35.3			64
302		PASOANCH13.813.800		P1		4.8	2.0	2.0	-2.0	0.9505	5.4	0.9216	6.2			64
304		ALGA13.8		13.800	A1	4.6	-2.3	2.3	-2.3	1.0897	4.7	0.8981	5.7			64
305		ELALTO		13.800	G1	19.0	-5.0	12.0	-5.0	1.0428	18.8	0.9671	20.6			64
307		CHAN1 A		13.800	G1	60.0	-28.9	50.0	-50.0	0.9800	68.0	0.9007	118.6			64
312		PANDO13.8		13.800	G1	12.0	-5.0	10.0	-5.0	1.0173	12.8	0.9231	19.9			64
316		MTE LIRIO13.13.800		G1		21.9	-5.0	12.0	-5.0	1.0375	21.7	0.9749	27.0			64

6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0909	8.6	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C1	5.5	0.0	0.0	0.0	1.0910	5.0	1.0000	35.3
6	340	PEDGALITO13813.800	13.800	P1	19.2	3.2	12.0	-5.0	0.9800	19.9	0.9867	27.0	64
6	342	LORENA13.8	13.800	L1	15.2	-5.0	10.5	-5.0	0.9979	16.0	0.9500	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-9.8	9.8	-9.8	0.9963	25.8	0.9252	33.0	64
6	350	MACANO	13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0727	3.0	0.9514	6.2
6	351	PERLAS N13.813.800	13.800	G1	9.5	5.0	5.0	-5.0	0.9771	11.0	0.8849	13.5	64
6	357	BARTOLO13.8	13.800	G1	6.1	0.4	3.7	-3.7	0.9900	6.2	0.9975	8.5	64
6	359	CRUCES13.8	13.800	G1	3.9	-0.3	2.3	-2.3	0.9900	3.9	0.9975	5.6	64
6	361	ESTRECHO4.164.1600	13.800	G1	4.2	-0.2	2.5	-2.5	0.9900	4.2	0.9993	5.6	64
6	363	LAGUNA	13.8	13.800	G1	3.9	-0.3	2.4	-2.4	0.9900	4.0	0.9967	5.8
6	363	LAGUNA	13.8	13.800	G2	3.9	-0.3	2.4	-2.4	0.9900	4.0	0.9967	5.8
6	364	MENDRE2	13.800	G1	6.4	0.6	3.9	-3.9	0.9900	6.5	0.9960	8.9	64
6	368	RP-490	13.800	G1	4.5	-2.4	2.4	-2.4	1.0079	5.1	0.8815	5.5	64
6	369	HCALDERA13.813.800	13.800	G1	3.8	0.6	1.9	-1.9	0.9900	3.9	0.9890	4.3	64
6	372	BJO FRIO 13	13.800	G1	25.0	-9.8	9.8	-9.8	1.0078	26.6	0.9315	33.0	64
6	373	TIZINGAL13.813.800	13.800	G1	4.4	2.2	2.2	-2.2	0.9754	5.1	0.8909	21.6	64
6	374	SLORENZO13.813.800	13.800	G1	3.9	-1.4	2.0	-2.0	0.9900	4.1	0.9395	4.5	64
6	523	TCATIVÁ 13A	13.800	G1	8.3	2.2	6.6	-6.6	0.9800	8.7	0.9669	10.9	62
6	523	TCATIVÁ 13A	13.800	G2	8.3	2.2	6.6	-6.6	0.9800	8.7	0.9669	10.9	62
6	523	TCATIVÁ 13A	13.800	G3	8.3	2.2	6.6	-6.6	0.9800	8.7	0.9669	10.9	62
6	523	TCATIVÁ 13A	13.800	G4	8.3	2.2	6.6	-6.6	0.9800	8.7	0.9669	10.9	62
6	541	TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0150	29.6	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	23.8	-1.3	13.0	-13.0	0.9900	24.1	0.9986	30.5	64

6	705	BAITUN13A	13.800	G1	32.0	-14.2	26.6	-26.6	0.9900	35.4	0.9136	50.6	64
6	720	PLANETA13.8	13.800	G1	3.8	2.0	2.0	-2.0	0.9505	4.5	0.8849	6.2	64
	SUBSYSTEM TOTALS				801.3	0.8	526.4	-355.8				1330.6	

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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																
	129		MIR13D		13.800	G4	20.4	0.8	15.0	0.0	1.0000	20.4	0.9992	44.1			65
7	AREA																
	140		GAT6A		6.9000	G1	1.9	-2.0	2.0	-2.0	1.0096	2.8	0.6953	4.1			65
7																	
	170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0291	17.8	0.9281	23.0			65
7																	
	171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0382	17.6	0.9281	23.0			65
7																	
	171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0382	17.6	0.9281	23.0			65
7																	
	SUBSYSTEM TOTALS				73.3	19.3	50.5	18.5						117.3			

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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	1269.9	1330.8	0.0	0.0	0.0	-102.0	41.1	-102.0
GUATEMAL	209.6	275.1	-199.1	0.0	277.7	18.2	393.2	
2	870.2	855.0	0.0	0.0	0.0	0.0	15.2	0.0
SALVADOR	79.1	224.2	-70.7	0.0	228.7	-27.9	182.2	
3	1237.6	1203.0	0.0	0.0	0.0	0.0	34.6	0.0
HONDURAS	468.3	321.1	-47.2	0.0	293.4	52.9	434.9	
4	532.7	525.2	0.0	0.0	0.0	0.0	7.5	0.0
NICARAGU	38.4	207.6	-57.6	0.0	181.8	-48.4	118.6	
5	1297.4	1280.2	0.0	0.0	0.0	0.0	17.3	0.0
COSTA RI	199.0	520.4	-230.7	0.0	419.3	32.8	295.8	
6	801.3	727.4	0.0	0.0	0.0	55.3	18.6	55.0
PANAMA	0.8	264.0	95.5	0.0	539.1	-29.4	209.7	
7	73.3	26.1	0.0	0.0	0.0	46.7	0.5	47.0
ACANAL	19.3	9.5	0.0	0.0	0.0	1.9	7.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6082.5	5947.6	0.0	0.0	0.0	0.0	134.8	0.0
	1014.3	1821.7	-509.8	0.0	1939.9	0.0	1642.3	

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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	1.0054	231.24	3	PANII230	230.00	6	1.0150	233.45				
5	CHO230	230.00	6	1.0024	230.54	8	LSA230	230.00	6	1.0070	231.61				
11	M.N230	230.00	6	1.0117	232.70	14	PRO230	230.00	6	1.0231	235.31				
85	PTP230	230.00	6	1.0152	233.51	96	FOR230	230.00	6	1.0138	233.17				
100	BAY230	230.00	6	1.0354	238.13	103	COPESA23	230.00	6	1.0185	234.25				
105	PAN-AM23	230.00	6	1.0024	230.56	115	PACORA23	230.00	6	1.0213	234.89				
144	CANJ230	230.00	6	1.0116	232.67	146	GUALACA230	230.00	6	1.0137	233.15				
147	GUASQ230	230.00	6	1.0114	232.63	148	VELADERO 230230.00	6	1.0038	230.88					
149	BBLANCO	230.00	6	1.0025	230.57	155	TABASARAI23230.00	6	1.0047	231.08					
190	CHANG230	230.00	6	1.0224	235.15	306	CHAN1 230 230.00	6	1.0221	235.09					
310	CONCEPCION23230.00	6	1.0186	234.29	311	PANDO230 230.00	6	1.0374	238.59						
341	PRUDENCIA230230.00	6	1.0170	233.90	345	LORENA230 230.00	6	1.0158	233.64						
354	SANBARTOLO23230.00	6	1.0012	230.28	370	LSA CAP 230 230.00	6	1.0070	231.61						
371	CAISAN230 230.00	6	1.0361	238.30	506	CHAN2 230 230.00	6	1.0214	234.92						
511	LGUIAS230 230.00	6	1.0013	230.29	540	ANTON 230.00	6	1.0235	235.40						
700	BAITUN230 230.00	6	1.0232	235.33	6000	FRONTER 230.00	6	1.0254	235.84						
6400	FRONTCHA 230.00	6	1.0235	235.41	6500	FRONT CAISAN230.00	6	1.0353	238.11						

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 *															

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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	1.0439	120.05				
6	CHO115	115.00	6	1.0035	115.40	9	LSA115	115.00	6	1.0491	120.65				
12	M.N115	115.00	6	1.0133	116.53	15	PRO115	115.00	6	1.0250	117.88				
18	CAC115	115.00	6	1.0044	115.51	19	C.V115	115.00	6	1.0219	117.52				
20	CH.AZUL	115.00	6	1.0258	117.96	23	CH115	115.00	6	1.0059	115.67				
33	STM115	115.00	6	1.0023	115.26	48	TINAJ115	115.00	6	1.0015	115.17				
50	M.O115	115.00	6	1.0016	115.19	52	TOC115	115.00	6	1.0404	119.65				
54	LM1115	115.00	6	1.0343	118.94	55	LM2115	115.00	6	1.0355	119.08				
61	FFIELD	115.00	6	1.0294	118.38	87	CAL115	115.00	6	1.0342	118.93				
88	EST115	115.00	6	1.0381	119.38	92	L.V115	115.00	6	1.0357	119.11				
109	STA RITA115	115.00	6	1.0326	118.75	123	MIR115	115.00	7	1.0088	116.01				
154	CEMPAN15	115.00	6	1.0314	118.61	191	CHANG115	115.00	6	1.0140	116.61				
522	TCATIVÁ 115	115.00	6	1.0351	119.04	529	TCOLON 115	115.00	6	1.0326	118.75				
701	BAITUN115	115.00	6	1.0072	115.83	702	BJOMIN115	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)
21	C.BAN115			115.00	6	0.9962	114.56	26	LOC115			115.00	6	0.9966	114.61
30	MAR115			115.00	6	0.9935	114.25	37	SAN115			115.00	6	0.9967	114.63

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010
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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																
6		66		BLM13B		13.800	V2	38.0	13.4	25.0	0.0	1.0120	39.8	0.9433	47.0	62
6		67		BLM13C		13.800	V3	38.0	13.4	25.0	0.0	1.0120	39.8	0.9433	47.0	62
6		68		BLM13D		13.800	V4	38.0	13.9	25.0	0.0	1.0120	40.0	0.9391	47.0	62
6		90		EST-13L		13.800	E1	20.9	7.3	12.0	-5.0	1.0100	21.9	0.9442	27.0	64
6		91		EST-13T		13.800	E2	20.9	7.3	12.0	-5.0	1.0100	21.9	0.9442	27.0	64
6		94		LV-13.8L		13.800	L1	23.5	8.2	12.0	-5.0	1.0100	24.6	0.9443	27.0	64
6		95		LV-13.8T		13.800	L2	23.5	8.2	12.0	-5.0	1.0100	24.6	0.9443	27.0	64
6		97		FOR13A		13.800	F1	75.0	-0.5	50.0	-50.0	1.0100	74.3	1.0000	111.0	64
6		98		FOR13B		13.800	F2	75.0	-0.5	50.0	-50.0	1.0100	74.3	1.0000	111.0	64
6		101		BAY13A		13.800	B1	51.0	12.6	50.0	-25.0	1.0000	52.5	0.9708	96.0	61
6		102		BAY13B		13.800	B2	51.0	12.6	50.0	-25.0	1.0000	52.5	0.9708	96.0	61
6		106		PANAM13A		13.800	M1	15.2	4.0	9.0	0.0	1.0000	15.7	0.9670	20.7	63
6		106		PANAM13A		13.800	M2	15.2	4.0	9.0	0.0	1.0000	15.7	0.9670	20.7	63
6		106		PANAM13A		13.800	M3	15.2	4.0	9.0	0.0	1.0000	15.7	0.9670	20.7	63
6		107		PANAM13B		13.800	M4	15.2	9.0	9.0	0.0	0.9981	17.7	0.8605	20.7	63
6		108		BAY13C		13.800	B3	51.0	12.6	50.0	-25.0	1.0000	52.5	0.9708	100.0	61
6		116		PACORA13		13.800	P1	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61

6	116	PACORA13	13.800	P2	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61
6	116	PACORA13	13.800	P3	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61
6	142	CANJ13A	13.800	C1	52.2	16.5	29.0	-29.0	1.0100	54.2	0.9535	69.0	64
6	143	CANJ13B	13.800	C2	52.2	16.5	29.0	-29.0	1.0100	54.2	0.9535	69.0	64
6	150	GUALACA 13-213.800	13.800	G2	12.6	-0.6	7.4	-7.4	1.0100	12.5	0.9988	14.8	64
6	152	BBLANCO_13.813.800	13.800	G1	12.5	1.6	7.0	-7.0	1.0100	12.5	0.9922	16.0	64
6	152	BBLANCO_13.813.800	13.800	G2	12.5	1.6	7.0	-7.0	1.0100	12.5	0.9922	16.0	64
6	156	TABASARAI1313.800	13.800	G1	15.0	2.7	5.7	0.2	1.0100	15.1	0.9847	20.5	1
6	193	GEBOYIC	13.800	G1	9.0	-0.4	4.0	-4.0	1.0100	8.9	0.9990	35.3	64
6	193	GEBOYIC	13.800	G2	9.0	-0.4	4.0	-4.0	1.0100	8.9	0.9990	35.3	64
6	300	SVC-LV	13.200	1	0.0	136.4	300.0	-225.0	1.0334	132.0	0.0000	250.0	60
6	302	PASOANCH13.813.800	13.800	P1	3.5	2.0	2.0	-2.0	0.9673	4.2	0.8682	6.2	64
6	303	SINDIGO13.8	13.800	G1	9.0	0.0	5.0	0.0	1.1119	8.1	1.0000	13.5	64
6	304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.1093	4.8	0.9063	5.7	64
6	304	ALGA13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.1093	4.8	0.9063	5.7	64
6	305	ELALTO	13.800	G1	17.4	-5.0	12.0	-5.0	1.0226	17.7	0.9611	20.6	64
6	305	ELALTO	13.800	G2	17.4	-5.0	12.0	-5.0	1.0226	17.7	0.9611	20.6	64
6	307	CHAN1 A	13.800	G1	62.0	-9.9	50.0	-50.0	1.0100	62.2	0.9876	118.6	64
6	312	PANDO13.8	13.800	G1	13.9	-1.1	10.0	-5.0	1.0100	13.8	0.9967	19.9	64
6	312	PANDO13.8	13.800	G2	13.9	-1.1	10.0	-5.0	1.0100	13.8	0.9967	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	21.9	-4.9	12.0	-5.0	1.0100	22.3	0.9755	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	21.9	-4.9	12.0	-5.0	1.0100	22.3	0.9755	27.0	64
6	317	MENDRE13.8	13.800	M1	8.4	0.0	0.0	0.0	1.1115	7.6	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	8.4	0.0	0.0	0.0	1.1115	7.6	1.0000	35.3	64

6	323	COCHEA	13.8	13.800	C1	5.6	0.0	0.0	0.0	1.1118	5.1	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C2	5.6	0.0	0.0	0.0	1.1118	5.1	1.0000	35.3	64
6	324	POTRER	13.8	13.800	P1	4.0	2.0	2.0	-2.0	1.0099	4.4	0.8928	6.2	64
6	340	PEDGALITO138	13.800	P1	20.9	8.0	12.0	-5.0	0.9900	22.6	0.9341	27.0	64	
6	342	LORENA	13.8	13.800	L1	14.4	-5.0	10.5	-5.0	1.0000	15.2	0.9451	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-8.8	9.8	-9.8	1.0000	25.4	0.9377	33.0	64	
6	350	MACANO	13.8	13.800	G1	3.3	-1.0	1.0	-1.0	1.0727	3.2	0.9560	6.2	64
6	351	PERLAS	N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9770	10.5	0.8742	13.5	64
6	352	PERLAS	S13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9770	10.5	0.8742	13.5	64
6	357	BARTOLO	13.8	13.800	G1	5.9	0.8	3.7	-3.7	1.0000	5.9	0.9909	8.5	64
6	357	BARTOLO	13.8	13.800	G2	5.9	0.8	3.7	-3.7	1.0000	5.9	0.9909	8.5	64
6	359	CRUCES	13.8	13.800	G1	3.1	0.2	2.3	-2.3	1.0000	3.1	0.9969	5.6	64
6	359	CRUCES	13.8	13.800	G2	3.1	0.2	2.3	-2.3	1.0000	3.1	0.9969	5.6	64
6	361	ESTRECHO	4.164	1.600	G1	3.4	0.1	2.5	-2.5	1.0000	3.4	0.9991	5.6	64
6	361	ESTRECHO	4.164	1.600	G2	3.4	0.1	2.5	-2.5	1.0000	3.4	0.9991	5.6	64
6	363	LAGUNA	13.8	13.800	G1	3.2	0.0	2.4	-2.4	1.0000	3.2	1.0000	5.8	64
6	363	LAGUNA	13.8	13.800	G2	3.2	0.0	2.4	-2.4	1.0000	3.2	1.0000	5.8	64
6	364	MENDRE2		13.800	G1	7.2	2.3	3.9	-3.9	1.0100	7.5	0.9543	8.9	64
6	368	RP-490		13.800	G1	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9789	5.5	64
6	368	RP-490		13.800	G2	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9789	5.5	64
6	369	HCALDERA	13.8	13.800	G1	3.8	1.9	1.9	-1.9	1.0098	4.2	0.8909	4.3	64
6	372	BJO FRIO	13	13.800	G1	23.8	-5.3	9.8	-9.8	1.0000	24.4	0.9757	33.0	64
6	372	BJO FRIO	13	13.800	G2	23.8	-5.3	9.8	-9.8	1.0000	24.4	0.9757	33.0	64
6	373	TIZINGAL	13.8	13.800	G1	4.4	2.2	2.2	-2.2	0.9753	5.1	0.8909	21.6	64

6	374	SLORENZO	13.813.800	G1	3.9	-1.4	2.0	-2.0	1.0000	4.1	0.9395	4.5	64
6	374	SLORENZO	13.813.800	G2	3.9	-1.4	2.0	-2.0	1.0000	4.1	0.9395	4.5	64
6	376	PEDREG2	13.813.800	G1	6.2	-2.7	3.1	-3.1	1.0000	6.7	0.9171	7.2	64
6	376	PEDREG2	13.813.800	G2	6.2	-2.7	3.1	-3.1	1.0000	6.7	0.9171	7.2	64
6	523	TCATIVÁ	13A 13.800	G1	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	523	TCATIVÁ	13A 13.800	G2	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	523	TCATIVÁ	13A 13.800	G3	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	523	TCATIVÁ	13A 13.800	G4	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	523	TCATIVÁ	13A 13.800	G5	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	524	TCATIVÁ	13B 13.800	G0	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	524	TCATIVÁ	13B 13.800	G6	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	524	TCATIVÁ	13B 13.800	G7	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	524	TCATIVÁ	13B 13.800	G8	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	524	TCATIVÁ	13B 13.800	G9	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9283	10.9	62
6	531	EGIRAL	13.8 213.800	G5	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8 213.800	G6	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8 213.800	G7	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8 213.800	G8	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0245	24.4	1.0000	88.9	64
6	703	BJOMIN	13A 13.800	G1	24.0	2.0	13.0	-13.0	1.0100	23.8	0.9965	30.5	64
6	704	BJOMIN	13B 13.800	G2	24.0	2.0	13.0	-13.0	1.0100	23.8	0.9965	30.5	64
6	705	BAITUN	13A 13.800	G1	37.4	-4.3	26.6	-26.6	1.0100	37.3	0.9934	50.6	64
6	706	BAITUN	13B 13.800	G2	37.4	-4.3	26.6	-26.6	1.0100	37.3	0.9934	50.6	64
6	720	PLANETA	13.8 13.800	G1	3.6	2.0	2.0	-2.0	0.9673	4.2	0.8724	6.2	64

721 SVC-LV	13.200	1	0.0	204.0	300.0	-225.0	1.0816	188.6	0.0000	250.0	60
SUBSYSTEM TOTALS			1486.6	510.0	1540.3	-1050.9				2828.8	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO

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																
129		MIR13D		13.800	G4	31.0	0.2	15.0	0.0	1.0000	31.0	1.0000	44.1			65
7		AREA														
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0131	16.9	1.0000	27.7			65
7																
140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9305	4.1			65
7																
140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9305	4.1			65
7																
140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9305	4.1			65
7																
141		GAT6B		6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9315	5.6			65
7																
141		GAT6B		6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9315	6.2			65
7																
141		GAT6B		6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9315	6.2			65
7																
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0275	17.8	0.9281	23.0			65
7																
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0365	17.7	0.9281	23.0			65
7																
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0365	17.7	0.9281	23.0			65
7																
SUBSYSTEM TOTALS						116.5	13.9	71.5	5.5				171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:48
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO 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	1485.5	1330.8	0.0	0.0	0.0	107.6	47.1	100.7
GUATEMAL	222.1	275.1	-198.5	0.0	276.6	-15.6	437.7	
2	869.3	855.0	0.0	0.0	0.0	-1.1	15.4	0.0
SALVADOR	84.7	224.2	-70.6	0.0	228.3	-27.8	187.2	
3	1237.4	1203.0	0.0	0.0	0.0	-1.1	35.4	0.0
HONDURAS	475.2	321.1	-47.3	0.0	292.5	55.2	438.7	
4	533.0	525.2	0.0	0.0	0.0	-1.6	9.4	0.0
NICARAGU	49.9	207.6	-57.3	0.0	180.9	-48.0	128.5	
5	1298.8	1280.2	0.0	0.0	0.0	-3.2	21.9	0.0
COSTA RI	254.0	520.4	-229.4	0.0	416.4	26.9	352.6	
6	1486.6	1555.2	0.0	0.0	0.0	-160.6	91.9	-160.7
PANAMA	510.0	315.8	-84.4	0.0	607.6	19.7	866.4	
7	116.5	55.5	0.0	0.0	0.0	60.0	1.0	60.0
ACANAL	13.9	11.3	0.0	0.0	0.0	-10.4	13.0	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7027.2	6805.0	0.0	0.0	0.0	0.0	222.2	0.0
	1609.8	1875.3	-687.5	0.0	2002.3	0.0	2424.2	

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	0.9986	114.84	21		C.BAN115		115.00	6	0.9978	114.75
26		LOC115		115.00	6	0.9980	114.77	30		MAR115		115.00	6	0.9946	114.38
37		SAN115		115.00	6	0.9988	114.86								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:53
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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																
6		66		BLM13B		13.800	V2	38.1	12.7	25.0	0.0	1.0120	39.6	0.9483	47.0	62
6		67		BLM13C		13.800	V3	38.1	12.7	25.0	0.0	1.0120	39.6	0.9483	47.0	62
6		68		BLM13D		13.800	V4	38.1	13.2	25.0	0.0	1.0120	39.8	0.9445	47.0	62
6		90		EST-13L		13.800	E1	20.9	7.4	12.0	-5.0	1.0100	22.0	0.9435	27.0	64
6		91		EST-13T		13.800	E2	20.9	7.4	12.0	-5.0	1.0100	22.0	0.9435	27.0	64
6		94		LV-13.8L		13.800	L1	23.5	8.3	12.0	-5.0	1.0100	24.7	0.9436	27.0	64
6		95		LV-13.8T		13.800	L2	23.5	8.3	12.0	-5.0	1.0100	24.7	0.9436	27.0	64
6		97		FOR13A		13.800	F1	75.2	0.0	50.0	-50.0	1.0100	74.5	1.0000	111.0	64
6		98		FOR13B		13.800	F2	75.2	0.0	50.0	-50.0	1.0100	74.5	1.0000	111.0	64
6		101		BAY13A		13.800	B1	51.2	12.6	50.0	-25.0	1.0000	52.7	0.9710	96.0	61
6		102		BAY13B		13.800	B2	51.2	12.6	50.0	-25.0	1.0000	52.7	0.9710	96.0	61
6		106		PANAM13A		13.800	M1	15.2	4.7	9.0	0.0	1.0000	16.0	0.9557	20.7	63
6		106		PANAM13A		13.800	M2	15.2	4.7	9.0	0.0	1.0000	16.0	0.9557	20.7	63
6		106		PANAM13A		13.800	M3	15.2	4.7	9.0	0.0	1.0000	16.0	0.9557	20.7	63
6		107		PANAM13B		13.800	M4	15.2	9.0	9.0	0.0	0.9935	17.8	0.8611	20.7	63
6		108		BAY13C		13.800	B3	51.2	12.6	50.0	-25.0	1.0000	52.7	0.9710	100.0	61

6	116	PACORA13	13.800	P1	17.5	0.5	8.8	0.0	1.0100	17.4	0.9996	21.7	61
6	116	PACORA13	13.800	P2	17.5	0.5	8.8	0.0	1.0100	17.4	0.9996	21.7	61
6	116	PACORA13	13.800	P3	17.5	0.5	8.8	0.0	1.0100	17.4	0.9996	21.7	61
6	142	CANJ13A	13.800	C1	52.4	16.6	29.0	-29.0	1.0100	54.4	0.9530	69.0	64
6	143	CANJ13B	13.800	C2	52.4	16.6	29.0	-29.0	1.0100	54.4	0.9530	69.0	64
6	150	GUALACA 13-213.800	13.800	G2	12.6	-0.5	7.4	-7.4	1.0100	12.5	0.9993	14.8	64
6	152	BBLANCO_13.813.800	13.800	G1	12.6	1.6	7.0	-7.0	1.0100	12.6	0.9916	16.0	64
6	152	BBLANCO_13.813.800	13.800	G2	12.6	1.6	7.0	-7.0	1.0100	12.6	0.9916	16.0	64
6	156	TABASARAI11313.800	13.800	G1	15.1	3.0	5.7	0.2	1.0100	15.2	0.9813	20.5	1
6	193	GEBOYIC	13.800	G1	9.1	-0.3	4.0	-4.0	1.0100	9.0	0.9993	35.3	64
6	193	GEBOYIC	13.800	G2	9.1	-0.3	4.0	-4.0	1.0100	9.0	0.9993	35.3	64
6	300	SVC-LV	13.200	1	0.3	203.1	300.0	-225.0	1.0458	194.2	0.0016	250.0	60
6	302	PASOANCH13.813.800	13.800	P1	3.5	2.0	2.0	-2.0	0.9668	4.2	0.8691	6.2	64
6	303	SINDIGO13.8	13.800	G1	9.0	0.0	5.0	0.0	1.1118	8.1	1.0000	13.5	64
6	304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.1092	4.8	0.9063	5.7	64
6	304	ALGA13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.1092	4.8	0.9063	5.7	64
6	305	ELALTO	13.800	G1	17.4	-5.0	12.0	-5.0	1.0220	17.8	0.9613	20.6	64
6	305	ELALTO	13.800	G2	17.4	-5.0	12.0	-5.0	1.0220	17.8	0.9613	20.6	64
6	307	CHAN1 A	13.800	G1	62.3	-9.4	50.0	-50.0	1.0100	62.3	0.9887	118.6	64
6	312	PANDO13.8	13.800	G1	14.0	-1.1	10.0	-5.0	1.0100	13.9	0.9971	19.9	64
6	312	PANDO13.8	13.800	G2	14.0	-1.1	10.0	-5.0	1.0100	13.9	0.9971	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	21.9	-4.8	12.0	-5.0	1.0100	22.2	0.9768	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	21.9	-4.8	12.0	-5.0	1.0100	22.2	0.9768	27.0	64
6	317	MENDRE13.8	13.800	M1	8.5	0.0	0.0	0.0	1.1114	7.6	1.0000	35.3	64

6	317	MENDRE	13.8	13.800	M2	8.5	0.0	0.0	0.0	1.1114	7.6	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C1	5.7	0.0	0.0	0.0	1.1117	5.1	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C2	5.7	0.0	0.0	0.0	1.1117	5.1	1.0000	35.3	64
6	324	POTRER	13.8	13.800	P1	4.0	2.0	2.0	-2.0	1.0098	4.4	0.8928	6.2	64
6	340	PEDGALITO	13.8	13.800	P1	20.9	8.1	12.0	-5.0	0.9900	22.7	0.9330	27.0	64
6	342	LORENA	13.8	13.800	L1	14.4	-4.8	10.5	-5.0	1.0000	15.2	0.9489	19.9	64
6	343	PRUDENCIA_1	13.8	13.800	G1	23.9	-8.5	9.8	-9.8	1.0000	25.4	0.9415	33.0	64
6	350	MACANO	13.8	13.800	G1	3.3	-1.0	1.0	-1.0	1.0724	3.2	0.9563	6.2	64
6	351	PERLAS N	13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9768	10.6	0.8748	13.5	64
6	352	PERLAS S	13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9768	10.6	0.8748	13.5	64
6	357	BARTOLO	13.8	13.800	G1	5.9	0.8	3.7	-3.7	1.0000	5.9	0.9905	8.5	64
6	357	BARTOLO	13.8	13.800	G2	5.9	0.8	3.7	-3.7	1.0000	5.9	0.9905	8.5	64
6	359	CRUCES	13.8	13.800	G1	3.1	0.3	2.3	-2.3	1.0000	3.1	0.9966	5.6	64
6	359	CRUCES	13.8	13.800	G2	3.1	0.3	2.3	-2.3	1.0000	3.1	0.9966	5.6	64
6	361	ESTRECHO	4.164	4.1600	G1	3.4	0.2	2.5	-2.5	1.0000	3.4	0.9990	5.6	64
6	361	ESTRECHO	4.164	4.1600	G2	3.4	0.2	2.5	-2.5	1.0000	3.4	0.9990	5.6	64
6	363	LAGUNA	13.8	13.800	G1	3.2	0.0	2.4	-2.4	1.0000	3.2	1.0000	5.8	64
6	363	LAGUNA	13.8	13.800	G2	3.2	0.0	2.4	-2.4	1.0000	3.2	1.0000	5.8	64
6	364	MENDRE2		13.800	G1	7.2	2.4	3.9	-3.9	1.0100	7.5	0.9477	8.9	64
6	368	RP-490		13.800	G1	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9797	5.5	64
6	368	RP-490		13.800	G2	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9797	5.5	64
6	369	HCALDERA	13.8	13.800	G1	3.8	1.9	1.9	-1.9	1.0097	4.2	0.8909	4.3	64
6	372	BJO FRIO	13	13.800	G1	23.9	-5.2	9.8	-9.8	1.0000	24.4	0.9770	33.0	64
6	372	BJO FRIO	13	13.800	G2	23.9	-5.2	9.8	-9.8	1.0000	24.4	0.9770	33.0	64

