

PHILIPPINE POWER SITUATION

Energy Investment Forum

Marco Polo, Davao City

25 September 2013



OUTLINE OF PRESENTATION

- POWER SECTOR SITUATIONER
- DRAFT 2013-2020 POWER OUTLOOK
- LIST OF COMMITTED/INDICATIVE POWER PROJECTS
- MEASURES FOR MINDANAO POWER SITUATION

Power Sector Situationer

2013 Capacity , in MW

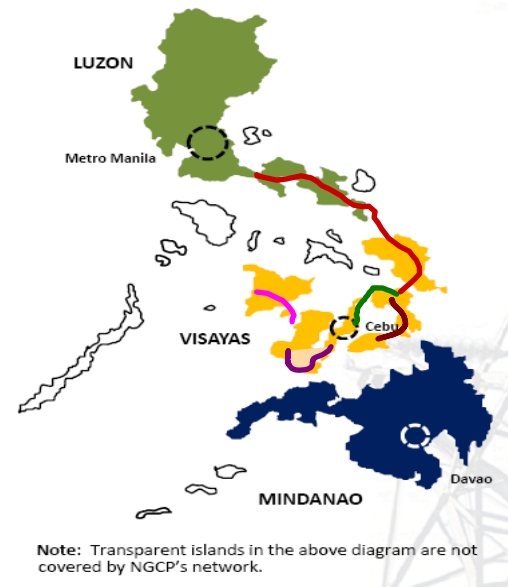
FUEL TYPE	LUZON		VISAYAS		MINDANAO		PHILIPPINES	
	MW	% Share	MW	% Share	MW	% Share	MW	% Share
Coal	4,531	36.16	806	32.91	232	11.32	5,568	32.71
Oil Based	1,778	14.19	670	27.39	625	30.50	3,074	18.05
Natural Gas	2,861	22.84	1	0.04			2,862	16.81
Geothermal	824	6.58	915	37.39	108	5.29	1,848	10.85
Hydro	2,462	19.66	11	0.47	1,047	51.09	3,521	20.68
Wind	33	0.26					33	0.19
Biomass	38	0.31	44	1.81	36	1.75	119	0.70
Solar					1	0.05	1	0.01
TOTAL	12,528		2,448		2,049		17,025	

