

Supply-Demand Outlook 2013 to 2020

National Government-Local Government

Joint Energy Forum

Heritage Hotel, Pasay City

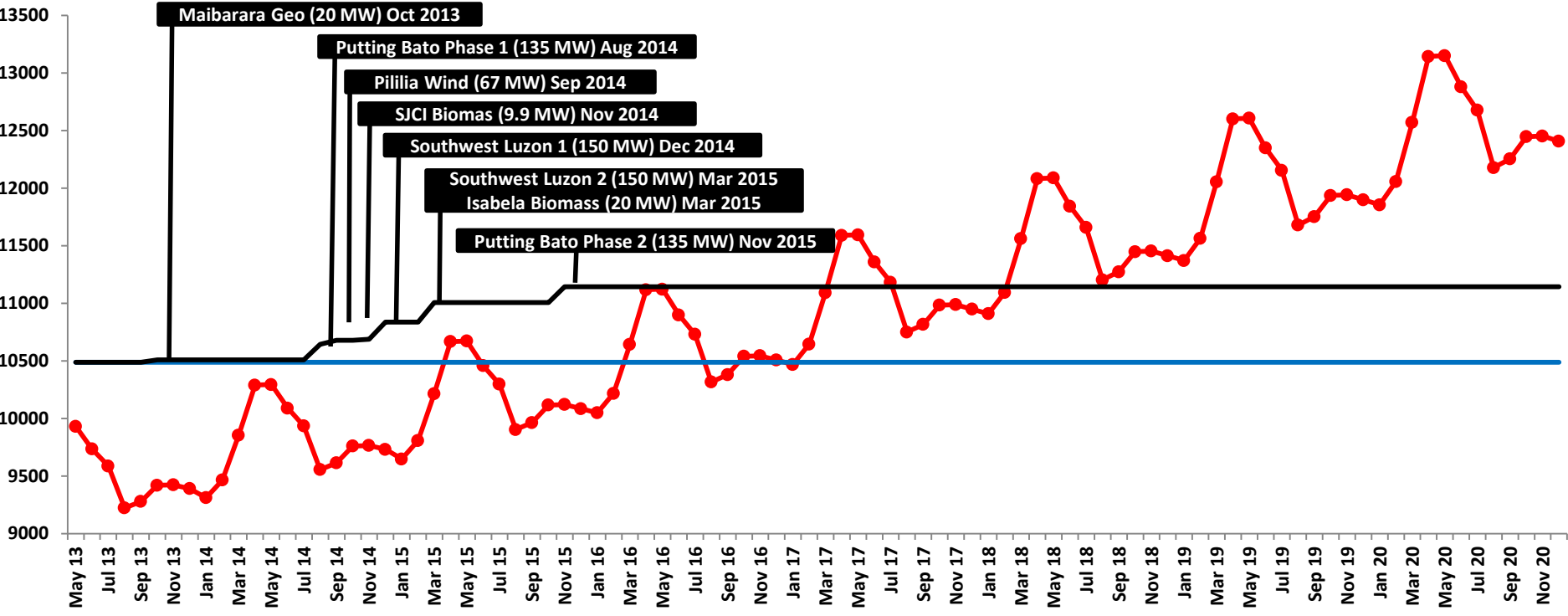
6 September 2013

Sec. Carlos Jericho L. Petilla

Department of Energy



LUZON SUPPLY-DEMAND OUTLOOK 2013-2020



Start of Critical Periods ● Projected Demand — Available Capacity — Available+Committed

On Available Capacity:

- Apr-May 2015: Projected Deficit of 184 MW
- Mar-Jul 2016: Projected Deficit of 240 to 635 MW

On Available Capacity + Committed:

- Apr-Jun 2017: Projected Deficit of 200 to 450 MW
- Mar-Dec 2018: Projected Deficit of 270 to 940 MW