6	373	TIZINGAL	13.813.800	G1	4.5	2.2	2.2	-2.2	0.9751	5.1	0.8929	21.6	64
6	374	SLORENZO	13.813.800	G1	3.9	-1.4	2.0	-2.0	1.0000	4.1	0.9422	4.5	64
6	374	SLORENZO	13.813.800	G2	3.9	-1.4	2.0	-2.0	1.0000	4.1	0.9422	4.5	64
6	376	PEDREG2	13.813.800	G1	6.2	-2.7	3.1	-3.1	1.0000	6.7	0.9186	7.2	64
6	376	PEDREG2	13.813.800	G2	6.2	-2.7	3.1	-3.1	1.0000	6.7	0.9186	7.2	64
6	523	TCATIVÁ	13A 13.800	G1	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	523	TCATIVÁ	13A 13.800	G2	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	523	TCATIVÁ	13A 13.800	G3	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	523	TCATIVÁ	13A 13.800	G4	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	523	TCATIVÁ	13A 13.800	G5	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	524	TCATIVÁ	13B 13.800	G0	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	524	TCATIVÁ	13B 13.800	G6	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	524	TCATIVÁ	13B 13.800	G7	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	524	TCATIVÁ	13B 13.800	G8	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	524	TCATIVÁ	13B 13.800	G9	8.3	3.1	6.6	-6.6	1.0100	8.8	0.9353	10.9	62
6	531	EGIRAL	13.8 213.800	G5	8.1	3.0	6.4	3.0	1.0067	8.6	0.9379	10.9	62
6	531	EGIRAL	13.8 213.800	G6	8.1	3.0	6.4	3.0	1.0067	8.6	0.9379	10.9	62
6	531	EGIRAL	13.8 213.800	G7	8.1	3.0	6.4	3.0	1.0067	8.6	0.9379	10.9	62
6	531	EGIRAL	13.8 213.800	G8	8.1	3.0	6.4	3.0	1.0067	8.6	0.9379	10.9	62
6	541	TOABRE	0.6000	1	25.1	0.0	0.0	0.0	1.0192	24.6	1.0000	88.9	64
6	703	BJOMIN	13A 13.800	G1	24.1	2.1	13.0	-13.0	1.0100	23.9	0.9963	30.5	64
6	704	BJOMIN	13B 13.800	G2	24.1	2.1	13.0	-13.0	1.0100	23.9	0.9963	30.5	64
6	705	BAITUN	13A 13.800	G1	37.5	-4.1	26.6	-26.6	1.0100	37.4	0.9941	50.6	64
6	706	BAITUN	13B 13.800	G2	37.5	-4.1	26.6	-26.6	1.0100	37.4	0.9941	50.6	64

6	720 PLANETA13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9668	4.2	0.8724	6.2	64
6	721 SVC-LV	13.200	1	0.3	265.4	300.0	-225.0	1.0994	241.4	0.0012	250.0	60
	SUBSYSTEM TOTALS			1491.8	641.2	1540.3	-1050.9				2828.8	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:53
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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																
7	129		MIR13D		13.800	G4	31.1	0.0	15.0	0.0	1.0000	31.1	1.0000	44.1			65
7	130		MIR13F		13.800	G5	17.2	0.0	8.0	0.0	1.0135	16.9	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9248	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9248	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9248	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9286	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9286	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9286	6.2			65
7	170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0280	17.9	0.9285	23.0			65
7	171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0370	17.7	0.9285	23.0			65
7	171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0370	17.7	0.9285	23.0			65
	SUBSYSTEM TOTALS						116.8	13.5	71.5	5.5				171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 16:54
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII 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	1488.5	1330.8	0.0	0.0	0.0	110.5	47.2	100.7
GUATEMAL	222.6	275.1	-198.4	0.0	276.5	-15.9	438.4	
2	870.6	855.0	0.0	0.0	0.0	0.0	15.6	0.0
SALVADOR	85.5	224.2	-70.6	0.0	228.2	-28.2	188.3	
3	1238.5	1203.0	0.0	0.0	0.0	-0.1	35.6	0.0
HONDURAS	476.3	321.1	-47.3	0.0	292.4	55.1	439.9	
4	533.4	525.2	0.0	0.0	0.0	-1.5	9.6	0.0
NICARAGU	51.4	207.6	-57.2	0.0	180.8	-48.1	129.9	
5	1300.6	1280.2	0.0	0.0	0.0	-2.0	22.5	0.0
COSTA RI	258.7	520.4	-229.2	0.0	416.1	26.3	357.3	
6	1491.8	1555.2	0.0	0.0	0.0	-167.3	103.8	-160.7
PANAMA	641.2	315.8	-84.5	0.0	559.7	21.7	947.9	
7	116.8	55.5	0.0	0.0	0.0	60.3	1.0	60.0
ACANAL	13.5	11.3	0.0	0.0	0.0	-10.9	13.1	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7040.1	6805.0	0.0	0.0	0.0	0.0	235.2	0.0
	1749.1	1875.3	-687.3	0.0	1953.7	0.0	2514.7	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

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	PAN	230	230.00	6	1.0054	231.24	3	PANII	230	230.00	6	1.0150	233.45		
5	CHO	230	230.00	6	1.0024	230.55	8	LSA	230	230.00	6	1.0070	231.61		
11	M.N	230	230.00	6	1.0081	231.87	14	PRO	230	230.00	6	1.0205	234.72		
85	PTP	230	230.00	6	1.0105	232.42	96	FOR	230	230.00	6	1.0094	232.16		
100	BAY	230	230.00	6	1.0354	238.13	103	COPE	230	230.00	6	1.0185	234.25		
105	PAN-AM	230	230.00	6	1.0025	230.57	115	PACOR	230	230.00	6	1.0213	234.89		
144	CANJ	230	230.00	6	1.0063	231.44	146	GUALA	230	230.00	6	1.0085	231.95		
147	GUASQ	230	230.00	6	1.0060	231.39	190	CHANG	230	230.00	6	1.0194	234.47		
306	CHAN1	230	230.00	6	1.0194	234.46	310	CONCE	230	230.00	6	1.0159	233.66		
311	PANDO	230	230.00	6	1.0327	237.51	341	PRUDEN	230	230.00	6	1.0120	232.77		
345	LORENA	230	230.00	6	1.0108	232.48	370	LSA	230	230.00	6	1.0070	231.61		
371	CAISAN	230	230.00	6	1.0312	237.18	506	CHAN2	230	230.00	6	1.0180	234.13		
511	LGUIAS	230	230.00	6	1.0013	230.30	540	ANTON	230	230.00	6	1.0235	235.40		
700	BAITUN	230	230.00	6	1.0209	234.80	6000	FRONTER	230	230.00	6	1.0225	235.17		
6400	FRONTCHA	230	230.00	6	1.0207	234.77	6500	FRONT	230	230.00	6	1.0305	237.02		

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)
148	VELADERO	230	230.00	6	0.9980	229.54	149	BLANCO	230	230.00	6	0.9971	229.34		
155	TABASARAI	230	230.00	6	0.9992	229.81	354	SANBARTOLO	230	230.00	6	0.9975	229.43		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

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	1.0047	115.54	4	PANII	115	115.00	6	1.0439	120.05		
6	CHO	115	115.00	6	1.0035	115.40	9	LSA	115	115.00	6	1.0491	120.65		
12	M.N	115	115.00	6	1.0114	116.31	15	PRO	115	115.00	6	1.0225	117.58		
18	CAC	115	115.00	6	1.0044	115.51	19	C.V	115	115.00	6	1.0218	117.51		
20	CH.AZUL	115	115.00	6	1.0232	117.67	23	CH	115	115.00	6	1.0058	115.67		
33	STM	115	115.00	6	1.0023	115.26	48	TINAJ	115	115.00	6	1.0015	115.17		
50	M.O	115	115.00	6	1.0016	115.19	52	TOC	115	115.00	6	1.0404	119.65		
54	LM	115	115.00	6	1.0343	118.94	55	LM	115	115.00	6	1.0354	119.08		
61	FFIELD	115	115.00	6	1.0293	118.37	87	CAL	115	115.00	6	1.0331	118.80		
88	EST	115	115.00	6	1.0371	119.27	92	L.V	115	115.00	6	1.0346	118.98		
109	STA RITA	115	115.00	6	1.0326	118.75	123	MIR	115	115.00	7	1.0087	116.01		
154	CEMPAN	115	115.00	6	1.0314	118.61	191	CHANG	115	115.00	6	1.0119	116.37		
522	TCATIVÁ	115	115.00	6	1.0351	119.04	529	TCOLON	115	115.00	6	1.0326	118.75		
701	BAITUN	115	115.00	6	1.0057	115.66	702	BJOMIN	115	115.00	6	1.0082	115.95		

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)
21		C.BAN115		115.00	6	0.9962	114.56	26		LOC115		115.00	6	0.9966	114.61
30		MAR115		115.00	6	0.9935	114.25	37		SAN115		115.00	6	0.9967	114.62

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

AREA 6 [PANAMA] MACHINE SUMMARY:

AREA SWING	BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
6	66		BLM13B		13.800	V2	38.0	13.4	25.0	0.0	1.0120	39.8	0.9433	47.0			62
6	67		BLM13C		13.800	V3	38.0	13.4	25.0	0.0	1.0120	39.8	0.9433	47.0			62
6	68		BLM13D		13.800	V4	38.0	13.9	25.0	0.0	1.0120	40.0	0.9391	47.0			62
6	90		EST-13L		13.800	E1	20.9	7.6	12.0	-5.0	1.0100	22.0	0.9401	27.0			64
6	91		EST-13T		13.800	E2	20.9	7.6	12.0	-5.0	1.0100	22.0	0.9401	27.0			64
6	94		LV-13.8L		13.800	L1	23.5	8.5	12.0	-5.0	1.0100	24.8	0.9404	27.0			64
6	95		LV-13.8T		13.800	L2	23.5	8.5	12.0	-5.0	1.0100	24.8	0.9404	27.0			64
6	97		FOR13A		13.800	F1	75.1	3.6	50.0	-50.0	1.0100	74.4	0.9988	111.0			64
6	98		FOR13B		13.800	F2	75.1	3.6	50.0	-50.0	1.0100	74.4	0.9988	111.0			64
6	101		BAY13A		13.800	B1	51.1	12.6	50.0	-25.0	1.0000	52.6	0.9709	96.0			61
6	102		BAY13B		13.800	B2	51.1	12.6	50.0	-25.0	1.0000	52.6	0.9709	96.0			61
6	106		PANAM13A		13.800	M1	15.2	4.0	9.0	0.0	1.0000	15.7	0.9671	20.7			63
6	106		PANAM13A		13.800	M2	15.2	4.0	9.0	0.0	1.0000	15.7	0.9671	20.7			63
6	106		PANAM13A		13.800	M3	15.2	4.0	9.0	0.0	1.0000	15.7	0.9671	20.7			63
6	107		PANAM13B		13.800	M4	15.2	9.0	9.0	0.0	0.9981	17.7	0.8607	20.7			63
6	108		BAY13C		13.800	B3	51.1	12.6	50.0	-25.0	1.0000	52.6	0.9709	100.0			61
6	116		PACORA13		13.800	P1	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7			61

6	116	PACORA13	13.800	P2	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61
6	116	PACORA13	13.800	P3	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61
6	142	CANJ13A	13.800	C1	52.3	17.4	29.0	-29.0	1.0100	54.5	0.9487	69.0	64
6	143	CANJ13B	13.800	C2	52.3	17.4	29.0	-29.0	1.0100	54.5	0.9487	69.0	64
6	150	GUALACA 13-213.800	13.800	G2	12.6	0.7	7.4	-7.4	1.0100	12.5	0.9985	14.8	64
6	152	BBLANCO_13.813.800	13.800	G1	12.6	2.0	7.0	-7.0	1.0100	12.6	0.9872	16.0	64
6	152	BBLANCO_13.813.800	13.800	G2	12.6	2.0	7.0	-7.0	1.0100	12.6	0.9872	16.0	64
6	156	TABASARAI1313.800	13.800	G1	15.0	5.1	5.7	0.2	1.0100	15.7	0.9462	20.5	1
6	193	GEBOYIC	13.800	G1	9.0	-0.1	4.0	-4.0	1.0100	8.9	1.0000	35.3	64
6	193	GEBOYIC	13.800	G2	9.0	-0.1	4.0	-4.0	1.0100	8.9	1.0000	35.3	64
6	300	SVC-LV	13.200	1	0.1	160.8	300.0	-225.0	1.0380	154.9	0.0007	250.0	60
6	302	PASOANCH13.813.800	13.800	P1	3.5	2.0	2.0	-2.0	0.9639	4.2	0.8686	6.2	64
6	303	SINDIGO13.8	13.800	G1	9.0	0.0	5.0	0.0	1.1115	8.1	1.0000	13.5	64
6	304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.1089	4.8	0.9063	5.7	64
6	304	ALGA13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.1089	4.8	0.9063	5.7	64
6	305	ELALTO	13.800	G1	17.4	-5.0	12.0	-5.0	1.0178	17.8	0.9612	20.6	64
6	305	ELALTO	13.800	G2	17.4	-5.0	12.0	-5.0	1.0178	17.8	0.9612	20.6	64
6	307	CHAN1 A	13.800	G1	62.1	-7.2	50.0	-50.0	1.0100	61.9	0.9934	118.6	64
6	312	PANDO13.8	13.800	G1	13.9	-0.7	10.0	-5.0	1.0100	13.8	0.9986	19.9	64
6	312	PANDO13.8	13.800	G2	13.9	-0.7	10.0	-5.0	1.0100	13.8	0.9986	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	21.9	-3.9	12.0	-5.0	1.0100	22.1	0.9845	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	21.9	-3.9	12.0	-5.0	1.0100	22.1	0.9845	27.0	64
6	317	MENDRE13.8	13.800	M1	8.4	0.0	0.0	0.0	1.1111	7.6	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	8.4	0.0	0.0	0.0	1.1111	7.6	1.0000	35.3	64

6	323	COCHEA	13.8	13.800	C1	5.7	0.0	0.0	0.0	1.1114	5.1	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C2	5.7	0.0	0.0	0.0	1.1114	5.1	1.0000	35.3	64
6	324	POTRER	13.8	13.800	P1	4.0	2.0	2.0	-2.0	1.0095	4.4	0.8928	6.2	64
6	340	PEDGALITO138	13.800	P1	20.9	8.4	12.0	-5.0	0.9900	22.8	0.9274	27.0	64	
6	342	LORENA	13.8	13.800	L1	14.4	-3.3	10.5	-5.0	1.0000	14.8	0.9748	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-6.1	9.8	-9.8	1.0000	24.6	0.9686	33.0	64	
6	350	MACANO	13.8	13.800	G1	3.3	-1.0	1.0	-1.0	1.0716	3.2	0.9561	6.2	64
6	351	PERLAS	N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9761	10.6	0.8744	13.5	64
6	352	PERLAS	S13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9761	10.6	0.8744	13.5	64
6	357	BARTOLO	13.8	13.800	G1	5.9	0.9	3.7	-3.7	1.0000	5.9	0.9881	8.5	64
6	357	BARTOLO	13.8	13.800	G2	5.9	0.9	3.7	-3.7	1.0000	5.9	0.9881	8.5	64
6	359	CRUCES	13.8	13.800	G1	3.1	0.3	2.3	-2.3	1.0000	3.1	0.9950	5.6	64
6	359	CRUCES	13.8	13.800	G2	3.1	0.3	2.3	-2.3	1.0000	3.1	0.9950	5.6	64
6	361	ESTRECHO	4.164	1.600	G1	3.4	0.2	2.5	-2.5	1.0000	3.4	0.9981	5.6	64
6	361	ESTRECHO	4.164	1.600	G2	3.4	0.2	2.5	-2.5	1.0000	3.4	0.9981	5.6	64
6	363	LAGUNA	13.8	13.800	G1	3.2	0.1	2.4	-2.4	1.0000	3.2	0.9998	5.8	64
6	363	LAGUNA	13.8	13.800	G2	3.2	0.1	2.4	-2.4	1.0000	3.2	0.9998	5.8	64
6	364	MENDRE2		13.800	G1	7.2	2.9	3.9	-3.9	1.0100	7.7	0.9272	8.9	64
6	368	RP-490		13.800	G1	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9824	5.5	64
6	368	RP-490		13.800	G2	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9824	5.5	64
6	369	HCALDERA	13.8	13.800	G1	3.8	1.9	1.9	-1.9	1.0094	4.2	0.8909	4.3	64
6	372	BJO FRIO	13	13.800	G1	23.8	-4.6	9.8	-9.8	1.0000	24.3	0.9816	33.0	64
6	372	BJO FRIO	13	13.800	G2	23.8	-4.6	9.8	-9.8	1.0000	24.3	0.9816	33.0	64
6	373	TIZINGAL	13.8	13.800	G1	4.4	2.2	2.2	-2.2	0.9744	5.1	0.8917	21.6	64

6	374	SLORENZO	13.8	13.800	G1	3.9	-1.2	2.0	-2.0	1.0000	4.0	0.9558	4.5	64
6	374	SLORENZO	13.8	13.800	G2	3.9	-1.2	2.0	-2.0	1.0000	4.0	0.9558	4.5	64
6	376	PEDREG2	13.8	13.800	G1	6.2	-2.6	3.1	-3.1	1.0000	6.7	0.9239	7.2	64
6	376	PEDREG2	13.8	13.800	G2	6.2	-2.6	3.1	-3.1	1.0000	6.7	0.9239	7.2	64
6	523	TCATIVÁ	13A	13.800	G1	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	523	TCATIVÁ	13A	13.800	G2	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	523	TCATIVÁ	13A	13.800	G3	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	523	TCATIVÁ	13A	13.800	G4	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	523	TCATIVÁ	13A	13.800	G5	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	524	TCATIVÁ	13B	13.800	G0	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	524	TCATIVÁ	13B	13.800	G6	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	524	TCATIVÁ	13B	13.800	G7	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	524	TCATIVÁ	13B	13.800	G8	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	524	TCATIVÁ	13B	13.800	G9	8.3	3.3	6.6	-6.6	1.0100	8.8	0.9284	10.9	62
6	531	EGIRAL	13.8	213.800	G5	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8	213.800	G6	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8	213.800	G7	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8	213.800	G8	8.1	3.0	6.4	3.0	1.0055	8.6	0.9377	10.9	62
6	541	TOABRE		0.6000	1	25.0	0.0	0.0	0.0	1.0245	24.4	1.0000	88.9	64
6	703	BJOMIN	13A	13.800	G1	24.0	2.2	13.0	-13.0	1.0100	23.9	0.9958	30.5	64
6	704	BJOMIN	13B	13.800	G2	24.0	2.2	13.0	-13.0	1.0100	23.9	0.9958	30.5	64
6	705	BAITUN	13A	13.800	G1	37.5	-3.3	26.6	-26.6	1.0100	37.2	0.9962	50.6	64
6	706	BAITUN	13B	13.800	G2	37.5	-3.3	26.6	-26.6	1.0100	37.2	0.9962	50.6	64
6	720	PLANETA	13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9639	4.2	0.8724	6.2	64

721 SVC-LV	13.200	1	0.1	203.7	300.0	-225.0	1.0816	188.4	0.0006	250.0	60
SUBSYSTEM TOTALS			1488.6	567.1	1540.3	-1050.9				2828.8	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL

AREA 7 [ACANAL] MACHINE SUMMARY:

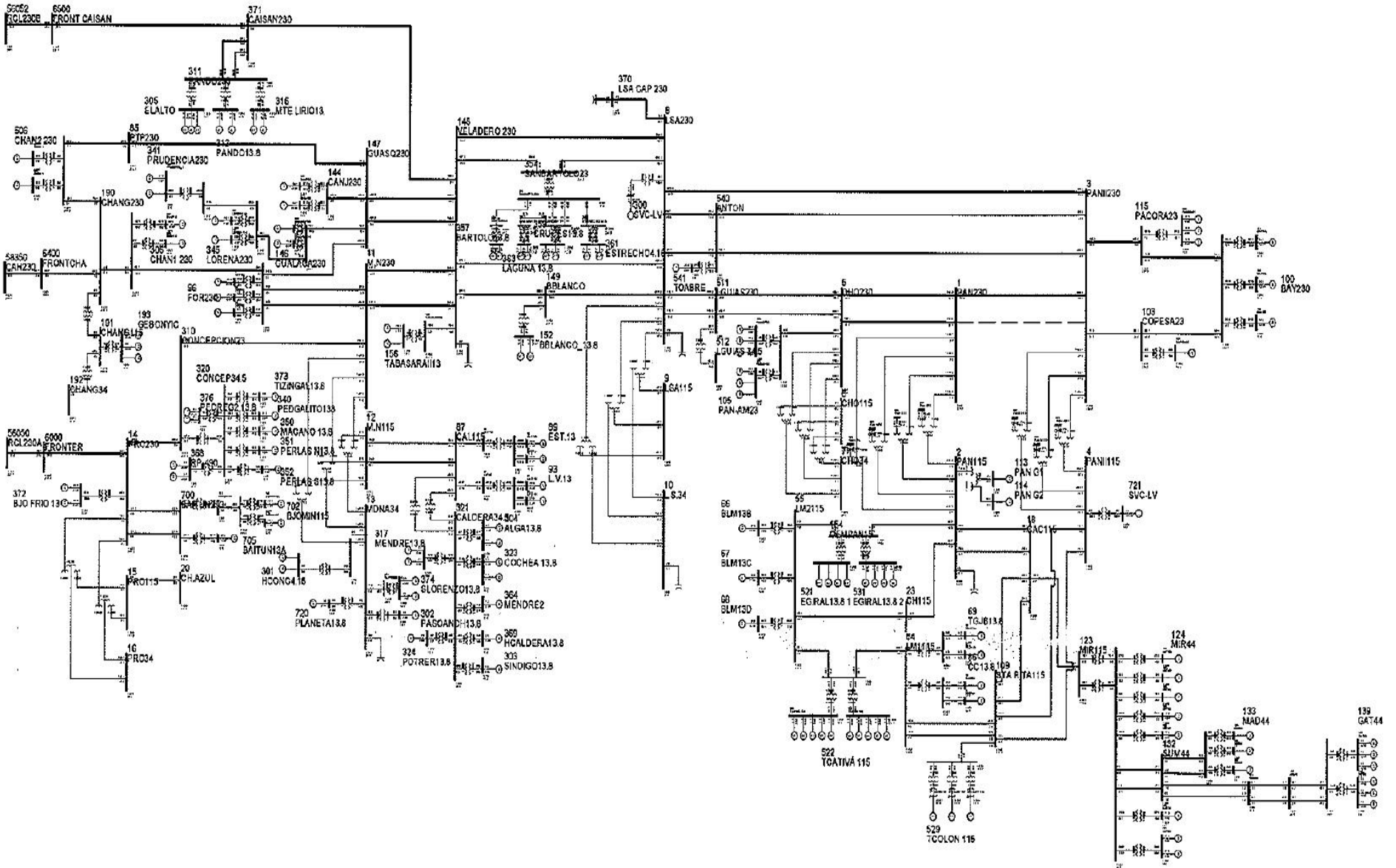
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE
AREA SWING																
7		129		MIR13D		13.800	G4	31.1	0.3	15.0	0.0	1.0000	31.1	1.0000	44.1	65
7		130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0130	16.9	1.0000	27.7	65
7		140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9306	4.1	65
7		140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9306	4.1	65
7		140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.1	0.9306	4.1	65
7		141		GAT6B		6.9000	G4	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9316	5.6	65
7		141		GAT6B		6.9000	G5	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9316	6.2	65
7		141		GAT6B		6.9000	G6	3.9	-1.5	3.0	-3.0	1.0000	4.2	0.9316	6.2	65
7		170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0275	17.8	0.9282	23.0	65
7		171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0365	17.7	0.9282	23.0	65
7		171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0365	17.7	0.9282	23.0	65
SUBSYSTEM TOTALS						116.7		13.9		71.5	5.5				171.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:27
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT MDN-VEL IN MW/MVAR

X--	AREA	--X	FROM GENERATION	TO LOAD	TO BUS SHUNT	TO LINE SHUNT	FROM CHARGING	TO NET INT	DESIRED NET INT
	1		1486.6	1330.8	0.0	0.0	0.0	108.7	47.1
	GUATEMAL		222.3	275.1	-198.5	0.0	276.6	-15.7	437.9

2	869.8	855.0	0.0	0.0	0.0	-0.7	15.5	0.0
SALVADOR	85.0	224.2	-70.6	0.0	228.3	-27.9	187.6	
3	1237.8	1203.0	0.0	0.0	0.0	-0.7	35.5	0.0
HONDURAS	475.6	321.1	-47.3	0.0	292.5	55.2	439.2	
4	533.2	525.2	0.0	0.0	0.0	-1.5	9.5	0.0
NICARAGU	50.5	207.6	-57.2	0.0	180.8	-48.0	129.0	
5	1299.5	1280.2	0.0	0.0	0.0	-2.9	22.2	0.0
COSTA RI	259.3	520.4	-229.2	0.0	415.8	28.8	355.1	
6	1488.6	1555.2	0.0	0.0	0.0	-163.0	96.3	-160.7
PANAMA	567.1	315.8	-84.4	0.0	588.3	18.1	905.9	
7	116.7	55.5	0.0	0.0	0.0	60.1	1.0	60.0
ACANAL	13.9	11.3	0.0	0.0	0.0	-10.4	13.1	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7032.1	6805.0	0.0	0.0	0.0	0.0	227.1	0.0
	1673.6	1875.3	-687.3	0.0	1982.2	0.0	2467.8	

6.1.3. Contingencia Panamá – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:30
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	1.0150	233.45	8		LSA230		230.00	6	1.0070	231.61
11		M.N230		230.00	6	1.0117	232.68	14		PRO230		230.00	6	1.0230	235.29
85		PTP230		230.00	6	1.0152	233.49	96		FOR230		230.00	6	1.0137	233.15
100		BAY230		230.00	6	1.0354	238.13	103		COPESA23		230.00	6	1.0185	234.25
115		PACORA23		230.00	6	1.0213	234.89	144		CANJ230		230.00	6	1.0115	232.65
146		GUALACA230		230.00	6	1.0136	233.13	147		GUASQ230		230.00	6	1.0114	232.61
148		VELADERO 230		230.00	6	1.0037	230.85	149		BBLANCO		230.00	6	1.0024	230.54
155		TABASARAI230		230.00	6	1.0046	231.05	190		CHANG230		230.00	6	1.0223	235.13
306		CHAN1 230		230.00	6	1.0221	235.08	310		CONCEPCION230		230.00	6	1.0186	234.27
311		PANDO230		230.00	6	1.0373	238.57	341		PRUDENCIA230		230.00	6	1.0169	233.88
345		LORENA230		230.00	6	1.0157	233.62	354		SANBARTOLO230		230.00	6	1.0011	230.26
370		LSA CAP 230		230.00	6	1.0070	231.61	371		CAISAN230		230.00	6	1.0360	238.28
506		CHAN2 230		230.00	6	1.0213	234.90	540		ANTON		230.00	6	1.0237	235.45
700		BAITUN230		230.00	6	1.0231	235.31	6000		FRONTER		230.00	6	1.0253	235.82
6400		FRONTCHA		230.00	6	1.0234	235.39	6500		FRONT CAISAN		230.00	6	1.0352	238.09

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	0.9981	229.57	5		CHO230		230.00	6	0.9966	229.23
105		PAN-AM23		230.00	6	0.9967	229.25	511		LGUIAS230		230.00	6	0.9985	229.67

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:30
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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)
4		PANII115		115.00	6	1.0416	119.78	9		LSA115		115.00	6	1.0491	120.65
12		M.N115		115.00	6	1.0133	116.53	15		PRO115		115.00	6	1.0249	117.87
19		C.V115		115.00	6	1.0184	117.11	20		CH.AZUL		115.00	6	1.0257	117.96
23		CH115		115.00	6	1.0012	115.14	52		TOC115		115.00	6	1.0381	119.38
54		LM115		115.00	6	1.0317	118.64	55		LM2115		115.00	6	1.0328	118.78
61		FFIELD		115.00	6	1.0267	118.08	87		CAL115		115.00	6	1.0341	118.93
88		EST115		115.00	6	1.0381	119.38	92		L.V115		115.00	6	1.0357	119.10
109		STA RITA115		115.00	6	1.0297	118.41	123		MIR115		115.00	7	1.0034	115.39
154		CEMPAN15		115.00	6	1.0278	118.20	191		CHANG115		115.00	6	1.0140	116.60
522		TCATIVÁ 115		115.00	6	1.0325	118.74	529		TCOLON 115		115.00	6	1.0297	118.42
701		BAITUN115		115.00	6	1.0072	115.82	702		BJOMIN115		115.00	6	1.0095	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)
------	-----	------	-----	-------	------	-------	-------	------	-----	------	-----	-------	------	-------	-------

