



# LUZON POWER SITUATION AND OUTLOOK



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Department of Energy

*Energy Investment Briefing in Region III  
Fontana Leisure Park and Hotel, Clark, Pampanga  
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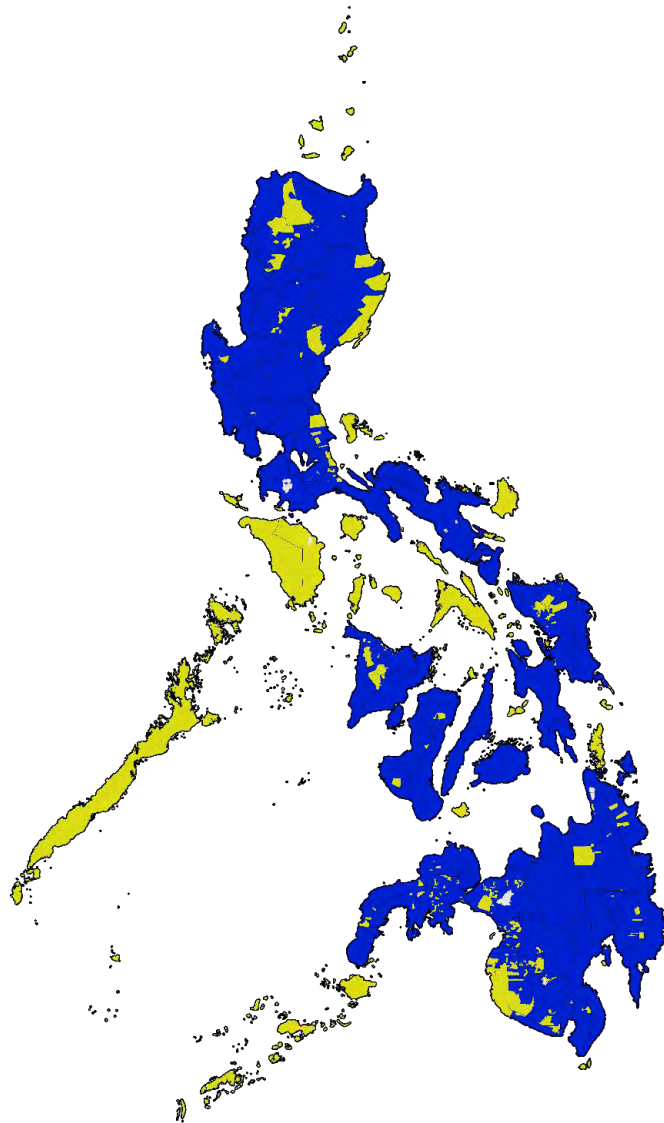
# Outline

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- Philippine Power System at a Glance
  - 2019 Luzon Demand-Supply Snapshot
  - Luzon 2019 Capacity Mix
  - Luzon Newly-Operational Plants
- 2020 Luzon Reserve and Demand-Supply Outlook
- DOE Corrective Policy Issuances
- Luzon Demand-Supply Outlook for 2019-2040



# Philippine Power System



## Power System

### Grid

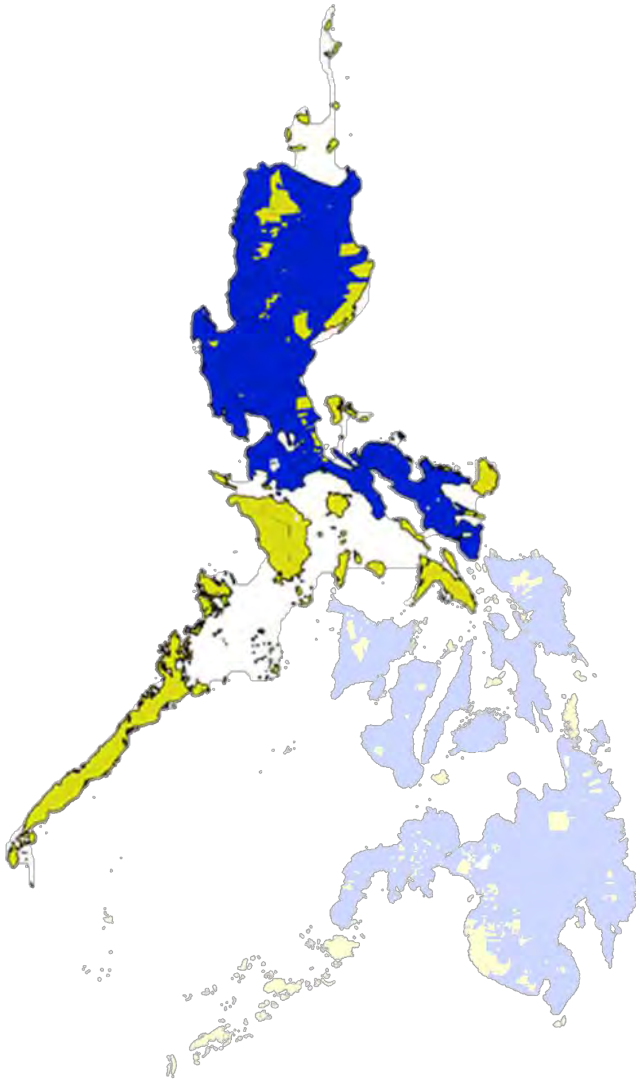
- Luzon, Visayas and Mindanao grids
- Connected to main transmission backbone

### Off-Grid

- Missionary areas
- Also known as Small Islands and Isolated Grid (SIIG)
- Power supplied by NPC SPUG and Private Sector (New Private Provider and Qualified Third Party)



# 2019 Luzon Demand and Supply Snapshot



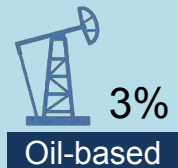
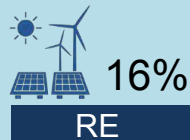
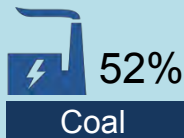
Blue and yellow fill colors correspond to grid and off-grid areas, respectively