- Notes**
- Demand curve as plotted includes total of peak demand and required Reserve Margin (RM) i.e. 4% regulating reserve and contingency and dispatchable reserve requirement
 - 4.2 % peak demand growth rate resulted from observed 0.6 elasticity ratio of demand for electric power with national economic growth applied to 7 percent GDP growth rate (GR) target for 2013-2015.
 - 4.8 % peak demand growth rate resulted from observed 0.6 elasticity ratio of demand for electric power with national economic growth applied to 8 percent GDP growth rate (GR) target for 2016-2020.
 - Assumed 6.6 percent average forced outage of the total dependable capacity

COMMITTED POWER PROJECTS

Luzon Grid Committed Power Projects, **687.4 MW**

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Project Cost (Php Billion)	Target Commissioning
135 MW Puting Bato Coal Fired Power Plant Phase I	South Luzon Thermal Energy Corp. (SLTEC)	Brgy. Puting Bato West, Calaca, Batangas	135.0	12.9	August 2014
135 MW Puting Bato Coal Fired Power Plant Phase II	South Luzon Thermal Energy Corp. (SLTEC)	Brgy. Puting Bato West, Calaca, Batangas	135.0	9.6	November 2015
2 X 150 MW SLPGC Coal-Fired Power Plant Phase I	Southwest Luzon Power Generation Corporation	Brgy. San Rafael, Calaca, Batangas	300.0	45.4	Unit I - Dec 2014 Unit II - March 2015
Maibarara Geothermal Power Project	Maibarara Geothermal, Inc.	Sitio Capuz, Brgy. San Rafael, Sto. Tomas, Batangas	20.0	3.4	October 2013
Pililla Wind Power Project	Alternergy Wind One Corporation	Pililla, Rizal	67.5	7.7	September 2014 (Subject to FIT)
9.9 MWe (net) SJCiPower Rice Husk-Fired Biomass power Plant Project	San Jose City I Power Corporation	Brgy. Tulat, San Jose, Nueva Ecija	9.9	1.2	December 2014
20 MW IBEC Biomass Power Plant	Isabela Biomass Energy Corporation	Isabela	20.0	1.9	March 2015 (Subject to FIT)
TOTAL			687.4	82.1	

INDICATIVE POWER PROJECTS

Luzon Grid Indicative Power Projects, **8006.8 MW**

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
2 X 20 MW FDC Camarines CFB Coal Power Plant	FDC Utilities, Inc.	Camarines Sur	40.0	'March 2016
2 X 300 MW Coal-Fired Power Plant	Redondo Peninsula Energy, Inc.	Sitio Naglatore, Cawag, Subic Bay Freeport Zone	600.0	Phase I - October 2016 Phase II - December 2016
2 X 600 MW Mariveles Expansion Project	GNPower Mariveles Coal Plant Ltd. Co.	Mariveles, Bataan	1,200.0	2018
2 X 150 MW SLPGC Coal-Fired Power Plant Phase II	Southwest Luzon Power Generation Corporation	Brgy. San Rafael, Calaca, Batangas	300.0	Unit I - 2017 Unit II - 2017
2 X 300 MW Masinloc Expansion	AES Masinloc Power Partners Co., Inc.	Zambales	600.0	Unit 3 (300 MW) - September 2016 Unit 4 (300 MW) - September 2016
300 MW Limay Power Plant Project Phase I	SMC Consolidated Power Corporation	Brgy. Lamao, Limay, Bataan	300.0	150 MW - Dec. 2015 150 MW - May 2016
Quezon Power Expansion Project	Quezon Power Phils.	Mauban, Quezon	500.0	'March 2018
300 MW Limay Power Plant Project Phase II	SMC Consolidated Power Corporation	Brgy. Lamao, Limay, Bataan	300.0	2018
300 MW Limay Power Plant Project Phase III	SMC Consolidated Power Corporation	Brgy. Lamao, Limay, Bataan	300.0	2020
TOTAL COAL			4,140.0	