2 PAN115	115.00	6 0.9987	114.86	6 CHO115	115.00	6 0.9977	114.74
18 CAC115	115.00	6 0.9985	114.82	21 C.BAN115	115.00	6 0.9906	113.92
26 LOC115	115.00	6 0.9909	113.96	30 MAR115	115.00	6 0.9877	113.58
33 STM115	115.00	6 0.9963	114.57	37 SAN115	115.00	6 0.9913	114.00
48 TINAJ115	115.00	6 0.9954	114.48	50 M.O115	115.00	6 0.9956	114.49

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:30
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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
66		BLM13B		13.800	V2	38.0	14.5	25.0	0.0	1.0120	40.2	0.9342	47.0			62
67		BLM13C		13.800	V3	38.0	14.5	25.0	0.0	1.0120	40.2	0.9342	47.0			62
68		BLM13D		13.800	V4	38.0	15.1	25.0	0.0	1.0120	40.4	0.9293	47.0			62
90		EST-13L		13.800	E1	20.9	7.3	12.0	-5.0	1.0100	21.9	0.9441	27.0			64
91		EST-13T		13.800	E2	20.9	7.3	12.0	-5.0	1.0100	21.9	0.9441	27.0			64
94		LV-13.8L		13.800	L1	23.5	8.2	12.0	-5.0	1.0100	24.6	0.9442	27.0			64
95		LV-13.8T		13.800	L2	23.5	8.2	12.0	-5.0	1.0100	24.6	0.9442	27.0			64
97		FOR13A		13.800	F1	75.0	-0.4	50.0	-50.0	1.0100	74.3	1.0000	111.0			64
98		FOR13B		13.800	F2	75.0	-0.4	50.0	-50.0	1.0100	74.3	1.0000	111.0			64
101		BAY13A		13.800	B1	51.1	12.6	50.0	-25.0	1.0000	52.6	0.9709	96.0			61
102		BAY13B		13.800	B2	51.0	12.6	50.0	-25.0	1.0000	52.5	0.9708	96.0			61
106		PANAM13A		13.800	M1	15.2	4.8	9.0	0.0	1.0000	16.0	0.9533	20.7			63
106		PANAM13A		13.800	M2	15.2	4.8	9.0	0.0	1.0000	16.0	0.9533	20.7			63
106		PANAM13A		13.800	M3	15.2	4.8	9.0	0.0	1.0000	16.0	0.9533	20.7			63
107		PANAM13B		13.800	M4	15.2	9.0	9.0	0.0	0.9926	17.8	0.8606	20.7			63
108		BAY13C		13.800	B3	51.0	12.6	50.0	-25.0	1.0000	52.5	0.9708	100.0			61
116		PACORA13		13.800	P1	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7			61

6	116	PACORA13	13.800	P2	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61
6	116	PACORA13	13.800	P3	17.5	0.5	8.8	0.0	1.0100	17.3	0.9996	21.7	61
6	142	CANJ13A	13.800	C1	52.2	16.5	29.0	-29.0	1.0100	54.2	0.9535	69.0	64
6	143	CANJ13B	13.800	C2	52.2	16.5	29.0	-29.0	1.0100	54.2	0.9535	69.0	64
6	150	GUALACA 13-213.800	13.800	G2	12.6	-0.6	7.4	-7.4	1.0100	12.5	0.9989	14.8	64
6	152	BBLANCO_13.813.800	13.800	G1	12.6	1.6	7.0	-7.0	1.0100	12.5	0.9921	16.0	64
6	152	BBLANCO_13.813.800	13.800	G2	12.6	1.6	7.0	-7.0	1.0100	12.5	0.9921	16.0	64
6	156	TABASARAI1313.800	13.800	G1	15.0	2.7	5.7	0.2	1.0100	15.1	0.9842	20.5	1
6	193	GEBOYIC	13.800	G1	9.0	-0.4	4.0	-4.0	1.0100	8.9	0.9990	35.3	64
6	193	GEBOYIC	13.800	G2	9.0	-0.4	4.0	-4.0	1.0100	8.9	0.9990	35.3	64
6	300	SVC-LV	13.200	1	0.1	146.0	300.0	-225.0	1.0352	141.1	0.0003	250.0	60
6	302	PASOANCH13.813.800	13.800	P1	3.5	2.0	2.0	-2.0	0.9672	4.2	0.8684	6.2	64
6	303	SINDIGO13.8	13.800	G1	9.0	0.0	5.0	0.0	1.1119	8.1	1.0000	13.5	64
6	304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.1093	4.8	0.9063	5.7	64
6	304	ALGA13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.1093	4.8	0.9063	5.7	64
6	305	ELALTO	13.800	G1	17.4	-5.0	12.0	-5.0	1.0225	17.7	0.9611	20.6	64
6	305	ELALTO	13.800	G2	17.4	-5.0	12.0	-5.0	1.0225	17.7	0.9611	20.6	64
6	307	CHAN1 A	13.800	G1	62.0	-9.8	50.0	-50.0	1.0100	62.2	0.9877	118.6	64
6	312	PANDO13.8	13.800	G1	13.9	-1.1	10.0	-5.0	1.0100	13.8	0.9968	19.9	64
6	312	PANDO13.8	13.800	G2	13.9	-1.1	10.0	-5.0	1.0100	13.8	0.9968	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	21.9	-4.9	12.0	-5.0	1.0100	22.3	0.9757	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	21.9	-4.9	12.0	-5.0	1.0100	22.3	0.9757	27.0	64
6	317	MENDRE13.8	13.800	M1	8.4	0.0	0.0	0.0	1.1115	7.6	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	8.4	0.0	0.0	0.0	1.1115	7.6	1.0000	35.3	64

6	323	COCHEA	13.8	13.800	C1	5.6	0.0	0.0	0.0	1.1118	5.1	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C2	5.6	0.0	0.0	0.0	1.1118	5.1	1.0000	35.3	64
6	324	POTRER	13.8	13.800	P1	4.0	2.0	2.0	-2.0	1.0098	4.4	0.8928	6.2	64
6	340	PEDGALITO138	13.800	P1	20.9	8.0	12.0	-5.0	0.9900	22.6	0.9339	27.0	64	
6	342	LORENA	13.8	13.800	L1	14.4	-4.9	10.5	-5.0	1.0000	15.2	0.9457	19.9	64
6	343	PRUDENCIA_1	13.800	G1	23.8	-8.8	9.8	-9.8	1.0000	25.4	0.9383	33.0	64	
6	350	MACANO	13.8	13.800	G1	3.3	-1.0	1.0	-1.0	1.0726	3.2	0.9560	6.2	64
6	351	PERLAS	N13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9770	10.5	0.8743	13.5	64
6	352	PERLAS	S13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9770	10.5	0.8743	13.5	64
6	357	BARTOLO	13.8	13.800	G1	5.9	0.8	3.7	-3.7	1.0000	5.9	0.9909	8.5	64
6	357	BARTOLO	13.8	13.800	G2	5.9	0.8	3.7	-3.7	1.0000	5.9	0.9909	8.5	64
6	359	CRUCES	13.8	13.800	G1	3.1	0.2	2.3	-2.3	1.0000	3.1	0.9969	5.6	64
6	359	CRUCES	13.8	13.800	G2	3.1	0.2	2.3	-2.3	1.0000	3.1	0.9969	5.6	64
6	361	ESTRECHO	4.164	1.600	G1	3.4	0.1	2.5	-2.5	1.0000	3.4	0.9991	5.6	64
6	361	ESTRECHO	4.164	1.600	G2	3.4	0.1	2.5	-2.5	1.0000	3.4	0.9991	5.6	64
6	363	LAGUNA	13.8	13.800	G1	3.2	0.0	2.4	-2.4	1.0000	3.2	1.0000	5.8	64
6	363	LAGUNA	13.8	13.800	G2	3.2	0.0	2.4	-2.4	1.0000	3.2	1.0000	5.8	64
6	364	MENDRE2		13.800	G1	7.2	2.3	3.9	-3.9	1.0100	7.5	0.9533	8.9	64
6	368	RP-490		13.800	G1	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9790	5.5	64
6	368	RP-490		13.800	G2	4.5	-0.9	2.4	-2.4	1.0100	4.5	0.9790	5.5	64
6	369	HCALDERA	13.8	13.800	G1	3.8	1.9	1.9	-1.9	1.0098	4.2	0.8909	4.3	64
6	372	BJO FRIO	13	13.800	G1	23.8	-5.3	9.8	-9.8	1.0000	24.4	0.9759	33.0	64
6	372	BJO FRIO	13	13.800	G2	23.8	-5.3	9.8	-9.8	1.0000	24.4	0.9759	33.0	64
6	373	TIZINGAL	13.8	13.800	G1	4.4	2.2	2.2	-2.2	0.9753	5.1	0.8912	21.6	64

6	374	SLORENZO	13.813.800	G1	3.9	-1.4	2.0	-2.0	1.0000	4.1	0.9399	4.5	64
6	374	SLORENZO	13.813.800	G2	3.9	-1.4	2.0	-2.0	1.0000	4.1	0.9399	4.5	64
6	376	PEDREG2	13.813.800	G1	6.2	-2.7	3.1	-3.1	1.0000	6.7	0.9174	7.2	64
6	376	PEDREG2	13.813.800	G2	6.2	-2.7	3.1	-3.1	1.0000	6.7	0.9174	7.2	64
6	523	TCATIVÁ	13A 13.800	G1	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	523	TCATIVÁ	13A 13.800	G2	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	523	TCATIVÁ	13A 13.800	G3	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	523	TCATIVÁ	13A 13.800	G4	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	523	TCATIVÁ	13A 13.800	G5	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	524	TCATIVÁ	13B 13.800	G0	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	524	TCATIVÁ	13B 13.800	G6	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	524	TCATIVÁ	13B 13.800	G7	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	524	TCATIVÁ	13B 13.800	G8	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	524	TCATIVÁ	13B 13.800	G9	8.3	3.6	6.6	-6.6	1.0100	8.9	0.9159	10.9	62
6	531	EGIRAL	13.8 213.800	G5	8.1	3.0	6.4	3.0	1.0022	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8 213.800	G6	8.1	3.0	6.4	3.0	1.0022	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8 213.800	G7	8.1	3.0	6.4	3.0	1.0022	8.6	0.9377	10.9	62
6	531	EGIRAL	13.8 213.800	G8	8.1	3.0	6.4	3.0	1.0022	8.6	0.9377	10.9	62
6	541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0247	24.4	1.0000	88.9	64
6	703	BJOMIN	13A 13.800	G1	24.0	2.0	13.0	-13.0	1.0100	23.9	0.9965	30.5	64
6	704	BJOMIN	13B 13.800	G2	24.0	2.0	13.0	-13.0	1.0100	23.9	0.9965	30.5	64
6	705	BAITUN	13A 13.800	G1	37.4	-4.3	26.6	-26.6	1.0100	37.3	0.9935	50.6	64
6	706	BAITUN	13B 13.800	G2	37.4	-4.3	26.6	-26.6	1.0100	37.3	0.9935	50.6	64
6	720	PLANETA	13.8 13.800	G1	3.6	2.0	2.0	-2.0	0.9672	4.2	0.8724	6.2	64

721 SVC-LV	13.200	1	0.1	195.5	300.0	-225.0	1.0778	181.4	0.0003	250.0	60
6 SUBSYSTEM TOTALS			1487.5	520.9	1540.3	-1050.9				2828.8	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:30
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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																
129		MIR13D		13.800	G4	31.0	1.6	15.0	0.0	1.0000	31.1	0.9987	44.1			65
7		AREA														
130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0097	16.9	1.0000	27.7			65
7																
140		GAT6A		6.9000	G1	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9453	4.1			65
7																
140		GAT6A		6.9000	G2	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9453	4.1			65
7																
140		GAT6A		6.9000	G3	1.9	-0.7	2.0	-2.0	1.0000	2.0	0.9453	4.1			65
7																
141		GAT6B		6.9000	G4	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9392	5.6			65
7																
141		GAT6B		6.9000	G5	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9392	6.2			65
7																
141		GAT6B		6.9000	G6	3.9	-1.4	3.0	-3.0	1.0000	4.1	0.9392	6.2			65
7																
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0242	17.9	0.9282	23.0			65
7																
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0333	17.7	0.9282	23.0			65
7																
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0333	17.7	0.9282	23.0			65
7																
7 SUBSYSTEM TOTALS						116.6	15.8	71.5	5.5				171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:32
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII 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	1486.0	1330.8	0.0	0.0	0.0	108.1	47.1	100.7
GUATEMAL	222.1	275.1	-198.5	0.0	276.6	-15.6	437.8	
2	869.5	855.0	0.0	0.0	0.0	-1.0	15.5	0.0
SALVADOR	84.8	224.2	-70.6	0.0	228.3	-27.9	187.4	
3	1237.5	1203.0	0.0	0.0	0.0	-0.9	35.5	0.0
HONDURAS	475.3	321.1	-47.3	0.0	292.5	55.2	438.9	
4	533.1	525.2	0.0	0.0	0.0	-1.6	9.4	0.0
NICARAGU	50.2	207.6	-57.3	0.0	180.9	-48.0	128.7	
5	1299.1	1280.2	0.0	0.0	0.0	-3.0	22.0	0.0
COSTA RI	254.8	520.4	-229.4	0.0	416.4	26.8	353.4	
6	1487.5	1555.2	0.0	0.0	0.0	-161.6	93.9	-160.7
PANAMA	520.9	315.8	-83.6	0.0	604.0	18.1	874.6	
7	116.6	55.5	0.0	0.0	0.0	60.1	1.0	60.0
ACANAL	15.8	11.3	0.0	0.0	0.0	-8.6	13.1	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7029.3	6805.0	0.0	0.0	0.0	0.0	224.3	0.0
	1623.9	1875.3	-686.6	0.0	1998.6	0.0	2433.9	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:45
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MIN-INVIERNO

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	1.0010	230.23	11		M.N230		230.00	6	1.0081	231.86
14		PRO230		230.00	6	1.0257	235.90	85		PTP230		230.00	6	1.0145	233.35
96		FOR230		230.00	6	1.0090	232.06	100		BAY230		230.00	6	1.0128	232.94
103		COPESA23		230.00	6	1.0033	230.75	115		PACORA23		230.00	6	1.0042	230.96
144		CANJ230		230.00	6	1.0092	232.11	146		GUALACA230		230.00	6	1.0113	232.60
147		GUASQ230		230.00	6	1.0091	232.10	148		VELADERO 230230.00		230.00	6	1.0045	231.04
149		BBLANCO		230.00	6	1.0036	230.82	155		TABASARAI23230.00		230.00	6	1.0050	231.16
190		CHANG230		230.00	6	1.0205	234.71	306		CHAN1 230 230.00		230.00	6	1.0174	234.00
310		CONCEPCION23230.00		230.00	6	1.0185	234.25	311		PANDO230 230.00		230.00	6	1.0467	240.73
341		PRUDENCIA230230.00		230.00	6	1.0147	233.38	345		LORENA230 230.00		230.00	6	1.0135	233.11
354		SANBARTOLO23230.00		230.00	6	1.0031	230.72	371		CAISAN230 230.00		230.00	6	1.0452	240.40
506		CHAN2 230 230.00		230.00	6	1.0216	234.97	540		ANTON 230.00		230.00	6	1.0160	233.67
700		BAITUN230 230.00		230.00	6	1.0253	235.81	6000		FRONTER 230.00		230.00	6	1.0289	236.64
6400		FRONTCHA 230.00		230.00	6	1.0222	235.09	6500		FRONT CAISAN230.00		230.00	6	1.0439	240.10

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)
1		PAN230		230.00	6	0.9956	228.99	5		CHO230		230.00	6	0.9944	228.71
105		PAN-AM23		230.00	6	0.9944	228.71	511		LGUIAS230		230.00	6	0.9976	229.46

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:45
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MIN-INVIERNO

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)
4		PANII115		115.00	6	1.0120	116.38	9		LSA115		115.00	6	1.0444	120.10
12		M.N115		115.00	6	1.0049	115.56	15		PRO115		115.00	6	1.0276	118.17
20		CH.AZUL		115.00	6	1.0283	118.26	52		TOC115		115.00	6	1.0093	116.06
54		LM1115		115.00	6	1.0108	116.24	55		LM2115		115.00	6	1.0117	116.35
61		FFIELD		115.00	6	1.0078	115.89	87		CAL115		115.00	6	1.0185	117.13
88		EST115		115.00	6	1.0207	117.39	92		L.V115		115.00	6	1.0194	117.23
109		STA RITA115		115.00	6	1.0095	116.09	154		CEMPAN15		115.00	6	1.0054	115.62
191		CHANG115		115.00	6	1.0102	116.18	522		TCATIVÁ 115 115.00		115.00	6	1.0113	116.30
529		TCOLON 115		115.00	6	1.0095	116.10	701		BAITUN115		115.00	6	1.0137	116.57
702		BJOMIN115		115.00	6	1.0143	116.64								

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)
2		PAN115		115.00	6	0.9931	114.21	6		CHO115		115.00	6	0.9953	114.47
18		CAC115		115.00	6	0.9929	114.18	19		C.V115		115.00	6	0.9985	114.83

6	303	SINDIGO	13.8	13.800	G1	9.0	0.0	5.0	0.0	1.0985	8.2	1.0000	13.5	64
6	304	ALGA	13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.0959	4.9	0.9063	5.7	64
6	304	ALGA	13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.0959	4.9	0.9063	5.7	64
6	305	ELALTO	13.800	13.800	G1	18.0	-5.0	12.0	-5.0	1.0320	18.1	0.9635	20.6	64
6	305	ELALTO	13.800	13.800	G2	18.0	-5.0	12.0	-5.0	1.0320	18.1	0.9635	20.6	64
6	307	CHAN1 A	13.800	13.800	G1	61.0	-24.2	50.0	-50.0	0.9900	66.3	0.9296	118.6	64
6	312	PANDO	13.8	13.800	G1	14.4	-5.0	10.0	-5.0	1.0129	15.0	0.9447	19.9	64
6	316	MTE LIRIO	13.8	13.800	G1	20.0	-5.0	12.0	-5.0	1.0346	19.9	0.9701	27.0	64
6	317	MENDRE	13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0985	8.6	1.0000	35.3	64
6	323	COCHEA	13.8	13.800	C1	5.6	0.0	0.0	0.0	1.0986	5.1	1.0000	35.3	64
6	324	POTRER	13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9977	4.5	0.8928	6.2	64
6	340	PEDGALITO	13.8	13.800	P1	18.0	5.7	12.0	-5.0	0.9800	19.3	0.9535	27.0	64
6	342	LORENA	13.8	13.800	L1	14.4	-4.2	10.5	-5.0	1.0000	15.0	0.9598	19.9	64
6	343	PRUDENCIA_1	13.800	13.800	G1	23.8	-7.6	9.8	-9.8	1.0000	25.0	0.9529	33.0	64
6	350	MACANO	13.8	13.800	G1	3.3	-1.0	1.0	-1.0	1.0666	3.2	0.9560	6.2	64
6	351	PERLAS N	13.8	13.800	G1	9.0	5.0	5.0	-5.0	0.9716	10.6	0.8742	13.5	64
6	357	BARTOLO	13.8	13.800	G1	6.9	1.1	3.7	-3.7	1.0000	7.0	0.9867	8.5	64
6	359	CRUCES	13.8	13.800	G1	4.1	0.1	2.3	-2.3	1.0000	4.1	0.9997	5.6	64
6	361	ESTRECHO	4.164	4.1600	G1	4.4	0.2	2.5	-2.5	1.0000	4.4	0.9988	5.6	64
6	363	LAGUNA	13.8	13.800	G1	4.2	-0.2	2.4	-2.4	1.0000	4.2	0.9993	5.8	64
6	363	LAGUNA	13.8	13.800	G2	4.2	-0.2	2.4	-2.4	1.0000	4.2	0.9993	5.8	64
6	364	MENDRE2	13.800	13.800	G1	7.2	3.9	3.9	-3.9	0.9988	8.2	0.8808	8.9	64
6	368	RP-490	13.800	13.800	G1	4.5	-1.3	2.4	-2.4	1.0000	4.7	0.9620	5.5	64
6	368	RP-490	13.800	13.800	G2	4.5	-1.3	2.4	-2.4	1.0000	4.7	0.9620	5.5	64

6	369	HCALDERA13.813.800	G1	3.8	1.9	1.9	-1.9	0.9977	4.3	0.8909	4.3	64
6	372	BJO FRIO 13 13.800	G1	26.6	-9.8	9.8	-9.8	1.0069	28.1	0.9388	33.0	64
6	373	TIZINGAL13.813.800	G1	4.4	2.2	2.2	-2.2	0.9699	5.1	0.8909	21.6	64
6	374	SLORENZO13.813.800	G1	3.9	0.1	2.0	-2.0	1.0000	3.9	0.9999	4.5	64
6	376	PEDREG2 13.813.800	G1	6.2	-3.1	3.1	-3.1	1.0041	6.9	0.8909	7.2	64
6	507	CHAN2 A 13.800	G1	61.0	5.1	50.0	-50.0	1.0000	61.2	0.9965	118.6	64
6	541	TOABRE 0.6000	1	30.0	0.0	0.0	0.0	1.0172	29.5	1.0000	88.9	64
6	703	BJOMIN13A 13.800	G1	26.0	0.2	13.0	-13.0	1.0000	26.0	1.0000	30.5	64
6	705	BAITUN13A 13.800	G1	40.0	-9.3	26.6	-26.6	1.0000	41.1	0.9738	50.6	64
6	720	PLANETA13.8 13.800	G1	3.6	2.0	2.0	-2.0	0.9487	4.3	0.8724	6.2	64
6	721	SVC-LV 13.200	1	0.0	55.0	300.0	-225.0	1.0227	53.7	0.0000	250.0	60
6	SUBSYSTEM TOTALS			926.0	108.3	1160.6	-833.2				1978.1	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:45
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MIN-INVIERNO

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																
7	129		MIR13D		13.800	G4	13.0	3.2	15.0	0.0	1.0000	13.4	0.9707	44.1			65
7	140		GAT6A		6.9000	G1	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9557	4.1			65
7	140		GAT6A		6.9000	G2	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9557	4.1			65
7	140		GAT6A		6.9000	G3	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9557	4.1			65
7	141		GAT6B		6.9000	G4	3.6	-1.3	3.0	-3.0	1.0000	3.8	0.9395	5.6			65
7	141		GAT6B		6.9000	G5	3.6	-1.3	3.0	-3.0	1.0000	3.8	0.9395	6.2			65
7	141		GAT6B		6.9000	G6	3.6	-1.3	3.0	-3.0	1.0000	3.8	0.9395	6.2			65

7	170 MIR13G	13.800 M1	15.8	6.8	11.2	6.8	1.0257	16.8	0.9181	23.0	65
7	171 MIR13H	13.800 M1	15.8	6.8	11.2	6.8	1.0348	16.6	0.9181	23.0	65
7	171 MIR13H	13.800 M2	17.0	6.8	11.2	6.8	1.0348	17.7	0.9281	23.0	65
	SUBSYSTEM TOTALS		77.8	18.1	63.5	5.5				143.6	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:45
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MIN-INVIERNO 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	1288.6	1330.8	0.0	0.0	0.0	-83.6	41.4	-83.6
GUATEMAL	234.4	275.1	-197.9	0.0	276.7	13.4	420.5	
2	869.7	855.0	0.0	0.0	0.0	0.0	14.7	0.0
SALVADOR	77.8	224.2	-70.7	0.0	228.7	-26.3	179.4	
3	1237.2	1203.0	0.0	0.0	0.0	0.0	34.2	0.0
HONDURAS	465.6	321.1	-47.6	0.0	293.6	53.3	432.4	
4	532.4	525.2	0.0	0.0	0.0	0.0	7.1	0.0
NICARAGU	35.9	207.6	-57.7	0.0	182.0	-48.0	116.0	
5	1296.9	1280.2	0.0	0.0	0.0	0.0	16.7	0.0
COSTA RI	195.6	520.4	-230.9	0.0	419.6	32.1	293.6	
6	926.0	855.4	0.0	0.0	0.0	36.7	33.9	36.6
PANAMA	108.3	310.5	77.0	0.0	602.2	-24.6	347.6	
7	77.8	30.5	0.0	0.0	0.0	47.0	0.4	47.0
ACANAL	18.1	11.1	0.0	0.0	0.0	0.0	7.0	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6228.5	6080.1	0.0	0.0	0.0	0.0	148.4	0.0
	1135.6	1869.8	-527.6	0.0	2002.9	0.0	1796.4	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-VERANO

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	1.0010	230.23	8		LSA230		230.00	6	1.0070	231.61
11		M.N230		230.00	6	1.0060	231.38	14		PRO230		230.00	6	1.0176	234.05
85		PTP230		230.00	6	1.0092	232.12	96		FOR230		230.00	6	1.0070	231.61
100		BAY230		230.00	6	1.0231	235.31	103		COPESA23		230.00	6	1.0047	231.09
115		PACORA23		230.00	6	1.0086	231.98	144		CANJ230		230.00	6	1.0049	231.13
146		GUALACA230		230.00	6	1.0085	231.95	147		GUASQ230		230.00	6	1.0048	231.10
148		VELADERO 230		230.00	6	1.0014	230.32	149		BBLANCO		230.00	6	1.0003	230.06
155		TABASARAI230		230.00	6	1.0019	230.44	190		CHANG230		230.00	6	1.0170	233.91
306		CHAN1 230		230.00	6	1.0145	233.33	310		CONCEPCION230		230.00	6	1.0133	233.06
311		PANDO230		230.00	6	1.0324	237.45	341		PRUDENCIA230		230.00	6	1.0143	233.28
345		LORENA230		230.00	6	1.0122	232.81	354		SANBARTOLO230		230.00	6	1.0002	230.06
370		LSA CAP 230		230.00	6	1.0070	231.61	371		CAISAN230		230.00	6	1.0314	237.23
506		CHAN2 230		230.00	6	1.0179	234.11	540		ANTON		230.00	6	1.0131	233.01
700		BAITUN230		230.00	6	1.0172	233.95	600		FRONTER		230.00	6	1.0200	234.60
6400		FRONTCHA		230.00	6	1.0186	234.27	6500		FRONT CAISAN230		230.00	6	1.0305	237.02

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)
1		PAN230		230.00	6	0.9907	227.86	5		CHO230		230.00	6	0.9840	226.32
105		PAN-AM23		230.00	6	0.9840	226.32	511		LGUIAS230		230.00	6	0.9904	227.80

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-VERANO

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)
4		PANII115		115.00	6	1.0291	118.35	9		LSA115		115.00	6	1.0486	120.59
12		M.N115		115.00	6	1.0023	115.27	15		PRO115		115.00	6	1.0195	117.25
19		C.V115		115.00	6	1.0063	115.73	20		CH.AZUL		115.00	6	1.0203	117.33
52		TOC115		115.00	6	1.0255	117.93	54		LM1115		115.00	6	1.0274	118.15
55		LM2115		115.00	6	1.0282	118.24	61		FFIELD		115.00	6	1.0222	117.55
87		CALL115		115.00	6	1.0166	116.91	88		EST115		115.00	6	1.0190	117.19
92		L.V115		115.00	6	1.0176	117.02	109		STA RITA115		115.00	6	1.0234	117.69
154		CEMPAN15		115.00	6	1.0239	117.75	191		CHANG115		115.00	6	1.0072	115.82
522		TCATIVÁ 115		115.00	6	1.0280	118.22	529		TCOLON 115		115.00	6	1.0234	117.69
701		BAITUN115		115.00	6	1.0036	115.42	702		BJOMIN115		115.00	6	1.0052	115.60

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)
2		PAN115		115.00	6	0.9891	113.74	6		CHO115		115.00	6	0.9852	113.29

6	116	PACORA13	13.800	P3	17.5	2.9	8.8	0.0	1.0100	17.5	0.9869	21.7	61
6	142	CANJ13A	13.800	C1	33.8	7.4	29.0	-29.0	0.9800	35.3	0.9766	69.0	64
6	143	CANJ13B	13.800	C2	33.8	7.4	29.0	-29.0	0.9800	35.3	0.9766	69.0	64
6	150	GUALACA 13-213.800	13.800	G2	11.0	-4.3	7.4	-7.4	0.9900	11.9	0.9306	14.8	64
6	151	GUALACA13.8	13.800	G1	11.0	-4.3	7.4	-7.4	0.9900	11.9	0.9306	14.8	64
6	152	BBLANCO_13.813.800	13.800	G1	10.0	0.6	7.0	-7.0	1.0000	10.0	0.9983	16.0	64
6	152	BBLANCO_13.813.800	13.800	G2	10.0	0.6	7.0	-7.0	1.0000	10.0	0.9983	16.0	64
6	156	TABASARAI1313.800	13.800	G1	15.0	0.2	5.7	0.2	1.0019	15.0	0.9999	20.5	1
6	193	GEBOYIC	13.800	G1	7.5	-1.0	4.0	-4.0	1.0000	7.6	0.9916	35.3	64
6	193	GEBOYIC	13.800	G2	7.5	-1.0	4.0	-4.0	1.0000	7.6	0.9916	35.3	64
6	300	SVC-LV	13.200	1	0.0	218.9	300.0	-225.0	1.0487	208.7	0.0000	250.0	63
6	302	PASOANCH13.813.800	13.800	P1	4.0	2.0	2.0	-2.0	0.9620	4.6	0.8944	6.2	64
6	303	SINDIGO13.8	13.800	G1	7.0	0.0	5.0	0.0	1.0999	6.4	1.0000	13.5	64
6	304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.0986	4.9	0.9063	5.7	64
6	305	ELALTO	13.800	G1	12.0	-5.0	12.0	-5.0	1.0182	12.8	0.9231	20.6	64
6	305	ELALTO	13.800	G2	12.0	-5.0	12.0	-5.0	1.0182	12.8	0.9231	20.6	64
6	307	CHAN1 A	13.800	G1	65.0	-21.1	50.0	-50.0	0.9900	69.0	0.9510	118.6	64
6	312	PANDO13.8	13.800	G1	10.0	-2.8	10.0	-5.0	0.9900	10.5	0.9620	19.9	64
6	312	PANDO13.8	13.800	G2	10.0	-2.8	10.0	-5.0	0.9900	10.5	0.9620	19.9	64
6	316	MTE LIRIO13.13.800	13.800	G1	16.0	-5.0	12.0	-5.0	1.0069	16.6	0.9545	27.0	64
6	316	MTE LIRIO13.13.800	13.800	G2	16.0	-5.0	12.0	-5.0	1.0069	16.6	0.9545	27.0	64
6	317	MENDRE13.8	13.800	M1	6.5	0.0	0.0	0.0	1.0997	5.9	1.0000	35.3	64
6	317	MENDRE13.8	13.800	M2	6.5	0.0	0.0	0.0	1.0997	5.9	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	4.5	0.0	0.0	0.0	1.0998	4.1	1.0000	35.3	64

