OVERVIEW OF ELECTRIC POWER INDUSTRY
PRE-EPIRA

OWNERSHIP

State monopoly of
Generation &
Transmission of electricity

Private monopoly within franchise area

No power to choose source of electricity

NPC
Generation +
Transmission &
Sub transmission

NPC
Distribution Utilities

End-users

E. O. 215
BOT Law

Bundled Regulated Tariff
Price Setting

Bundled Tariff
Regulated Price Setting

Source: PSALM

REGULATORY REGIME
(Energy Regulatory Board)

sells
bought

bought
sells

bought
sells

bought
sells
THE NEW ELECTRIC POWER INDUSTRY STRUCTURE UNDER EPIRA

• Sale of NPC generation assets

• Unbundling of electricity tariffs for transparency

• Opening up of high voltage transmission lines for easy access of distributors & large consumers

• Opening up of distribution lines for competitive consumers

Source: Department of Energy
Firm dates of Open Access implementation is crucial to spur investment and competition.

Delays in implementation pushed generators to contract with MERALCO instead of reserving for Open Access.

Congress passed EPIRA.

Actual Timeline of RCOA Implementation:

- 2001: Congress passed EPIRA.
- 2003: Implementation of RCOA to EC’s.
- 2004-2005: Gradual decrease in threshold until it reaches the households.
- 2006: 1st Declaration of Open Access.
- 2009-2010: Gradual decrease in threshold until it reaches the households.
- 2011: 2nd Declaration of Open Access.
- 2012-2013: Start of Commercial Operations (1MW & up).
- 2014: Gradual decrease in threshold until it reaches the households.

Retail Competition and Open Access

EPIRA IS WORKING
May 26, 2015
2014 Capacity Mix

LUZON

- Wind: 0.89%
- Hydro: 18.34%
- Oil Based: 12.97%
- Biomass: 0.33%
- Geothermal: 5.95%
- Natural Gas: 23.74%

Dependable Capacity = 11,622 MW
BASE LOAD POWER PLANTS: 67.48%

VISAYAS

- Oil Based: 23.40%
- Hydro: 0.50%
- Solar: 0.76%
- Natural Gas: 0.05%
- Biomass: 1.50%
- Geothermal: 37.83%

Dependable Capacity = 2,160 MW
BASE LOAD POWER PLANTS: 75.34%

MINDANAO

- Coal: 37.44%
- Oil Based: 34.25%
- Geothermal: 5.29%
- Biomass: 0.54%
- Solar: 0.02%
- Hydro: 11.11%

Dependable Capacity = 1,851 MW
BASE LOAD POWER PLANTS: 51.43%

Note:
- Baseload Power Plants are the facilities used to meet some or all of a given continuous energy demand, and produce energy at a constant rate, usually at low cost relative to other facilities available to the system

Source: DOE list of Existing Power Plants, December 2014
**Capacity and Generation**

**PHILIPPINES**

### 2014 Dependable Capacity = 15,633 MW

- **BASE LOAD**
  - **CAPACITY:** 66.91%

### 2013 Gross Generation = 75,266 GWh

- **Self Sufficiency:** 56.24%
- **BASE LOAD**
  - **GENERATION:** 85.40%

**Source:** DOE list of Existing Power Plants, December 2014

DOE Power Statistics 2013
POWER SUPPLY SITUATION AND OUTLOOK
Luzon Supply-Demand Situation
01 January – 21 April 2015


Note:
FO – Forced Outage / PO – Planned Outage
B2 fuel – diesel with 2% biodiesel
LUZON SUPPLY-DEMAND OUTLOOK 2014-2020

Notes:

a. Required Reserve Margin (RM) i.e. 4% regulating reserve and contingency and dispatchable reserve requirement.

b. 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 2014-2015.

c. 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.

d. Assumed average forced outage of the total available capacity

### 2015
- **Mar:** 10 MW Pampanga Solar*
  - 135 MW SLTEC Puting Bato U1*
  - 18 MW Pililia Wind P1
  - 18 MW IBEC Bio
- **Apr:** 18 MW Pililia Wind P2
  - 40 MW Majestic Solar****
- **May:** 18 MW Pililia Wind P3

