

Anexo 14

Salidas del Caso REGMHTTLA9: Medio Hidrotérmico con Carbón, Eólico y Gas Vía Gasoducto

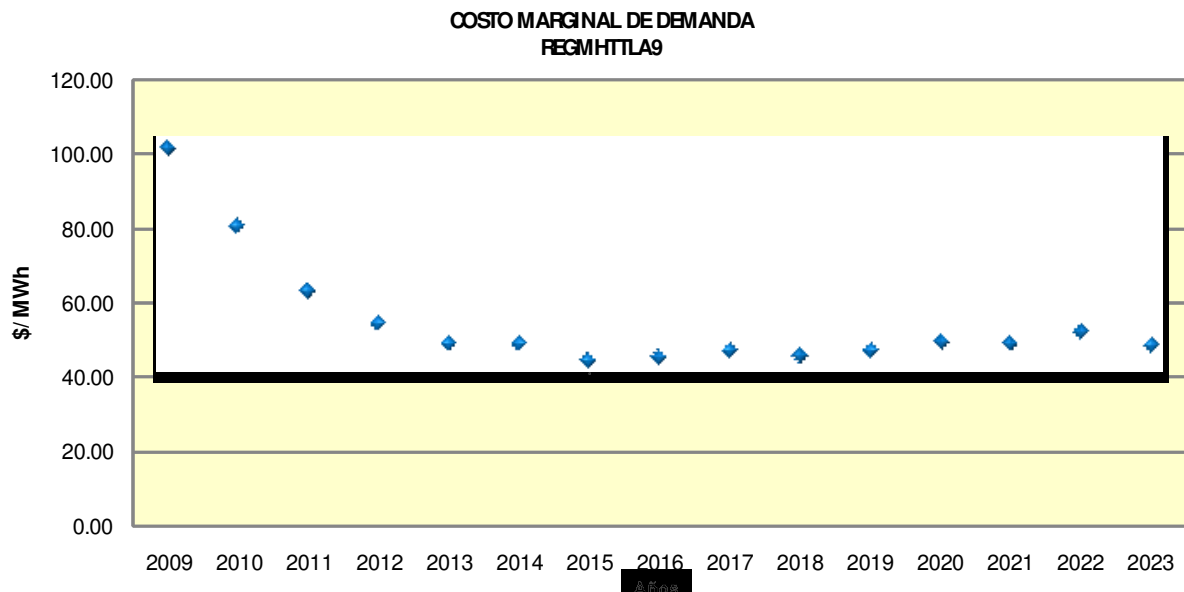
Cuadro N° A3.1 Capacidad Firme Caso REGMHTTLA9