6	323	COCHEA	13.8	13.800	C2	4.5	0.0	0.0	0.0	1.0998	4.1	1.0000	35.3	64
6	324	POTRER	13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9989	4.4	0.8928	6.2	64
6	340	PEDGALITO13813.800	13.800	P1	17.0	5.4	12.0	-5.0	0.9800		18.2	0.9532	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-3.9	10.5	-5.0	1.0000		12.6	0.9521	19.9	64
6	343	PRUDENCIA_1	13.800	G1	19.0	-3.3	9.8	-9.8	1.0000		19.3	0.9855	33.0	64
6	343	PRUDENCIA_1	13.800	G2	19.0	-3.3	9.8	-9.8	1.0000		19.3	0.9855	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-3.9	10.5	-5.0	1.0000		12.6	0.9521	19.9	64
6	350	MACANO	13.8	13.800	G1	2.0	-1.0	1.0	-1.0	1.0672	2.1	0.8944	6.2	64
6	351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9721		10.6	0.8742	13.5	64
6	352	PERLAS S13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9721		10.6	0.8742	13.5	64
6	357	BARTOLO13.8	13.800	G1	5.2	0.8	3.7	-3.7	1.0000		5.3	0.9873	8.5	64
6	357	BARTOLO13.8	13.800	G2	5.2	0.8	3.7	-3.7	1.0000		5.3	0.9873	8.5	64
6	359	CRUCES13.8	13.800	G1	3.1	0.2	2.3	-2.3	1.0000		3.1	0.9970	5.6	64
6	359	CRUCES13.8	13.800	G2	3.1	0.2	2.3	-2.3	1.0000		3.1	0.9970	5.6	64
6	361	ESTRECHO4.164.1600	13.800	G1	3.5	0.1	2.5	-2.5	1.0000		3.5	0.9991	5.6	64
6	361	ESTRECHO4.164.1600	13.800	G2	3.5	0.1	2.5	-2.5	1.0000		3.5	0.9991	5.6	64
6	363	LAGUNA	13.8	13.800	G1	3.5	0.0	2.4	-2.4	1.0000	3.5	1.0000	5.8	64
6	363	LAGUNA	13.8	13.800	G2	3.5	0.0	2.4	-2.4	1.0000	3.5	1.0000	5.8	64
6	364	MENDRE2	13.800	G1	7.6	3.8	3.9	-3.9	1.0000		8.5	0.8946	8.9	64
6	368	RP-490	13.800	G1	3.2	-1.4	2.4	-2.4	1.0000		3.5	0.9184	5.5	64
6	368	RP-490	13.800	G2	3.2	-1.4	2.4	-2.4	1.0000		3.5	0.9184	5.5	64
6	369	HCALDERA13.813.800	13.800	G1	3.8	1.9	1.9	-1.9	0.9989		4.3	0.8909	4.3	64
6	372	BJO FRIO 13	13.800	G1	19.0	-4.2	9.8	-9.8	1.0000		19.5	0.9765	33.0	64
6	372	BJO FRIO 13	13.800	G2	19.0	-4.2	9.8	-9.8	1.0000		19.5	0.9765	33.0	64

6	373	TIZINGAL13.813.800	G1	4.4	2.2	2.2	-2.2	0.9704	5.1	0.8909	21.6	64
6	374	SLORENZO13.813.800	G1	3.0	-1.0	2.0	-2.0	1.0000	3.2	0.9518	4.5	64
6	374	SLORENZO13.813.800	G2	3.0	-1.0	2.0	-2.0	1.0000	3.2	0.9518	4.5	64
6	376	PEDREG2 13.813.800	G1	4.2	-2.1	3.1	-3.1	1.0000	4.7	0.8929	7.2	64
6	376	PEDREG2 13.813.800	G2	4.2	-2.1	3.1	-3.1	1.0000	4.7	0.8929	7.2	64
6	507	CHAN2 A 13.800	G1	65.0	8.9	50.0	-50.0	1.0000	65.6	0.9908	118.6	64
6	521	EGIRAL13.8 113.800	G1	3.6	1.3	2.8	1.3	0.9975	3.8	0.9400	4.8	63
6	521	EGIRAL13.8 113.800	G2	3.6	1.3	2.8	1.3	0.9975	3.8	0.9400	4.8	63
6	521	EGIRAL13.8 113.800	G3	3.6	1.3	2.8	1.3	0.9975	3.8	0.9400	4.8	63
6	521	EGIRAL13.8 113.800	G4	3.6	1.3	2.8	1.3	0.9975	3.8	0.9400	4.8	63
6	523	TCATIVÁ 13A 13.800	G1	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	523	TCATIVÁ 13A 13.800	G2	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	523	TCATIVÁ 13A 13.800	G3	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	523	TCATIVÁ 13A 13.800	G4	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	523	TCATIVÁ 13A 13.800	G5	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	524	TCATIVÁ 13B 13.800	G0	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	524	TCATIVÁ 13B 13.800	G6	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	524	TCATIVÁ 13B 13.800	G7	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	524	TCATIVÁ 13B 13.800	G8	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	524	TCATIVÁ 13B 13.800	G9	8.3	1.6	6.6	-6.6	0.9900	8.5	0.9810	10.9	62
6	531	EGIRAL13.8 213.800	G5	8.1	3.0	6.4	3.0	0.9985	8.6	0.9377	10.9	62
6	531	EGIRAL13.8 213.800	G6	8.1	3.0	6.4	3.0	0.9985	8.6	0.9377	10.9	62
6	531	EGIRAL13.8 213.800	G7	8.1	3.0	6.4	3.0	0.9985	8.6	0.9377	10.9	62
6	531	EGIRAL13.8 213.800	G8	8.1	3.0	6.4	3.0	0.9985	8.6	0.9377	10.9	62

6	541	TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0144	29.6	1.0000	88.9	64
6	703	BJOMIN13A	13.800	G1	19.0	0.5	13.0	-13.0	1.0000	19.0	0.9997	30.5	64
6	704	BJOMIN13B	13.800	G2	19.0	0.5	13.0	-13.0	1.0000	19.0	0.9997	30.5	64
6	705	BAITUN13A	13.800	G1	30.0	-6.5	26.6	-26.6	1.0000	30.7	0.9770	50.6	64
6	706	BAITUN13B	13.800	G2	30.0	-6.5	26.6	-26.6	1.0000	30.7	0.9770	50.6	64
6	720	PLANETA13.8	13.800	G1	3.6	2.0	2.0	-2.0	0.9620	4.3	0.8724	6.2	64
6	721	SVC-LV	13.200	1	0.0	199.6	300.0	-225.0	1.0665	187.2	0.0000	250.0	60
6	SUBSYSTEM TOTALS				1528.4	548.5	1641.1	-1090.6				3046.0	

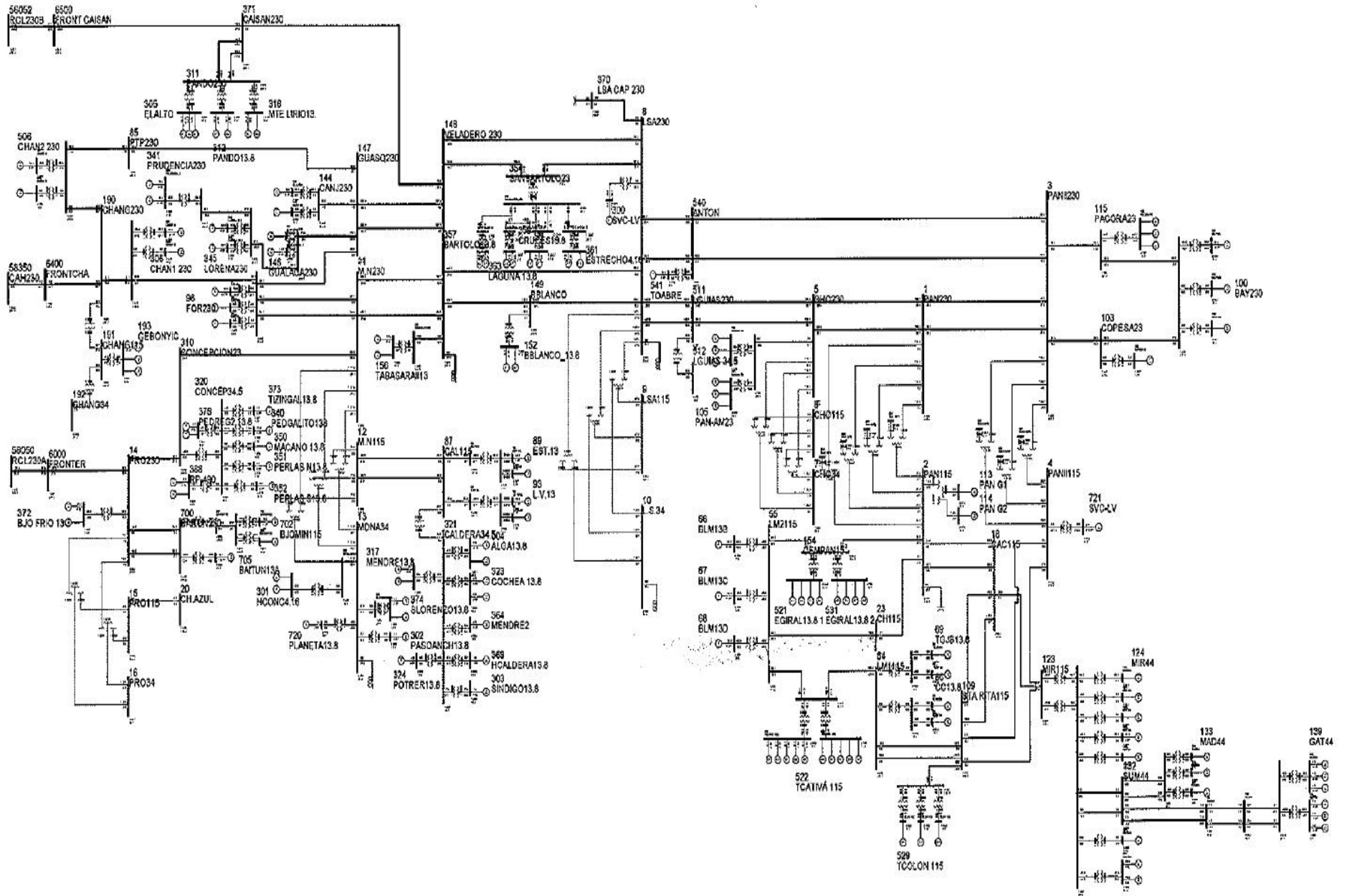
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MAX-VERANO

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																	
7	129		MIR13D		13.800	G4	32.8	4.2	15.0	0.0	1.0000	33.1	0.9919	44.1			65
7	130		MIR13F		13.800	G5	17.1	0.0	8.0	0.0	1.0028	17.1	1.0000	27.7			65
7	140		GAT6A		6.9000	G1	1.9	-0.5	2.0	-2.0	1.0000	2.0	0.9655	4.1			65
7	140		GAT6A		6.9000	G2	1.9	-0.5	2.0	-2.0	1.0000	2.0	0.9655	4.1			65
7	140		GAT6A		6.9000	G3	1.9	-0.5	2.0	-2.0	1.0000	2.0	0.9655	4.1			65
7	141		GAT6B		6.9000	G4	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9504	5.6			65
7	141		GAT6B		6.9000	G5	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9504	6.2			65
7	141		GAT6B		6.9000	G6	3.9	-1.3	3.0	-3.0	1.0000	4.1	0.9504	6.2			65
7	170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0174	18.0	0.9281	23.0			65
7	171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0265	17.8	0.9281	23.0			65
7	171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0265	17.8	0.9281	23.0			65
7	SUBSYSTEM TOTALS				118.3	19.3	71.5	5.5						171.3			

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MAX-VERANO 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	1486.3	1330.8	0.0	0.0	0.0	108.7	46.8	107.5
GUATEMAL	215.6	275.1	-197.8	0.0	276.5	-15.1	430.0	
2	870.4	855.0	0.0	0.0	0.0	-0.1	15.5	0.0
SALVADOR	84.8	224.2	-70.6	0.0	228.3	-28.5	188.1	
3	1238.3	1203.0	0.0	0.0	0.0	-0.2	35.5	0.0
HONDURAS	475.5	321.1	-47.3	0.0	292.6	55.0	439.3	
4	534.5	525.2	0.0	0.0	0.0	-0.3	9.6	0.0
NICARAGU	50.9	207.6	-57.2	0.0	180.8	-48.2	129.6	
5	1301.7	1280.2	0.0	0.0	0.0	-1.2	22.7	0.0
COSTA RI	263.8	520.4	-229.1	0.0	415.4	29.1	358.8	
6	1528.4	1600.6	0.0	0.0	0.0	-167.2	95.0	-167.5
PANAMA	548.5	325.0	-82.2	0.0	553.1	13.8	845.0	
7	118.3	57.1	0.0	0.0	0.0	60.2	0.9	60.0
ACANAL	19.3	11.6	0.0	0.0	0.0	-6.1	13.7	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7078.0	6851.9	0.0	0.0	0.0	0.0	226.1	0.0
	1658.5	1884.9	-684.3	0.0	1946.7	0.0	2404.5	

6.4 Demanda Mínima de Verano



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:52
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MIN-VERANO

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	1.0050	231.15	11		M.N230		230.00	6	1.0082	231.89
14		PRO230		230.00	6	1.0256	235.89	85		PTP230		230.00	6	1.0139	233.20
96		FOR230		230.00	6	1.0087	232.01	100		BAY230		230.00	6	1.0156	233.59
103		COPESA23		230.00	6	1.0071	231.63	115		PACORA23		230.00	6	1.0078	231.80
144		CANJ230		230.00	6	1.0085	231.96	146		GUALACA230		230.00	6	1.0116	232.67
147		GUASQ230		230.00	6	1.0085	231.95	148		VELADERO 230230.00		230.00	6	1.0049	231.13
149		BBLANCO		230.00	6	1.0041	230.94	155		TABASARAI23230.00		230.00	6	1.0054	231.25
190		CHANG230		230.00	6	1.0203	234.67	306		CHAN1 230 230.00		230.00	6	1.0172	233.95
310		CONCEPCION23230.00		230.00	6	1.0189	234.35	311		PANDO230 230.00		230.00	6	1.0450	240.35
341		PRUDENCIA230230.00		230.00	6	1.0172	233.95	345		LORENA230 230.00		230.00	6	1.0152	233.49
354		SANBARTOLO23230.00		230.00	6	1.0057	231.31	371		CAISAN230 230.00		230.00	6	1.0438	240.08
506		CHAN2 230 230.00		230.00	6	1.0213	234.90	540		ANTON 230.00		230.00	6	1.0163	233.76
700		BAITUN230 230.00		230.00	6	1.0252	235.79	6000		FRONTER 230.00		230.00	6	1.0287	236.61
6400		FRONTCHA 230.00		230.00	6	1.0222	235.11	6500		FRONT CAISAN230.00		230.00	6	1.0426	239.81

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	0.9991	229.79	5		CHO230		230.00	6	0.9954	228.94
8		LSA230		230.00	6	1.0000	230.00	105		PAN-AM23		230.00	6	0.9954	228.94
370		LSA CAP 230 230.00		230.00	6	1.0000	230.00	511		LGUIAS230 230.00		230.00	6	0.9965	229.20

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:52
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MIN-VERANO

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)
4		PANII115		115.00	6	1.0233	117.68	9		LSA115		115.00	6	1.0440	120.05
12		M.N115		115.00	6	1.0081	115.93	15		PRO115		115.00	6	1.0276	118.17
19		C.V115		115.00	6	1.0077	115.88	20		CH.AZUL		115.00	6	1.0283	118.25
52		TOC115		115.00	6	1.0206	117.36	54		LM1115		115.00	6	1.0183	117.10
55		LM2115		115.00	6	1.0192	117.21	61		FFIELD		115.00	6	1.0150	116.72
87		CALL115		115.00	6	1.0177	117.03	88		EST115		115.00	6	1.0190	117.19
92		L.V115		115.00	6	1.0182	117.09	109		STA RITA115 115.00		115.00	6	1.0169	116.94
123		MIR115		115.00	7	1.0005	115.06	154		CEMPAN15 115.00		115.00	6	1.0117	116.35
191		CHANG115 115.00		115.00	6	1.0104	116.20	522		TCATIVÁ 115 115.00		115.00	6	1.0188	117.17
529		TCOLON 115 115.00		115.00	6	1.0169	116.94	701		BAITUN115 115.00		115.00	6	1.0164	116.89
702		BJOMIN115 115.00		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)
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6	305	ELALTO	13.800	G1	12.0	-5.0	12.0	-5.0	1.0309	12.6	0.9231	20.6	64
6	305	ELALTO	13.800	G2	12.0	-5.0	12.0	-5.0	1.0309	12.6	0.9231	20.6	64
6	307	CHAN1 A	13.800	G1	60.0	-24.1	50.0	-50.0	0.9900	65.3	0.9281	118.6	64
6	312	PANDO13.8	13.800	G1	10.0	-3.9	10.0	-5.0	0.9900	10.8	0.9327	19.9	64
6	312	PANDO13.8	13.800	G2	10.0	-3.9	10.0	-5.0	0.9900	10.8	0.9327	19.9	64
6	316	MTE LIRIO13.8	13.800	G1	24.5	-5.0	12.0	-5.0	1.0324	24.2	0.9798	27.0	64
6	317	MENDRE13.8	13.800	M1	9.4	0.0	0.0	0.0	1.0987	8.6	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C1	4.5	0.0	0.0	0.0	1.0987	4.1	1.0000	35.3	64
6	323	COCHEA 13.8	13.800	C2	4.5	0.0	0.0	0.0	1.0987	4.1	1.0000	35.3	64
6	324	POTRER13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9979	4.5	0.8928	6.2	64
6	340	PEDGALITO13813.800	13.800	P1	17.0	2.4	12.0	-5.0	0.9800	17.5	0.9902	27.0	64
6	342	LORENA13.8	13.800	L1	12.0	-4.8	10.5	-5.0	1.0000	12.9	0.9271	19.9	64
6	343	PRUDENCIA_1	13.800	G1	19.0	-4.1	9.8	-9.8	1.0000	19.4	0.9777	33.0	64
6	343	PRUDENCIA_1	13.800	G2	19.0	-4.1	9.8	-9.8	1.0000	19.4	0.9777	33.0	64
6	346	LORENA 13-2	13.800	L2	12.0	-4.8	10.5	-5.0	1.0000	12.9	0.9271	19.9	64
6	351	PERLAS N13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9786	10.5	0.8742	13.5	64
6	352	PERLAS S13.813.800	13.800	G1	9.0	5.0	5.0	-5.0	0.9786	10.5	0.8742	13.5	64
6	357	BARTOLO13.8	13.800	G1	5.2	0.2	3.7	-3.7	1.0000	5.2	0.9990	8.5	64
6	357	BARTOLO13.8	13.800	G2	5.2	0.2	3.7	-3.7	1.0000	5.2	0.9990	8.5	64
6	359	CRUCES13.8	13.800	G1	3.1	0.1	2.3	-2.3	1.0000	3.1	0.9992	5.6	64
6	361	ESTRECHO4.164.1600	13.800	G1	3.5	0.0	2.5	-2.5	1.0000	3.5	1.0000	5.6	64
6	363	LAGUNA 13.8	13.800	G1	3.5	-0.1	2.4	-2.4	1.0000	3.5	0.9994	5.8	64
6	364	MENDRE2	13.800	G1	6.5	2.2	3.9	-3.9	0.9980	6.9	0.9486	8.9	64
6	368	RP-490	13.800	G1	4.2	-2.4	2.4	-2.4	1.0095	4.8	0.8674	5.5	64

6	369	HCALDERA13.813.800	G1	3.4	1.9	1.9	-1.9	0.9979	3.9	0.8689	4.3	64
6	372	BJO FRIO 13 13.800	G1	26.6	-9.8	9.8	-9.8	1.0069	28.1	0.9388	33.0	64
6	373	TIZINGAL13.813.800	G1	4.0	2.2	2.2	-2.2	0.9769	4.7	0.8719	21.6	64
6	374	SLORENZO13.813.800	G1	3.8	0.1	2.0	-2.0	1.0000	3.8	0.9995	4.5	64
6	376	PEDREG2 13.813.800	G1	6.0	-3.1	3.1	-3.1	1.0116	6.7	0.8855	7.2	64
6	507	CHAN2 A 13.800	G1	60.0	5.4	50.0	-50.0	1.0000	60.2	0.9960	118.6	64
6	523	TCATIVÁ 13A 13.800	G1	8.3	2.7	6.6	-6.6	0.9900	8.8	0.9503	10.9	62
6	523	TCATIVÁ 13A 13.800	G2	8.3	2.7	6.6	-6.6	0.9900	8.8	0.9503	10.9	62
6	523	TCATIVÁ 13A 13.800	G3	8.3	2.7	6.6	-6.6	0.9900	8.8	0.9503	10.9	62
6	523	TCATIVÁ 13A 13.800	G4	8.3	2.7	6.6	-6.6	0.9900	8.8	0.9503	10.9	62
6	523	TCATIVÁ 13A 13.800	G5	8.3	2.7	6.6	-6.6	0.9900	8.8	0.9503	10.9	62
6	541	TOABRE 0.6000	1	30.0	0.0	0.0	0.0	1.0176	29.5	1.0000	88.9	64
6	703	BJOMIN13A 13.800	G1	19.0	-1.2	13.0	-13.0	1.0000	19.0	0.9980	30.5	64
6	705	BAITUN13A 13.800	G1	30.0	-10.1	26.6	-26.6	1.0000	31.7	0.9479	50.6	64
6	720	PLANETA13.8 13.800	G1	3.6	2.0	2.0	-2.0	0.9483	4.3	0.8724	6.2	64
6	721	SVC-LV 13.200	1	0.0	114.0	300.0	-225.0	1.0451	109.0	0.0000	250.0	60
6	SUBSYSTEM TOTALS			895.9	195.8	1196.3	-872.4				2050.3	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:52
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2017 ESC-MOD DEMANDA-MIN-VERANO

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																
129		MIR13D		13.800	G4	31.5	3.9	15.0	0.0	1.0000	31.7	0.9926	44.1			65
7 AREA																
140		GAT6A		6.9000	G1	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9485	4.1			65

7

7	140 GAT6A	6.9000 G2	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9485	4.1	65
7	140 GAT6A	6.9000 G3	1.8	-0.6	2.0	-2.0	1.0000	1.9	0.9485	4.1	65
7	141 GAT6B	6.9000 G4	3.6	-1.4	3.0	-3.0	1.0000	3.8	0.9355	5.6	65
7	141 GAT6B	6.9000 G5	3.6	-1.4	3.0	-3.0	1.0000	3.8	0.9355	6.2	65
7	141 GAT6B	6.9000 G6	3.6	-1.4	3.0	-3.0	1.0000	3.8	0.9355	6.2	65
7	171 MIR13H	13.800 M1	15.8	6.8	11.2	6.8	1.0279	16.7	0.9181	23.0	65
7	171 MIR13H	13.800 M2	15.8	6.8	11.2	6.8	1.0279	16.7	0.9181	23.0	65
	SUBSYSTEM TOTALS		79.3	11.6	52.3	-1.4				120.6	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:52
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2017 ESC-MOD DEMANDA-MIN-VERANO 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	1350.3	1330.8	0.0	0.0	0.0	-25.5	45.0	-24.6
GUATEMAL	219.0	275.1	-197.4	0.0	276.1	-0.7	418.1	
2	869.0	855.0	0.0	0.0	0.0	0.2	13.8	0.0
SALVADOR	77.3	224.2	-70.7	0.0	228.8	-22.4	175.0	
3	1236.8	1203.0	0.0	0.0	0.0	0.1	33.7	0.0
HONDURAS	462.0	321.1	-47.6	0.0	293.9	54.8	427.6	
4	531.9	525.2	0.0	0.0	0.0	0.1	6.6	0.0
NICARAGU	32.5	207.6	-57.8	0.0	182.3	-47.2	112.2	
5	1296.2	1280.2	0.0	0.0	0.0	-0.1	16.1	0.0
COSTA RI	198.7	520.4	-231.0	0.0	419.6	33.0	295.8	
6	895.9	880.3	0.0	0.0	0.0	-22.0	37.6	-22.4
PANAMA	195.8	319.5	96.3	0.0	557.4	-9.5	346.8	
7	79.3	31.4	0.0	0.0	0.0	47.2	0.7	47.0
ACANAL	11.6	11.4	0.0	0.0	0.0	-8.1	8.3	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6259.4	6106.0	0.0	0.0	0.0	0.0	153.5	0.0
	1196.9	1879.2	-508.1	0.0	1958.0	0.0	1783.8	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 17:52

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	1.0092	232.11	8		LSA230		230.00	6	1.0100	232.30
11		M.N230		230.00	6	1.0137	233.14	14		PRO230		230.00	6	1.0287	236.59
85		PTP230		230.00	6	1.0207	234.76	96		FOR230		230.00	6	1.0175	234.01
100		BAY230		230.00	6	1.0398	239.14	103		COPESA23		230.00	6	1.0140	233.23
115		PACORA23		230.00	6	1.0164	233.77	144		CANJ230		230.00	6	1.0139	233.19
146		GUALACA230		230.00	6	1.0191	234.40	147		GUASQ230		230.00	6	1.0137	233.15
148		VELADERO	230230.00		6	1.0018	230.43	149		BBLANCO		230.00	6	1.0003	230.08
155		TABASARAI	23230.00		6	1.0037	230.85	190		CHANG230		230.00	6	1.0335	237.70
306		CHAN1	230	230.00	6	1.0322	237.41	310		CONCEPCION	23230.00		6	1.0230	235.28
311		PANDO230		230.00	6	1.0396	239.11	325		STA RITA230		230.00	6	1.0130	232.99
341		PRUDENCIA	230230.00		6	1.0273	236.28	345		LORENA230		230.00	6	1.0244	235.62
370		LSA CAP	230	230.00	6	1.0100	232.30	371		CAISAN230		230.00	6	1.0385	238.85
506		CHAN2	230	230.00	6	1.0338	237.77	540		ANTON		230.00	6	1.0206	234.75
700		BAITUN230		230.00	6	1.0292	236.71	6000		FRONTER		230.00	6	1.0306	237.03
6400		FRONTCHA		230.00	6	1.0344	237.90	6500		FRONT CAISAN	230.00		6	1.0380	238.73

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	0.9935	228.51	5		CHO230		230.00	6	0.9866	226.91
105		PAN-AM23		230.00	6	0.9866	226.91	354		SANBARTOLO	23230.00		6	0.9992	229.82
511		LGUIAS230		230.00	6	0.9938	228.56								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 17:52

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)
4		PANII115		115.00	6	1.0476	120.48	9		LSA115		115.00	6	1.0489	120.62
12		M.N115		115.00	6	1.0176	117.02	15		PRO115		115.00	6	1.0307	118.53
19		C.V115		115.00	6	1.0169	116.94	20		CH.AZUL		115.00	6	1.0314	118.61
52		TOC115		115.00	6	1.0435	120.00	54		LM1115		115.00	6	1.0071	115.81
55		LM2115		115.00	6	1.0075	115.86	61		FFIELD		115.00	6	1.0008	115.09
87		CAL115		115.00	6	1.0404	119.64	88		EST115		115.00	6	1.0448	120.15

92 L.V115	115.00	6	1.0421	119.84	109 STA RITA115	115.00	6	1.0093	116.07
191 CHANG115	115.00	6	1.0235	117.71	522 TCATIVÁ 115	115.00	6	1.0073	115.84
529 TCOLON 115	115.00	6	1.0094	116.08	701 BAITUN115	115.00	6	1.0132	116.51
702 BJOMIN115	115.00	6	1.0159	116.83					