**11,344 MW**  
Peak Demand  
(21 June 2019)

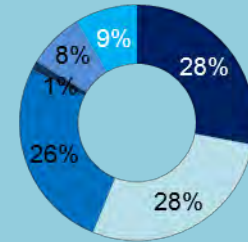
**17,288 MW**  
Installed Capacity

**15,598 MW**  
Dependable Capacity

**72,728 GWh**  
Gross Generation\*



Electricity Sales and Consumption\*  
**73,503 GWh**



■ Residential    ■ Commercial  
■ Industrial    ■ Others  
■ Own-Use       ■ Systems Loss

**672.6 MW**  
Newly Installed Capacity

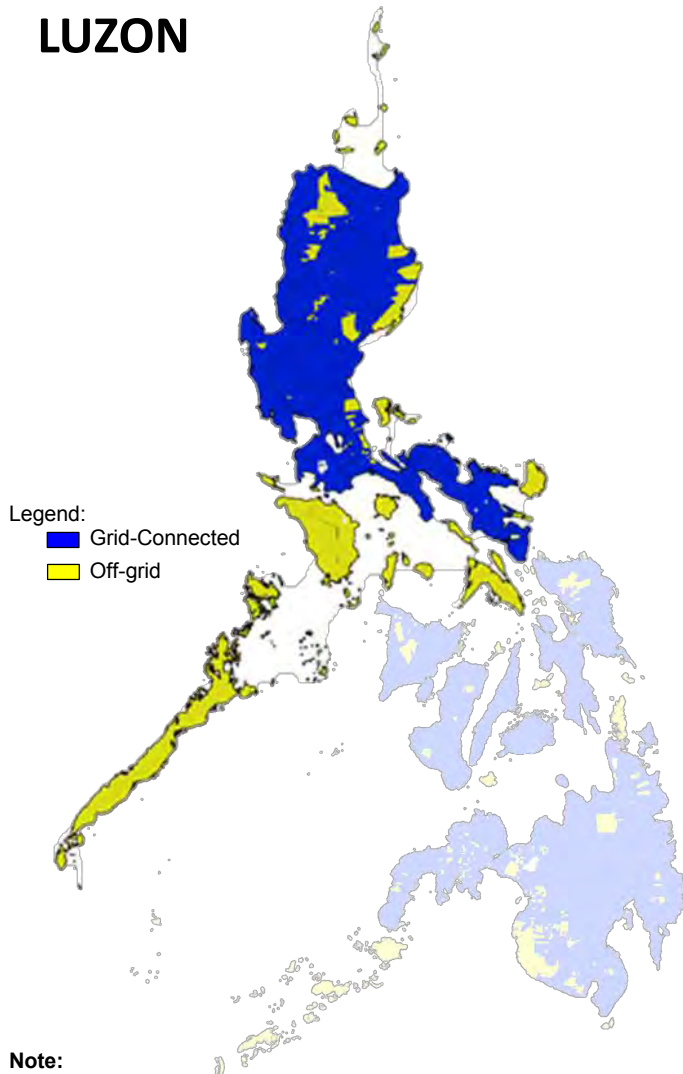
**Power Projects**  
4,654 MW - Committed  
35,869 MW - Indicative



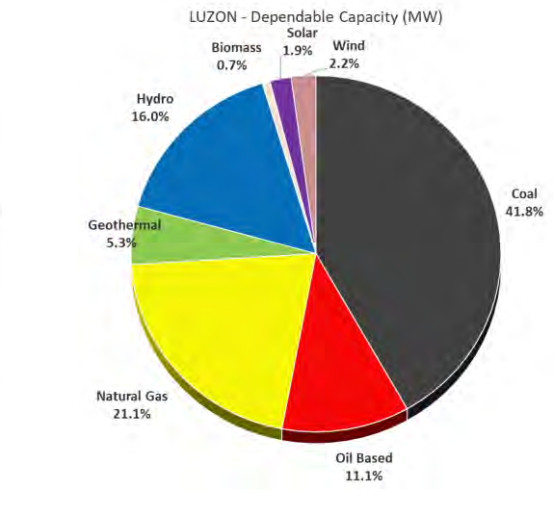
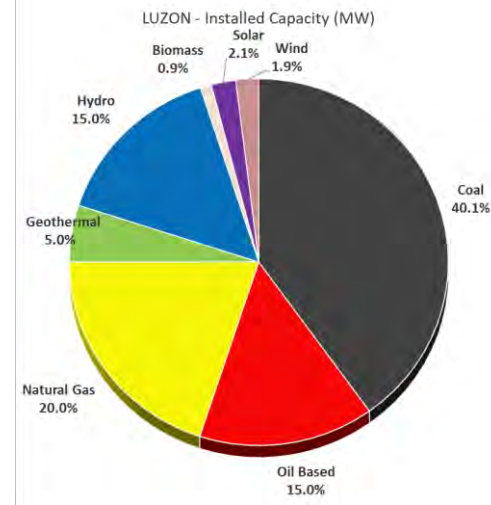
# CAPACITY MIX

As of 31 December 2019

## LUZON



FUEL TYPE	LUZON			
	Capacity (MW)		Percent Share (%)	
	Installed	Dependable	Installed	Dependable
Coal	6,929	6,520	40.1	41.8
Oil Based	2,585	1,739	15.0	11.1
Natural Gas	3,452	3,286	20.0	21.1
Renewable Energy	4,320	4,053	25.0	26.0
<i>Geothermal</i>	865	824	5.0	5.3
<i>Hydro</i>	2,593	2,498	15.0	16.0
<i>Biomass</i>	164	105	0.9	0.7
<i>Solar</i>	362	289	2.1	1.9
<i>Wind</i>	337	337	1.9	2.2
<b>TOTAL</b>	<b>17,286</b>	<b>15,598</b>	<b>100.0</b>	<b>100.0</b>
BESS	10	10		



**Note:**  
**Generator nameplate capacity (installed):** The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed generator nameplate capacity is commonly expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.  
**Dependable capacity:** The load-carrying ability of a station or system under adverse conditions for a specified period of time.