CAPACIDAD FIRME (MW) - HIDROTERMICO CON GAN CARBÓN EOLICA/DEM.MEDIA

Caso REGMHTTLA9	Capacidad Instalada	Factor Disponib.	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
EGE FORTUNA	300		284	284	284	284	284	284	284	284	284	284	284	284	284	284	284
Fortuna	300		284	284	284	284	284	284	284	284	284	284	284	284	284	284	284
AES PANAMA	482		306	306	306	306	306	306	306	306	306	306	306	306	306	306	306
Bayano	260		160	160	160	160	160	160	160	160	160	160	160	160	160	160	160
La Estrella	47		16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Los Valles	55		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Canjiones	120		113	113	113	113	113	113	113	113	113	113	113	113	113	113	113
ISTMUS HYDROPOWER, S.A.	10		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Concepcion	10		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
BLM CORP.	280		169	210	210	210	210	210	210	210	210	210	210	210	210	210	210
Bahia las Minas 2	40	0.68	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bahia las Minas 3	40	0.53	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bahia las Minas 4	40	0.48	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bahia las Minas Carbón	120	0.90	0	108	108	108	108	108	108	108	108	108	108	108	108	108	108
Ciclo Combinado BLM	160	0.64	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102
AUTORIDAD DEL CANAL DE PANAMA (ACP)	175		132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
ACP	175		132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
TURBINAS DE GAS PANAMA (EGESA)	43		34	34	0	0	0	0	0	0	0	0	0	0	0	0	0
EGESA	43	0.79	34	34	0	0	0	0	0	0	0	0	0	0	0	0	0
COPESA	44		40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Copesa	44	0.90	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
PAN-AM GENERATING	96		82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
Pan-Am	96	0.85	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
PEDREGAL POWER PROJECT	53.5		46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Pacora PP	53.5	0.85	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
TÉRMICA DEL CARIBE, S.A.	50.0		45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
El Giral	50.0	0.90	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
GENERADORA DEL ATLANTICO, S.A.	150.0		105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
T. Colon	150.0	0.70	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
GDF SUEZ ENERGY	87.0		78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
T. Cativa	87.0	0.90	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
PROYECTOS HIDROELECTRICOS (FUTUROS)	950		0	4	196	430	485	485	636	636	636	636	636	636	636	636	636
Gualaca	25	22	0	0	22	22	22	22	22	22	22	22	22	22	22	22	22
Lorena	34	31	0	0	31	31	31	31	31	31	31	31	31	31	31	31	31
Pruencia	56	50	0	0	50	50	50	50	50	50	50	50	50	50	50	50	50
Pedregalito	20	3	0	0	3	3	3	3	3	3	3	3	3	3	3	3	3
Pando	33	25	0	0	0	25	25	25	25	25	25	25	25	25	25	25	25
Monte Lirio	52	32	0	0	0	0	32	32	32	32	32	32	32	32	32	32	32
El Alto	60	25	0	0	0	25	25	25	25	25	25	25	25	25	25	25	25
Bonyic	31	19	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19
Bajo Mina	52	29	0	0	29	29	29	29	29	29	29	29	29	29	29	29	29
Chan I	223	166	0	0	0	166	166	166	166	166	166	166	166	166	166	166	166
Chan II	214	150	0	0	0	0	0	150	150	150	150	150	150	150	150	150	150
Baitun	86	57	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57
Tabasará II	35	12	0	0	0	0	12	12	12	12	12	12	12	12	12	12	12
Mendre	18	4	0	0	4	4	4	4	4	4	4	4	4	4	4	4	4
Barro Blanco	20	11	0	0	0	0	0	11	11	11	11	11	11	11	11	11	11
PROYECTOS TERMOELECTRICOS (FUTUROS)	1090		0	0	0	0	0	0	0	0	0	0	0	0	225	225	225
Carbón 1a	150	0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbón 1b	150	0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCGN	250	0.90	0	0	0	0	0	0	0	0	0	0	0	0	225	225	225
Carbón 2b	250	0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbón 2c	250	0.85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROYECTOS EOLICOS (FUTUROS)	346		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tobare	150	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Anton	105	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Santa Fe	91	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
POTENCIA FIRME			1322	1367	1525	1759	1814	1814	1965	1965	1965	1965	1965	1965	2190	2190	2190
Demanda Máxima de Generación			1112	1184	1240	1293	1356	1411	1472	1528	1584	1644	1706	1769	1827	1887	1949
BALANCE			210	183	285	467	458	404	493	437	381	321	258	196	363	303	241
RESERVA			18.91%	15.48%	23.01%	36.10%	33.81%	28.62%	33.49%	28.63%	24.04%	19.49%	15.14%	11.89%	19.89%	16.06%	12.37%

CUADRO N° A3.1: Costos Marginales del Caso REGMHTTLA9

COSTO MARGINAL DE DEMANDA EN \$/MWh													
Año	Ene	Feb	Mar	Abr	May	Jun	Jul	Ago	Sep	Oct	Nov	Dic	Prom
2009	91.52	98.43	106.50	120.06	186.31	99.52	93.75	94.08	87.14	83.25	78.11	77.81	101.37
2010	77.72	82.77	95.97	110.36	96.40	79.83	79.14	72.59	70.25	68.77	66.02	63.86	80.30
2011	64.66	66.28	69.35	71.98	67.11	64.24	62.06	61.90	60.16	59.62	57.72	52.43	63.13
2012	58.29	60.01	63.23	64.57	61.77	57.66	56.72	54.83	46.69	43.32	42.97	47.58	54.80
2013	50.04	54.50	60.62	61.17	57.08	53.32	48.93	47.01	41.46	38.91	35.98	40.32	49.11
2014	47.15	54.26	58.91	57.96	55.66	52.63	49.63	44.61	44.15	39.52	40.34	43.23	49.00
2015	47.57	52.70	64.26	67.48	57.29	49.46	41.57	35.32	31.95	29.45	28.63	30.36	44.67
2016	39.42	48.80	62.45	71.40	51.92	47.96	36.53	39.47	37.88	36.25	37.19	36.73	45.50
2017	41.07	48.55	64.53	64.02	56.83	46.97	46.34	44.83	39.00	40.32	37.81	40.60	47.57
2018	44.08	49.18	52.51	54.74	51.66	49.49	44.92	44.58	41.02	41.57	40.16	39.44	46.11
2019	43.36	48.24	53.53	57.30	53.89	49.54	47.10	43.61	43.03	41.96	42.77	43.57	47.33
2020	47.47	52.06	57.23	61.58	58.41	54.53	50.67	45.72	43.80	40.69	41.70	41.03	49.57
2021	43.16	49.44	60.51	71.02	59.47	52.69	46.34	43.58	40.73	40.80	40.59	42.94	49.27
2022	47.10	54.07	63.47	72.64	62.01	53.92	50.66	48.37	44.54	43.39	43.31	42.57	52.17
2023	44.69	50.52	57.33	59.31	56.05	49.30	47.34	46.25	44.90	44.06	41.57	41.93	48.60
Prom	52.49	57.99	66.03	71.04	68.79	57.41	53.45	51.12	47.78	46.13	44.99	45.63	