Source: DOE List of Existing Power Plants as of May 2013

- Includes embedded generators
- Excludes off-grid generator

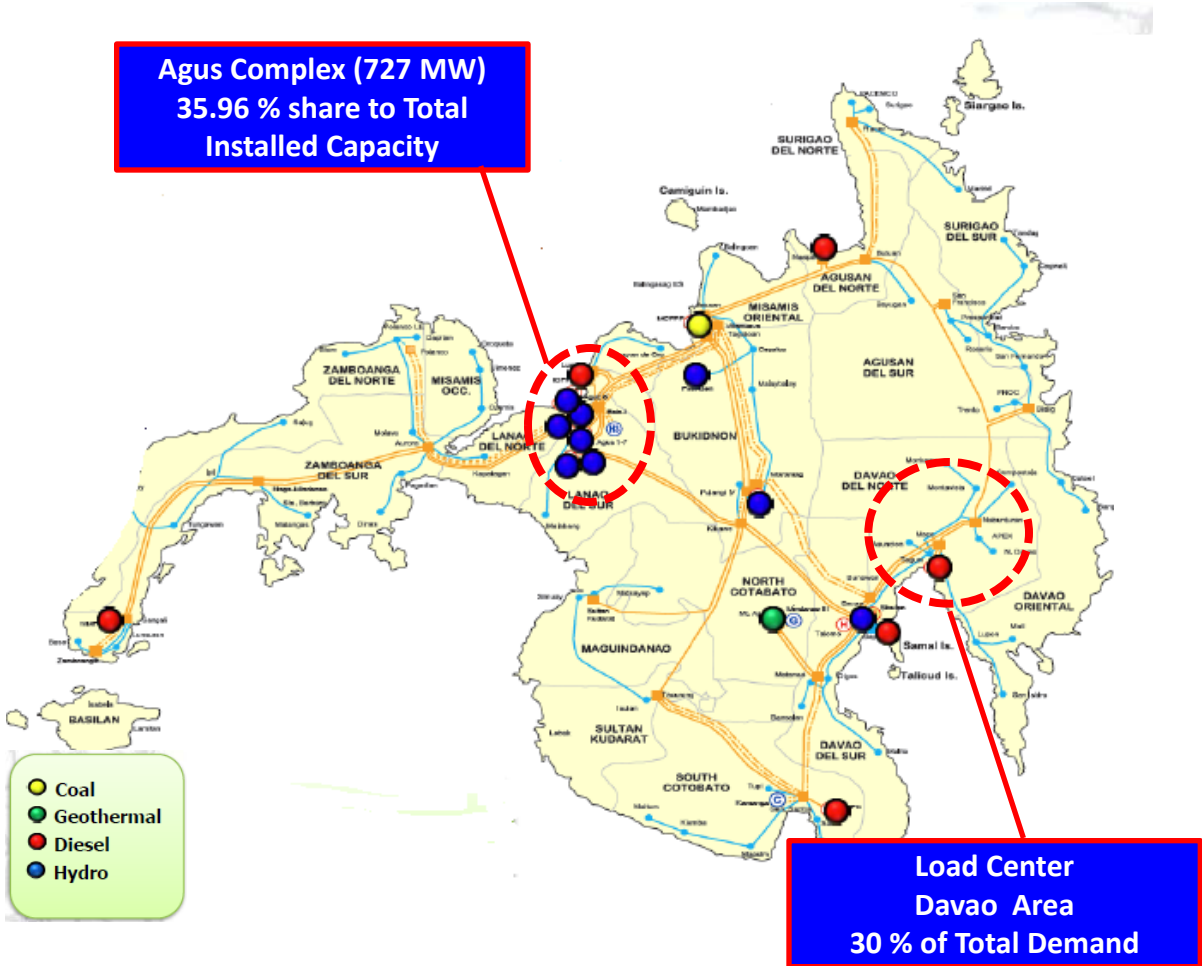
Interconnection Line Capacity

- Leyte-Luzon (440 MW)
- Leyte-Cebu (400 MW)
- Leyte-Bohol (100 MW)
- Cebu-Negros (200 MW)
- Negros – Panay (100 MW)