# LUZON NEWLY-OPERATIONAL POWER PLANTS

As of 31 December 2019

## NEWLY-OPERATIONAL POWER PLANTS IN 2019 (GRID-CONNECTED)

POWER PLANT		CAPACITY, MW		LOCATION	OPERATOR	DATE COMMISSIONED/ COMMERCIAL OPERATION
FACILITY NAME	SUBTYPE	INS	DEP	MUNICIPALITY/ PROVINCE		
<b>LUZON</b>						
SBPL	Super Critical Coal	500.0	455.0	Mauban, Quezon	San Buenaventura Power Ltd. (SBPL)	Oct-2019
SCPC U4 (SMC LIMAY U4)	Circulating Fluidized Bed (CFB) Coal	150.0	135.0	Limay, Bataan	SMC Consolidated Power Corporation (SCPC)	Jul-2019
LA TRINIDAD	Run-of-River type HEPP	20.4	8.5	La Trinidad, Benguet	Hydro Electric Development Corporation (HEDCOR), Inc.	Jul-2019
MAJAYJAY	Run-of-River type HEPP	2.2	1.0	Majayjay, Laguna	Majayjay Hydropower Company, Inc.	May-2019
<b>TOTAL</b>		<b>672.6</b>	<b>599.5</b>			

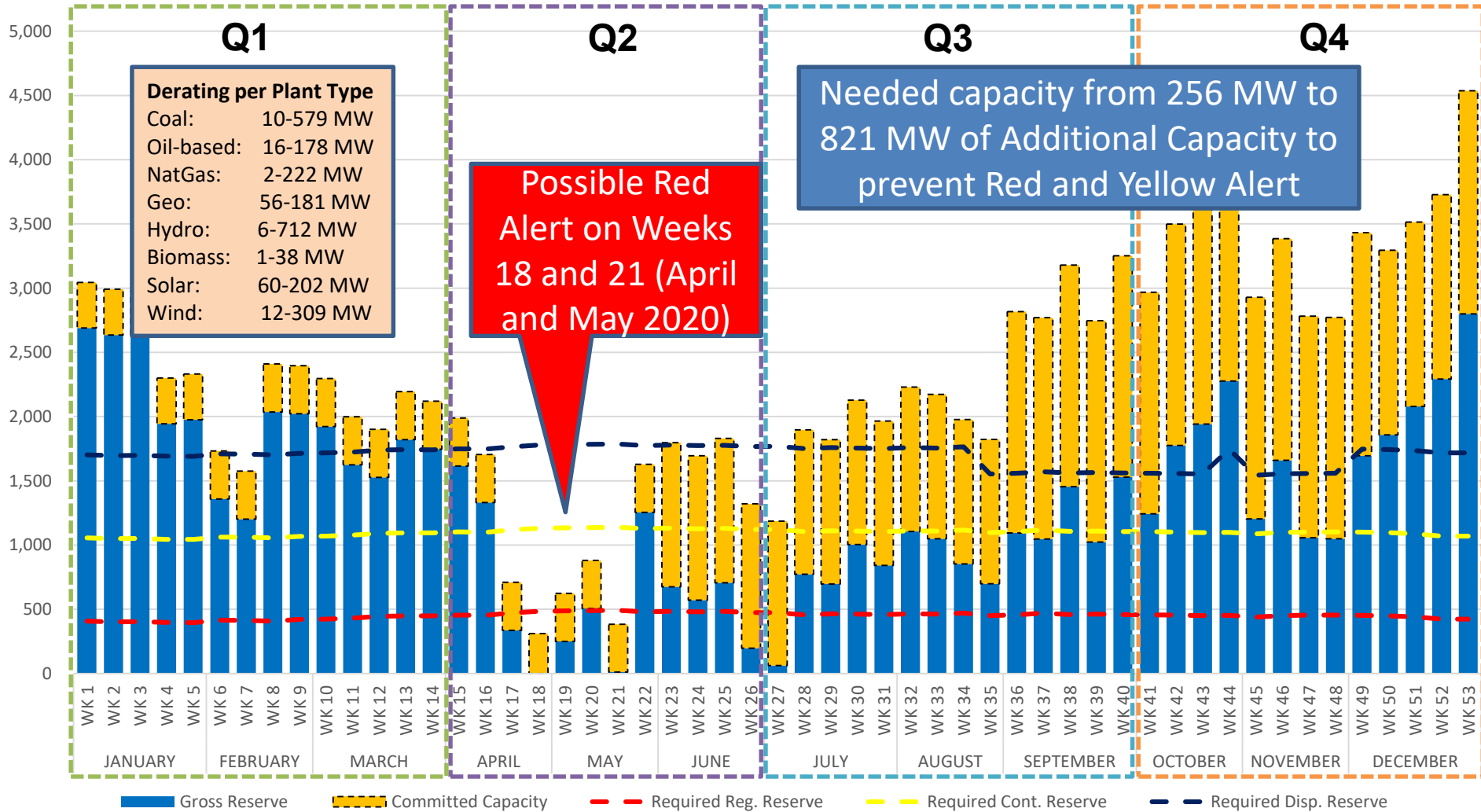




# WEEKLY RESERVE OUTLOOK

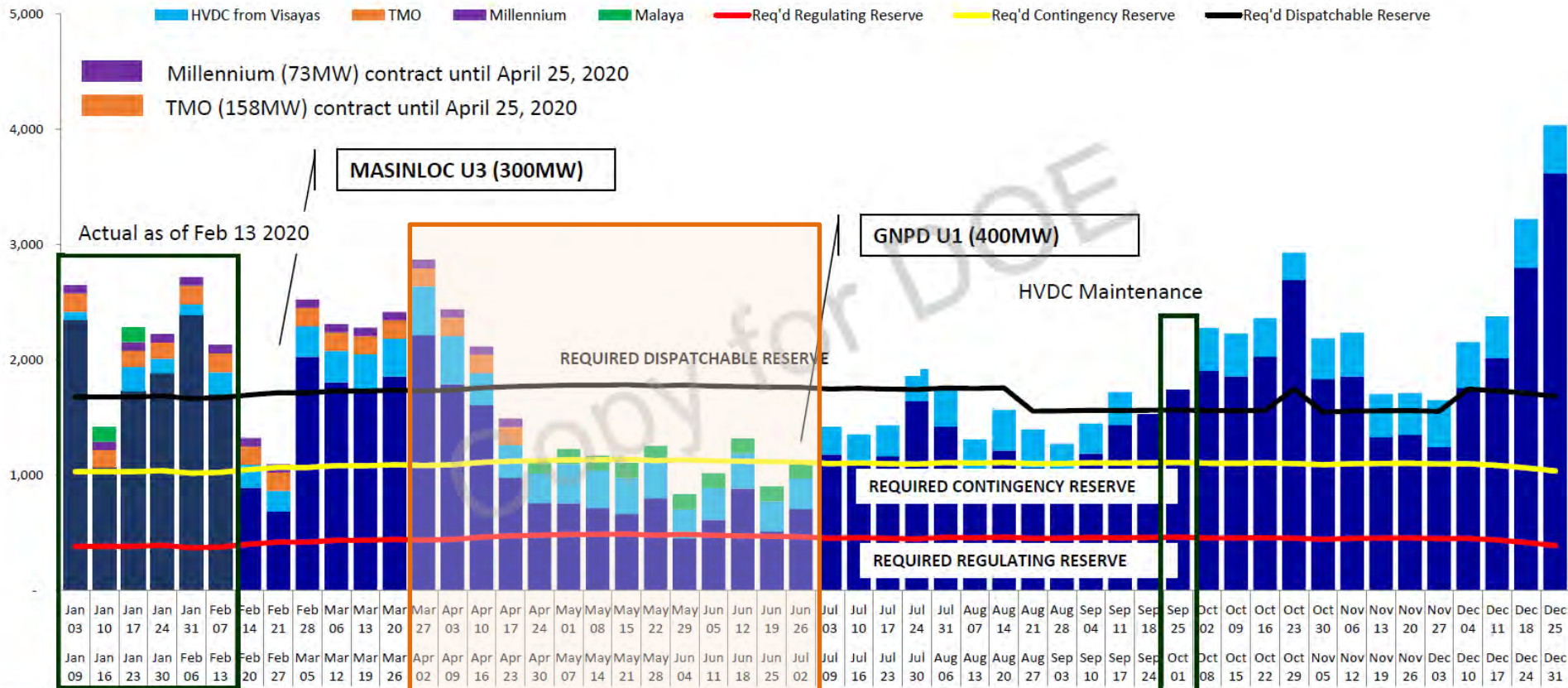
Basecase Scenario

Luzon Grid (January – December 2020)



# WEEKLY RESERVE OUTLOOK

*Adjusted Scenario (based on corrective actions by DOE)  
Luzon Grid (January – December 2020)*



Note:  
HVDC – High Voltage Direct Current Interconnection line  
TMO – Therma Mobile Power Barges in Navotas

GNPDP – GNPower Dinginin Coal-fired Power Project in Bataan



Department of Energy  
Empowering the Filipinos

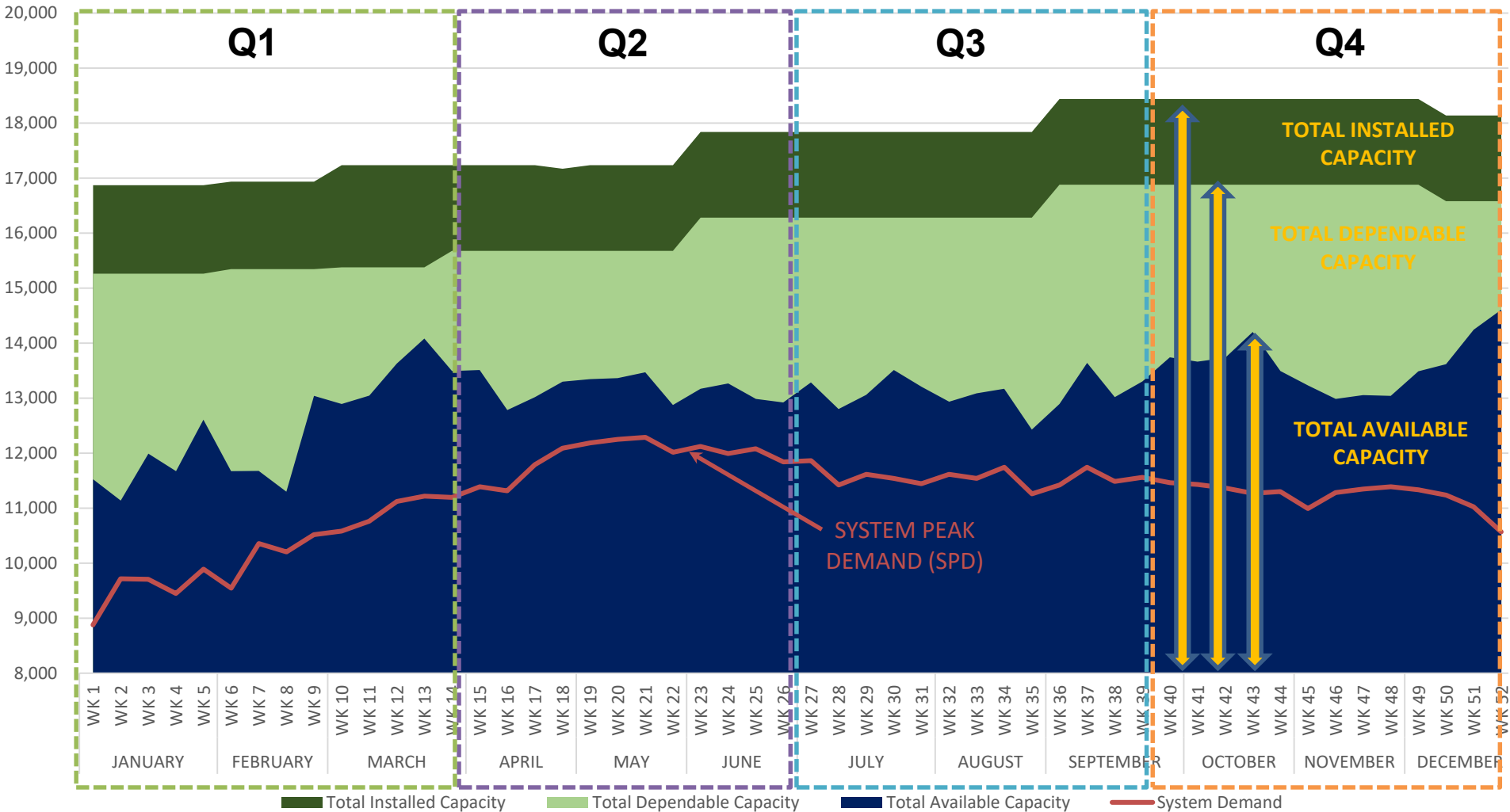
Source: National Grid Corporation of the Philippines (NGCP)