### 2016
- **Jun:** 450 MW San Gabriel NG
- **Aug:** 150 MW Limay Coal U1
- **Dec:** 12 MW SCJIPower Bio P2

### 2017
- **Nov:** 420 MW Pagbilao 3

### 2018
- **Jun:** 460 MW SBPL**
  - 1 MW Bulanalao HEPP***
  - 1 MW Prismc HEPP***

---

**Notes**

- * On-going testing and commissioning
- ** for Validation
- *** TBD – To be determined (target commercial operation)
- ****: 100 MW Avion and 40 MW Majestics considered as additional capacity (not in the committed power projects)
<table>
<thead>
<tr>
<th>Name of the Project</th>
<th>Project Proponent</th>
<th>Mother/ JV Company</th>
<th>Location</th>
<th>Rated Capacity (MW)</th>
<th>Target Testing &amp; Commissioning</th>
<th>Target Commercial Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puting Bato Coal Fired Power Plant Phase I**</td>
<td>South Luzon Thermal Energy Corp. (SLTEC)</td>
<td>Trans Asia Oil and Energy Development Corporation (TAOil)</td>
<td>Brgy. Puting Bato West, Calaca, Batangas</td>
<td>135.0</td>
<td>Oct 2014</td>
<td>Mar 2015</td>
</tr>
<tr>
<td>SLPGC Coal-Fired Power Plant Phase I Unit 1</td>
<td>Southwest Luzon Power Generation Corporation (SLPGC)</td>
<td>DMCI Power Corporation</td>
<td>Brgy. San Rafael, Calaca, Batangas</td>
<td>150.0</td>
<td>Apr 2015</td>
<td>Jun 2015</td>
</tr>
<tr>
<td>Puting Bato Coal Fired Power Plant Phase II</td>
<td>South Luzon Thermal Energy Corp. (SLTEC)</td>
<td>Trans Asia Oil and Energy Development Corporation (TAOil)</td>
<td>Brgy. Puting Bato West, Calaca, Batangas</td>
<td>135.0</td>
<td>Aug 2015</td>
<td>Nov 2015</td>
</tr>
<tr>
<td>Limay Power Plant Project Phase I Unit 1</td>
<td>SMC Consolidated Power Corporation</td>
<td>SMC Consolidated Power Corporation</td>
<td>Brgy. Laman, Limay, Bataan</td>
<td>150.0</td>
<td>May 2016</td>
<td>Aug 2016</td>
</tr>
<tr>
<td>Limay Power Plant Project Phase I Unit 2</td>
<td>SMC Consolidated Power Corporation</td>
<td>SMC Consolidated Power Corporation</td>
<td>Brgy. Laman, Limay, Bataan</td>
<td>150.0</td>
<td>Oct 2016</td>
<td>Jan 2017</td>
</tr>
<tr>
<td>San Buenaventura Power Ltd. Co. (SBPL) Project***</td>
<td>San Buenaventura Power Ltd. Co. (SBPL)</td>
<td>QPPL/EGCO</td>
<td>Mauban, Quezon</td>
<td>460.0</td>
<td>Mar 2018</td>
<td>Jun 2018</td>
</tr>
</tbody>
</table>

* Excluding Off-grid power projects
** On-going testing and commissioning
*** for validation

As of 31 January 2015
### Luzon Grid Committed Power Projects, 2,410.7 MW*

<table>
<thead>
<tr>
<th>Name of the Project</th>
<th>Project Proponent</th>
<th>Mother/ JV Company</th>
<th>Location</th>
<th>Rated Capacity (MW)</th>
<th>Target Testing &amp; Commissioning</th>
<th>Target Commercial Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 MW SJCiPower Rice Husk- Fired Biomass power Plant Project Phase 2</td>
<td>San Jose City I Power Corporation</td>
<td>San Jose City I Power Corporation</td>
<td>Brgy. Tulat, San Jose, Nueva Ecija</td>
<td>10.0</td>
<td>Dec 2016</td>
<td>Dec 2016</td>
</tr>
<tr>
<td>San Gabriel Plant Phase II</td>
<td>First Gas Power Corp.</td>
<td>First Gen Power Corporation</td>
<td>San Gabriel, Batangas</td>
<td>450.0</td>
<td>Mar 2015</td>
<td>Jun 2016</td>
</tr>
<tr>
<td>Bulanao HEPP</td>
<td>DPJ Engineers and Consultants</td>
<td></td>
<td>Tabuk, Kalinga</td>
<td>1.0</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Prismc HEPP</td>
<td>PNOC-Renewables Corporation</td>
<td>PNOC</td>
<td>Rizal, Nueva Ecija</td>
<td>1.0</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Pililla Wind Power Project Ph1</td>
<td>Alternergy Wind One Corporation</td>
<td>Alternergy</td>
<td>Brgy. Halayhayin, Pililla, Rizal</td>
<td>18.0</td>
<td>Mar 2015</td>
<td>Mar 2015</td>
</tr>
<tr>
<td>Pililla Wind Power Project Ph2</td>
<td>Alternergy Wind One Corporation</td>
<td>Alternergy</td>
<td>Brgy. Halayhayin, Pililla, Rizal</td>
<td>18.0</td>
<td>Apr 2015</td>
<td>Apr 2015</td>
</tr>
<tr>
<td>Pililla Wind Power Project Ph3</td>
<td>Alternergy Wind One Corporation</td>
<td>Alternergy</td>
<td>Brgy. Halayhayin, Pililla, Rizal</td>
<td>18.0</td>
<td>May 2015</td>
<td>May 2015</td>
</tr>
</tbody>
</table>