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)
2		PAN115		115.00	6	0.9861	113.40	6		CHO115		115.00	6	0.9881	113.63
18		CAC115		115.00	6	0.9856	113.35	21		C.BAN115		115.00	6	0.9772	112.38
23		CH115		115.00	6	0.9804	112.74	26		LOC115		115.00	6	0.9773	112.39
30		MAR115		115.00	6	0.9730	111.89	33		STM115		115.00	6	0.9831	113.06
37		SAN115		115.00	6	0.9787	112.55	48		TINAJ115		115.00	6	0.9820	112.93
50		M.O115		115.00	6	0.9822	112.95	123		MIR115		115.00	7	0.9910	113.96
154		CEMPAN15		115.00	6	0.9991	114.90								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:52
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO

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	19.9	25.0	0.0	1.0000	42.9	0.8862	47.0			62	6
67		BLM13C		13.800	V3	38.0	19.9	25.0	0.0	1.0000	42.9	0.8862	47.0			62	6
68		BLM13D		13.800	V4	38.0	20.7	25.0	0.0	1.0000	43.3	0.8779	47.0			62	6
90		EST-13L		13.800	E1	22.0	8.6	12.0	-5.0	1.0200	23.1	0.9320	27.0			64	6
91		EST-13T		13.800	E2	22.0	8.6	12.0	-5.0	1.0200	23.1	0.9320	27.0			64	6
94		LV-13.8L		13.800	L1	25.0	9.6	12.0	-5.0	1.0200	26.3	0.9337	27.0			64	6
95		LV-13.8T		13.800	L2	25.0	9.6	12.0	-5.0	1.0200	26.3	0.9337	27.0			64	6
97		FOR13A		13.800	F1	83.7	6.1	50.0	-50.0	1.0200	82.3	0.9974	111.0			64	6
98		FOR13B		13.800	F2	83.7	6.1	50.0	-50.0	1.0200	82.3	0.9974	111.0			64	6
101		BAY13A		13.800	B1	80.6	26.2	50.0	-25.0	1.0180	83.2	0.9509	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	81.2	26.3	50.0	-25.0	1.0180	83.9	0.9514	96.0			61	6
108		BAY13C		13.800	B3	81.2	26.3	50.0	-25.0	1.0180	83.9	0.9514	100.0			61	6
117		CB250A-1		13.800	C1	91.9	13.3	75.6	0.0	1.0200	91.0	0.9897	143.5			62	6
118		CB250A-2		13.800	C2	91.9	13.3	75.6	0.0	1.0200	91.0	0.9897	143.5			62	6
119		CB250B-1		13.800	C1	91.9	13.3	75.6	0.0	1.0200	91.0	0.9897	143.5			62	6
142		CANJ13A		13.800	C1	56.0	18.8	29.0	-29.0	1.0180	58.0	0.9480	69.0			64	6
143		CANJ13B		13.800	C2	56.0	18.8	29.0	-29.0	1.0180	58.0	0.9480	69.0			64	6
150		GUALACA 13-213		13.800	G2	14.0	0.6	7.4	-7.4	1.0200	13.7	0.9991	14.8			64	6
151		GUALACA13.8		13.800	G1	14.0	0.6	7.4	-7.4	1.0200	13.7	0.9991	14.8			64	6

152	BBLANCO_13.813.800	G1	10.9	2.4	7.0	-7.0	1.0200	10.9	0.9774	16.0	64	6
152	BBLANCO_13.813.800	G2	10.9	2.4	7.0	-7.0	1.0200	10.9	0.9774	16.0	64	6
156	TABASARAI1313.800	G1	16.4	4.3	5.7	0.2	1.0200	16.6	0.9672	20.5	1	6
156	TABASARAI1313.800	G2	16.4	4.3	5.7	0.2	1.0200	16.6	0.9672	20.5	1	6
193	GEBONYIC_13.800	G1	9.0	0.0	4.0	-4.0	1.0200	8.8	1.0000	35.3	64	6
193	GEBONYIC_13.800	G2	9.0	0.0	4.0	-4.0	1.0200	8.8	1.0000	35.3	64	6
193	GEBONYIC_13.800	G3	9.0	0.0	4.0	-4.0	1.0200	8.8	1.0000	35.3	64	6
300	SVC-LV_13.200	1	0.0	285.9	300.0	-225.0	1.0638	268.8*	0.0000	250.0	60	6
302	PASOANCH13.813.800	P1	4.3	2.0	2.0	-2.0	0.9682	4.9	0.9048	6.2	64	6
303	SINDIGO13.813.800	G1	9.0	0.0	5.0	0.0	1.1177	8.1	1.0000	13.5	64	6
304	ALGA13.813.800	A1	4.8	-2.3	2.3	-2.3	1.1152	4.8	0.9063	5.7	64	6
304	ALGA13.813.800	A2	4.8	-2.3	2.3	-2.3	1.1152	4.8	0.9063	5.7	64	6
305	ELALTO_13.800	G1	17.0	-5.0	12.0	-5.0	1.0167	17.4	0.9594	20.6	64	6
305	ELALTO_13.800	G2	17.0	-5.0	12.0	-5.0	1.0167	17.4	0.9594	20.6	64	6
305	ELALTO_13.800	G3	17.0	-5.0	12.0	-5.0	1.0167	17.4	0.9594	20.6	64	6
307	CHAN1_A_13.800	G1	92.0	-7.8	50.0	-50.0	1.0200	90.5	0.9964	118.6	64	6
312	PANDO13.813.800	G1	15.0	-0.7	10.0	-5.0	1.0150	14.8	0.9988	19.9	64	6
312	PANDO13.813.800	G2	15.0	-0.7	10.0	-5.0	1.0150	14.8	0.9988	19.9	64	6
316	MTE_LIRIO13.13.800	G1	24.0	-4.2	12.0	-5.0	1.0150	24.0	0.9853	27.0	64	6
316	MTE_LIRIO13.13.800	G2	24.0	-4.2	12.0	-5.0	1.0150	24.0	0.9853	27.0	64	6
317	MENDRE13.813.800	M1	9.0	0.0	0.0	0.0	1.1172	8.1	1.0000	35.3	64	6
317	MENDRE13.813.800	M2	9.0	0.0	0.0	0.0	1.1172	8.1	1.0000	35.3	64	6
323	COCHEA_13.813.800	C1	5.3	0.0	0.0	0.0	1.1176	4.8	1.0000	35.3	64	6
323	COCHEA_13.813.800	C2	5.3	0.0	0.0	0.0	1.1176	4.8	1.0000	35.3	64	6
324	POTRER13.813.800	P1	4.0	1.8	2.0	-2.0	1.0150	4.3	0.9078	6.2	64	6
340	PEDGALITO13813.800	P1	22.0	12.0	12.0	-5.0	1.0088	24.8	0.8779	27.0	64	6
342	LORENA13.813.800	L1	16.0	-2.8	10.5	-5.0	1.0150	16.0	0.9848	19.9	64	6
343	PRUDENCIA_1_13.800	G1	26.0	-2.3	9.8	-9.8	1.0150	25.7	0.9963	33.0	64	6
343	PRUDENCIA_1_13.800	G2	26.0	-2.3	9.8	-9.8	1.0150	25.7	0.9963	33.0	64	6
346	LORENA_13-2_13.800	L2	16.0	-2.8	10.5	-5.0	1.0150	16.0	0.9848	19.9	64	6
350	MACANO_13.813.800	G1	3.3	-1.0	1.0	-1.0	1.0845	3.1	0.9560	6.2	64	6
351	PERLAS_N13.813.800	G1	9.3	5.0	5.0	-5.0	0.9877	10.6	0.8797	13.5	64	6
352	PERLAS_S13.813.800	G1	9.3	5.0	5.0	-5.0	0.9877	10.6	0.8797	13.5	64	6
357	BARTOLO13.813.800	G1	7.0	1.8	3.7	-3.7	1.0150	7.1	0.9695	8.5	64	6
357	BARTOLO13.813.800	G2	7.0	1.8	3.7	-3.7	1.0150	7.1	0.9695	8.5	64	6
359	CRUCES13.813.800	G1	4.1	0.7	2.3	-2.3	1.0150	4.1	0.9845	5.6	64	6
359	CRUCES13.813.800	G2	4.1	0.7	2.3	-2.3	1.0150	4.1	0.9845	5.6	64	6
361	ESTRECHO4.164.1600	G1	4.9	0.6	2.5	-2.5	1.0150	4.9	0.9938	5.6	64	6
361	ESTRECHO4.164.1600	G2	4.9	0.6	2.5	-2.5	1.0150	4.9	0.9938	5.6	64	6
363	LAGUNA_13.813.800	G1	4.2	0.4	2.4	-2.4	1.0150	4.1	0.9958	5.8	64	6
363	LAGUNA_13.813.800	G2	4.2	0.4	2.4	-2.4	1.0150	4.1	0.9958	5.8	64	6
364	MENDRE2_13.800	G1	7.6	1.8	3.9	-3.9	1.0150	7.7	0.9718	8.9	64	6
368	RP-490_13.800	G1	4.5	-1.5	2.4	-2.4	1.0150	4.7	0.9511	5.5	64	6
368	RP-490_13.800	G2	4.5	-1.5	2.4	-2.4	1.0150	4.7	0.9511	5.5	64	6
369	HCALDERA13.813.800	G1	3.4	1.8	1.9	-1.9	1.0150	3.8	0.8805	4.3	64	6

372	BJO FRIO 13	13.800	G1	26.6	-2.6	9.8	-9.8	1.0150	26.3	0.9953	33.0	64	6
372	BJO FRIO 13	13.800	G2	26.6	-2.6	9.8	-9.8	1.0150	26.3	0.9953	33.0	64	6
373	TIZINGAL13.813	13.800	G1	4.4	2.2	2.2	-2.2	0.9860	5.0	0.8909	21.6	64	6
374	SLORENZO13.813	13.800	G1	3.9	-0.5	2.0	-2.0	1.0150	3.8	0.9904	4.5	64	6
374	SLORENZO13.813	13.800	G2	3.9	-0.5	2.0	-2.0	1.0150	3.8	0.9904	4.5	64	6
376	PEDREG2 13.813	13.800	G1	6.2	-2.3	3.1	-3.1	1.0150	6.5	0.9395	7.2	64	6
376	PEDREG2 13.813	13.800	G2	6.2	-2.3	3.1	-3.1	1.0150	6.5	0.9395	7.2	64	6
507	CHAN2 A	13.800	G1	90.0	13.3	50.0	-50.0	1.0180	89.4	0.9892	118.6	64	6
541	TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0219	29.4	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	26.0	2.9	13.0	-13.0	1.0200	25.6	0.9940	30.5	64	6
704	BJOMIN13B	13.800	G2	26.0	2.9	13.0	-13.0	1.0200	25.6	0.9940	30.5	64	6
705	BAITUN13A	13.800	G1	40.0	-2.4	26.6	-26.6	1.0200	39.3	0.9982	50.6	64	6
706	BAITUN13B	13.800	G2	40.0	-2.4	26.6	-26.6	1.0200	39.3	0.9982	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9682	5.1	0.9145	6.2	64	6
721	SVC-LV	13.200	1	0.0	300.0	300.0	-225.0	1.1021	272.2*	0.0000	250.0	60	6
SUBSYSTEM TOTALS				1914.7	858.5	1712.8	-1078.2				3221.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 17:52
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO

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	7.6	0.0	5.0	0.0	1.0310	7.4	1.0000	13.5			65	7
129		MIR13D		13.800	G4	34.2	5.6	15.0	0.0	1.0000	34.7	0.9869	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.5	8.0	0.0	1.0000	17.1	0.9996	27.7			65	7
140		GAT6A		6.9000	G1	1.9	0.4	2.0	-2.0	1.0000	2.0	0.9743	4.1			65	7
140		GAT6A		6.9000	G2	1.9	0.4	2.0	-2.0	1.0000	2.0	0.9743	4.1			65	7
140		GAT6A		6.9000	G3	1.9	0.4	2.0	-2.0	1.0000	2.0	0.9743	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-0.3	3.0	-3.0	1.0000	3.9	0.9974	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-0.3	3.0	-3.0	1.0000	3.9	0.9974	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-0.3	3.0	-3.0	1.0000	3.9	0.9974	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0136	18.1	0.9281	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0228	17.9	0.9281	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0228	17.9	0.9281	23.0			65	7
SUBSYSTEM TOTALS				127.3	27.0	76.5	5.5						184.9				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO

MON, MAY 24 2010 17:52

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	1370.1	1330.8	0.0	0.0	0.0	-5.2	44.4	-5.2
GUATEMAL	212.8	275.1	-198.3	0.0	277.2	-0.3	413.6	
2	868.7	855.0	0.0	0.0	0.0	0.0	13.7	0.0
SALVADOR	73.9	224.2	-70.8	0.0	229.0	-25.2	174.8	
3	1236.7	1203.0	0.0	0.0	0.0	0.0	33.7	0.0
HONDURAS	461.3	321.1	-47.6	0.0	294.0	54.4	427.4	
4	532.0	525.2	0.0	0.0	0.0	0.0	6.7	0.0
NICARAGU	32.8	207.6	-57.8	0.0	182.3	-47.2	112.5	
5	1296.5	1280.2	0.0	0.0	0.0	0.0	16.3	0.0
COSTA RI	197.0	520.4	-231.1	0.0	420.0	27.8	299.9	
6	1914.7	1844.6	0.0	0.0	0.0	-55.1	125.2	-54.8
PANAMA	858.5	374.6	-80.7	0.0	618.9	-9.6	1193.1	
7	127.3	65.9	0.0	0.0	0.0	60.3	1.2	60.0
ACANAL	27.0	13.4	0.0	0.0	0.0	0.2	13.4	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7345.9	7104.7	0.0	0.0	0.0	0.0	241.3	0.0
	1863.1	1936.2	-686.2	0.0	2021.4	0.0	2634.6	

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:09
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT CONC-MDN

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	1.0060	231.37	8		LSA230		230.00	6	1.0029	230.67
11		M.N230		230.00	6	1.0017	230.40	14		PRO230		230.00	6	1.0265	236.10
85		PTP230		230.00	6	1.0127	232.93	96		FOR230		230.00	6	1.0091	232.09
100		BAY230		230.00	6	1.0378	238.70	103		COPESA23		230.00	6	1.0110	232.54
115		PACORA23		230.00	6	1.0135	233.11	144		CANJ230		230.00	6	1.0062	231.43
146		GUALACA230		230.00	6	1.0119	232.73	147		GUASQ230		230.00	6	1.0060	231.38
190		CHANG230		230.00	6	1.0271	236.23	306		CHAN1 230		230.00	6	1.0260	235.98
310		CONCEPCION23		230.00	6	1.0306	237.04	311		PANDO230		230.00	6	1.0205	234.71
325		STA RITA230		230.00	6	1.0113	232.60	341		PRUDENCIA230		230.00	6	1.0206	234.74
345		LORENA230		230.00	6	1.0175	234.04	370		LSA CAP 230		230.00	6	1.0029	230.67
371		CAISAN230		230.00	6	1.0184	234.23	506		CHAN2 230		230.00	6	1.0276	236.34
540		ANTON		230.00	6	1.0153	233.51	700		BAITUN230		230.00	6	1.0273	236.27
6000		FRONTER		230.00	6	1.0247	235.68	6400		FRONTCHA		230.00	6	1.0277	236.36
6500		FRONT CAISAN		230.00	6	1.0188	234.33								

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	0.9901	227.72	5		CHO230		230.00	6	0.9822	225.90
105		PAN-AM23		230.00	6	0.9822	225.90	148		VELADERO 230		230.00	6	0.9901	227.73
149		BBLANCO		230.00	6	0.9890	227.48	155		TABASARAI23		230.00	6	0.9923	228.24
354		SANBARTOLO23		230.00	6	0.9893	227.53	511		LGUIAS230		230.00	6	0.9876	227.15

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:09
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT CONC-MDN

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)
4		PANII115		115.00	6	1.0445	120.12	9		LSA115		115.00	6	1.0412	119.74
12		M.N115		115.00	6	1.0112	116.29	15		PRO115		115.00	6	1.0285	118.28
19		C.V115		115.00	6	1.0137	116.58	20		CH.AZUL		115.00	6	1.0293	118.37
52		TOC115		115.00	6	1.0403	119.64	54		LM1115		115.00	6	1.0053	115.61
55		LM2115		115.00	6	1.0057	115.66	87		CAL115		115.00	6	1.0368	119.23
88		EST115		115.00	6	1.0416	119.78	92		L.V115		115.00	6	1.0386	119.44

152	BBLANCO_13.813.800	G2	10.9	3.3	7.0	-7.0	1.0200	11.2	0.9570	16.0	64	6
156	TABASARAI1313.800	G1	16.5	5.7	5.7	0.2	1.0147	17.2	0.9454	20.5	1	6
156	TABASARAI1313.800	G2	16.5	5.7	5.7	0.2	1.0147	17.2	0.9454	20.5	1	6
193	GEBONYIC 13.800	G1	9.1	0.5	4.0	-4.0	1.0200	8.9	0.9986	35.3	64	6
193	GEBONYIC 13.800	G2	9.1	0.5	4.0	-4.0	1.0200	8.9	0.9986	35.3	64	6
193	GEBONYIC 13.800	G3	9.1	0.5	4.0	-4.0	1.0200	8.9	0.9986	35.3	64	6
300	SVC-LV 13.200	1	0.4	300.0	300.0	-225.0	1.0595	283.1*	0.0012	250.0	60	6
302	PASOANCH13.813.800	P1	4.3	2.0	2.0	-2.0	0.9570	4.9	0.9054	6.2	64	6
303	SINDIGO13.8 13.800	G1	9.0	0.0	5.0	0.0	1.1164	8.1	1.0000	13.5	64	6
304	ALGA13.8 13.800	A1	4.8	-2.3	2.3	-2.3	1.1139	4.8	0.9063	5.7	64	6
304	ALGA13.8 13.800	A2	4.8	-2.3	2.3	-2.3	1.1139	4.8	0.9063	5.7	64	6
305	ELALTO 13.800	G1	17.0	-4.3	12.0	-5.0	1.0000	17.6	0.9698	20.6	64	6
305	ELALTO 13.800	G2	17.0	-4.3	12.0	-5.0	1.0000	17.6	0.9698	20.6	64	6
305	ELALTO 13.800	G3	17.0	-4.3	12.0	-5.0	1.0000	17.6	0.9698	20.6	64	6
307	CHAN1 A 13.800	G1	92.3	-1.7	50.0	-50.0	1.0200	90.5	0.9998	118.6	64	6
312	PANDO13.8 13.800	G1	15.0	0.9	10.0	-5.0	1.0150	14.9	0.9982	19.9	64	6
312	PANDO13.8 13.800	G2	15.0	0.9	10.0	-5.0	1.0150	14.9	0.9982	19.9	64	6
316	MTE LIRIO13.13.800	G1	24.0	0.1	12.0	-5.0	1.0150	23.6	1.0000	27.0	64	6
316	MTE LIRIO13.13.800	G2	24.0	0.1	12.0	-5.0	1.0150	23.6	1.0000	27.0	64	6
317	MENDRE13.8 13.800	M1	9.1	0.0	0.0	0.0	1.1159	8.1	1.0000	35.3	64	6
317	MENDRE13.8 13.800	M2	9.1	0.0	0.0	0.0	1.1159	8.1	1.0000	35.3	64	6
323	COCHEA 13.8 13.800	C1	5.4	0.0	0.0	0.0	1.1163	4.8	1.0000	35.3	64	6
323	COCHEA 13.8 13.800	C2	5.4	0.0	0.0	0.0	1.1163	4.8	1.0000	35.3	64	6
324	POTRER13.8 13.800	P1	4.0	2.0	2.0	-2.0	1.0139	4.4	0.8928	6.2	64	6
340	PEDGALITO13813.800	P1	22.1	12.0	12.0	-5.0	1.0125	24.8	0.8785	27.0	64	6
342	LORENA13.8 13.800	L1	16.0	-0.5	10.5	-5.0	1.0150	15.8	0.9995	19.9	64	6
343	PRUDENCIA_1 13.800	G1	26.1	-0.4	9.8	-9.8	1.0150	25.7	0.9999	33.0	64	6
343	PRUDENCIA_1 13.800	G2	26.1	-0.4	9.8	-9.8	1.0150	25.7	0.9999	33.0	64	6
346	LORENA 13-2 13.800	L2	16.0	-0.5	10.5	-5.0	1.0150	15.8	0.9995	19.9	64	6
350	MACANO 13.8 13.800	G1	3.3	-1.0	1.0	-1.0	1.0887	3.1	0.9563	6.2	64	6
351	PERLAS N13.813.800	G1	9.3	5.0	5.0	-5.0	0.9915	10.6	0.8804	13.5	64	6
352	PERLAS S13.813.800	G1	9.3	5.0	5.0	-5.0	0.9915	10.6	0.8804	13.5	64	6
357	BARTOLO13.8 13.800	G1	7.0	2.1	3.7	-3.7	1.0150	7.2	0.9580	8.5	64	6
357	BARTOLO13.8 13.800	G2	7.0	2.1	3.7	-3.7	1.0150	7.2	0.9580	8.5	64	6
359	CRUCES13.8 13.800	G1	4.1	0.9	2.3	-2.3	1.0150	4.2	0.9757	5.6	64	6
359	CRUCES13.8 13.800	G2	4.1	0.9	2.3	-2.3	1.0150	4.2	0.9757	5.6	64	6
361	ESTRECHO4.164.1600	G1	4.9	0.7	2.5	-2.5	1.0150	4.9	0.9890	5.6	64	6
361	ESTRECHO4.164.1600	G2	4.9	0.7	2.5	-2.5	1.0150	4.9	0.9890	5.6	64	6
363	LAGUNA 13.8 13.800	G1	4.2	0.6	2.4	-2.4	1.0150	4.1	0.9913	5.8	64	6
363	LAGUNA 13.8 13.800	G2	4.2	0.6	2.4	-2.4	1.0150	4.1	0.9913	5.8	64	6
364	MENDRE2 13.800	G1	7.6	3.8	3.9	-3.9	1.0150	8.4	0.8938	8.9	64	6
368	RP-490 13.800	G1	4.5	-1.8	2.4	-2.4	1.0150	4.8	0.9287	5.5	64	6
368	RP-490 13.800	G2	4.5	-1.8	2.4	-2.4	1.0150	4.8	0.9287	5.5	64	6
369	HCALDERA13.813.800	G1	3.4	1.9	1.9	-1.9	1.0139	3.9	0.8689	4.3	64	6
372	BJO FRIO 13 13.800	G1	26.7	-2.0	9.8	-9.8	1.0150	26.4	0.9973	33.0	64	6

372	BJO FRIO 13	13.800	G2	26.7	-2.0	9.8	-9.8	1.0150	26.4	0.9973	33.0	64	6
373	TIZINGAL13.813	13.800	G1	4.5	2.2	2.2	-2.2	0.9898	5.0	0.8931	21.6	64	6
374	SLORENZO13.813	13.800	G1	3.9	0.2	2.0	-2.0	1.0150	3.8	0.9986	4.5	64	6
374	SLORENZO13.813	13.800	G2	3.9	0.2	2.0	-2.0	1.0150	3.8	0.9986	4.5	64	6
376	PEDREG2 13.813	13.800	G1	6.2	-2.8	3.1	-3.1	1.0150	6.7	0.9128	7.2	64	6
376	PEDREG2 13.813	13.800	G2	6.2	-2.8	3.1	-3.1	1.0150	6.7	0.9128	7.2	64	6
507	CHAN2 A	13.800	G1	90.3	19.4	50.0	-50.0	1.0180	90.7	0.9778	118.6	64	6
541	TOABRE	0.6000	1	30.1	0.0	0.0	0.0	1.0165	29.6	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	26.1	3.0	13.0	-13.0	1.0200	25.7	0.9932	30.5	64	6
704	BJOMIN13B	13.800	G2	26.1	3.0	13.0	-13.0	1.0200	25.7	0.9932	30.5	64	6
705	BAITUN13A	13.800	G1	40.1	-1.5	26.6	-26.6	1.0200	39.4	0.9993	50.6	64	6
706	BAITUN13B	13.800	G2	40.1	-1.5	26.6	-26.6	1.0200	39.4	0.9993	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9570	5.2	0.9145	6.2	64	6
721	SVC-LV	13.200	1	0.4	300.0	300.0	-225.0	1.0991	273.0*	0.0012	250.0	60	6
SUBSYSTEM TOTALS				1920.3	960.8	1712.8	-1078.2				3221.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:09
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT CONC-MDN

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	7.6	0.0	5.0	0.0	1.0296	7.4	1.0000	13.5			65	7
129		MIR13D		13.800	G4	34.3	6.1	15.0	0.0	1.0000	34.8	0.9847	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.2	1.0	8.0	0.0	1.0000	17.2	0.9982	27.7			65	7
140		GAT6A		6.9000	G1	1.9	0.5	2.0	-2.0	1.0000	2.0	0.9680	4.1			65	7
140		GAT6A		6.9000	G2	1.9	0.5	2.0	-2.0	1.0000	2.0	0.9680	4.1			65	7
140		GAT6A		6.9000	G3	1.9	0.5	2.0	-2.0	1.0000	2.0	0.9680	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-0.2	3.0	-3.0	1.0000	3.9	0.9983	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-0.2	3.0	-3.0	1.0000	3.9	0.9983	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-0.2	3.0	-3.0	1.0000	3.9	0.9983	6.2			65	7
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0124	18.1	0.9285	23.0			65	7
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0215	18.0	0.9285	23.0			65	7
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0215	18.0	0.9285	23.0			65	7
SUBSYSTEM TOTALS						127.7	28.4	76.5	5.5				184.9				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:12
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT CONC-MDN 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	1373.9	1330.8	0.0	0.0	0.0	-1.5	44.5	-5.2
GUATEMAL	213.2	275.1	-198.3	0.0	277.2	-0.9	414.5	
2	870.1	855.0	0.0	0.0	0.0	1.4	13.7	0.0
SALVADOR	74.1	224.2	-70.7	0.0	229.0	-25.5	175.1	
3	1238.0	1203.0	0.0	0.0	0.0	1.2	33.8	0.0
HONDURAS	461.5	321.1	-47.6	0.0	294.0	54.3	427.7	
4	532.4	525.2	0.0	0.0	0.0	0.4	6.8	0.0
NICARAGU	33.3	207.6	-57.7	0.0	182.2	-47.1	112.8	
5	1298.5	1280.2	0.0	0.0	0.0	0.1	18.3	0.0
COSTA RI	213.9	520.4	-230.4	0.0	418.0	27.2	314.7	
6	1920.3	1844.6	0.0	0.0	0.0	-62.3	138.0	-54.8
PANAMA	960.8	374.6	-80.2	0.0	604.4	-9.5	1280.3	
7	127.7	65.9	0.0	0.0	0.0	60.7	1.2	60.0
ACANAL	28.4	13.4	0.0	0.0	0.0	1.5	13.6	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7360.9	7104.7	0.0	0.0	0.0	0.0	256.2	0.0
	1985.1	1936.2	-685.0	0.0	2004.7	0.0	2738.7	

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)
2		PAN115		115.00	6	0.9535	109.65	6		CHO115		115.00	6	0.9415	108.27
9		LSA115		115.00	6	0.9979	114.76	18		CAC115		115.00	6	0.9532	109.62
19		C.V115		115.00	6	0.9842	113.18	21		C.BAN115		115.00	6	0.9441	108.57
23		CH115		115.00	6	0.9523	109.52	26		LOC115		115.00	6	0.9443	108.59
30		MAR115		115.00	6	0.9400	108.09	33		STM115		115.00	6	0.9504	109.30
37		SAN115		115.00	6	0.9455	108.74	48		TINAJ115		115.00	6	0.9492	109.16
50		M.O115		115.00	6	0.9494	109.19	54		LM1115		115.00	6	0.9865	113.45
55		LM2115		115.00	6	0.9869	113.50	61		FFIELD		115.00	6	0.9802	112.72
109		STA RITA115		115.00	6	0.9885	113.68	123		MIR115		115.00	7	0.9627	110.71
154		CEMPAN15		115.00	6	0.9750	112.13	522		TCATIVÁ 115		115.00	6	0.9867	113.47
529		TCOLON 115		115.00	6	0.9886	113.68								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:15
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

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	38.1	25.0	25.0	0.0	0.9921	45.9	0.8361	47.0			62	6
67		BLM13C		13.800	V3	38.1	25.0	25.0	0.0	0.9921	45.9	0.8361	47.0			62	6
68		BLM13D		13.800	V4	38.1	25.0	25.0	0.0	0.9898	46.0	0.8361	47.0			62	6
90		EST-13L		13.800	E1	22.1	9.9	12.0	-5.0	1.0200	23.8	0.9128	27.0			64	6
91		EST-13T		13.800	E2	22.1	9.9	12.0	-5.0	1.0200	23.8	0.9128	27.0			64	6
94		LV-13.8L		13.800	L1	25.1	11.0	12.0	-5.0	1.0200	26.9	0.9156	27.0			64	6
95		LV-13.8T		13.800	L2	25.1	11.0	12.0	-5.0	1.0200	26.9	0.9156	27.0			64	6
97		FOR13A		13.800	F1	84.2	17.5	50.0	-50.0	1.0200	84.4	0.9791	111.0			64	6
98		FOR13B		13.800	F2	84.2	17.5	50.0	-50.0	1.0200	84.4	0.9791	111.0			64	6
101		BAY13A		13.800	B1	81.1	41.3	50.0	-25.0	1.0180	89.4	0.8912	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	81.7	41.3	50.0	-25.0	1.0180	89.9	0.8923	96.0			61	6
108		BAY13C		13.800	B3	81.7	41.3	50.0	-25.0	1.0180	90.0	0.8923	100.0			61	6
117		CB250A-1		13.800	C1	91.9	39.9	75.6	0.0	1.0200	98.2	0.9173	143.5			62	6
118		CB250A-2		13.800	C2	91.9	39.9	75.6	0.0	1.0200	98.2	0.9173	143.5			62	6
119		CB250B-1		13.800	C1	91.9	39.9	75.6	0.0	1.0200	98.2	0.9173	143.5			62	6
142		CANJ13A		13.800	C1	56.3	21.2	29.0	-29.0	1.0180	59.1	0.9357	69.0			64	6
143		CANJ13B		13.800	C2	56.3	21.2	29.0	-29.0	1.0180	59.1	0.9357	69.0			64	6
150		GUALACA 13-213		13.800	G2	14.0	3.9	7.4	-7.4	1.0200	14.3	0.9627	14.8			64	6
151		GUALACA13.8		13.800	G1	14.0	3.9	7.4	-7.4	1.0200	14.3	0.9627	14.8			64	6