# WEEKLY POWER SUPPLY AND DEMAND OUTLOOK

## LUZON GRID (JANUARY-DECEMBER 2020)

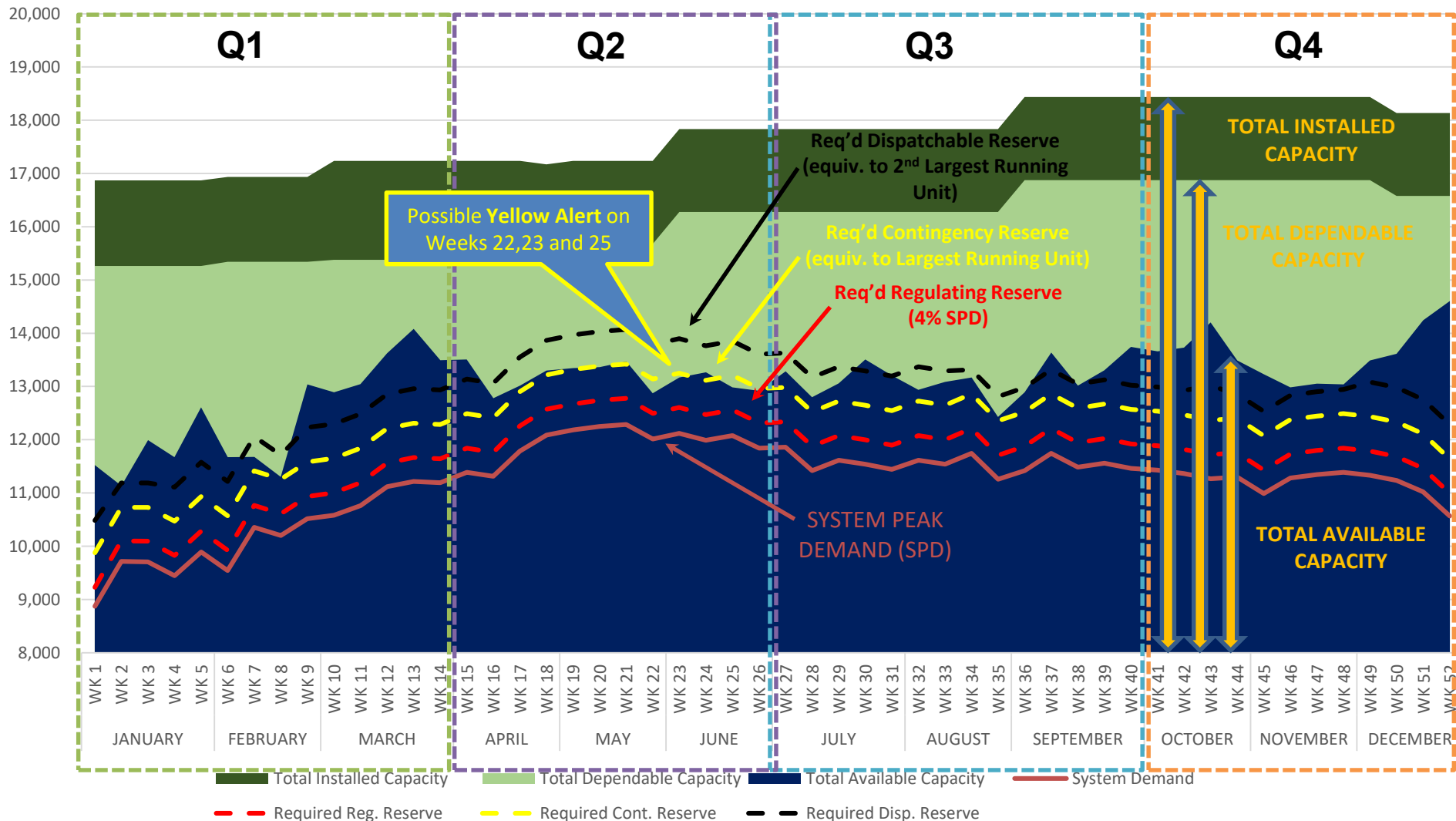
Supply-Demand Graph\*



# WEEKLY POWER SUPPLY AND DEMAND OUTLOOK

## LUZON GRID (JANUARY-DECEMBER 2020)

Supply-Demand Graph\* (with Reserve Requirement)



# DOE Corrective Policy Issuances

## 1 Crafted Policy for the Guidelines on the Planned Outage and the Publication of the Grid Operating and Maintenance Program



### CONTRIBUTION / IMPACT:

Minimize forced outage and prevention of tight supply during summer due to planned outage of large plants

### STATUS:

DOE issued DC2020-02-0004 entitled, "Providing Guidelines on the Planned Outage of Power Plants and Transmission Facilities and the Public Posting of the Grid Operating and Maintenance Program" which was signed on 6 February 2020. The Department Circular shall take effect fifteen (15) days after its publication in two (2) newspaper of general circulation.



# DOE Corrective Policy Issuances

## 2

### Possible increase of import of electricity from Visayas thru High Voltage Direct Current (HVDC) interconnection line



#### CONTRIBUTION / IMPACT:

100 MW to 150 MW

#### REMARKS:

The HVDC has a maximum limit of 396 MW at 90% line capacity. However, the import from Visayas grid will be dependent on the demand-supply situation of Visayas.