* Excluding Off-grid power projects going testing and commissioning

** As of 31 January 2015

Note:
FO – Forced Outage / PO – Planned Outage
Notes

a. Reserve Margin (RM) i.e. 4% regulating reserve and largest online unit for contingency and dispatchable reserve requirement (100 MW to increase by 135 MW in 2016)

b. 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 2014-2015.

c. 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.

d. Assumed 4.35 percent average forced outage of the total available capacity

* On-going testing and commissioning
** TBD – To be determined (target commercial operation)
<table>
<thead>
<tr>
<th>Name of the Project</th>
<th>Project Proponent</th>
<th>Mother/ JV Company</th>
<th>Location</th>
<th>Rated Capacity (MW)</th>
<th>Target Testing &amp; Commissioning</th>
<th>Target Commercial Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cantakoy HEP</td>
<td>Quadriver Energy Corp.</td>
<td>Quadriver Energy Corp.</td>
<td>Danao, Bohol</td>
<td>8.0</td>
<td>Jun 2017</td>
<td>Jun 2017</td>
</tr>
<tr>
<td>8.0 MW HPCo Bagasse Cogeneration Plant*</td>
<td>Hawaiian Philippines Company</td>
<td>Hawaiian Philippines Company</td>
<td>Negros Occidental</td>
<td>3.0</td>
<td>Nov 2014</td>
<td>Mar 2015</td>
</tr>
<tr>
<td>34 MW VMCI Bagasse-Fired Cogeneration Plant</td>
<td>Victorias Milling Company Inc.</td>
<td>Victorias Milling Company Inc.</td>
<td>Negros Occidental</td>
<td>3.0</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>473.0</strong></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

* Ongoing Testing and Commissioning

As of 31 January 2015
Mindanao Supply-Demand Situation
01 January – 21 April 2015

- **Min Demand** = 1079 MW (01 Jan) New Year
- **Max Demand** = 1,405 MW (21 Apr)
- **5 April 2015** Mindanao Partial Blackout
- **Pulangi4 HEPP U3 (70 MW)** on FO since 15 Jan 2015
- **STEAG U1 (105 MW)** on PO since 21 Feb 2015 until 16 Mar 2015
- **STEAG U2 (105 MW)** on PO from 19 Feb - 2 Mar 2015
- **PUL4 U1 (85 MW)** on FO since 21 Mar 2015
- **TMI 2 U2 (50 MW)** on PMS on 3 April 2015


Note:
FO – Forced Outage / PO – Planned Outage
Notes
a. 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 2014-2015.
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 3.3% percent average forced outage of the total dependable capacity.
### COMMITTED POWER PROJECTS

**Mindanao Grid Committed Power Projects, 2,007.8 MW**

<table>
<thead>
<tr>
<th>Name of the Project</th>
<th>Project Proponent</th>
<th>Mother/ JV Company</th>
<th>Location</th>
<th>Rated Capacity (MW)</th>
<th>Target Testing &amp; Commissioning</th>
<th>Target Commercial Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMC Davao Power Plant Project Phase I Unit 1</td>
<td>San Miguel Consolidated Power Corporation</td>
<td>San Miguel Consolidated Power Corporation</td>
<td>Brgy. Culaman, Malita, Davao del Sur</td>
<td>150.0</td>
<td>Dec 2015</td>
<td>Feb 2016</td>
</tr>
</tbody>
</table>