INDICATIVE POWER PROJECTS

Luzon Grid Indicative Power Projects, 8006.8 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Aero Derivative Combined Cycle Power Plant	Calamba Aero Power Corporation	Calamba, Laguna	150.0	TBA
TOTAL DIESEL			150.0	
Pagbilao 300 MW Combined Cycle Gas Fired Power Plant	Energy World Corporation	Brgy. Ibabang Polo, Grande Island, Pagbilao, Quezon	300.0	June 2014
300 MW Batangas Mid-Merit Plant Project	First Gen Corporation	Batangas	300.0	September 2014
San Gabriel Power Plant	First Gas Power Corp.	San Gabriel, Batangas	550.0	September 2015
LNG-Fired Combined Cycle Power Plant	Meralco PowerGen Corporation	Atimonan, Quezon	1,750.0	2018
TOTAL NATURAL GAS			2,900.0	
Tanawon Geothermal Project	Energy Development Corporation	Guinlajon, Sorsogon	40.0	2018
Rangas Geothermal Project	Energy Development Corporation	Bacon District, Sorsogon	40.0	2019
Kayabon Geothermal Project	Energy Development Corporation	Manito, Albay	40.0	2019
TOTAL GEOTHERMAL			120.0	
Kanan Hydro Power Project	Kanan Hydro Electric Power Corp.	Gen. Nakar, Quezon Province	150.0	December 2020
Dupinga Hydroelectric Power Project	Constellation Energy Corporation	Gabalton, Nueva Ecija	3.0	October 2015
Ibulao Hydroelectric Power Project	Hydrocore, Inc.	Lagawe, Ifugao	4.5	May 2015
TOTAL HYDRO			157.5	

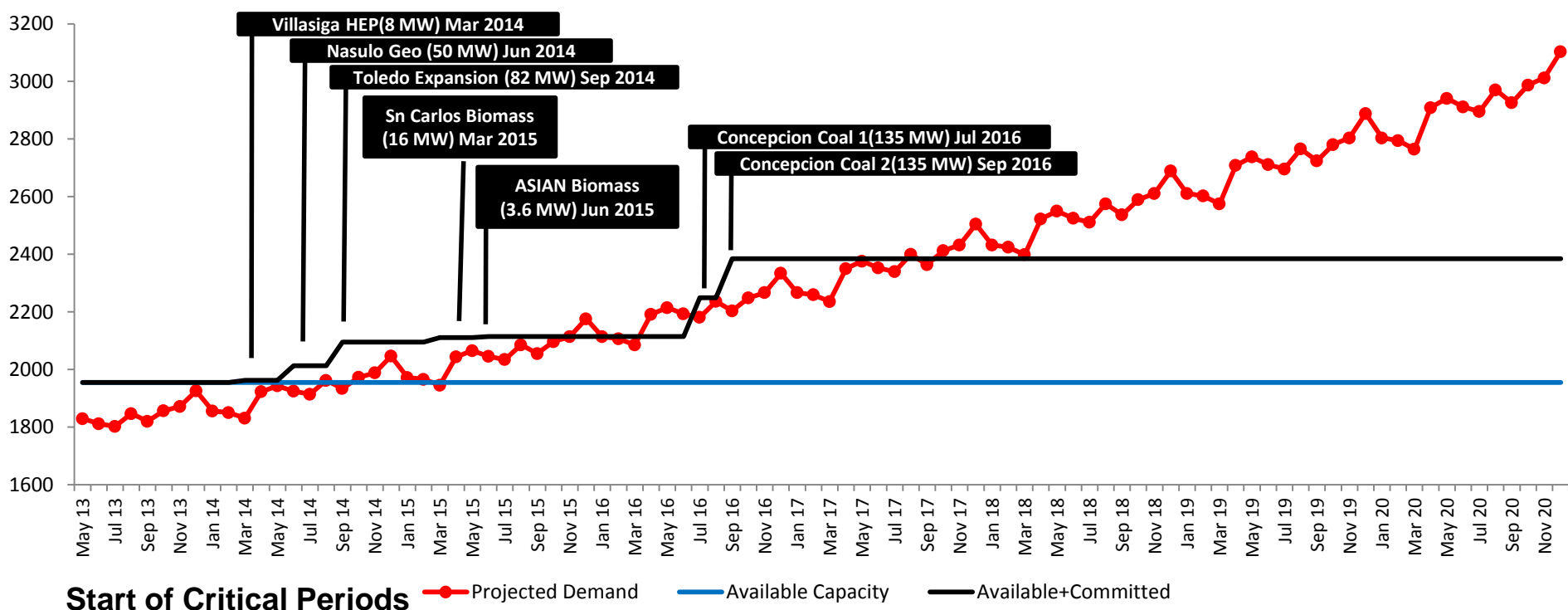
List of Indicative Power Projects as of July 2013

