



# Efficient Implementation of Power Sector Reforms in the Philippines

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Department of Energy

**Public Consultation on National Policy Review on Energy**

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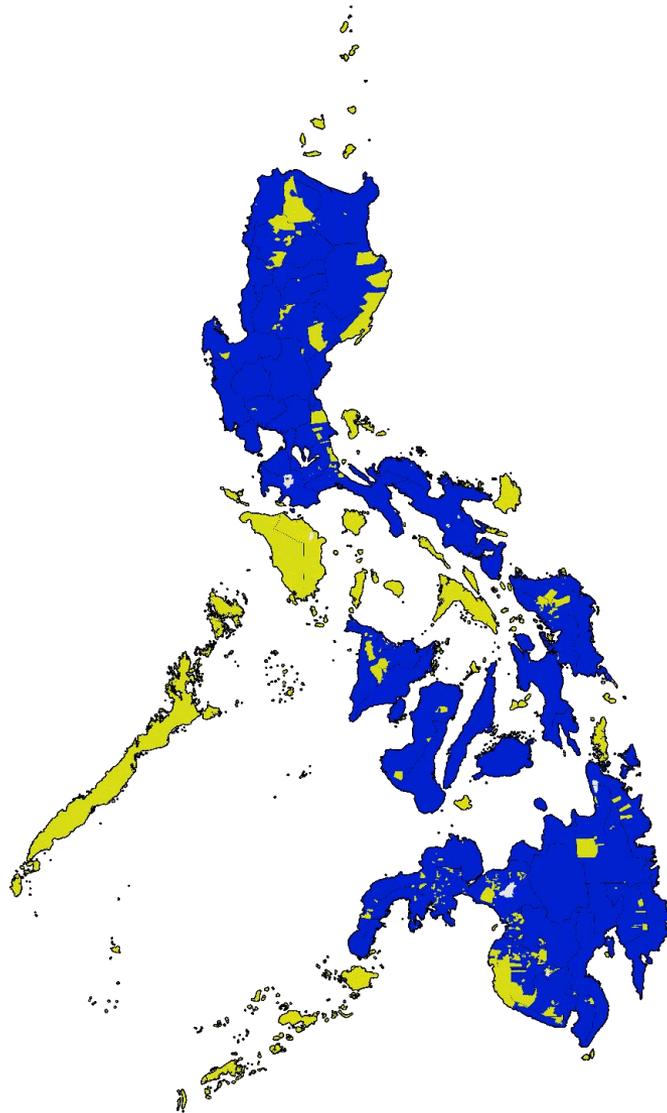
# Presentation Outline

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- A. Philippine Power Statistics and Status of Household Electrification
- B. Power Development Plan to 2040
- C. Policy Initiatives for the Implementation of Power Sector Roadmaps



# Philippine Power System



## Power System

### Grid

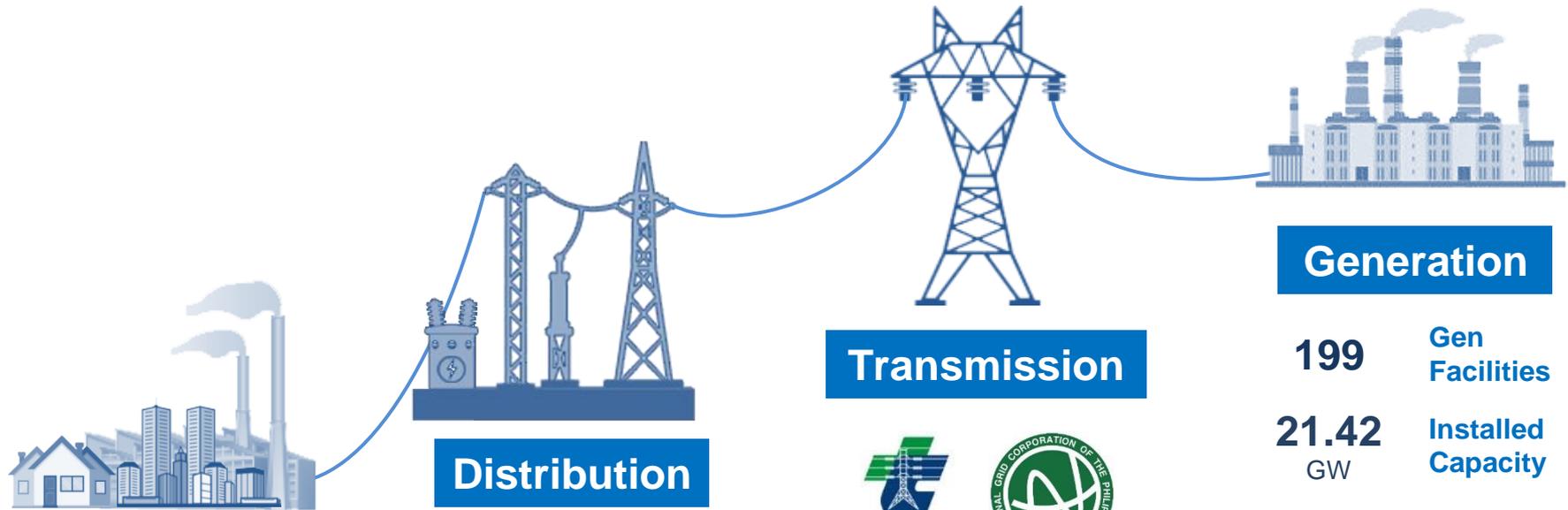
- Luzon, Visayas and Mindanao grids
- Connected to main transmission backbone