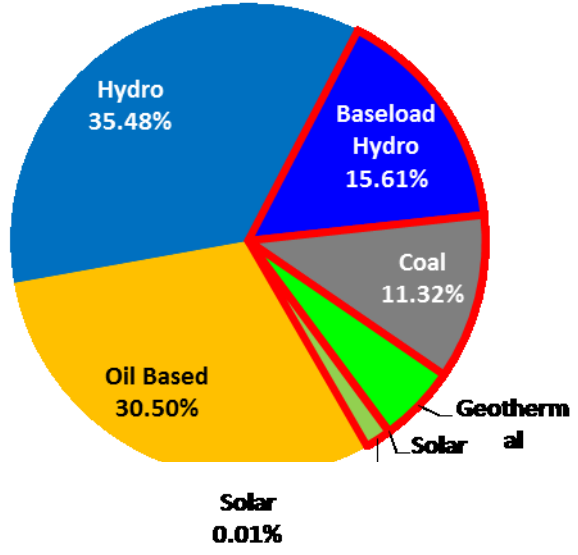


Power Sector Situationer

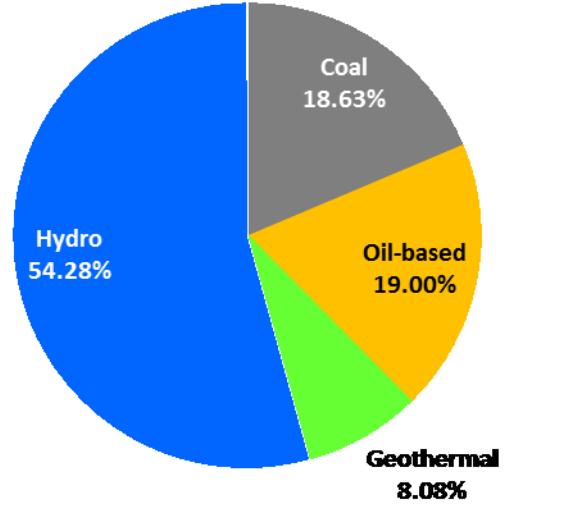
2012 Capacity and Generation, Mindanao



Installed Capacity : 2,049 MW



Gross Generation : 9,127 GWh



Power Sector Situationer

23 September 2013

Grid	Luzon	Visayas	Mindanao
	Actual (MW)	Actual (MW)	Actual (MW)
System Capacity	8,469	1,615	1,217
System Peak	6,354	1,502	1,289
Time Occurred	7:00 PM	7:00 PM	7:00 PM