152	BBLANCO_13.813.800	G1	11.0	4.9	7.0	-7.0	1.0200	11.8	0.9120	16.0	64	6
152	BBLANCO_13.813.800	G2	11.0	4.9	7.0	-7.0	1.0200	11.8	0.9120	16.0	64	6
156	TABASARAI1313.800	G1	16.5	5.7	5.7	0.2	0.9976	17.5	0.9457	20.5	1	6
156	TABASARAI1313.800	G2	16.5	5.7	5.7	0.2	0.9976	17.5	0.9457	20.5	1	6
193	GEBONYIC_13.800	G1	9.2	0.4	4.0	-4.0	1.0200	9.0	0.9988	35.3	64	6
193	GEBONYIC_13.800	G2	9.2	0.4	4.0	-4.0	1.0200	9.0	0.9988	35.3	64	6
193	GEBONYIC_13.800	G3	9.2	0.4	4.0	-4.0	1.0200	9.0	0.9988	35.3	64	6
300	SVC-LV_13.200	1	0.7	300.0	300.0	-225.0	1.0217	293.6*	0.0023	250.0	60	6
302	PASOANCH13.813.800	P1	4.3	2.0	2.0	-2.0	0.9539	5.0	0.9060	6.2	64	6
303	SINDIGO13.813.800	G1	9.1	0.0	5.0	0.0	1.1149	8.1	1.0000	13.5	64	6
304	ALGA13.813.800	A1	4.8	-2.3	2.3	-2.3	1.1123	4.8	0.9063	5.7	64	6
304	ALGA13.813.800	A2	4.8	-2.3	2.3	-2.3	1.1123	4.8	0.9063	5.7	64	6
305	ELALTO_13.800	G1	17.1	-5.0	12.0	-5.0	1.0043	17.7	0.9598	20.6	64	6
305	ELALTO_13.800	G2	17.1	-5.0	12.0	-5.0	1.0043	17.7	0.9598	20.6	64	6
305	ELALTO_13.800	G3	17.1	-5.0	12.0	-5.0	1.0043	17.7	0.9598	20.6	64	6
307	CHAN1_A_13.800	G1	92.6	-1.8	50.0	-50.0	1.0200	90.8	0.9998	118.6	64	6
312	PANDO13.813.800	G1	15.1	0.3	10.0	-5.0	1.0150	14.9	0.9998	19.9	64	6
312	PANDO13.813.800	G2	15.1	0.3	10.0	-5.0	1.0150	14.9	0.9998	19.9	64	6
316	MTE_LIRIO13.13.800	G1	24.0	-1.5	12.0	-5.0	1.0150	23.7	0.9980	27.0	64	6
316	MTE_LIRIO13.13.800	G2	24.0	-1.5	12.0	-5.0	1.0150	23.7	0.9980	27.0	64	6
317	MENDRE13.813.800	M1	9.2	0.0	0.0	0.0	1.1144	8.2	1.0000	35.3	64	6
317	MENDRE13.813.800	M2	9.2	0.0	0.0	0.0	1.1144	8.2	1.0000	35.3	64	6
323	COCHEA_13.813.800	C1	5.5	0.0	0.0	0.0	1.1148	4.9	1.0000	35.3	64	6
323	COCHEA_13.813.800	C2	5.5	0.0	0.0	0.0	1.1148	4.9	1.0000	35.3	64	6
324	POTRER13.813.800	P1	4.0	2.0	2.0	-2.0	1.0126	4.4	0.8928	6.2	64	6
340	PEDGALITO13813.800	P1	22.1	12.0	12.0	-5.0	1.0027	25.1	0.8791	27.0	64	6
342	LORENA13.813.800	L1	16.1	1.4	10.5	-5.0	1.0150	15.9	0.9964	19.9	64	6
343	PRUDENCIA_1_13.800	G1	26.2	1.1	9.8	-9.8	1.0150	25.8	0.9991	33.0	64	6
343	PRUDENCIA_1_13.800	G2	26.2	1.1	9.8	-9.8	1.0150	25.8	0.9991	33.0	64	6
346	LORENA_13-2_13.800	L2	16.1	1.4	10.5	-5.0	1.0150	15.9	0.9964	19.9	64	6
350	MACANO_13.813.800	G1	3.3	-1.0	1.0	-1.0	1.0777	3.2	0.9567	6.2	64	6
351	PERLAS_N13.813.800	G1	9.3	5.0	5.0	-5.0	0.9816	10.8	0.8811	13.5	64	6
352	PERLAS_S13.813.800	G1	9.3	5.0	5.0	-5.0	0.9816	10.8	0.8811	13.5	64	6
357	BARTOLO13.813.800	G1	7.0	3.0	3.7	-3.7	1.0150	7.5	0.9220	8.5	64	6
357	BARTOLO13.813.800	G2	7.0	3.0	3.7	-3.7	1.0150	7.5	0.9220	8.5	64	6
359	CRUCES13.813.800	G1	4.1	1.4	2.3	-2.3	1.0150	4.3	0.9456	5.6	64	6
359	CRUCES13.813.800	G2	4.1	1.4	2.3	-2.3	1.0150	4.3	0.9456	5.6	64	6
361	ESTRECHO4.164.1600	G1	4.9	1.2	2.5	-2.5	1.0150	5.0	0.9710	5.6	64	6
361	ESTRECHO4.164.1600	G2	4.9	1.2	2.5	-2.5	1.0150	5.0	0.9710	5.6	64	6
363	LAGUNA_13.813.800	G1	4.2	1.0	2.4	-2.4	1.0150	4.2	0.9727	5.8	64	6
363	LAGUNA_13.813.800	G2	4.2	1.0	2.4	-2.4	1.0150	4.2	0.9727	5.8	64	6
364	MENDRE2_13.800	G1	7.6	3.9	3.9	-3.9	1.0137	8.4	0.8911	8.9	64	6
368	RP-490_13.800	G1	4.5	-0.9	2.4	-2.4	1.0150	4.5	0.9797	5.5	64	6
368	RP-490_13.800	G2	4.5	-0.9	2.4	-2.4	1.0150	4.5	0.9797	5.5	64	6
369	HCALDERA13.813.800	G1	3.4	1.9	1.9	-1.9	1.0125	3.9	0.8689	4.3	64	6

372	BJO FRIO 13	13.800	G1	26.8	0.0	9.8	-9.8	1.0150	26.4	1.0000	33.0	64	6
372	BJO FRIO 13	13.800	G2	26.8	0.0	9.8	-9.8	1.0150	26.4	1.0000	33.0	64	6
373	TIZINGAL13.813	13.800	G1	4.5	2.2	2.2	-2.2	0.9799	5.1	0.8951	21.6	64	6
374	SLORENZO13.813	13.800	G1	3.9	0.4	2.0	-2.0	1.0150	3.8	0.9945	4.5	64	6
374	SLORENZO13.813	13.800	G2	3.9	0.4	2.0	-2.0	1.0150	3.8	0.9945	4.5	64	6
376	PEDREG2 13.813	13.800	G1	6.2	-1.4	3.1	-3.1	1.0150	6.2	0.9741	7.2	64	6
376	PEDREG2 13.813	13.800	G2	6.2	-1.4	3.1	-3.1	1.0150	6.2	0.9741	7.2	64	6
507	CHAN2 A	13.800	G1	90.6	19.5	50.0	-50.0	1.0180	91.0	0.9777	118.6	64	6
541	TOABRE	0.6000	1	30.2	0.0	0.0	0.0	0.9718	31.1	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	26.1	3.6	13.0	-13.0	1.0200	25.9	0.9905	30.5	64	6
704	BJOMIN13B	13.800	G2	26.1	3.6	13.0	-13.0	1.0200	25.9	0.9905	30.5	64	6
705	BAITUN13A	13.800	G1	40.2	1.4	26.6	-26.6	1.0200	39.5	0.9994	50.6	64	6
706	BAITUN13B	13.800	G2	40.2	1.4	26.6	-26.6	1.0200	39.5	0.9994	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9539	5.2	0.9145	6.2	64	6
721	SVC-LV	13.200	1	0.7	300.0	300.0	-225.0	1.0715	280.0*	0.0023	250.0	60	6
SUBSYSTEM TOTALS				1925.5	1123.6	1712.8	-1078.2				3221.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:15
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII

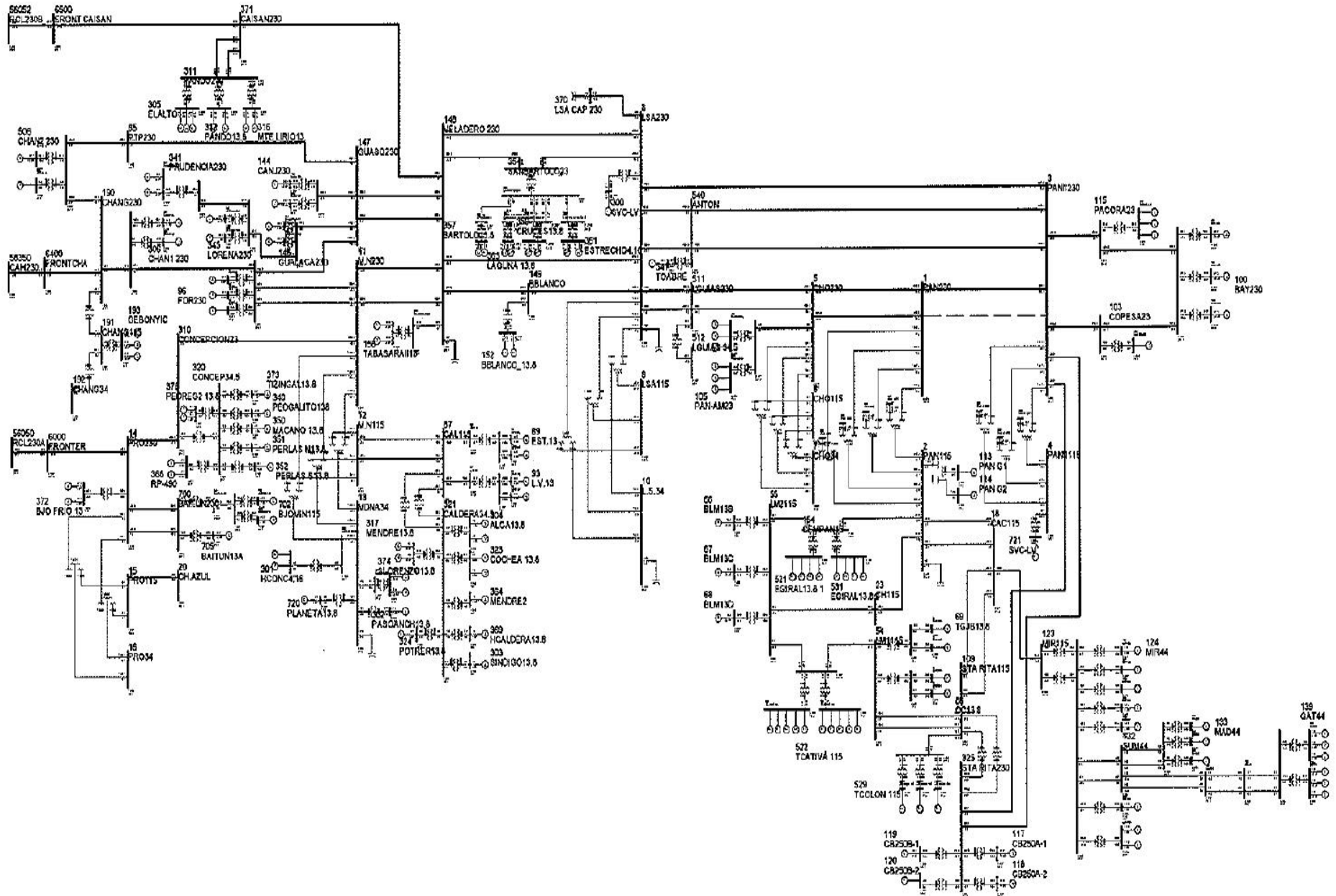
AREA 7 [ACANAL] MACHINE SUMMARY:

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	7.7	0.0	5.0	0.0	1.0169	7.5	1.0000	13.5			65	7
129		MIR13D		13.800	G4	34.4	10.8	15.0	0.0	1.0000	36.1	0.9544	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.2	6.4	8.0	0.0	1.0000	18.4	0.9368	27.7			65	7
140		GAT6A		6.9000	G1	1.9	1.1	2.0	-2.0	1.0000	2.2	0.8788	4.1			65	7
140		GAT6A		6.9000	G2	1.9	1.1	2.0	-2.0	1.0000	2.2	0.8788	4.1			65	7
140		GAT6A		6.9000	G3	1.9	1.1	2.0	-2.0	1.0000	2.2	0.8788	4.1			65	7
141		GAT6B		6.9000	G4	3.9	0.3	3.0	-3.0	1.0000	3.9	0.9963	5.6			65	7
141		GAT6B		6.9000	G5	3.9	0.3	3.0	-3.0	1.0000	3.9	0.9963	6.2			65	7
141		GAT6B		6.9000	G6	3.9	0.3	3.0	-3.0	1.0000	3.9	0.9963	6.2			65	7
170		MIR13G		13.800	M1	17.1	6.8	11.2	6.8	1.0008	18.4	0.9289	23.0			65	7
171		MIR13H		13.800	M1	17.1	6.8	11.2	6.8	1.0100	18.2	0.9289	23.0			65	7
171		MIR13H		13.800	M2	17.1	6.8	11.2	6.8	1.0100	18.2	0.9289	23.0			65	7
SUBSYSTEM TOTALS						128.0	41.8	76.5	5.5				184.9				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:25
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT LSA-PANII 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	1377.4	1330.8	0.0	0.0	0.0	2.0	44.6	-5.2
GUATEMAL	213.6	275.1	-198.2	0.0	277.1	-1.4	415.3	
2	871.4	855.0	0.0	0.0	0.0	2.7	13.7	0.0
SALVADOR	74.3	224.2	-70.7	0.0	229.0	-25.7	175.5	
3	1239.1	1203.0	0.0	0.0	0.0	2.3	33.8	0.0
HONDURAS	461.8	321.1	-47.6	0.0	293.9	54.2	428.0	
4	532.8	525.2	0.0	0.0	0.0	0.7	6.8	0.0
NICARAGU	33.6	207.6	-57.7	0.0	182.2	-47.3	113.2	
5	1300.4	1280.2	0.0	0.0	0.0	3.5	16.7	0.0
COSTA RI	210.2	520.4	-230.4	0.0	418.4	33.7	304.9	
6	1925.5	1844.6	0.0	0.0	0.0	-72.1	153.0	-54.8
PANAMA	1123.6	374.6	-76.0	0.0	540.4	-27.3	1392.8	
7	128.0	65.9	0.0	0.0	0.0	60.9	1.3	60.0
ACANAL	41.8	13.4	0.0	0.0	0.0	13.8	14.7	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7374.7	7104.7	0.0	0.0	0.0	0.0	270.0	0.0
	2158.8	1936.2	-680.6	0.0	1941.2	0.0	2844.4	

7.1.3. Contingencia Panamá – Panamá II



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:34
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	1.0100	232.30	8		LSA230		230.00	6	1.0094	232.17
11		M.N230		230.00	6	1.0133	233.06	14		PRO230		230.00	6	1.0284	236.54
85		PTP230		230.00	6	1.0204	234.69	96		FOR230		230.00	6	1.0172	233.95
100		BAY230		230.00	6	1.0403	239.26	103		COPESA23		230.00	6	1.0148	233.41
115		PACORA23		230.00	6	1.0171	233.94	144		CANJ230		230.00	6	1.0135	233.11
146		GUALACA230		230.00	6	1.0188	234.33	147		GUASQ230		230.00	6	1.0134	233.07
148		VELADERO 230230.00		230.00	6	1.0013	230.29	155		TABASARAI23230.00		230.00	6	1.0032	230.73
190		CHANG230		230.00	6	1.0333	237.66	306		CHAN1 230		230.00	6	1.0321	237.37
310		CONCEPCION23230.00		230.00	6	1.0227	235.21	311		PANDO230		230.00	6	1.0393	239.04
325		STA RITA230		230.00	6	1.0123	232.83	341		PRUDENCIA230230.00		230.00	6	1.0270	236.22
345		LORENA230		230.00	6	1.0241	235.55	370		LSA CAP 230		230.00	6	1.0094	232.17
371		CAISAN230		230.00	6	1.0381	238.77	506		CHAN2 230		230.00	6	1.0336	237.74
540		ANTON		230.00	6	1.0211	234.85	700		BAITUN230		230.00	6	1.0290	236.66
6000		FRONTER		230.00	6	1.0303	236.97	6400		FRONTCHA		230.00	6	1.0342	237.87
6500		FRONT CAISAN230.00		230.00	6	1.0376	238.66								

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	5		CHO230		230.00	6	0.9772	224.76
105		PAN-AM23		230.00	6	0.9772	224.76	149		BBLANCO		230.00	6	0.9997	229.94
354		SANBARTOLO23230.00		230.00	6	0.9986	229.68	511		LGUIAS230		230.00	6	0.9890	227.46

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:34
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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)
4		PANII115		115.00	6	1.0462	120.31	9		LSA115		115.00	6	1.0483	120.55
12		M.N115		115.00	6	1.0174	117.00	15		PRO115		115.00	6	1.0304	118.50
19		C.V115		115.00	6	1.0132	116.52	20		CH.AZUL		115.00	6	1.0312	118.58
52		TOC115		115.00	6	1.0420	119.84	54		LM1115		115.00	6	1.0041	115.47
55		LM2115		115.00	6	1.0044	115.51	87		CAL115		115.00	6	1.0402	119.63
88		EST115		115.00	6	1.0447	120.14	92		L.V115		115.00	6	1.0420	119.82

109 STA RITA115	115.00	6	1.0066	115.76	191 CHANG115	115.00	6	1.0234	117.69
522 TCATIVÁ 115	115.00	6	1.0042	115.49	529 TCOLON 115	115.00	6	1.0066	115.76
701 BAITUN115	115.00	6	1.0130	116.50	702 BJOMIN115	115.00	6	1.0158	116.82

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)
2		PAN115		115.00	6	0.9775	112.41	6		CHO115		115.00	6	0.9787	112.55
18		CAC115		115.00	6	0.9771	112.37	21		C.BAN115		115.00	6	0.9694	111.48
23		CH115		115.00	6	0.9739	111.99	26		LOC115		115.00	6	0.9693	111.47
30		MAR115		115.00	6	0.9647	110.94	33		STM115		115.00	6	0.9745	112.07
37		SAN115		115.00	6	0.9712	111.68	48		TINAJ115		115.00	6	0.9733	111.93
50		M.O115		115.00	6	0.9735	111.96	61		FFIELD		115.00	6	0.9977	114.74
123		MIR115		115.00	7	0.9836	113.11	154		CEMPAN15		115.00	6	0.9944	114.35

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:34
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

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	1.0000	43.5	0.8733	47.0			62	6
67		BLM13C		13.800	V3	38.0	21.2	25.0	0.0	1.0000	43.5	0.8733	47.0			62	6
68		BLM13D		13.800	V4	38.0	22.1	25.0	0.0	1.0000	44.0	0.8642	47.0			62	6
90		EST-13L		13.800	E1	22.0	8.6	12.0	-5.0	1.0200	23.2	0.9317	27.0			64	6
91		EST-13T		13.800	E2	22.0	8.6	12.0	-5.0	1.0200	23.2	0.9317	27.0			64	6
94		LV-13.8L		13.800	L1	25.0	9.6	12.0	-5.0	1.0200	26.3	0.9333	27.0			64	6
95		LV-13.8T		13.800	L2	25.0	9.6	12.0	-5.0	1.0200	26.3	0.9333	27.0			64	6
97		FOR13A		13.800	F1	83.8	6.4	50.0	-50.0	1.0200	82.4	0.9971	111.0			64	6
98		FOR13B		13.800	F2	83.8	6.4	50.0	-50.0	1.0200	82.4	0.9971	111.0			64	6
101		BAY13A		13.800	B1	80.7	25.9	50.0	-25.0	1.0180	83.2	0.9523	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	81.3	25.9	50.0	-25.0	1.0180	83.8	0.9528	96.0			61	6
108		BAY13C		13.800	B3	81.3	25.9	50.0	-25.0	1.0180	83.8	0.9528	100.0			61	6
117		CB250A-1		13.800	C1	91.9	14.4	75.6	0.0	1.0200	91.2	0.9880	143.5			62	6
118		CB250A-2		13.800	C2	91.9	14.4	75.6	0.0	1.0200	91.2	0.9880	143.5			62	6
119		CB250B-1		13.800	C1	91.9	14.4	75.6	0.0	1.0200	91.2	0.9880	143.5			62	6
142		CANJ13A		13.800	C1	56.0	18.9	29.0	-29.0	1.0180	58.1	0.9477	69.0			64	6
143		CANJ13B		13.800	C2	56.0	18.9	29.0	-29.0	1.0180	58.1	0.9477	69.0			64	6
150		GUALACA 13-213.800	G2	14.0		0.7		7.4	-7.4	1.0200	13.7	0.9988	14.8			64	6
151		GUALACA13.8	G1	13.800		0.7		7.4	-7.4	1.0200	13.7	0.9988	14.8			64	6
152		BBLANCO_13.813.800	G1	13.800		10.9	2.4	7.0	-7.0	1.0200	11.0	0.9765	16.0			64	6

152	BBLANCO_13.813.800	G2	10.9	2.4	7.0	-7.0	1.0200	11.0	0.9765	16.0	64	6
156	TABASARAI1313.800	G1	16.4	4.4	5.7	0.2	1.0200	16.7	0.9654	20.5	1	6
156	TABASARAI1313.800	G2	16.4	4.4	5.7	0.2	1.0200	16.7	0.9654	20.5	1	6
193	GEBONYIC 13.800	G1	9.0	0.0	4.0	-4.0	1.0200	8.8	1.0000	35.3	64	6
193	GEBONYIC 13.800	G2	9.0	0.0	4.0	-4.0	1.0200	8.8	1.0000	35.3	64	6
193	GEBONYIC 13.800	G3	9.0	0.0	4.0	-4.0	1.0200	8.8	1.0000	35.3	64	6
300	SVC-LV 13.200	1	0.1	300.0	300.0	-225.0	1.0657	281.5*	0.0003	250.0	60	6
302	PASOANCH13.813.800	P1	4.3	2.0	2.0	-2.0	0.9678	4.9	0.9050	6.2	64	6
303	SINDIGO13.8 13.800	G1	9.0	0.0	5.0	0.0	1.1177	8.1	1.0000	13.5	64	6
304	ALGA13.8 13.800	A1	4.8	-2.3	2.3	-2.3	1.1151	4.8	0.9063	5.7	64	6
304	ALGA13.8 13.800	A2	4.8	-2.3	2.3	-2.3	1.1151	4.8	0.9063	5.7	64	6
305	ELALTO 13.800	G1	17.0	-5.0	12.0	-5.0	1.0163	17.4	0.9594	20.6	64	6
305	ELALTO 13.800	G2	17.0	-5.0	12.0	-5.0	1.0163	17.4	0.9594	20.6	64	6
305	ELALTO 13.800	G3	17.0	-5.0	12.0	-5.0	1.0163	17.4	0.9594	20.6	64	6
307	CHAN1 A 13.800	G1	92.1	-7.7	50.0	-50.0	1.0200	90.6	0.9966	118.6	64	6
312	PANDO13.8 13.800	G1	15.0	-0.7	10.0	-5.0	1.0150	14.8	0.9989	19.9	64	6
312	PANDO13.8 13.800	G2	15.0	-0.7	10.0	-5.0	1.0150	14.8	0.9989	19.9	64	6
316	MTE LIRIO13.13.800	G1	24.0	-4.1	12.0	-5.0	1.0150	24.0	0.9857	27.0	64	6
316	MTE LIRIO13.13.800	G2	24.0	-4.1	12.0	-5.0	1.0150	24.0	0.9857	27.0	64	6
317	MENDRE13.8 13.800	M1	9.0	0.0	0.0	0.0	1.1172	8.1	1.0000	35.3	64	6
317	MENDRE13.8 13.800	M2	9.0	0.0	0.0	0.0	1.1172	8.1	1.0000	35.3	64	6
323	COCHEA 13.8 13.800	C1	5.3	0.0	0.0	0.0	1.1176	4.8	1.0000	35.3	64	6
323	COCHEA 13.8 13.800	C2	5.3	0.0	0.0	0.0	1.1176	4.8	1.0000	35.3	64	6
324	POTRER13.8 13.800	P1	4.0	1.9	2.0	-2.0	1.0150	4.3	0.9048	6.2	64	6
340	PEDGALITO13813.800	P1	22.0	12.0	12.0	-5.0	1.0086	24.9	0.8781	27.0	64	6
342	LORENA13.8 13.800	L1	16.0	-2.7	10.5	-5.0	1.0150	16.0	0.9859	19.9	64	6
343	PRUDENCIA_1 13.800	G1	26.0	-2.2	9.8	-9.8	1.0150	25.7	0.9965	33.0	64	6
343	PRUDENCIA_1 13.800	G2	26.0	-2.2	9.8	-9.8	1.0150	25.7	0.9965	33.0	64	6
346	LORENA 13-2 13.800	L2	16.0	-2.7	10.5	-5.0	1.0150	16.0	0.9859	19.9	64	6
350	MACANO 13.8 13.800	G1	3.3	-1.0	1.0	-1.0	1.0843	3.1	0.9561	6.2	64	6
351	PERLAS N13.813.800	G1	9.3	5.0	5.0	-5.0	0.9875	10.7	0.8799	13.5	64	6
352	PERLAS S13.813.800	G1	9.3	5.0	5.0	-5.0	0.9875	10.7	0.8799	13.5	64	6
357	BARTOLO13.8 13.800	G1	7.0	1.8	3.7	-3.7	1.0150	7.1	0.9689	8.5	64	6
357	BARTOLO13.8 13.800	G2	7.0	1.8	3.7	-3.7	1.0150	7.1	0.9689	8.5	64	6
359	CRUCES13.8 13.800	G1	4.1	0.7	2.3	-2.3	1.0150	4.1	0.9840	5.6	64	6
359	CRUCES13.8 13.800	G2	4.1	0.7	2.3	-2.3	1.0150	4.1	0.9840	5.6	64	6
361	ESTRECHO4.164.1600	G1	4.9	0.6	2.5	-2.5	1.0150	4.9	0.9935	5.6	64	6
361	ESTRECHO4.164.1600	G2	4.9	0.6	2.5	-2.5	1.0150	4.9	0.9935	5.6	64	6
363	LAGUNA 13.8 13.800	G1	4.2	0.4	2.4	-2.4	1.0150	4.1	0.9956	5.8	64	6
363	LAGUNA 13.8 13.800	G2	4.2	0.4	2.4	-2.4	1.0150	4.1	0.9956	5.8	64	6
364	MENDRE2 13.800	G1	7.6	1.9	3.9	-3.9	1.0150	7.7	0.9708	8.9	64	6
368	RP-490 13.800	G1	4.5	-1.4	2.4	-2.4	1.0150	4.7	0.9520	5.5	64	6
368	RP-490 13.800	G2	4.5	-1.4	2.4	-2.4	1.0150	4.7	0.9520	5.5	64	6
369	HCALDERA13.813.800	G1	3.4	1.9	1.9	-1.9	1.0150	3.8	0.8768	4.3	64	6
372	BJO FRIO 13 13.800	G1	26.6	-2.5	9.8	-9.8	1.0150	26.3	0.9956	33.0	64	6

372	BJO FRIO 13	13.800	G2	26.6	-2.5	9.8	-9.8	1.0150	26.3	0.9956	33.0	64	6
373	TIZINGAL13.813	13.800	G1	4.4	2.2	2.2	-2.2	0.9859	5.0	0.8915	21.6	64	6
374	SLORENZO13.813	13.800	G1	3.9	-0.5	2.0	-2.0	1.0150	3.8	0.9912	4.5	64	6
374	SLORENZO13.813	13.800	G2	3.9	-0.5	2.0	-2.0	1.0150	3.8	0.9912	4.5	64	6
376	PEDREG2 13.813	13.800	G1	6.2	-2.2	3.1	-3.1	1.0150	6.5	0.9405	7.2	64	6
376	PEDREG2 13.813	13.800	G2	6.2	-2.2	3.1	-3.1	1.0150	6.5	0.9405	7.2	64	6
507	CHAN2 A	13.800	G1	90.1	13.5	50.0	-50.0	1.0180	89.5	0.9889	118.6	64	6
541	TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0223	29.4	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	26.0	2.9	13.0	-13.0	1.0200	25.7	0.9939	30.5	64	6
704	BJOMIN13B	13.800	G2	26.0	2.9	13.0	-13.0	1.0200	25.7	0.9939	30.5	64	6
705	BAITUN13A	13.800	G1	40.0	-2.3	26.6	-26.6	1.0200	39.3	0.9984	50.6	64	6
706	BAITUN13B	13.800	G2	40.0	-2.3	26.6	-26.6	1.0200	39.3	0.9984	50.6	64	6
720	PLANETA13.8	13.800	G1	4.5	2.0	2.0	-2.0	0.9678	5.1	0.9145	6.2	64	6
721	SVC-LV	13.200	1	0.1	297.4	300.0	-225.0	1.1002	270.3*	0.0003	250.0	60	6
SUBSYSTEM TOTALS				1916.2	879.2	1712.8	-1078.2				3221.3		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:34
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII

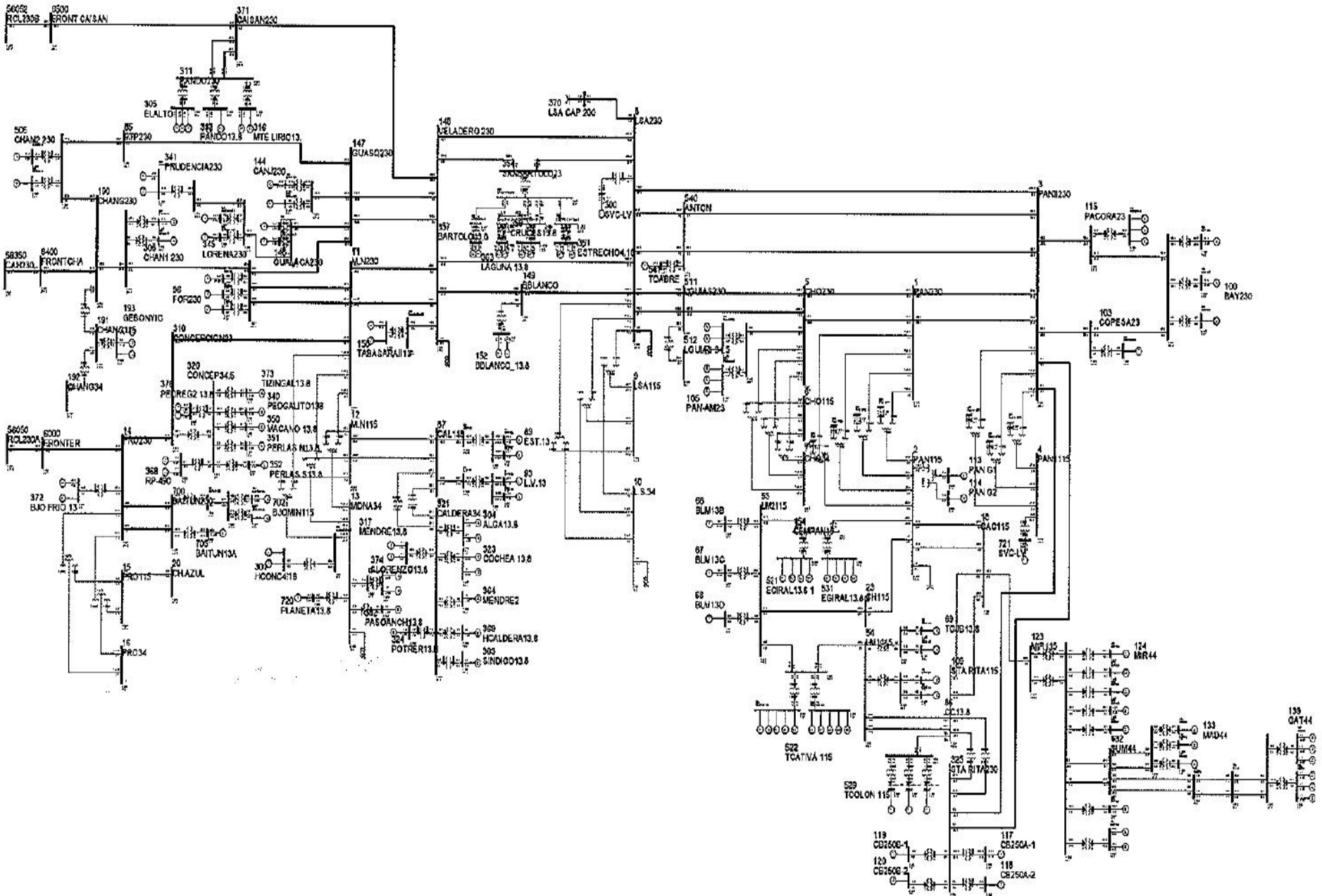
AREA 7 [ACANAL] MACHINE SUMMARY:

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	7.6	0.0	5.0	0.0	1.0273	7.4	1.0000	13.5			65	7
129		MIR13D		13.800	G4	34.2	6.9	15.0	0.0	1.0000	34.9	0.9801	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	2.0	8.0	0.0	1.0000	17.2	0.9931	27.7			65	7
140		GAT6A		6.9000	G1	1.9	0.5	2.0	-2.0	1.0000	2.0	0.9624	4.1			65	7
140		GAT6A		6.9000	G2	1.9	0.5	2.0	-2.0	1.0000	2.0	0.9624	4.1			65	7
140		GAT6A		6.9000	G3	1.9	0.5	2.0	-2.0	1.0000	2.0	0.9624	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-0.2	3.0	-3.0	1.0000	3.9	0.9989	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-0.2	3.0	-3.0	1.0000	3.9	0.9989	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-0.2	3.0	-3.0	1.0000	3.9	0.9989	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0103	18.1	0.9282	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0195	18.0	0.9282	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0195	18.0	0.9282	23.0			65	7
SUBSYSTEM TOTALS				127.4	30.5	76.5	5.5						184.9				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:36
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2020 ESC-MOD DEMANDA-MAX-INVIERNO CONT PAN-PANII 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	1371.1	1330.8	0.0	0.0	0.0	-4.2	44.5	-5.2
GUATEMAL	212.9	275.1	-198.3	0.0	277.2	-0.5	413.8	
2	869.1	855.0	0.0	0.0	0.0	0.4	13.7	0.0
SALVADOR	73.9	224.2	-70.8	0.0	229.0	-25.3	174.9	
3	1237.1	1203.0	0.0	0.0	0.0	0.3	33.8	0.0
HONDURAS	461.3	321.1	-47.6	0.0	294.0	54.4	427.5	
4	532.1	525.2	0.0	0.0	0.0	0.1	6.7	0.0
NICARAGU	32.9	207.6	-57.8	0.0	182.3	-47.2	112.6	
5	1297.0	1280.2	0.0	0.0	0.0	0.5	16.4	0.0
COSTA RI	197.7	520.4	-231.0	0.0	419.9	27.8	300.5	
6	1916.2	1844.6	0.0	0.0	0.0	-57.5	129.1	-54.8
PANAMA	879.2	374.6	-79.6	0.0	614.8	-12.7	1211.6	
7	127.4	65.9	0.0	0.0	0.0	60.4	1.2	60.0
ACANAL	30.5	13.4	0.0	0.0	0.0	3.5	13.6	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7350.0	7104.7	0.0	0.0	0.0	0.0	245.3	0.0
	1888.3	1936.2	-685.0	0.0	2017.3	0.0	2654.5	

7.2 Demanda Mínima de Invierno



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MIN-INVIERNO

MON, MAY 24 2010 18:49

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	1.0010	230.23	11		M.N230		230.00	6	1.0052	231.19
14		PRO230		230.00	6	1.0214	234.93	85		PTP230		230.00	6	1.0111	232.56
96		FOR230		230.00	6	1.0065	231.51	100		BAY230		230.00	6	1.0214	234.91
103		COPESA23		230.00	6	1.0046	231.05	115		PACORA23		230.00	6	1.0064	231.47
144		CANJ230		230.00	6	1.0052	231.20	146		GUALACA230		230.00	6	1.0084	231.93
147		GUASQ230		230.00	6	1.0052	231.20	148		VELADERO	230	230.00	6	1.0012	230.28
149		BBLANCO		230.00	6	1.0005	230.11	155		TABASARAI	230	230.00	6	1.0018	230.41
190		CHANG230		230.00	6	1.0184	234.23	306		CHAN1	230	230.00	6	1.0156	233.59
310		CONCEPCION	230	230.00	6	1.0152	233.50	311		PANDO230		230.00	6	1.0427	239.81
341		PRUDENCIA	230	230.00	6	1.0126	232.90	345		LORENA230		230.00	6	1.0113	232.61
371		CAISAN230		230.00	6	1.0412	239.48	506		CHAN2	230	230.00	6	1.0196	234.50
540		ANTON		230.00	6	1.0157	233.60	700		BAITUN230		230.00	6	1.0207	234.77
6000		FRONTER		230.00	6	1.0247	235.68	6400		FRONTCHA		230.00	6	1.0199	234.57
6500		FRONT CAISAN	230	230.00	6	1.0399	239.18								

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)
1		PAN230		230.00	6	0.9952	228.89	5		CHO230		230.00	6	0.9929	228.36
105		PAN-AM23		230.00	6	0.9929	228.36	325		STA RITA	230	230.00	6	0.9920	228.15
354		SANBARTOLO	230	230.00	6	0.9996	229.90	511		LGUIAS230		230.00	6	0.9963	229.15

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MIN-INVIERNO

MON, MAY 24 2010 18:49

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)
4		PANII115		115.00	6	1.0152	116.75	9		LSA115		115.00	6	1.0416	119.78
12		M.N115		115.00	6	1.0074	115.85	15		PRO115		115.00	6	1.0234	117.69
20		CH.AZUL		115.00	6	1.0241	117.78	52		TOC115		115.00	6	1.0120	116.38
54		LM1115		115.00	6	1.0291	118.35	55		LM2115		115.00	6	1.0292	118.36
61		FFIELD		115.00	6	1.0250	117.88	87		CAL115		115.00	6	1.0261	118.00
88		EST115		115.00	6	1.0298	118.42	92		L.V115		115.00	6	1.0275	118.16
109		STA RITA	115	115.00	6	1.0336	118.86	154		CEMPAN15		115.00	6	1.0176	117.02

191	CHANG115	115.00	6	1.0082	115.94	522	TCATIVÁ	115	115.00	6	1.0292	118.35
529	TCOLON	115	6	1.0336	118.86	701	BAITUN115	115.00	6	1.0102	116.18	
702	BJOMIN115	115.00	6	1.0110	116.26							

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)
2		PAN115		115.00	6	0.9937	114.27	6		CHO115		115.00	6	0.9940	114.31
18		CAC115		115.00	6	0.9935	114.26	19		C.V115		115.00	6	0.9994	114.93
21		C.BAN115		115.00	6	0.9845	113.22	23		CH115		115.00	6	0.9982	114.79
26		LOC115		115.00	6	0.9853	113.31	30		MAR115		115.00	6	0.9834	113.09
33		STM115		115.00	6	0.9915	114.03	37		SAN115		115.00	6	0.9842	113.18
48		TINAJ115		115.00	6	0.9907	113.93	50		M.O115		115.00	6	0.9909	113.95
123		MIR115		115.00	7	0.9988	114.87								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MIN-INVIERNO

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	18.9	25.0	0.0	1.0180	41.7	0.8952	47.0			62	6
67		BLM13C		13.800	V3	38.0	18.9	25.0	0.0	1.0180	41.7	0.8952	47.0			62	6
90		EST-13L		13.800	E1	19.7	6.5	12.0	-5.0	1.0000	20.7	0.9490	27.0			64	6
91		EST-13T		13.800	E2	19.7	6.5	12.0	-5.0	1.0000	20.7	0.9490	27.0			64	6
94		LV-13.8L		13.800	L1	21.6	7.3	12.0	-5.0	1.0000	22.8	0.9471	27.0			64	6
95		LV-13.8T		13.800	L2	21.6	7.3	12.0	-5.0	1.0000	22.8	0.9471	27.0			64	6
97		FOR13A		13.800	F1	79.0	-11.4	50.0	-50.0	0.9900	80.6	0.9897	111.0			64	6
101		BAY13A		13.800	B1	49.9	23.0	50.0	-25.0	1.0000	54.9	0.9083	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	49.9	23.0	50.0	-25.0	1.0000	55.0	0.9085	96.0			61	6
117		CB250A-1		13.800	C1	113.4	31.2	75.6	0.0	1.0100	116.4	0.9642	143.5			62	6
142		CANJ13A		13.800	C1	48.0	11.3	29.0	-29.0	0.9800	50.3	0.9733	69.0			64	6
150		GUALACA	13-213.800	G2	12.0	-4.7	7.4	-7.4	0.9880	13.1	0.9299	14.8			64	6	
151		GUALACA	13.8	G1	12.0	-4.7	7.4	-7.4	0.9880	13.1	0.9299	14.8			64	6	
152		BBLANCO	13.813.800	G1	7.8	0.3	7.0	-7.0	1.0000	7.8	0.9990	16.0			64	6	
152		BBLANCO	13.813.800	G2	8.1	0.4	7.0	-7.0	1.0000	8.1	0.9990	16.0			64	6	
156		TABASARAI	1313.800	G1	15.8	0.2	5.7	0.2	1.0017	15.8	0.9999	20.5			1	6	
193		GEBONYIC	13.800	G1	8.2	-1.1	4.0	-4.0	1.0000	8.3	0.9910	35.3			64	6	
193		GEBONYIC	13.800	G2	8.2	-1.1	4.0	-4.0	1.0000	8.3	0.9910	35.3			64	6	
300		SVC-LV	13.200	1	0.0	59.4	300.0	-225.0	1.0117	58.7	0.0000	250.0			60	6	
302		PASOANCH	13.813.800	P1	4.1	2.0	2.0	-2.0	0.9443	4.8	0.8986	6.2			64	6	

303	SINDIGO13.8	13.800	G1	9.0	0.0	5.0	0.0	1.1014	8.2	1.0000	13.5	64	6
304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0988	4.7	0.9001	5.7	64	6
304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0988	4.7	0.9001	5.7	64	6
305	ELALTO	13.800	G1	16.0	-5.0	12.0	-5.0	1.0282	16.3	0.9545	20.6	64	6
305	ELALTO	13.800	G2	16.0	-5.0	12.0	-5.0	1.0282	16.3	0.9545	20.6	64	6
307	CHAN1 A	13.800	G1	67.4	-22.1	50.0	-50.0	0.9900	71.7	0.9505	118.6	64	6
312	PANDO13.8	13.800	G1	15.0	-5.0	10.0	-5.0	1.0084	15.7	0.9487	19.9	64	6
316	MTE LIRIO13.8	13.800	G1	24.0	-5.0	12.0	-5.0	1.0301	23.8	0.9790	27.0	64	6
317	MENDRE13.8	13.800	M1	7.6	0.0	0.0	0.0	1.1011	6.9	1.0000	35.3	64	6
317	MENDRE13.8	13.800	M2	7.6	0.0	0.0	0.0	1.1011	6.9	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C1	5.1	0.0	0.0	0.0	1.1013	4.6	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C2	5.1	0.0	0.0	0.0	1.1013	4.6	1.0000	35.3	64	6
324	POTRER13.8	13.800	P1	3.8	1.5	2.0	-2.0	1.0000	4.1	0.9347	6.2	64	6
340	PEDGALITO13.8	13.800	P1	22.0	5.9	12.0	-5.0	0.9800	23.2	0.9658	27.0	64	6
342	LORENA13.8	13.800	L1	13.8	-5.0	10.5	-5.0	0.9954	14.8	0.9405	19.9	64	6
343	PRUDENCIA_1	13.800	G1	26.0	-9.8	9.8	-9.8	0.9936	28.0	0.9362	33.0	64	6
346	LORENA 13-2	13.800	L2	13.8	-5.0	10.5	-5.0	0.9954	14.8	0.9405	19.9	64	6
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0665	3.1	0.9528	6.2	64	6
351	PERLAS N13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9715	10.5	0.8721	13.5	64	6
352	PERLAS S13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9715	10.5	0.8721	13.5	64	6
357	BARTOLO13.8	13.800	G1	6.2	0.5	3.7	-3.7	0.9800	6.4	0.9967	8.5	64	6
357	BARTOLO13.8	13.800	G2	6.2	0.5	3.7	-3.7	0.9800	6.4	0.9967	8.5	64	6
359	CRUCES13.8	13.800	G1	4.0	0.0	2.3	-2.3	0.9800	4.1	1.0000	5.6	64	6
359	CRUCES13.8	13.800	G2	4.0	0.0	2.3	-2.3	0.9800	4.1	1.0000	5.6	64	6
361	ESTRECHO4.164	1.600	G1	4.3	-0.1	2.5	-2.5	0.9800	4.3	0.9998	5.6	64	6
361	ESTRECHO4.164	1.600	G2	4.3	-0.1	2.5	-2.5	0.9800	4.3	0.9998	5.6	64	6
363	LAGUNA 13.8	13.800	G1	4.0	-0.3	2.4	-2.4	0.9800	4.1	0.9980	5.8	64	6
363	LAGUNA 13.8	13.800	G2	4.0	-0.3	2.4	-2.4	0.9800	4.1	0.9980	5.8	64	6
364	MENDRE2	13.800	G1	7.0	1.5	3.9	-3.9	1.0000	7.2	0.9788	8.9	64	6
368	RP-490	13.800	G1	4.1	-1.3	2.4	-2.4	1.0000	4.3	0.9537	5.5	64	6
368	RP-490	13.800	G2	4.1	-1.3	2.4	-2.4	1.0000	4.3	0.9537	5.5	64	6
369	HCALDERA13.8	13.800	G1	3.8	1.5	1.9	-1.9	1.0000	4.1	0.9340	4.3	64	6
372	BJO FRIO 13	13.800	G1	26.0	-9.8	9.8	-9.8	1.0026	27.7	0.9362	33.0	64	6
373	TIZINGAL13.8	13.800	G1	4.2	2.2	2.2	-2.2	0.9698	5.0	0.8839	21.6	64	6
374	SLORENZO13.8	13.800	G1	3.7	0.1	2.0	-2.0	1.0000	3.7	0.9996	4.5	64	6
374	SLORENZO13.8	13.800	G2	3.7	0.1	2.0	-2.0	1.0000	3.7	0.9996	4.5	64	6
376	PEDREG2 13.8	13.800	G1	5.9	-2.0	3.1	-3.1	1.0000	6.3	0.9496	7.2	64	6
376	PEDREG2 13.8	13.800	G2	5.9	-2.0	3.1	-3.1	1.0000	6.3	0.9496	7.2	64	6
507	CHAN2 A	13.800	G1	67.4	7.5	50.0	-50.0	1.0000	67.9	0.9939	118.6	64	6
541	TOABRE	0.6000	1	25.0	0.0	0.0	0.0	1.0167	24.6	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	26.0	0.7	13.0	-13.0	1.0000	26.0	0.9996	30.5	64	6
705	BAITUN13A	13.800	G1	40.0	-12.4	26.6	-26.6	0.9880	42.4	0.9550	50.6	64	6
720	PLANETA13.8	13.800	G1	4.4	2.0	2.0	-2.0	0.9443	5.1	0.9088	6.2	64	6
721	SVC-LV	13.200	1	0.0	85.4	300.0	-225.0	1.0318	82.8	0.0000	250.0	60	6
SUBSYSTEM TOTALS				1125.9	215.9	1304.8	-896.3				2336.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MIN-INVIERNO

AREA 7 [ACANAL] MACHINE SUMMARY:

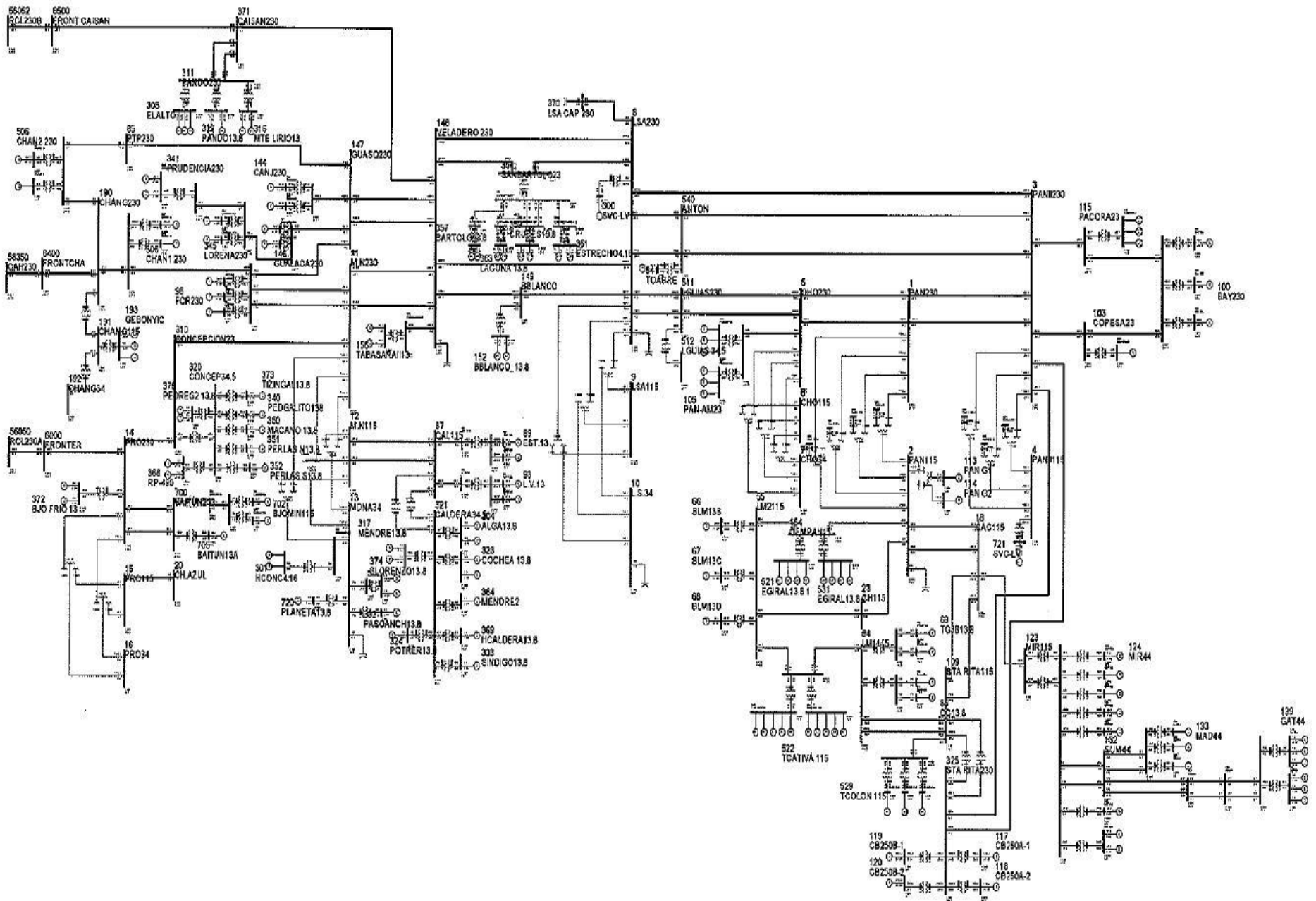
BUS#	X--	NAME	--X	BASKV	ID	MW	MVAR	QMAX	QMIN	ETERM	CURRENT	PF	MVABASE	X T R A N	GENTAP	ZONE	AREA
SWING																	
129		MIR13D		13.800	G4	17.7	3.4	15.0	0.0	1.0000	18.0	0.9823	44.1			65	7
AREA																	
140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.0	0.9262	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.0	0.9262	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.0	0.9262	4.1			65	7
141		GAT6B		6.9000	G4	3.7	-1.5	3.0	-3.0	1.0000	4.0	0.9265	5.6			65	7
141		GAT6B		6.9000	G5	3.7	-1.5	3.0	-3.0	1.0000	4.0	0.9265	6.2			65	7
141		GAT6B		6.9000	G6	3.7	-1.5	3.0	-3.0	1.0000	4.0	0.9265	6.2			65	7
170		MIR13G		13.800	M1	16.4	6.8	11.2	6.8	1.0237	17.3	0.9232	23.0			65	7
171		MIR13H		13.800	M1	16.4	6.8	11.2	6.8	1.0329	17.2	0.9232	23.0			65	7
171		MIR13H		13.800	M2	16.4	6.8	11.2	6.8	1.0329	17.2	0.9232	23.0			65	7
SUBSYSTEM TOTALS						83.6	17.0	63.5	5.5				143.6				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:49
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2020 ESC-MOD DEMANDA-MIN-INVIERNO 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			1256.3	1330.8	0.0	0.0	0.0	-116.1	41.6	-116.1
	GUATEMAL		201.2	275.1	-198.0	0.0	276.7	16.5	384.3	
2			870.6	855.0	0.0	0.0	0.0	0.0	15.6	0.0
	SALVADOR		84.9	224.2	-70.6	0.0	228.2	-24.8	184.3	
3			1237.7	1203.0	0.0	0.0	0.0	0.0	34.8	0.0
	HONDURAS		470.7	321.1	-47.5	0.0	293.2	53.5	436.8	
4			532.9	525.2	0.0	0.0	0.0	-0.2	7.9	0.0
	NICARAGU		40.9	207.6	-57.5	0.0	181.5	-48.6	121.1	
5			1297.6	1280.2	0.0	0.0	0.0	-0.5	18.0	0.0
	COSTA RI		203.5	520.4	-230.5	0.0	418.7	33.3	299.0	

6	1125.9	1014.5	0.0	0.0	0.0	69.9	41.4	69.1
PANAMA	215.9	368.2	55.7	0.0	613.5	-25.8	431.3	
7	83.6	36.2	0.0	0.0	0.0	46.9	0.4	47.0
ACANAL	17.0	13.1	0.0	0.0	0.0	-4.0	7.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6404.6	6245.0	0.0	0.0	0.0	0.0	159.6	0.0
	1234.0	1929.6	-548.4	0.0	2011.8	0.0	1864.5	

7.3 Demanda Máxima de Verano



PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-VERANO

MON, MAY 24 2010 18:53

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	1.0010	230.23	14		PRO230		230.00	6	1.0141	233.24
85		PTP230		230.00	6	1.0033	230.77	100		BAY230		230.00	6	1.0308	237.08
103		COPESA23		230.00	6	1.0059	231.35	115		PACORA23		230.00	6	1.0081	231.87
146		GUALACA230		230.00	6	1.0017	230.40	190		CHANG230		230.00	6	1.0151	233.48
306		CHAN1 230		230.00	6	1.0124	232.85	310		CONCEPCION23		230.00	6	1.0077	231.78
311		PANDO230		230.00	6	1.0291	236.69	325		STA RITA230		230.00	6	1.0022	230.51
341		PRUDENCIA230		230.00	6	1.0091	232.10	345		LORENA230		230.00	6	1.0065	231.51
371		CAISAN230		230.00	6	1.0280	236.44	506		CHAN2 230		230.00	6	1.0157	233.62
540		ANTON		230.00	6	1.0130	232.98	700		BAITUN230		230.00	6	1.0140	233.22
6000		FRONTER		230.00	6	1.0167	233.85	6400		FRONTCHA		230.00	6	1.0171	233.93
6500		FRONT CAISAN230		230.00	6	1.0273	236.28								

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)
1		PAN230		230.00	6	0.9879	227.21	5		CHO230		230.00	6	0.9815	225.75
11		M.N230		230.00	6	0.9979	229.51	96		FOR230		230.00	6	0.9993	229.85
105		PAN-AM23		230.00	6	0.9815	225.75	144		CANJ230		230.00	6	0.9970	229.31
147		GUASQ230		230.00	6	0.9969	229.30	148		VELADERO 230		230.00	6	0.9913	228.00
149		BBLANCO		230.00	6	0.9901	227.72	155		TABASARAI23		230.00	6	0.9926	228.30
354		SANBARTOLO23		230.00	6	0.9900	227.69	511		LGUIAS230		230.00	6	0.9870	227.01

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-VERANO

MON, MAY 24 2010 18:54

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)
4		PANII115		115.00	6	1.0316	118.64	9		LSA115		115.00	6	1.0377	119.33
15		PRO115		115.00	6	1.0161	116.85	19		C.V115		115.00	6	1.0045	115.52
20		CH.AZUL		115.00	6	1.0168	116.93	52		TOC115		115.00	6	1.0274	118.15
54		LM1115		115.00	6	1.0302	118.47	55		LM2115		115.00	6	1.0300	118.45
61		FFIELD		115.00	6	1.0237	117.73	87		CAL115		115.00	6	1.0176	117.02
88		EST115		115.00	6	1.0210	117.42	92		L.V115		115.00	6	1.0189	117.17
109		STA RITA115		115.00	6	1.0378	119.34	154		CEMPAN15		115.00	6	1.0144	116.65

191	CHANG115	115.00	6	1.0048	115.55	522	TCATIVÁ	115	115.00	6	1.0301	118.46
529	TCOLON	115.00	6	1.0378	119.35							

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)
2		PAN115		115.00	6	0.9843	113.20	6		CHO115		115.00	6	0.9829	113.04
12		M.N115		115.00	6	0.9982	114.80	18		CAC115		115.00	6	0.9841	113.17
21		C.BAN115		115.00	6	0.9734	111.94	23		CH115		115.00	6	0.9884	113.66
26		LOC115		115.00	6	0.9740	112.01	30		MAR115		115.00	6	0.9704	111.59
33		STM115		115.00	6	0.9813	112.85	37		SAN115		115.00	6	0.9740	112.01
48		TINAJ115		115.00	6	0.9801	112.72	50		M.O115		115.00	6	0.9803	112.74
123		MIR115		115.00	7	0.9899	113.84	701		BAITUN115		115.00	6	0.9976	114.72
702		BJOMIN115		115.00	6	0.9999	114.99								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:53
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MAX-VERANO