### 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)

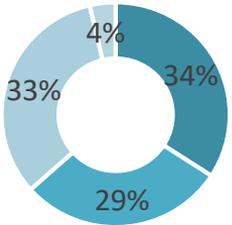


# Grid Power System



## Load

74,154 GWh



2016 Electricity Sales

- Residential
- Commercial
- Industrial
- Others

## Distribution

- 23 PIOUs
- 100 ECs
- 2 LGUOUS

## Transmission



- 31,501 MVA
- 20,053 ckt-km

**Peak Demand: 13.272 GW**

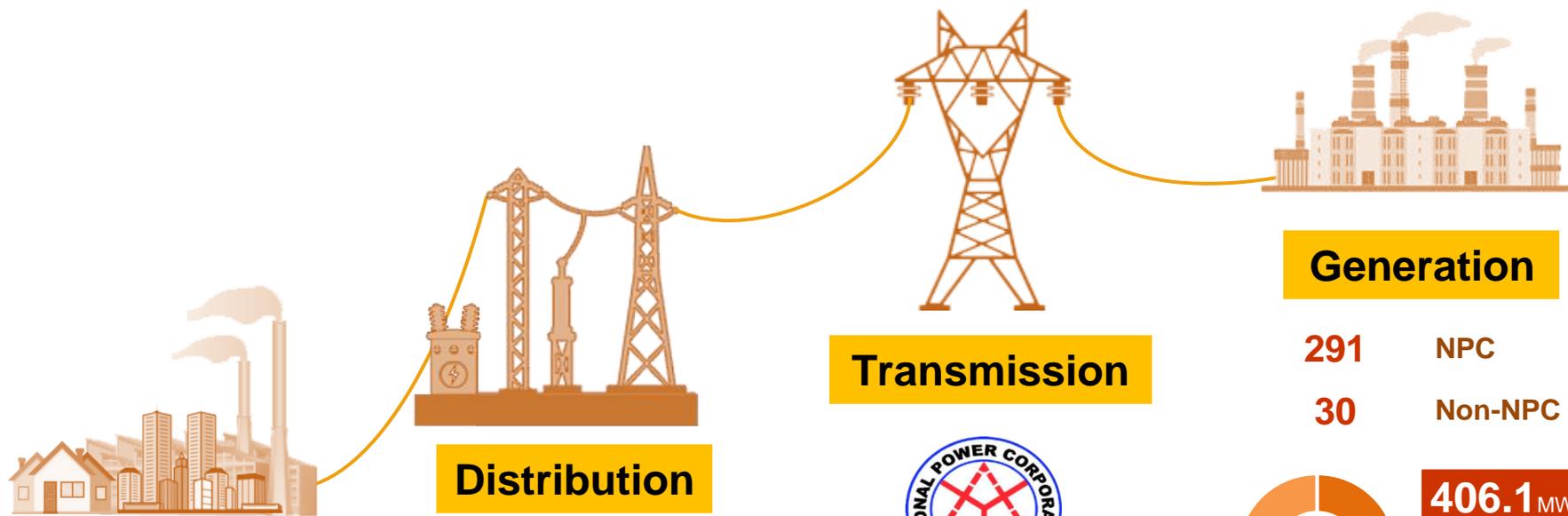
- PIOUs** - Private-Investor Owned Utilities
- ECs** - Electric Cooperatives
- LGUOUS** - LGU-Owned Utilities

## Generation

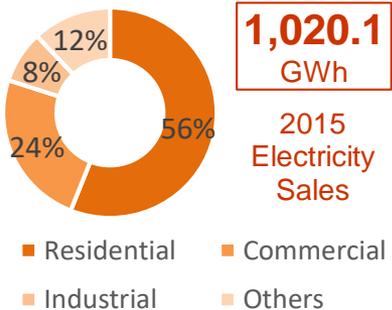
- 199 Gen Facilities
- 21.42 GW Installed Capacity
- 90,798 GWh Gross Generation
- 48% Coal
- 22% Nat Gas
- 24% RE
- 6% Oil-based