INDICATIVE POWER PROJECTS

Luzon Grid Indicative Power Projects, 8006.8 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Phase 2: Mabita Wind Power Project	Alternergy Sembrano Wind Corporation	Mt. Sembrano, Mabita, Laguna	56.0	January 2017
Phase 1: Pasuquin East Wind Power Project	Energy Logics Philippines, Inc.	Pasuquin, Ilocos Norte	48.0	January 2017 (Subject to FIT)
Phase 2: Pasuquin East Wind Power Project	Energy Logics Philippines, Inc.	Pasuquin, Ilocos Norte	72.0	February 2014 (Subject to FIT)
Burgos Wind Power Project	EDC Burgos Wind Power Corporation	Nagsurot-Saoit, Burgos, Ilocos Norte	87.0	October 2014 (Subject to FIT)
Cavinti Wind Farm Project	Alternergy Wind Cavinti Corporation (Project Company)	Cavinti, Laguna	50.0	January 2017
80 MW Caparispisan and Balaoi Wind Energy Project	Northern Luzon UPC Asia Corporation	Brgys. Caparispisan and Balaoi, Municipality of Pagudpud, Province of Ilocos Norte	81.0	September 2014
Balaoi Wind Power Project	Northern Luzon UPC Asia Corporation	Brgy. Balaoi, Pagudpud, Ilocos Norte	45.0	August 2015
TOTAL WIND			439.0	
Currimaosolar Photovoltaic Power Project	Mirae Asia Energy Corporation	Currimaos, Ilocos Norte	20.0	August 2014 Subject to FIT
Macabud Solar Photovoltaic Power Project	ATN Philippines Solar Energy Group, Inc.	Brgy. Macabud, Rodriguez, Rizal	30.0	February 2016 Subject to FIT
TOTAL SOLAR			50.0	
20 MW Waste-to-Energy Project using Thermal Gasifier Conversion	CJ Global Green Energy Philippine Corp.	Camarines Sur	18.0	June 2015
Unisan Biogas Project	Unisan Biogen Corporation	Quezon Province	11.2	Phase I (2 MW) December 2013 Phase II (9.2 MW) December 2015
Lucky PPH Biomass project	Lucky PPH International	Isabela	3.6	December 2013
17.5 MW Nueva Ecija Biomass Power Project	Green Power Nueva Ecija Philippines, Inc.	Brgy. Tambo-Tabuating, San Leonardo, Nueva Ecija	17.5	December 2014
TOTAL BIOMASS			50.3	

VISAYAS SUPPLY-DEMAND OUTLOOK 2013-2020



On Available Capacity:

- Nov-Dec 2014: Projected Deficit of 30 to 90 MW
- Apr-Dec 2015: Projected Deficit of 80 MW to Max 220 MW

On Available Capacity + Committed:

- Dec 2015: Projected Deficit of 60 MW
- Apr-Jun 2016: Projected Deficit of 70 to 100 MW
- Dec 2017-Dec 2018: Projected Deficit of 120 to 305 MW

Notes

- Demand curve as plotted includes total of peak demand and required Reserve Margin (RM) i.e. 4% regulating reserve and contingency and dispatchable reserve requirement
- 7 % peak demand growth rate resulted from observed 1 elasticity ratio of demand for electric power with national economic growth applied to 7 percent GDP growth rate (GR) target for 2013-2015.
- 8 % peak demand growth rate resulted from observed 1 elasticity ratio of demand for electric power with national economic growth applied to 8 percent GDP growth rate (GR) target for 2016-2020.
- Assumed 7 percent average forced outage of the total dependable capacity