* Ongoing Testing and Commissioning
** New Entry from Indicative list

As of 31 January 2015
### COMMITTED POWER PROJECTS

Mindanao Grid Committed Power Projects, **2,007.8 MW**

<table>
<thead>
<tr>
<th>Name of the Project</th>
<th>Project Proponent</th>
<th>Mother/ JV Company</th>
<th>Location</th>
<th>Rated Capacity (MW)</th>
<th>Target Testing &amp; Commissioning</th>
<th>Target Commercial Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puyo Hydroelectric Power Project</td>
<td>First Gen Mindanao Hydropower Corp.</td>
<td>First Gen Power Corporation</td>
<td>Jabonga, Agusan del Norte</td>
<td>30.0</td>
<td>Jul 2017</td>
<td>Jul 2017</td>
</tr>
<tr>
<td>Limbatangon Hydroelectric Power Project</td>
<td>Turbines Resource &amp; Development Corp.</td>
<td>Turbines Resources and Development Corp. (TRDC)</td>
<td>Cagayan de Oro City, Misamis Oriental</td>
<td>9.0</td>
<td>Jan 2018</td>
<td>Jan 2018</td>
</tr>
<tr>
<td>Asiga HEPP**</td>
<td>Asiga Green Energy Corp.</td>
<td></td>
<td>Santiago, Agusan del Norte</td>
<td>8</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>3 MW Biomass Cogeneration Facility</td>
<td>Philippine Trade Center, Inc.</td>
<td>Philippine Trade Center, Inc.</td>
<td>Maguindanao</td>
<td>1.6</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>2,007.8</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** New Entry from Indicative list

As of 31 January 2015
•III. The Bangsamoro Government shall have exclusive powers that it exercises within its territorial jurisdiction, over the following matters:

•14. Establishment of government-owned and controlled corporations (GOCCs) and financial institutions - The Bangsamoro Government may legislate and implement the creation of its own GOCCs in the pursuit of the common good and subject to economic viability. The GOCCs shall be duly registered with the Securities and Exchange Commission or established under legislative charter by the Bangsamoro Government;
15. The Bangsamoro Government shall have authority to regulate power generation, transmission, and distribution operating exclusively in the Bangsamoro. It shall promote investments, domestic and international, in the power sector industry in the Bangsamoro. Power plants and distribution networks in the Bangsamoro shall be able to interconnect and sell power over the national transmission grid to electric consumers. The Bangsamoro Government may assist electric cooperatives in accessing funds and technology, to ensure their financial and operational viability. When power generation, transmission, and distribution facilities are connected to the national transmission grid, the Central Government and the Bangsamoro Government shall cooperate and coordinate through the intergovernmental relations mechanism;
• 16. Public utilities operations in the Bangsamoro - In case of inter-regional utilities, there shall be cooperation and coordination among the relevant government agencies;

• 34. Environment, parks, forest management, wildlife, nature reserves and conservation - The Bangsamoro Government shall have the authority to protect and manage the environment. It shall have the power to declare nature reserves and aquatic parks, forests, and watershed reservations, and other protected areas in the Bangsamoro. The Bangsamoro Basic Law will provide for the process that will transfer the management of national reserves and aquatic parks, forests and watershed reservations, and other protected areas already defined by and under the authority of the Central Government;
• 35. Inland waterways for navigation;

• 36. Inland waters;

• 37. Management, regulation and conservation of all fishery, marine and aquatic resources within the Bangsamoro territorial jurisdiction;
2. Mineral and Energy Resources The Bangsamoro Government shall have authority and jurisdiction over the exploration, development, and utilization of mines and minerals in its prifitory. The applications for financial and technical assistance 'agreements (FTAAAs) shall be commenced at and recommended by the Bangsamoro Government to the President. The Bangsamoro Government and the Central Government shall jointly exercise the power to grant rights, privileges and concessions over the exploration, development and utilization of fossil fuels (petroleum, natural gas, and coal) and uranium in the Bangsamoro, giving preferential rights to qualified citizens who are bona fide inhabitants of the Bangsamoro. The modalities for the exercise of this power shall be provided in the Bangsamoro Basic Law. Implementing rules and regulations for the exercise of this power, including safeguards against potential unfair business practices, shall be jointly drawn up.
Part One. Intergovernmental Relations

The Central Government and the Bangsamoro Government shall establish a mechanism at the highest levels that will coordinate and harmonize their relationships. For this purpose, a primary mechanism shall be a Central Government Bangsamoro Government Intergovernmental Relations body to resolve issues on intergovernmental relations. Disputes relating to these intergovernmental relations shall be resolved through regular consultations and continuing negotiations in a non-adversarial manner.