Sources of Data: DOE; NGCP

# Off-Grid Power System



## Load



**64.3%\***  
Energized

## Distribution

- 21** ECs
- 2** MPCs
- 3** LGUOUS
- 1** QTP

ECs - Electric Cooperatives  
 MPCs - Multi-Purpose Cooperatives  
 LGUOUS - LGU-Owned Utilities  
 QTP - Qualified Third Parties

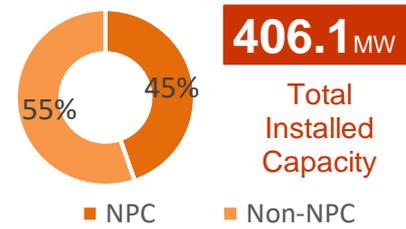
## Transmission



**170** MVA  
**770** ckt-km

## Generation

**291** NPC  
**30** Non-NPC



**1,075 GWh** Gross Generation

**96%** Diesel  
**4%** Hydro

Source of Data: DOE; NPC

# Status of Household Electrification

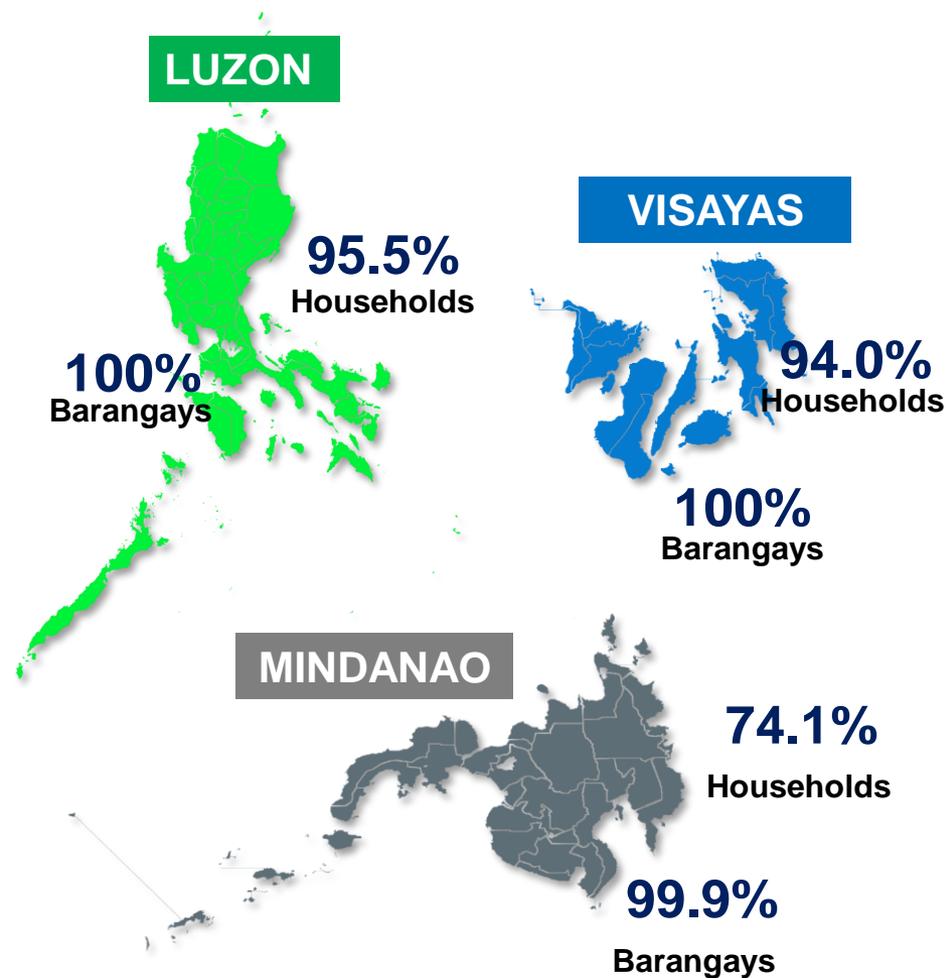
As of 31 December 2016



**20.6 Million Households** have electricity out of **22.7 Million Households** in the country

(Based on 2010 Census)

Distribution Utilities (in Millions HH)	HH Population Projected C2010	Served HH	Unserved HH	HH Electrification Level (%)
119 Electric Cooperatives	13.34	11.72	1.61	87.92%
MERALCO	7.09	6.92	0.17	97.64%
Other Distribution Utilities	2.29	1.95	0.34	85.05%
<b>Philippines</b>	<b>22.72</b>	<b>20.59</b>	<b>2.12</b>	<b>90.65%</b>