COMMITTED POWER PROJECTS

Visayas Grid Committed Power Projects, 429.6 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Project Cost (Php Billion)	Target Commissioning
2 X 135 MW Concepcion Coal-fired Power Plant	Palm Thermal Consolidated Holdings Corp.	Brgy. Nipa, Concepcion, Iloilo	270.0	26.4	1st Unit - July 2016 2nd Unit - September 2016
TPC Coal-Fired Power Plant Expansion Project (1 x 82 MW Coal-Fired Power Plant)	Toledo Power Company	Toledo City, Cebu	82.0	10.2	September 2014
Nasulo Geothermal Project	Energy Development Corporation	Nasuji, Valencia, Negros Oriental	50.0	4.0	June 2014
Villasiga HEP	Sunwest Water & Electric Co., Inc.	Brgy. Igsoro, Bugasong, Antique	8.0	1.4	March 2014
Asian Energy System Biomass Project	Asian Energy System Corporation	Cebu	3.6	0.2	December 2015
18 MW San Carlos Biomass Project	San Carlos BioPower Inc.	San Carlos City, Negros Occidental	16.0	1.7	March 2015
TOTAL			429.6	43.8	

INDICATIVE POWER PROJECTS

Visayas Grid Indicative Power Projects, 723 MW

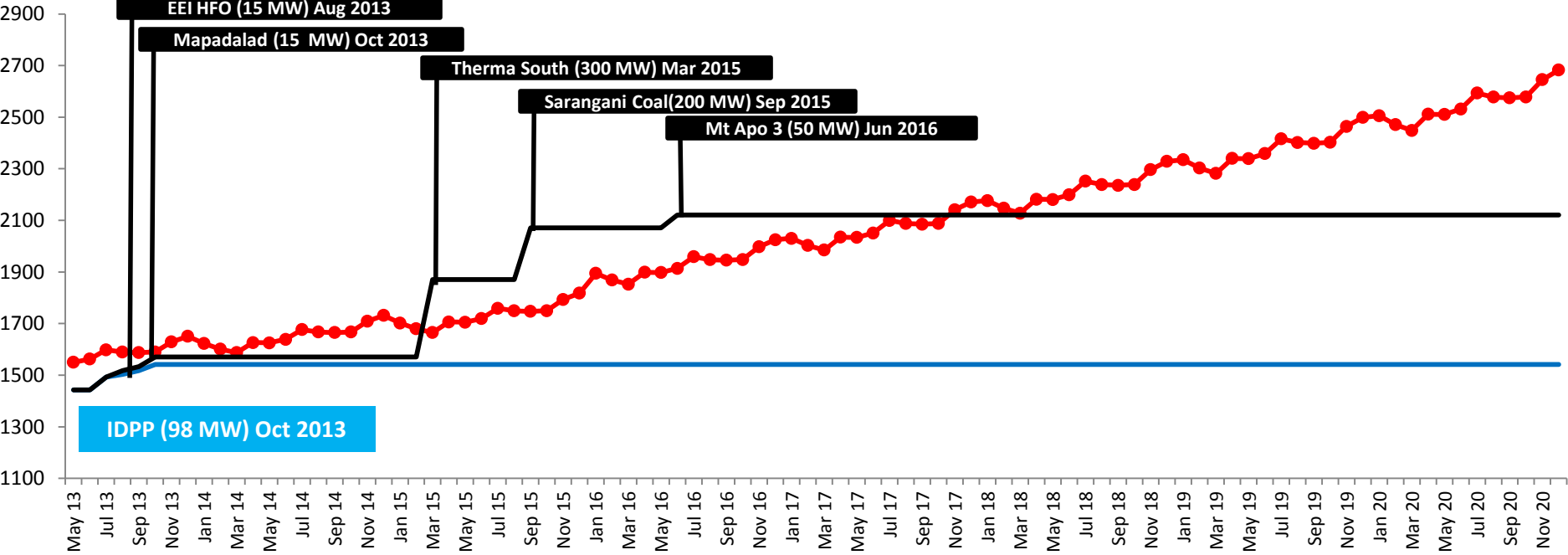
Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
1 X 20 MW FDC Danao CFB Coal Power Plant	FDC Utilities, Inc.	Danao City, Cebu	20.0	2016
PEDC Expansion Project (1 X 82 MW Coal-Fired Power Plant)	Panay Energy Development Corporation (Global Business Power Corporation)	Brgy. Ingore, La Paz, Iloilo	150.0	2015
300 MW Therma Visayas Energy Project	Therma Visayas Inc.	Brgy. Bato, Toledo City, Cebu	300.0	June 2017
TOTAL COAL			470.0	
Dauin Geothermal Project	Energy Development Corporation	Dauin, Negros Oriental	40.0	2018
Southern Leyte Geothermal Project	Energy Development Corporation	Cabalian, Southern Leyte	40.0	2019
TOTAL GEOTHERMAL			80.0	