# DOE Corrective Policy Issuances

## 3

Address NGCP challenges in transmission projects' implementation to support power generation projects



### CONTRIBUTION / IMPACT:

Allow maximum transfer capacity from generators to load centers

### CRITICAL TRANSMISSION PROJECTS:

- **Luzon:** 500 kV Hermosa-San Jose Transmission line 500 kV, Tuy-Dasmariñas Project, 500 kV Pagbilao Substation
- **Visayas:** Cebu-Negros-Panay (CNP) Stage 1-3, Cebu-Bohol Transmission line project
- **Mindanao:** Mindanao-Visayas Interconnection Project (MVIP); ongoing upgrading of 230kV line in Mindanao





# DOE Corrective Policy Issuances

## 4

### Coordination with Ancillary Service (AS) Providers



#### CONTRIBUTION / IMPACT:

Contracting of stranded capacity for AS

#### REMARKS:

Consideration of Therma Mobile Inc. (TMO) Power Barges and Millennium Gas Turbine Power Plant as AS providers to be contracted by the National Grid Corporation of the Philippines



# DOE Corrective Policy Issuances

5

**Crafted Policy framework on Ancillary Services to ensure sufficient operating reserves at all times**



## CONTRIBUTION / IMPACT:

Allow Forward Contracting by NGCP

## STATUS:

DOE issued DC2019-12-0018 entitled, "Adopting a General Framework Governing the Provision and Utilization of Ancillary Services in the Grid." The DC was published on 12 December 2019.



# DOE Corrective Policy Issuances

## 6

### Implementation of the Interruptible Load Program (ILP)



#### CONTRIBUTION / IMPACT:

Luzon: 564 MW  
Visayas: 64 MW  
Mindanao: 58 MW  
Direct Connection: 64 MW

#### ACTIONS TAKEN:

Requested the following updates:

- ILP figures from Distribution Utilities;
- Details on the ILP implementation for Directly Connected Customers; and
- Review of issuances for ILP.



# DOE Corrective Policy Issuances

## 7

### Inventory of Power Plants



#### CONTRIBUTION / IMPACT:

Accuracy in the computation of needed capacity by the grid upon unavailability of power plants due to outages

#### ACTIONS TAKEN:

DOE identified power plants with de-rated capacity in 2019. These identified power plants were requested to update their dependable capacities and apprise DOE on the measures done by the generation companies to address the de-ratings.



# DOE Corrective Policy Issuances

8

**Policies for Renewable Energy**

9

**Fast tracking of the development of committed Renewable Energy projects in Luzon**



## **CONTRIBUTION / IMPACT:**

Encourage entry of renewable energy projects through policies such as Enhancement of Net-Metering Program, Green Energy Option Program, and Green Energy Pricing Program.





# DOE Corrective Policy Issuances

# 10

## Implementation of the Energy Efficiency and Conservation (EEC) Program



### CONTRIBUTION / IMPACT:

- Energy Conservation: 141 MW
- Energy Efficiency Measure: 217 MW

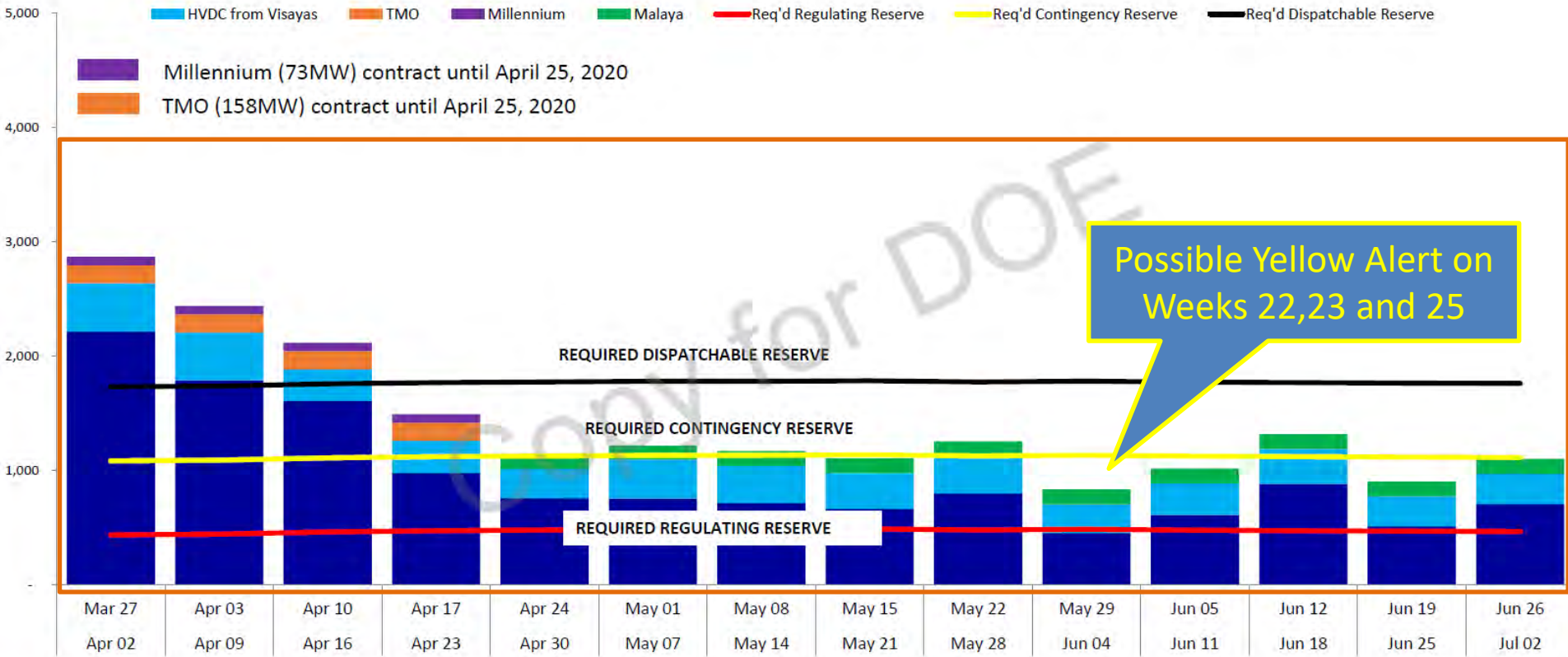
### ACTION TAKEN:

Preparation of activities for the Energy Efficiency and Conservation Multimedia Campaign.