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	14.8	25.0	0.0	1.0100	40.4	0.9316	47.0			62	6
67		BLM13C		13.800	V3	38.0	14.8	25.0	0.0	1.0100	40.4	0.9316	47.0			62	6
68		BLM13D		13.800	V4	38.0	15.4	25.0	0.0	1.0100	40.6	0.9265	47.0			62	6
90		EST-13L		13.800	E1	20.4	6.0	12.0	-5.0	0.9900	21.5	0.9591	27.0			64	6
91		EST-13T		13.800	E2	20.4	6.0	12.0	-5.0	0.9900	21.5	0.9591	27.0			64	6
94		LV-13.8L		13.800	L1	21.6	6.7	12.0	-5.0	0.9900	22.9	0.9548	27.0			64	6
95		LV-13.8T		13.800	L2	21.6	6.7	12.0	-5.0	0.9900	22.9	0.9548	27.0			64	6
97		FOR13A		13.800	F1	88.6	-4.0	50.0	-50.0	0.9900	89.6	0.9990	111.0			64	6
98		FOR13B		13.800	F2	88.6	-4.0	50.0	-50.0	0.9900	89.6	0.9990	111.0			64	6
101		BAY13A		13.800	B1	59.4	24.7	50.0	-25.0	1.0100	63.7	0.9236	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	59.8	24.7	50.0	-25.0	1.0100	64.1	0.9244	96.0			61	6
108		BAY13C		13.800	B3	59.8	24.7	50.0	-25.0	1.0100	64.1	0.9244	100.0			61	6
117		CB250A-1		13.800	C1	113.4	31.0	75.6	0.0	1.0200	115.2	0.9647	143.5			62	6
118		CB250A-2		13.800	C2	113.4	31.0	75.6	0.0	1.0200	115.2	0.9647	143.5			62	6
119		CB250B-1		13.800	C1	113.4	31.0	75.6	0.0	1.0200	115.2	0.9647	143.5			62	6
120		CB250B-2		13.800	C2	113.4	31.0	75.6	0.0	1.0200	115.2	0.9647	143.5			62	6
142		CANJ13A		13.800	C1	51.0	13.7	29.0	-29.0	0.9800	53.9	0.9659	69.0			64	6
143		CANJ13B		13.800	C2	51.0	13.7	29.0	-29.0	0.9800	53.9	0.9659	69.0			64	6
150		GUALACA	13-213.800	G2		12.6	-2.6	7.4	-7.4	0.9900	13.0	0.9796	14.8			64	6
151		GUALACA	13.8	G1		12.6	-2.6	7.4	-7.4	0.9900	13.0	0.9796	14.8			64	6

152	BBLANCO_13.8	13.800	G1	8.1	1.2	7.0	-7.0	1.0000	8.2	0.9888	16.0	64	6
152	BBLANCO_13.8	13.800	G2	8.1	1.2	7.0	-7.0	1.0000	8.2	0.9888	16.0	64	6
156	TABASARAI1313	13.800	G1	16.4	2.3	5.7	0.2	1.0000	16.6	0.9907	20.5	1	6
156	TABASARAI1313	13.800	G2	16.4	2.3	5.7	0.2	1.0000	16.6	0.9907	20.5	1	6
193	GEBONYIC	13.800	G1	9.0	-0.5	4.0	-4.0	1.0000	9.0	0.9984	35.3	64	6
193	GEBONYIC	13.800	G2	9.0	-0.5	4.0	-4.0	1.0000	9.0	0.9984	35.3	64	6
300	SVC-LV	13.200	1	0.0	231.3	300.0	-225.0	1.0443	221.5	0.0000	250.0	60	6
302	PASOANCH13.8	13.800	P1	4.3	2.0	2.0	-2.0	0.9528	4.9	0.9048	6.2	64	6
303	SINDIGO13.8	13.800	G1	8.5	0.0	5.0	0.0	1.0962	7.8	1.0000	13.5	64	6
304	ALGA13.8	13.800	A1	4.8	-2.3	2.3	-2.3	1.0936	4.9	0.9063	5.7	64	6
304	ALGA13.8	13.800	A2	4.8	-2.3	2.3	-2.3	1.0936	4.9	0.9063	5.7	64	6
305	ELALTO	13.800	G1	17.0	-5.0	12.0	-5.0	1.0143	17.5	0.9594	20.6	64	6
305	ELALTO	13.800	G2	17.0	-5.0	12.0	-5.0	1.0143	17.5	0.9594	20.6	64	6
307	CHAN1 A	13.800	G1	103.6	-15.8	50.0	-50.0	0.9900	105.9	0.9886	118.6	64	6
312	PANDO13.8	13.800	G1	13.6	-2.1	10.0	-5.0	0.9900	13.9	0.9888	19.9	64	6
312	PANDO13.8	13.800	G2	13.6	-2.1	10.0	-5.0	0.9900	13.9	0.9888	19.9	64	6
316	MTE LIRIO13.8	13.800	G1	20.6	-5.0	12.0	-5.0	1.0017	21.2	0.9719	27.0	64	6
316	MTE LIRIO13.8	13.800	G2	20.6	-5.0	12.0	-5.0	1.0017	21.2	0.9719	27.0	64	6
317	MENDRE13.8	13.800	M1	7.9	0.0	0.0	0.0	1.0958	7.2	1.0000	35.3	64	6
317	MENDRE13.8	13.800	M2	7.9	0.0	0.0	0.0	1.0958	7.2	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C1	5.3	0.0	0.0	0.0	1.0961	4.8	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C2	5.3	0.0	0.0	0.0	1.0961	4.8	1.0000	35.3	64	6
324	POTRER13.8	13.800	P1	4.0	2.0	2.0	-2.0	0.9956	4.5	0.8928	6.2	64	6
340	PEDGALITO138	13.800	P1	20.4	7.0	12.0	-5.0	0.9800	22.0	0.9455	27.0	64	6
342	LORENA13.8	13.800	L1	14.4	-1.9	10.5	-5.0	1.0000	14.5	0.9916	19.9	64	6
343	PRUDENCIA_1	13.800	G1	22.4	-1.6	9.8	-9.8	1.0000	22.5	0.9974	33.0	64	6
343	PRUDENCIA_1	13.800	G2	22.4	-1.6	9.8	-9.8	1.0000	22.5	0.9974	33.0	64	6
346	LORENA 13-2	13.800	L2	14.4	-1.9	10.5	-5.0	1.0000	14.5	0.9916	19.9	64	6
350	MACANO 13.8	13.800	G1	3.3	-1.0	1.0	-1.0	1.0637	3.2	0.9560	6.2	64	6
351	PERLAS N13.8	13.800	G1	9.3	5.0	5.0	-5.0	0.9689	10.9	0.8797	13.5	64	6
352	PERLAS S13.8	13.800	G1	9.3	5.0	5.0	-5.0	0.9689	10.9	0.8797	13.5	64	6
357	BARTOLO13.8	13.800	G1	6.5	1.5	3.7	-3.7	1.0000	6.7	0.9742	8.5	64	6
357	BARTOLO13.8	13.800	G2	6.5	1.5	3.7	-3.7	1.0000	6.7	0.9742	8.5	64	6
359	CRUCES13.8	13.800	G1	4.1	0.6	2.3	-2.3	1.0000	4.2	0.9904	5.6	64	6
359	CRUCES13.8	13.800	G2	4.1	0.6	2.3	-2.3	1.0000	4.2	0.9904	5.6	64	6
361	ESTRECHO4.164	1.600	G1	4.4	0.4	2.5	-2.5	1.0000	4.4	0.9949	5.6	64	6
361	ESTRECHO4.164	1.600	G2	4.4	0.4	2.5	-2.5	1.0000	4.4	0.9949	5.6	64	6
363	LAGUNA 13.8	13.800	G1	4.2	0.2	2.4	-2.4	1.0000	4.2	0.9983	5.8	64	6
363	LAGUNA 13.8	13.800	G2	4.2	0.2	2.4	-2.4	1.0000	4.2	0.9983	5.8	64	6
364	MENDRE2	13.800	G1	6.8	3.9	3.9	-3.9	0.9967	7.8	0.8691	8.9	64	6
368	RP-490	13.800	G1	4.2	-1.1	2.4	-2.4	1.0000	4.4	0.9703	5.5	64	6
368	RP-490	13.800	G2	4.2	-1.1	2.4	-2.4	1.0000	4.4	0.9703	5.5	64	6
369	HCALDERA13.8	13.800	G1	3.4	1.9	1.9	-1.9	0.9956	3.9	0.8689	4.3	64	6
372	BJO FRIO 13	13.800	G1	23.8	-2.9	9.8	-9.8	1.0000	24.0	0.9929	33.0	64	6
372	BJO FRIO 13	13.800	G2	23.8	-2.9	9.8	-9.8	1.0000	24.0	0.9929	33.0	64	6

373	TTIZINGAL	13.813.800	G1	4.4	2.2	2.2	-2.2	0.9672	5.1	0.8909	21.6	64	6
374	SLORENZO	13.813.800	G1	3.9	-0.5	2.0	-2.0	1.0000	3.9	0.9930	4.5	64	6
374	SLORENZO	13.813.800	G2	3.9	-0.5	2.0	-2.0	1.0000	3.9	0.9930	4.5	64	6
376	PEDREG2	13.813.800	G1	6.2	-1.6	3.1	-3.1	1.0000	6.4	0.9675	7.2	64	6
376	PEDREG2	13.813.800	G2	6.2	-1.6	3.1	-3.1	1.0000	6.4	0.9675	7.2	64	6
507	CHAN2 A	13.800	G1	101.7	14.1	50.0	-50.0	1.0000	102.6	0.9905	118.6	64	6
541	TOABRE	0.6000	1	30.0	0.0	0.0	0.0	1.0142	29.6	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	23.8	2.0	13.0	-13.0	1.0000	23.9	0.9966	30.5	64	6
704	BJOMIN13B	13.800	G2	23.8	2.0	13.0	-13.0	1.0000	23.9	0.9966	30.5	64	6
705	BAITUN13A	13.800	G1	36.6	-4.7	26.6	-26.6	1.0000	36.8	0.9920	50.6	64	6
706	BAITUN13B	13.800	G2	36.6	-4.7	26.6	-26.6	1.0000	36.8	0.9920	50.6	64	6
720	PLANETA	13.813.800	G1	4.5	2.0	2.0	-2.0	0.9528	5.2	0.9145	6.2	64	6
721	SVC-LV	13.200	1	0.0	230.4	300.0	-225.0	1.0745	214.5	0.0000	250.0	60	6
SUBSYSTEM TOTALS				1962.5	731.3	1772.4	-1069.2				3308.9		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:53
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MAX-VERANO

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	7.6	0.0	5.0	0.0	1.0305	7.4	1.0000	13.5			65	7
129		MIR13D		13.800	G4	35.5	5.4	15.0	0.0	1.0000	35.9	0.9885	44.1			65	7
AREA																	
130		MIR13F		13.800	G5	17.1	0.4	8.0	0.0	1.0000	17.1	0.9997	27.7			65	7
140		GAT6A		6.9000	G1	1.9	-0.3	2.0	-2.0	1.0000	2.0	0.9895	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.3	2.0	-2.0	1.0000	2.0	0.9895	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.3	2.0	-2.0	1.0000	2.0	0.9895	4.1			65	7
141		GAT6B		6.9000	G4	3.9	-1.0	3.0	-3.0	1.0000	4.0	0.9667	5.6			65	7
141		GAT6B		6.9000	G5	3.9	-1.0	3.0	-3.0	1.0000	4.0	0.9667	6.2			65	7
141		GAT6B		6.9000	G6	3.9	-1.0	3.0	-3.0	1.0000	4.0	0.9667	6.2			65	7
170		MIR13G		13.800	M1	17.0	6.8	11.2	6.8	1.0137	18.1	0.9281	23.0			65	7
171		MIR13H		13.800	M1	17.0	6.8	11.2	6.8	1.0229	17.9	0.9281	23.0			65	7
171		MIR13H		13.800	M2	17.0	6.8	11.2	6.8	1.0229	17.9	0.9281	23.0			65	7
SUBSYSTEM TOTALS				128.6	22.4	76.5	5.5						184.9				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:54
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2020 ESC-MOD DEMANDA-MAX-VERANO 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	1334.1	1330.8	0.0	0.0	0.0	-40.1	43.3	-39.5
GUATEMAL	210.7	275.1	-198.4	0.0	277.2	5.1	406.1	
2	868.7	855.0	0.0	0.0	0.0	-0.2	13.9	0.0
SALVADOR	74.6	224.2	-70.7	0.0	229.0	-25.2	175.3	
3	1236.7	1203.0	0.0	0.0	0.0	0.0	33.8	0.0
HONDURAS	461.8	321.1	-47.6	0.0	294.0	54.2	428.1	
4	532.0	525.2	0.0	0.0	0.0	0.1	6.7	0.0
NICARAGU	32.8	207.6	-57.8	0.0	182.3	-47.3	112.5	
5	1296.5	1280.2	0.0	0.0	0.0	0.2	16.2	0.0
COSTA RI	207.3	520.4	-230.6	0.0	418.1	40.6	295.0	
6	1962.5	1875.2	0.0	0.0	0.0	-20.5	107.9	-20.5
PANAMA	731.3	380.8	-81.6	0.0	606.7	-22.4	1061.1	
7	128.6	67.0	0.0	0.0	0.0	60.5	1.2	60.0
ACANAL	22.4	13.6	0.0	0.0	0.0	-5.1	13.9	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	7359.1	7136.3	0.0	0.0	0.0	0.0	222.8	0.0
	1740.7	1942.6	-686.6	0.0	2007.2	0.0	2492.0	

7.4 Demanda Mínima de Verano

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MIN-VERANO

MON, MAY 24 2010 18:57

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	1.0010	230.23	11		M.N230		230.00	6	1.0095	232.19
14		PRO230		230.00	6	1.0235	235.41	85		PTP230		230.00	6	1.0143	233.28
96		FOR230		230.00	6	1.0106	232.44	100		BAY230		230.00	6	1.0213	234.91
103		COPESA23		230.00	6	1.0045	231.05	115		PACORA23		230.00	6	1.0063	231.46
144		CANJ230		230.00	6	1.0097	232.23	146		GUALACA230		230.00	6	1.0126	232.89
147		GUASQ230		230.00	6	1.0097	232.22	148		VELADERO	230	230.00	6	1.0068	231.57
149		BBLANCO		230.00	6	1.0059	231.36	155		TABASARAI	23230.00	6	1.0074	231.70	
190		CHANG230		230.00	6	1.0185	234.25	306		CHAN1	230	230.00	6	1.0163	233.74
310		CONCEPCION	23230.00	6	1.0184	234.23	311		PANDO230		230.00	6	1.0450	240.36	
341		PRUDENCIA	230230.00	6	1.0162	233.72	345		LORENA230		230.00	6	1.0152	233.50	
354		SANBARTOLO	23230.00	6	1.0042	230.96	371		CAISAN230		230.00	6	1.0436	240.04	
506		CHAN2	230	230.00	6	1.0203	234.68	540		ANTON		230.00	6	1.0167	233.85
700		BAITUN230		230.00	6	1.0227	235.22	6000		FRONTER		230.00	6	1.0265	236.10
6400		FRONTCHA		230.00	6	1.0192	234.41	6500		FRONT CAISAN	230.00	6	1.0421	239.69	

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	0.9945	228.74	5		CHO230		230.00	6	0.9935	228.51
8		LSA230		230.00	6	1.0000	230.00	105		PAN-AM23		230.00	6	0.9935	228.51
325		STA RITA	230	230.00	6	0.9954	228.94	370		LSA CAP	230	230.00	6	1.0000	230.00
511		LGUIAS230		230.00	6	0.9978	229.49								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E
PLAN DE EXPANSION DEL SIN JUNIO-2010
AÑO 2020 ESC-MOD DEMANDA-MIN-VERANO

MON, MAY 24 2010 18:57

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)
4		PANII115		115.00	6	1.0120	116.39	9		LSA115		115.00	6	1.0413	119.75
12		M.N115		115.00	6	1.0134	116.54	15		PRO115		115.00	6	1.0255	117.93
20		CH.AZUL		115.00	6	1.0262	118.02	52		TOC115		115.00	6	1.0088	116.01
54		LM1115		115.00	6	1.0313	118.60	55		LM2115		115.00	6	1.0315	118.62
61		FFIELD		115.00	6	1.0270	118.11	87		CAL115		115.00	6	1.0256	117.94
88		EST115		115.00	6	1.0276	118.18	92		L.V115		115.00	6	1.0264	118.03

109	STA RITA115	115.00	6	1.0357	119.10	154	CEMPAN15	115.00	6	1.0178	117.05
191	CHANG115	115.00	6	1.0081	115.94	522	TCATIVÁ 115	115.00	6	1.0314	118.61
529	TCOLON 115	115.00	6	1.0357	119.10	701	BAITUN115	115.00	6	1.0131	116.50
702	BJOMIN115	115.00	6	1.0136	116.57						

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)
2		PAN115		115.00	6	0.9894	113.79	6		CHO115		115.00	6	0.9947	114.39
18		CAC115		115.00	6	0.9894	113.78	19		C.V115		115.00	6	0.9957	114.51
21		C.BAN115		115.00	6	0.9802	112.72	23		CH115		115.00	6	0.9963	114.58
26		LOC115		115.00	6	0.9810	112.81	30		MAR115		115.00	6	0.9790	112.59
33		STM115		115.00	6	0.9873	113.54	37		SAN115		115.00	6	0.9799	112.69
48		TINAJ115		115.00	6	0.9864	113.44	50		M.O115		115.00	6	0.9866	113.46
123		MIR115		115.00	7	0.9951	114.44								

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:57
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MIN-VERANO

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	14.2	25.0	0.0	1.0100	40.2	0.9370	47.0			62	6
67		BLM13C		13.800	V3	38.0	14.2	25.0	0.0	1.0100	40.2	0.9370	47.0			62	6
68		BLM13D		13.800	V4	38.0	14.7	25.0	0.0	1.0100	40.4	0.9323	47.0			62	6
90		EST-13L		13.800	E1	19.7	7.5	12.0	-5.0	1.0000	21.0	0.9349	27.0			64	6
94		LV-13.8L		13.800	L1	21.6	8.0	12.0	-5.0	1.0000	23.0	0.9380	27.0			64	6
97		FOR13A		13.800	F1	79.0	-15.1	50.0	-50.0	0.9900	81.3	0.9822	111.0			64	6
101		BAY13A		13.800	B1	51.1	23.1	50.0	-25.0	1.0000	56.1	0.9114	96.0			61	6
SYST																	
102		BAY13B		13.800	B2	48.3	22.9	50.0	-25.0	1.0000	53.5	0.9038	96.0			61	6
117		CB250A-1		13.800	C1	113.4	26.1	75.6	0.0	1.0100	115.2	0.9746	143.5			62	6
118		CB250A-2		13.800	C2	113.4	26.1	75.6	0.0	1.0100	115.2	0.9746	143.5			62	6
142		CANJ13A		13.800	C1	46.2	10.0	29.0	-29.0	0.9800	48.3	0.9772	69.0			64	6
150		GUALACA 13-213.800		G2	12.0	-5.8	7.4	-7.4	0.9880	13.5	0.9010	14.8			64	6	
151		GUALACA13.8		G1	12.0	-5.8	7.4	-7.4	0.9880	13.5	0.9010	14.8			64	6	
152		BBLANCO 13.813.800		G1	7.8	-0.8	7.0	-7.0	1.0000	7.8	0.9950	16.0			64	6	
156		TABASARÁII1313.800		G1	15.8	0.2	5.7	0.2	1.0073	15.7	0.9999	20.5			1	6	
193		GEBONYIC 13.800		G1	8.2	-1.1	4.0	-4.0	1.0000	8.3	0.9911	35.3			64	6	
193		GEBONYIC 13.800		G2	8.2	-1.1	4.0	-4.0	1.0000	8.3	0.9911	35.3			64	6	
300		SVC-LV		1	0.0	-4.2	300.0	-225.0	0.9992	4.2	0.0000	250.0			60	6	
302		PASOANCH13.813.800		P1	4.1	2.0	2.0	-2.0	0.9478	4.8	0.8986	6.2			64	6	

303	SINDIGO13.8	13.800	G1	9.0	0.0	5.0	0.0	1.1013	8.2	1.0000	13.5	64	6
304	ALGA13.8	13.800	A1	4.7	-2.3	2.3	-2.3	1.0987	4.7	0.9001	5.7	64	6
304	ALGA13.8	13.800	A2	4.7	-2.3	2.3	-2.3	1.0987	4.7	0.9001	5.7	64	6
305	ELALTO	13.800	G1	14.5	-5.0	12.0	-5.0	1.0308	14.8	0.9450	20.6	64	6
305	ELALTO	13.800	G2	14.5	-5.0	12.0	-5.0	1.0308	14.8	0.9450	20.6	64	6
307	CHAN1 A	13.800	G1	67.4	-22.7	50.0	-50.0	0.9900	71.9	0.9478	118.6	64	6
312	PANDO13.8	13.800	G1	13.1	-5.0	10.0	-5.0	1.0119	13.9	0.9343	19.9	64	6
316	MTE LIRIO13.8	13.800	G1	19.9	-5.0	12.0	-5.0	1.0330	19.9	0.9698	27.0	64	6
317	MENDRE13.8	13.800	M1	7.6	0.0	0.0	0.0	1.1010	6.9	1.0000	35.3	64	6
317	MENDRE13.8	13.800	M2	7.6	0.0	0.0	0.0	1.1010	6.9	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C1	5.1	0.0	0.0	0.0	1.1012	4.6	1.0000	35.3	64	6
323	COCHEA 13.8	13.800	C2	5.1	0.0	0.0	0.0	1.1012	4.6	1.0000	35.3	64	6
324	POTRER13.8	13.800	P1	3.8	1.6	2.0	-2.0	1.0000	4.1	0.9237	6.2	64	6
340	PEDGALITO13.8	13.800	P1	19.7	5.2	12.0	-5.0	0.9800	20.7	0.9673	27.0	64	6
342	LORENA13.8	13.800	L1	13.8	-5.0	10.5	-5.0	0.9994	14.7	0.9405	19.9	64	6
343	PRUDENCIA_1	13.800	G1	21.6	-9.8	9.8	-9.8	0.9976	23.7	0.9112	33.0	64	6
346	LORENA 13-2	13.800	L2	13.8	-5.0	10.5	-5.0	0.9994	14.7	0.9405	19.9	64	6
350	MACANO 13.8	13.800	G1	3.1	-1.0	1.0	-1.0	1.0681	3.1	0.9528	6.2	64	6
351	PERLAS N13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9729	10.5	0.8721	13.5	64	6
352	PERLAS S13.8	13.800	G1	8.9	5.0	5.0	-5.0	0.9729	10.5	0.8721	13.5	64	6
357	BARTOLO13.8	13.800	G1	6.2	0.4	3.7	-3.7	0.9800	6.4	0.9984	8.5	64	6
357	BARTOLO13.8	13.800	G2	6.2	0.4	3.7	-3.7	0.9800	6.4	0.9984	8.5	64	6
359	CRUCES13.8	13.800	G1	4.0	-0.1	2.3	-2.3	0.9800	4.1	0.9998	5.6	64	6
359	CRUCES13.8	13.800	G2	4.0	-0.1	2.3	-2.3	0.9800	4.1	0.9998	5.6	64	6
361	ESTRECHO4.164	1.600	G1	4.3	-0.2	2.5	-2.5	0.9800	4.3	0.9991	5.6	64	6
361	ESTRECHO4.164	1.600	G2	4.3	-0.2	2.5	-2.5	0.9800	4.3	0.9991	5.6	64	6
363	LAGUNA 13.8	13.800	G1	4.0	-0.3	2.4	-2.4	0.9800	4.1	0.9966	5.8	64	6
363	LAGUNA 13.8	13.800	G2	4.0	-0.3	2.4	-2.4	0.9800	4.1	0.9966	5.8	64	6
364	MENDRE2	13.800	G1	7.0	1.6	3.9	-3.9	1.0000	7.2	0.9750	8.9	64	6
368	RP-490	13.800	G1	4.1	-1.4	2.4	-2.4	1.0000	4.3	0.9453	5.5	64	6
368	RP-490	13.800	G2	4.1	-1.4	2.4	-2.4	1.0000	4.3	0.9453	5.5	64	6
369	HCALDERA13.8	13.800	G1	3.8	1.6	1.9	-1.9	1.0000	4.1	0.9230	4.3	64	6
372	BJO FRIO 13	13.800	G1	22.9	-9.8	9.8	-9.8	1.0050	24.8	0.9201	33.0	64	6
373	TIZINGAL13.8	13.800	G1	4.2	2.2	2.2	-2.2	0.9712	4.9	0.8839	21.6	64	6
374	SLORENZO13.8	13.800	G1	3.7	-0.1	2.0	-2.0	1.0000	3.7	0.9995	4.5	64	6
374	SLORENZO13.8	13.800	G2	3.7	-0.1	2.0	-2.0	1.0000	3.7	0.9995	4.5	64	6
376	PEDREG2 13.8	13.800	G1	5.9	-2.1	3.1	-3.1	1.0000	6.3	0.9406	7.2	64	6
376	PEDREG2 13.8	13.800	G2	5.9	-2.1	3.1	-3.1	1.0000	6.3	0.9406	7.2	64	6
507	CHAN2 A	13.800	G1	67.4	6.8	50.0	-50.0	1.0000	67.8	0.9950	118.6	64	6
541	TOABRE	0.6000	1	28.9	0.0	0.0	0.0	1.0179	28.4	1.0000	88.9	64	6
703	BJOMIN13A	13.800	G1	22.9	-0.2	13.0	-13.0	1.0000	22.9	1.0000	30.5	64	6
705	BAITUN13A	13.800	G1	35.2	-13.7	26.6	-26.6	0.9880	38.2	0.9321	50.6	64	6
720	PLANETA13.8	13.800	G1	4.4	2.0	2.0	-2.0	0.9478	5.1	0.9088	6.2	64	6
721	SVC-LV	13.200	1	0.0	71.1	300.0	-225.0	1.0259	69.3	0.0000	250.0	60	6
SUBSYSTEM TOTALS				1203.0	137.8	1374.4	-879.3				2457.4		

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:57
 PLAN DE EXPANSION DEL SIN JUNIO-2010
 AÑO 2020 ESC-MOD DEMANDA-MIN-VERANO

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
129		MIR13D		13.800	G4	18.1	4.4	15.0	0.0	1.0000	18.6	0.9714	44.1			65	7
SWING																	
AREA																	
140		GAT6A		6.9000	G1	1.9	-0.8	2.0	-2.0	1.0000	2.0	0.9230	4.1			65	7
140		GAT6A		6.9000	G2	1.9	-0.8	2.0	-2.0	1.0000	2.0	0.9230	4.1			65	7
140		GAT6A		6.9000	G3	1.9	-0.8	2.0	-2.0	1.0000	2.0	0.9230	4.1			65	7
141		GAT6B		6.9000	G4	3.7	-1.5	3.0	-3.0	1.0000	4.0	0.9249	5.6			65	7
141		GAT6B		6.9000	G5	3.7	-1.5	3.0	-3.0	1.0000	4.0	0.9249	6.2			65	7
141		GAT6B		6.9000	G6	3.7	-1.5	3.0	-3.0	1.0000	4.0	0.9249	6.2			65	7
170		MIR13G		13.800	M1	16.4	6.8	11.2	6.8	1.0210	17.4	0.9232	23.0			65	7
171		MIR13H		13.800	M1	16.4	6.8	11.2	6.8	1.0302	17.2	0.9232	23.0			65	7
171		MIR13H		13.800	M2	16.4	6.8	11.2	6.8	1.0302	17.2	0.9232	23.0			65	7
SUBSYSTEM TOTALS						84.0	18.0	63.5	5.5				143.6				

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E MON, MAY 24 2010 18:57
 PLAN DE EXPANSION DEL SIN JUNIO-2010 AREA TOTALS
 AÑO 2020 ESC-MOD DEMANDA-MIN-VERANO 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	1179.0	1330.8	0.0	0.0	0.0	-191.8	39.9	-191.8
GUATEMAL	202.0	275.1	-197.8	0.0	276.4	34.1	367.1	
2	874.2	855.0	0.0	0.0	0.0	0.0	19.1	0.0
SALVADOR	100.9	224.2	-70.3	0.0	227.1	-29.9	204.0	
3	1240.1	1203.0	0.0	0.0	0.0	0.0	37.1	0.0
HONDURAS	490.2	321.1	-47.1	0.0	291.4	51.6	456.0	
4	536.1	525.2	0.0	0.0	0.0	0.0	10.9	0.0
NICARAGU	61.3	207.6	-56.9	0.0	179.8	-51.1	141.7	
5	1303.4	1280.2	0.0	0.0	0.0	0.0	23.3	0.0
COSTA RI	228.2	520.4	-229.4	0.0	416.9	25.7	328.5	
6	1202.9	1031.3	0.0	0.0	0.0	145.0	26.6	144.8
PANAMA	137.8	374.3	86.4	0.0	615.6	-26.9	319.5	
7	84.0	36.8	0.0	0.0	0.0	46.8	0.4	47.0
ACANAL	18.0	13.4	0.0	0.0	0.0	-3.5	8.0	
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COLOMBIA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTALS	6419.7	6262.4	0.0	0.0	0.0	0.0	157.4	0.0
	1238.5	1935.9	-515.2	0.0	2007.2	0.0	1824.8	