INDICATIVE POWER PROJECTS

Visayas Grid Indicative Power Projects, 723 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Timbaban Hydroelectric Power Project	Oriental Energy and Power Generation Corporation	Madalag, Aklan	18.0	August 2017
Igbulo (Bais) Hydroelectric Power Project	Century Peak Energy Corporation	Igbaras, Iloilo	6.0	January 2015
Guiamon San Ramon Hydroelectric Power Project	Sunwest Water & Electric Co., Inc.	Laua-an, Antique	2.0	TBA
Cantakoy Hydroelectric Power Project	Quadrivier Energy Corporation	Danao, Bohol	8.0	January 2018
TOTAL HYDRO			34.0	
Nabas Wind Power Project	Petrogreen Energy Corporation	Brgy. Pawa, Nabas, Aklan	50.0	Q3 2013
54 MW San Lorenzo Wind Power Project (8 MW & 46 MW)	Trans-Asia Renewable Energy Corporation	San Lorenzo, Guimaras Island	54.0	April 2014
TOTAL WIND			104.0	
2 x 17.5 MW Green Power Panay	Green Power Panay Philippines, Inc.	Brgy. Cabalabaguan, Mina, Iloilo	35.0	Phase I - December 2014 Phase II - December 2015
TOTAL BIOMASS			35.0	

Mindanao SUPPLY-DEMAND OUTLOOK 2013-2020



Critical Periods

● Projected Demand
 — Available Capacity
 — Available+Committed

Next Critical Periods

On Available Capacity:

- 2013: Projected Deficit of 50 to 110 MW
- 2014: Projected Deficit of 50 to 190 MW
- Jan-Feb 2015: Projected Deficit 100 to 130 MW

On Available Capacity + Committed:

- Nov-Dec 2017: Projected Deficit of 20 to 50 MW
- 2018: Projected Deficit of 50 to 200 MW

Notes

- a. Demand curve as plotted includes total of peak demand and required Reserve Margin (RM) i.e. 4% regulating reserve and contingency and dispatchable reserve requirement
- b. 5.6 % peak demand growth rate resulted from observed 0.8 elasticity ratio of demand for electric power with national economic growth applied to 7 percent GDP growth rate (GR) target for 2013-2015.
- c. 12.8 % peak demand growth rate resulted from observed 1.6 elasticity ratio of demand for electric power with national economic growth applied to 8 percent GDP growth rate (GR) target for 2016
- d. 8 % peak demand growth rate resulted from observed 1 elasticity ratio of demand for electric power with national economic growth applied to 8 percent GDP growth rate (GR) target for 2017-2020
- e. Assumed 3.41 percent average forced outage of the total dependable capacity

COMMITTED POWER PROJECTS

Mindanao Grid Committed Power Projects, 580 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Project Cost (Php Billion)	Target Commissioning
2 X 150 MW Coal-Fired Therma South Energy Project	Therma South Inc.	Brgy. Binugao, Toril, Davao City and Brgy. Inawayan, Sta. Cruz, Davao Del Sur	300.0	24.0	March 2015
2 X 100 MW Southern Mindanao Coal Fired Power Station	Sarangani Energy Corporation	Brgy, Kamanga, Maasim, Sarangani	200.0	19.5	February 2015
15 MW Diesel Power Plant	Mapalad Energy Generating Corporation	Mapalad, Dalipuga, Iligan City	15.0	0.4	October 2013
15 MW HFO Peaking Plant	EEL Power Corporation	Brgy. Magdum, Tagum City, Davao Del Norte	15.0	0.6	August 2013
Mindanao 3 Geothermal	Energy Development Corporation	Kidapawan, North Cotabato	50.0	10.9	June 2016
TOTAL			580.0	55.4	