Reserve	1,833	148	-72
Hot	699	114	-72
Cold	1,134	35	0
Year-to-date Peak	8,305	1,567	1,319
Date Occured	May-08-2013	May-06-2013	May-21-2013
2012 Peak	7,889	1,543	1,257
Remarks	No ALD/MLD	No ALD/MLD	Red Alert : Peak Hours (0800H-2400H)
	HVDC = 188 MW (morning)		

Source: NGCP Daily Operation Report

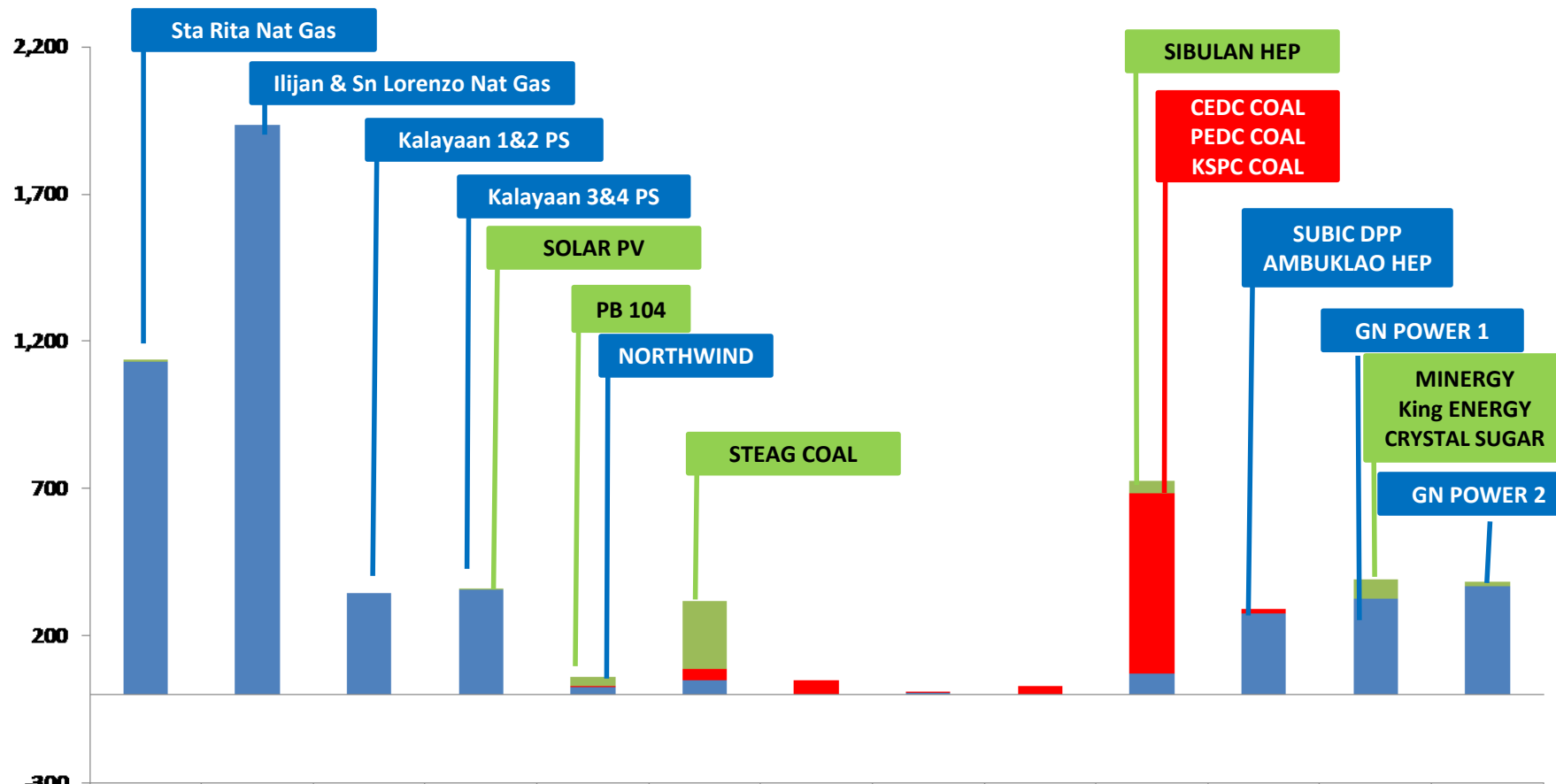
MINDANAO GRID SITUATION: NEA Power Situation Report, 16 September 2013