# WEEKLY RESERVE OUTLOOK

*Adjusted Scenario (based on corrective actions by DOE)  
Luzon Grid (April – June 2020)*



Note:  
 HVDC – High Voltage Direct Current Interconnection line  
 TMO – Therna Mobile Power Barges in Navotas

# DOE Corrective Policy Issuances

# 11

## Coordination with ERC on Regulatory Support



### CONTRIBUTION / IMPACT:

Allowing TMO (165 MW), Millennium Energy Inc. (73 MW) and other embedded generators to operate this Summer without wheeling charge



### ACTION TAKEN:

Requested regulatory support from ERC on the possible suspension of collecting wheeling charges for all embedded generators (including TMO and MEI) and review of ILP cost recovery mechanism.

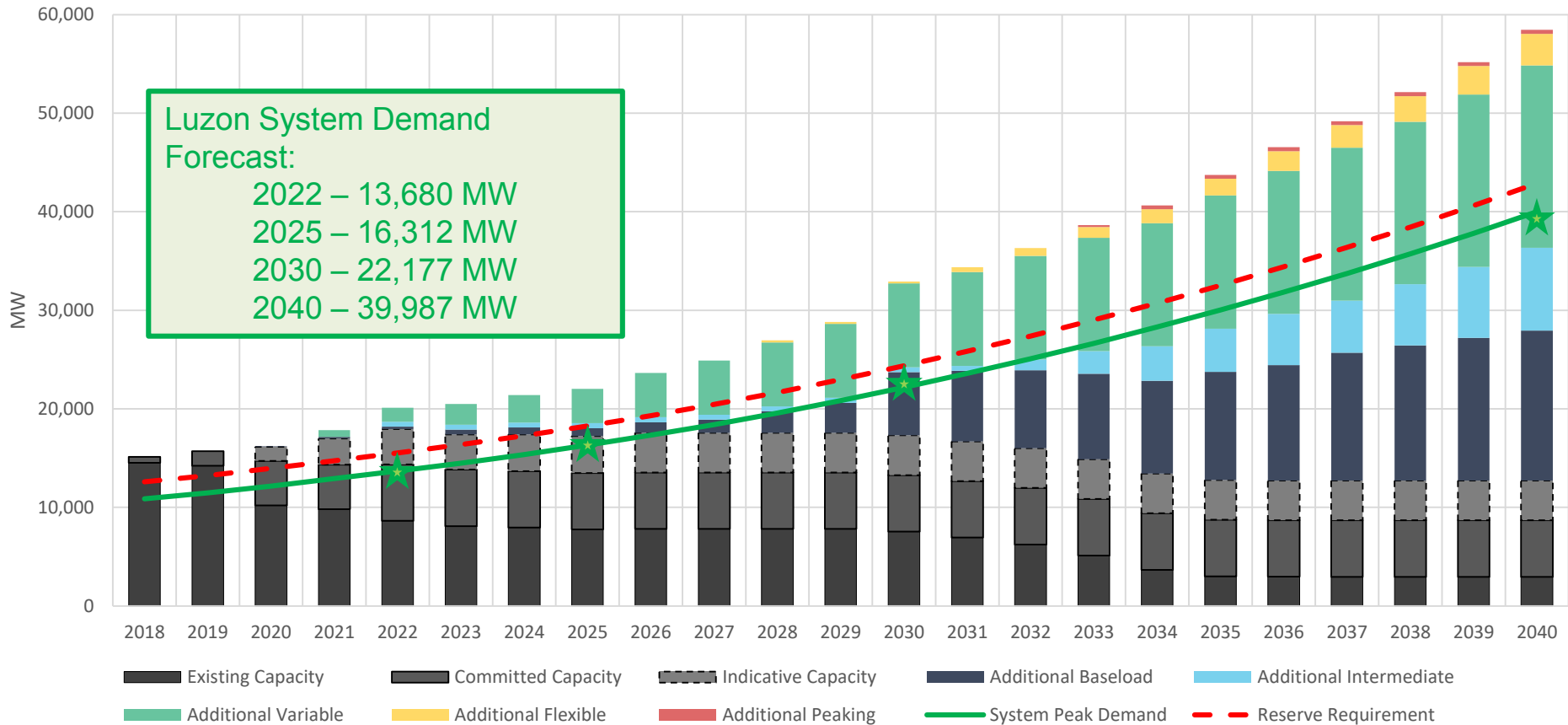


# DOE Corrective Policy Issuances

NO.	ACTION PLAN	MW CONTRIBUTION/IMPACT		
		High Probability	Medium Probability	Low Probability
1	Crafted Policy for the Guidelines on the Planned Outage and the Publication of the Grid Operating and Maintenance Program			
2	Possible increase of import of electricity from Visayas thru High Voltage Direct Current (HVDC) interconnection line	100 MW – 150 MW		
3	Address NGCP challenges in transmission projects' implementation to support power generation projects			
4	Coordination with Ancillary Service (AS) Providers			
5	Crafted Policy framework on Ancillary Services to ensure sufficient operating reserves at all times			
6	Implementation of the Interruptible Load Program (ILP)	Luzon: 564 MW	Visayas: 64 MW Mindanao: 58 MW Direct Connection: 64 MW	
7	Inventory of Power Plants			
8	Policies for Renewable Energy			
9	Fast tracking of the development of committed Renewable Energy projects in Luzon			
10	Implementation of the Energy Efficiency and Conservation (EEC) Program		EnerCon: 141 MW EE Measure: 217 MW	
11	Coordination with ERC on Regulatory Support			
<b>TOTAL</b>		<b>664 MW – 714 MW</b>	<b>~544 MW</b>	