INDICATIVE POWER PROJECTS

Mindanao Grid Indicative Power Projects, 2351.6 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
ZAM 100 MW Circulating Fluidized Bed (CFB) Coal-Fired Power Station	San Ramon Power Inc.	Sitio San Ramon, Bgry. Talisayan, Zamboanga City	100.0	December 2015
Davao del Norte 20 MW Circulating Fluidized Bed Biomass-Coal Fired Thermal Power Plant	FDC Utilities, Inc.	Maco, Davao del Norte	20.0	March 2015
300 MW SMC Davao Power Plant Project Phase I	San Miguel Consolidated Power Corporation	Brgy. Culaman, Malita, Davao del Sur	300.0	150 MW - Oct. 2015 150 MW - March 2016
Sibuguey Power Plant Project	Philippine National Oil Company (PNOC-EC)	Sibugay, Zamboanga	100.0	September 2016
3 X 135 MW FDC-Misamis Circulating Fluidized Bed (CFB) Coal-Fired Power Plant Project	FDC Utilities, Inc.	Phividec Industrial Estate, Villanueva, Misamis Oriental	405.0	September 2016
300 MW SMC Davao Power Plant Project Phase II	San Miguel Consolidated Power Corporation	Brgy. Culaman, Malita, Davao del Sur	300.0	December 2018
600 MW SMC Davao Power Plant Project Phase III	San Miguel Consolidated Power Corporation	Brgy. Culaman, Malita, Davao del Sur	600.0	300 MW - Dec 2019 300 MW - Dec 2020
3x135 MW PsagCorp Coal-fired Power Plant	GN Power	Kauswagan, Lanao del Norte	330.0	December 2017
TOTAL COAL			2,155.0	

INDICATIVE POWER PROJECTS

Mindanao Grid Indicative Power Projects, 2351.6 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Tagoloan Hydropower	First Gen Mindanao Hydropower Corp.	Impasugong & Sumilao, Bukidnon	20.0	October 2015
12 MW Tamugan Hydropower Project	Hedcor	Baguio District, Davao City	12.0	July 2018
Bubunawan Hydroelectric Power Project	First Gen Mindanao Hydropower Corp.	Baungon and Libona, Bukidnon	8.0	October 2015
Cabadbaran Hydroelectric Power Project	First Gen Mindanao Hydropower Corp.	Cabadbaran, Agusan del Norte	14.0	December 2015
Puyo Hydroelectric Power Project	First Gen Mindanao Hydropower Corp.	Jabonga, Agusan del Norte	30.0	July 2015
Tumalaong Hydroelectric Power Project	First Gen Mindanao Hydropower Corp.	Baungon, Bukidnon	8.0	October 2015
Culaman Hydroelectric Power Project	Oriental Energy and Power Generation Corporation	Manolo Fortich, Bukidnon	10.0	June 2018
Limatangon Hydroelectric Power Project	Turbines Resource & Development Corp.	Cagayan de Oro City, Misamis Occidental	6.0	January 2017
Tudaya 1 Hydroelectric Power Project	Hedcor Sibulan, Inc.	Sta. Cruz, Davao del Sur	6.6	TBA
Tudaya 2 Hydroelectric Power Project	Hedcor Tudaya, Inc.	Sta. Cruz, Davao del Sur	7.0	October 2015
TOTAL HYDRO			121.6	

INDICATIVE POWER PROJECTS

Mindanao Grid Indicative Power Projects, **2351.6 MW**

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Darong Solar Photovoltaic Power Project	PhilNew Energy Inc.	Sta. Cruz, Davao del Sur	35.0	September 2015 (Subject to FIT)
TOTAL SOLAR			35.0	
5 MW Camiguin Island Wind Power	Energy Development Corporation	Camiguin	5.0	September 2015 (subject to FIT approval)
TOTAL WIND			5.0	
Bukidnon Biomass Power Project	Green Power Bukidnon Philippines, Inc.	Maramag, Bukidnon	35.0	September 2013
TOTAL BIOMASS			35.0	

END OF PRESENTATION

Supply-Demand Outlook

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