Areas with power interruption: Part of Zamboanga del Sur, Zamboanga del Norte, Part of Misamis Occ., Part of Misamis Or., Davao del Norte, Northern & Southern Cotabato, Sultan Kudarat, Lanao del Sur, Maguindanao

17 ECs with no power interruption: ZAMCELCO, ZAMSURECO II, BUSECO, CAMELCO, FIBECO, MOELCI I, MORESCO I, DASURECO, DORECO, SOCOTECO I, SOCOTECO II, ANECO, ASELCO, SIARELCO, SURNECO, SURSECO I, SURSECO II



NEW CAPACITIES



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Mindanao Grid	7	0	0	1	32	232	0	0	0	42	0	63	14
Visayas Grid	0	0	0	0	3	38	49	3	29	610	15	1	0
Luzon Grid	1,130	1,936	345	355	25	50	0	8	1	74	275	326	368

Note: List of Existing Power Plant as of May 2013

TOTAL

LUZON : 4,893 MW
 VISAYAS : 748 MW
 MINDANAO : 391 MW

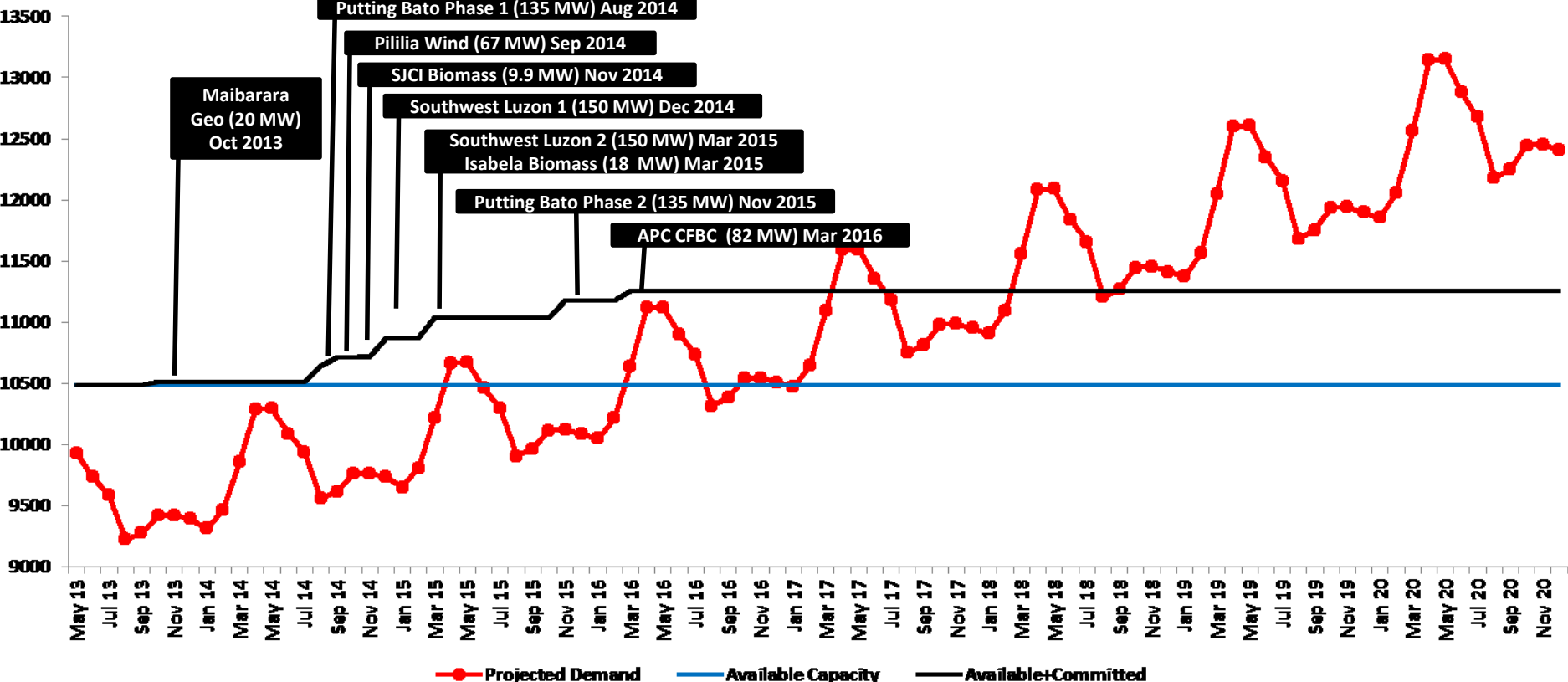
DRAFT 2013-2020

SUPPLY AND DEMAND OUTLOOK



Republic of the Philippines
Department of Energy

LUZON SUPPLY-DEMAND OUTLOOK 2013-2020



- 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, 767.4 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
82 MW APC Circulating Fluidized Bed Coal Fired Power Plant	Anda Power Corporation	Brgy. Bundagul, Mabalacat, Pampanga	82	8.6	March 2016
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	18	1.9	March 2015 (Subject to FIT)
TOTAL			767.4	90.7	

INDICATIVE POWER PROJECTS

Luzon Grid Indicative Power Projects, **10,152.5 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, 10,152.5 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
Combined Cycle Gas Turbine Power Plant Project	Atlantic, Gulf and Pacific Company of Manila, Inc	Limay, Bataan	2,400.0	Unit 1 – March 2017; Unit 2 – March 2018
TOTAL NATURAL GAS			5,300.0	
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	
Dupinga Hydroelectric Power Project	Constellation Energy Corporation	Gabaldon, Nueva Ecija	3.0	October 2015
Ibulao Hydroelectric Power Project	Hydrocore, Inc.	Lagawe, Ifugao	4.5	May 2015
TOTAL HYDRO			7.5	