# Luzon Supply Supply-Demand Outlook for 2019-2040



**Total Dependable Capacity**

• 14,515 MW

**Total Indicative Capacity**

• 4,028 MW

**Total Committed Capacity**

• 5,730 MW

**Total Capacity Addition**

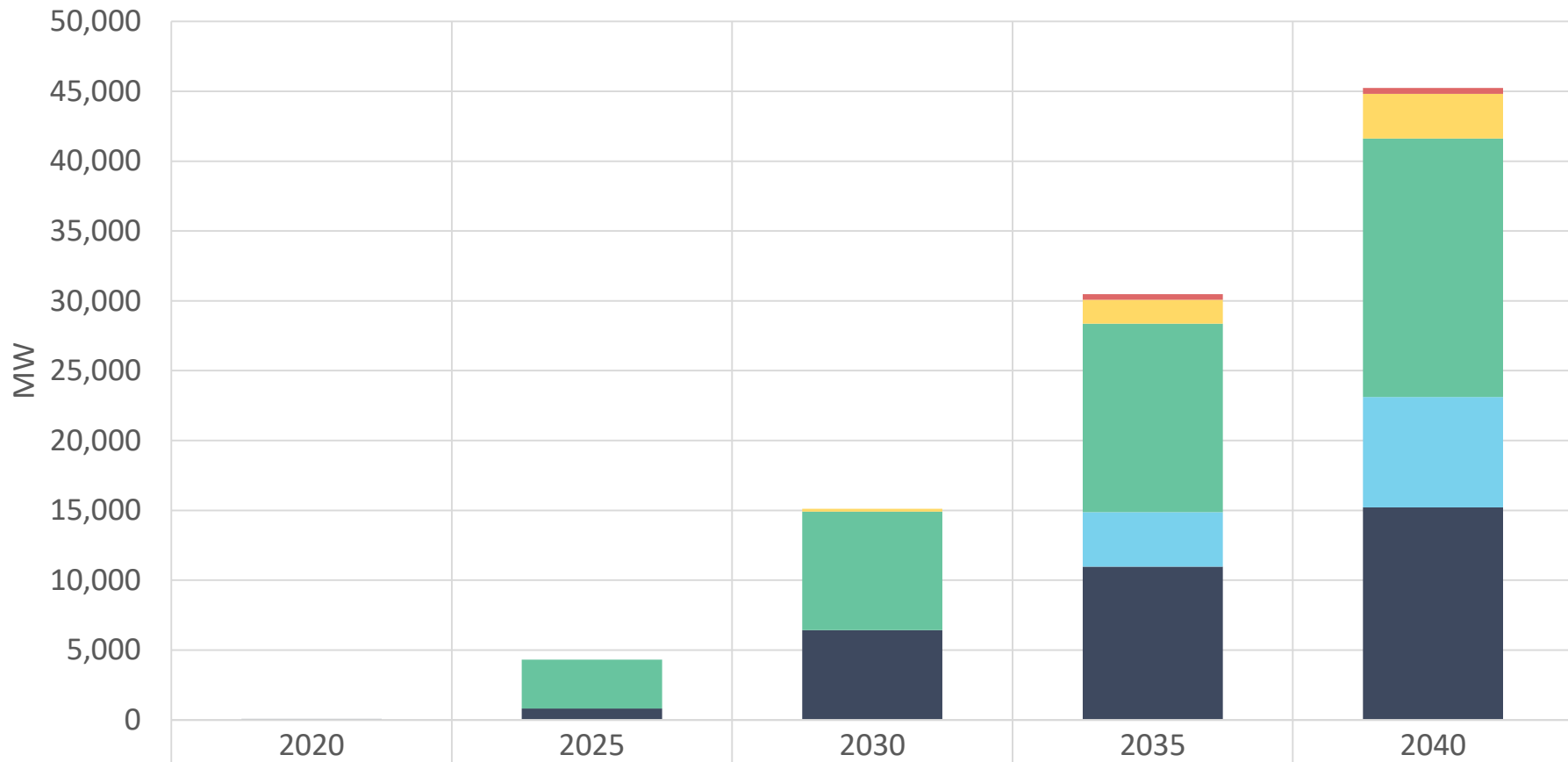
• 45,240 MW





# Required Capacity Addition per Milestone Years

## Luzon



	2020	2025	2030	2035	2040
Peaking	0	0	0	400	420
Flexible	0	0	200	1,700	3,200
Variable	0	3,500	8,500	13,500	18,500
Intermediate	0	0	0	3,900	7,900
Baseload	70	814	6,420	10,970	15,220

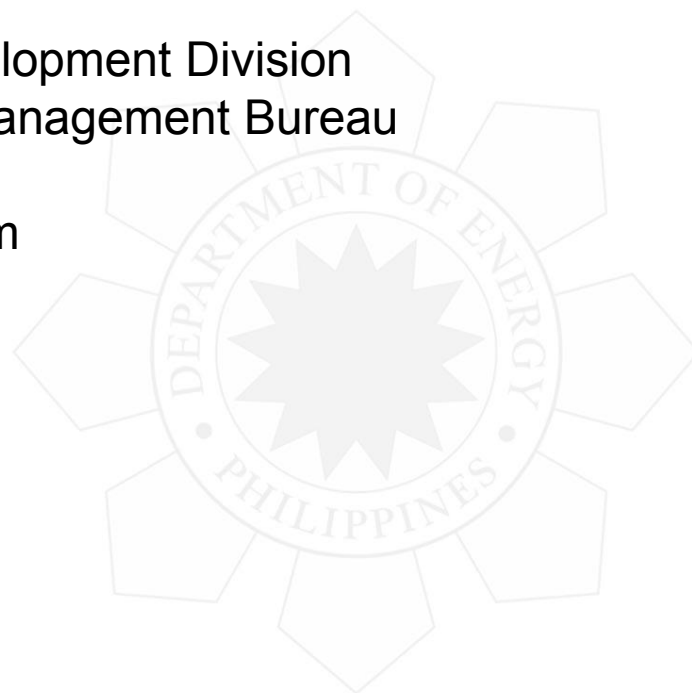




**Please send your comments and inquiries to:**

Power Generation and Supply Development and  
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Power Planning and Development Division  
Electric Power Industry Management Bureau

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**END OF PRESENTATION**

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