CUADRO N° A3.2: Informe Final de Generación del Caso REGMHTTLA9

Informe Final de Generación en GWh															
Planta	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Fortuna	1716	1649	1620	1586	1625	1468	1472	1530	1626	1566	1463	1787	1523	1497	1499
Bayano	701	546	618	486	470	488	558	489	549	415	595	610	606	559	483
La Estrella	236	268	245	248	251	250	232	235	248	260	259	238	250	252	228
Los Valles	286	309	292	289	287	285	285	279	289	306	293	282	290	293	271
Esti	620	612	611	612	608	611	601	605	615	617	614	615	610	617	622
Concepción	60	61	61	60	60	61	61	61	63	62	61	60	60	62	61
Algarobos	0	56	56	56	53	52	55	57	58	60	56	54	53	53	52
B. Blanco	0	0	0	59	104	104	101	102	107	105	104	104	102	104	101
Baitún	0	0	329	417	401	406	400	418	436	433	420	411	413	416	406
Bajo Mina	0	109	278	275	271	275	269	275	284	283	277	273	274	278	274
Bonyic	0	0	68	172	181	174	160	174	171	176	177	176	172	173	181
Chan I	0	0	134	1279	1279	1232	1199	1242	1273	1204	1271	1266	1279	1317	1253
Chan II	0	0	0	0	0	0	1009	1082	1104	1039	1105	1108	1128	1157	1081
Cochea	0	77	83	79	76	80	76	78	81	78	81	81	76	78	76
El Alto	0	0	0	266	264	262	267	276	284	278	273	265	262	269	265
Gualaca	0	62	121	121	120	121	119	120	122	122	122	122	121	122	123
Lorena	0	14	162	163	162	162	160	161	164	164	163	163	162	164	165
Macano	0	0	27	27	27	27	27	27	27	27	27	27	27	27	27
Mendre	0	116	106	112	108	113	104	115	111	111	108	105	105	107	108
Monte Lirio	0	0	0	45	221	212	221	223	236	237	226	219	217	225	217
Pando	0	0	0	113	155	150	151	154	165	167	159	152	155	159	152
Pedregalito	0	0	94	103	99	103	100	107	107	107	103	100	98	105	102
Perlas N	0	0	61	60	60	61	61	61	63	62	61	60	60	62	61
Perlas S	0	0	61	60	60	61	61	61	63	62	61	60	60	62	61
Porven N	0	0	20	20	20	20	20	20	21	21	20	20	20	20	20
Potrerrillos	0	23	24	23	22	23	22	23	23	23	23	23	21	23	22
Prudencia	0	0	203	283	279	283	277	278	285	285	285	285	276	283	286
Sindigo	0	0	0	0	0	0	0	59	59	62	56	53	54	52	52
Tabasará II	0	0	0	20	197	200	189	201	207	209	201	203	197	213	203
Toabré	0	135	429	429	426	426	425	424	428	430	429	424	428	427	427
Antón	0	0	0	372	370	373	367	372	372	369	375	376	376	376	372
BUNKER	3071	2622	1690	1078	824	808	965	1054	1178	846	848	1112	887	1100	658
DIESEL M.	157	106	5	0	0	0	19	33	20	0	4	1	24	23	0
DIESEL L.	12	4	0	0	0	0	0	4	0	0	0	0	0	4	0
CARBON	158	946	916	768	634	598	521	399	429	536	522	606	464	574	488
GAS NATURAL	0	0	0	0	0	0	0	0	0	0	0	0	1783	1897	1801
ACP1	147	66	3	0	0	0	6	8	2	0	0	0	8	5	0
ACP2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACP3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ACP4	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hidro	3619	3903	5276	7033	7458	7283	8255	8513	8839	8541	8663	8923	8673	8746	8451
Total Term.	3550	3745	2614	1846	1458	1406	1511	1498	1629	1382	1374	1719	3166	3603	2947
Total Eólico	0	135	429	802	796	798	792	796	800	799	804	800	804	802	800
Total Gener	7169	7783	8319	9680	9711	9487	10558	10807	11268	10722	10841	11442	12644	13151	12198
Import.	32	63	31	3	20	143	61	71	62	324	539	407	127	105	672
Export.	362	571	724	1728	1361	887	1466	1351	1420	719	648	720	1274	1371	484
P.rdidias	1	2	1	0	1	4	2	2	2	10	16	12	4	3	20
Demanda	6838	7274	7625	7954	8369	8739	9150	9526	9909	10316	10716	11118	11493	11882	12366
Deficit	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0