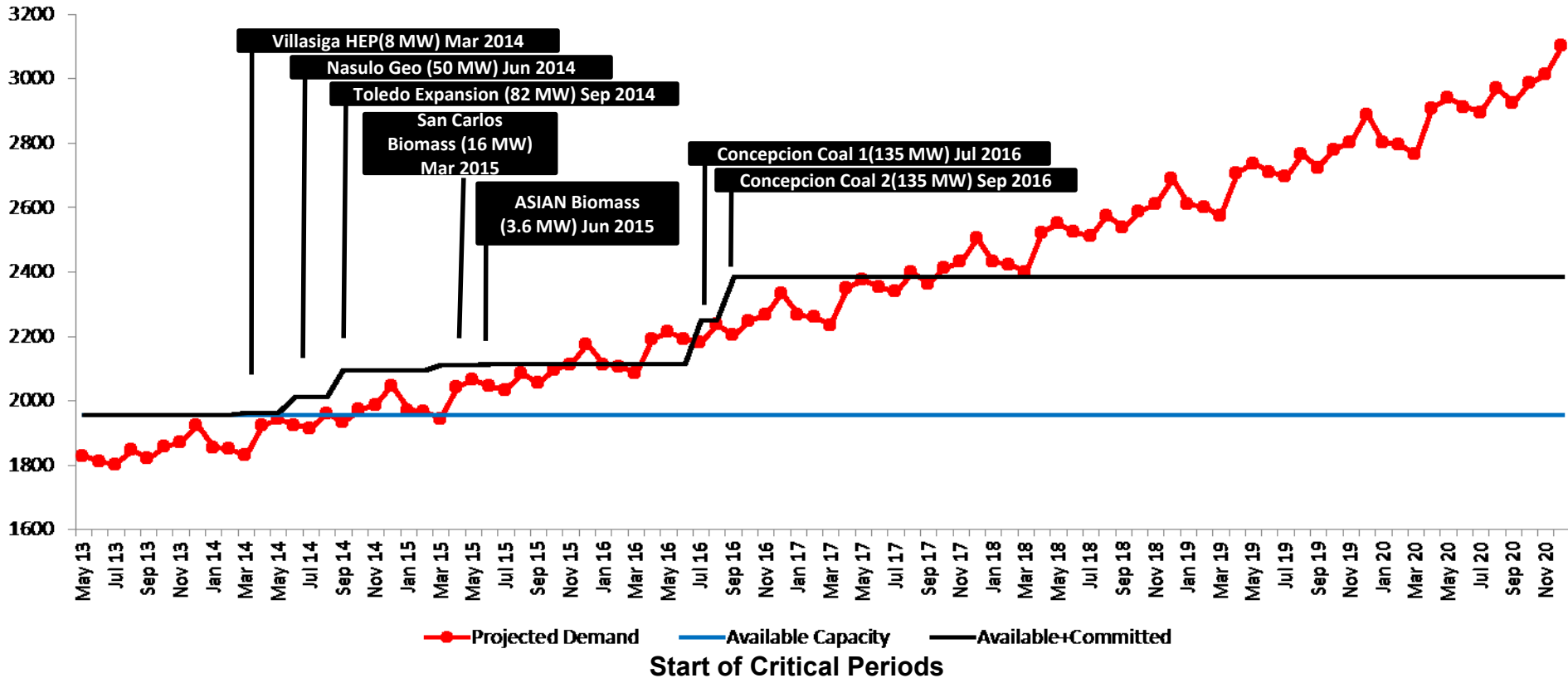
List of Committed Power Projects as of 28 August 2013

INDICATIVE POWER PROJECTS

Luzon Grid Indicative Power Projects, 10,152.5 MW

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Phase 2: Mabitac Wind Power Project	Alternergy Sembrano Wind Corporation	Mt. Sembrano, Mabitac, 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)
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			367.0	
Currimaos Solar 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
TOTAL BIOMASS			18.0	

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, 718 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	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
TOTAL GEOTHERMAL			40.0	

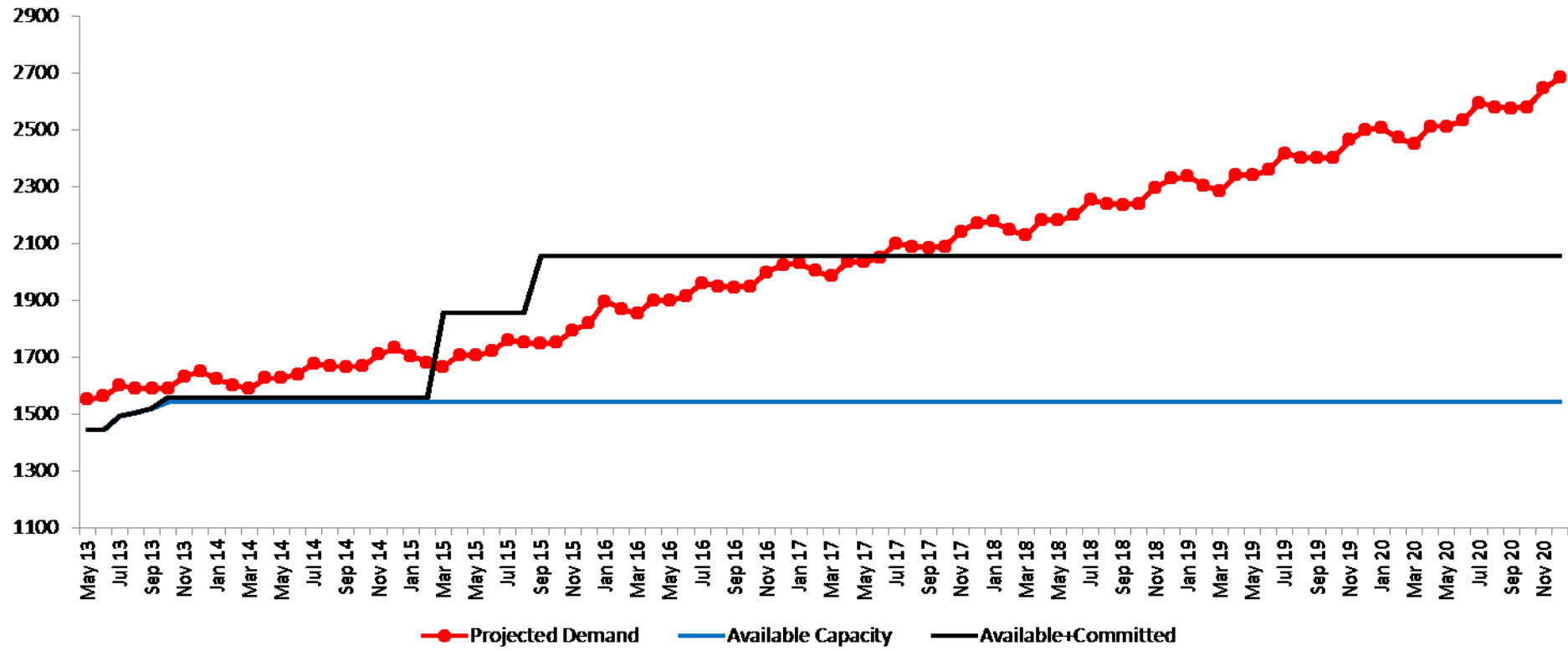
INDICATIVE POWER PROJECTS

Visayas Grid Indicative Power Projects, 718 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	January 2015
TOTAL HYDRO			24.0	
Leyte Solar Photovoltaic Power Project	Phil. Solar Farm-Leyte, Inc.	Ormoc City, Leyte	30.0	2018
TOTAL SOLAR			40.0	
Nabas Wind Power Project	Petrogreen Energy Corporation	Brgy. Pawa, Nabas, Aklan	50	Q3 2013
54 MW San Lorenzo Wind Power Project	Trans-Asia Renewable Energy Corporation	San Lorenzo, Guimaras Island	54	April 2014
Pulupandan Wind Power Project	First Maxpower International Corporation	Pulupandan, Negros Occidental	50	April 2014
TOTAL HYDRO			154.0	

List of Committed Power Projects as of 28 August 2013

Mindanao SUPPLY-DEMAND OUTLOOK 2013-2020



On Available Capacity:

- 2013: Projected Deficit of 50 to 110 MW
- 2014: Projected Deficit of 50 to 190 MW
- 2015: Projected Deficit 120 to 280 MW

On Available Capacity + Committed:

- Nov-Dec 2017: Projected Deficit of 55 to 85 MW
- 2018: Projected Deficit of 50 to 243 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
- 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.
- 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
- 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
- Assumed 3.41 percent average forced outage of the total dependable capacity

COMMITTED POWER PROJECTS

Mindanao Grid Committed Power Projects, 515 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
TOTAL			515.0	43.9	

INDICATIVE POWER PROJECTS

Mindanao Grid Indicative Power Projects. 2534.6 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	405	December 2017
2x55 MW Balingasag Thermal Power Plant	Minergy Coal Corporation	Brgy. Mandangoa, Balingasag, Misamis Oriental	110	January 2017
TOTAL COAL			2,340.0	

INDICATIVE POWER PROJECTS

Mindanao Grid Indicative Power Projects, 2534.6 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
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
Libatangon 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			109.6	

INDICATIVE POWER PROJECTS

Mindanao Grid Indicative Power Projects, **2534.6 MW**

Name of the Project	Project Proponent	Location	Rated Capacity (MW)	Target Commissioning
Mindanao 3 Geothermal	Energy Development Corporation	Kidapawan, North Cotabato	50	December 2017
TOTAL GEO			50	
Darong Solar Photovoltaic Power Project	PhilNew Energy Inc.	Sta. Cruz, Davao del Sur	35.0	September 2015 (Subject to FIT)
TOTAL SOLAR			35.0	

MEASURES FOR MINDANAO POWER SITUATION



Republic of the Philippines
Department of Energy

UPDATES ON MINDANAO POWER SITUATION

- ❖ Interruptible Load Program (ILP)
 - Petition of Davao Light for Rules change on cost recovery approved by ERC
 - 50 possible participants with a total applied load of 79.61 MW from 7 DUs (5 ECs and 2 PIOUs) that have approved ERC application for ILP implementation

- ❖ Interim Mindanao Electricity Market (IMEM)
 - Issuance of DCs on January 2013 directing PEMC to develop and implement an IMEM and on June 2013 promulgating the IMEM rules
 - Trial operation from 26 August to 25 September 2013
 - Target commercial operations by 26 September 2013

UPDATES ON MINDANAO POWER SITUATION

- ❖ Modular Genset Program **(Through AMRECO)**
 - Fastest way to deploy the needed generating capacity in the island until new capacities come online by 2015
 - NEA is directed to expedite program implementation
 - EO 137 promulgated and its IRR already signed
 - Bid Submission - 12 September 2013
 - 5 Bidders submitted for Genset acquisition
 - Declaration of Winning Bidder, 28 September 2013
 - Notice of Award, 1 October 2013



Modular Generator Set Acquisition

Through AMRECO Bidding

ECs	Capacity (MW)
DANECO	3
DORECO	2
MORESCO I	2
Sub-Total	7

Through Individual Bidding

ECs	Capacity (MW)
ZAMCELCO	15
SURNECO	10
DASURECO	22
Sub-Total	47
TOTAL	54

Source: National Electrification Administration

UPDATES ON MINDANAO POWER SITUATION



- ❖ Visayas-Mindanao Interconnection Project
 - FS was completed in March 2013. The target project completion is by 2018
 - Project implementation is subject to ERC approval

UPDATES ON MINDANAO POWER SITUATION

- ❖ Balo-I Flood Control Project
 - This will maximize the output of Agus 1 and 2 HEPs and address flooding in Balo-I Plain
 - DPWH to re-file for NEDA-ICC approval of the project
 - DPWH already allotted P500 Million budget in their 2014 infrastructure program

- ❖ Agus 6 Units 1 & 2 Uprating Project
 - PSALM Board has approved and confirmed the project implementation
 - Realignment of budget from NPC-OMA MOOE to PSALM
 - Indicative bidding is by 3rd quarter while awarding is by 4th quarter of 2013

END OF PRESENTATION

PHILIPPINE POWER SITUATION

Energy Investment Forum

Marco Polo, Davao City

25 September 2013