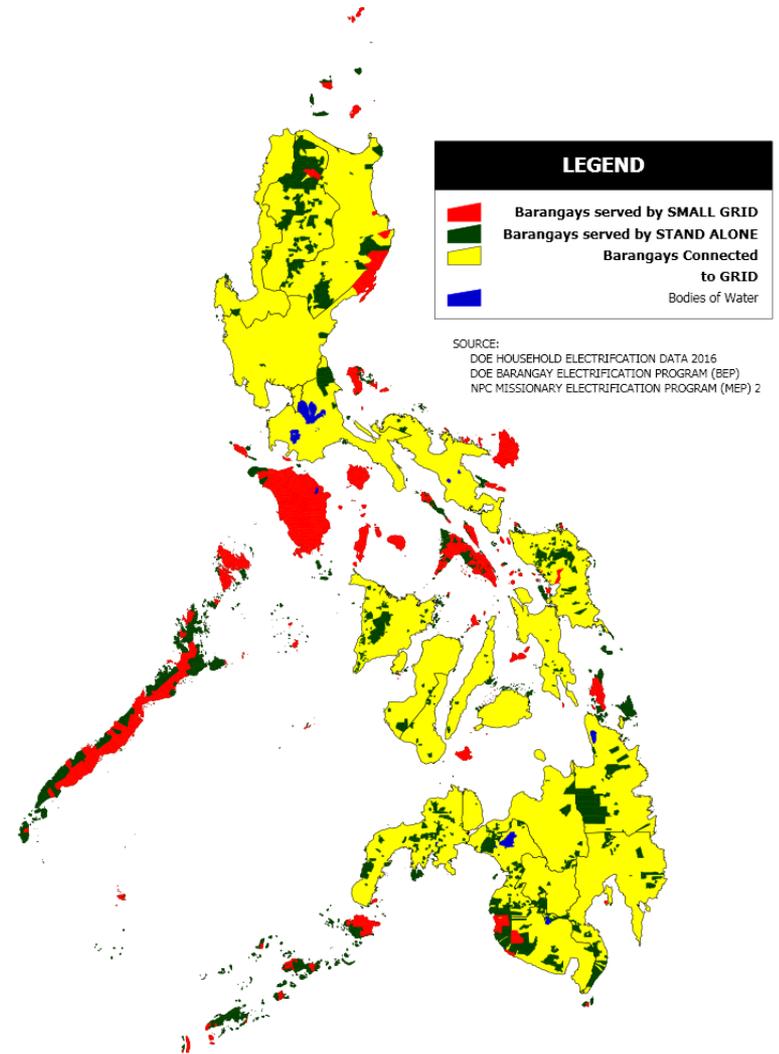
# Status of Household Electrification

HH in Barangays  
connected to Grid

**91.4%**

HH in Off Grid  
Barangays

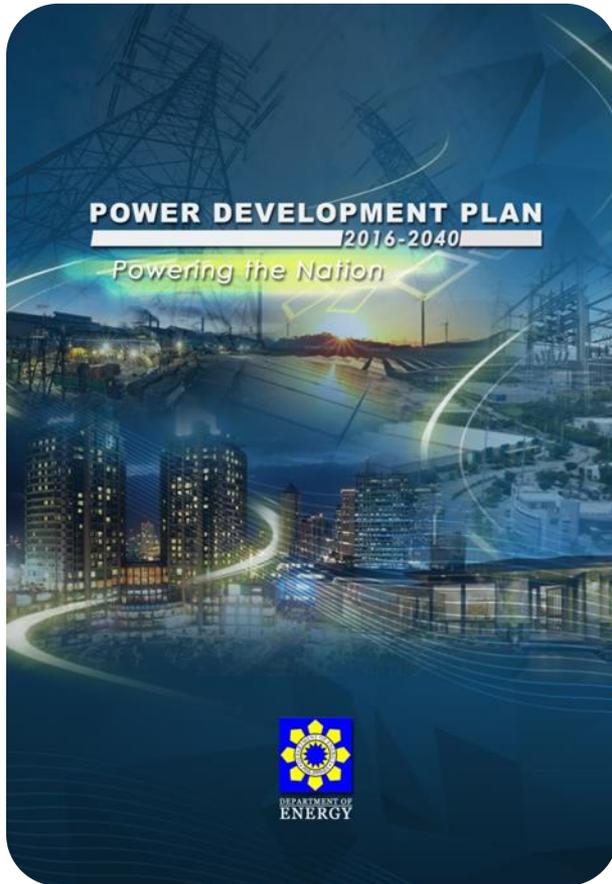
**8.6%**



Based on the available data from the following program:

- Household Electrification Development Plan 2013-2017
- Barangay Electrification Program (BEP)
- Missionary Electrification Program (MEP) 2017-2021





# Power Development Plan to 2040



# DOE's Mandate

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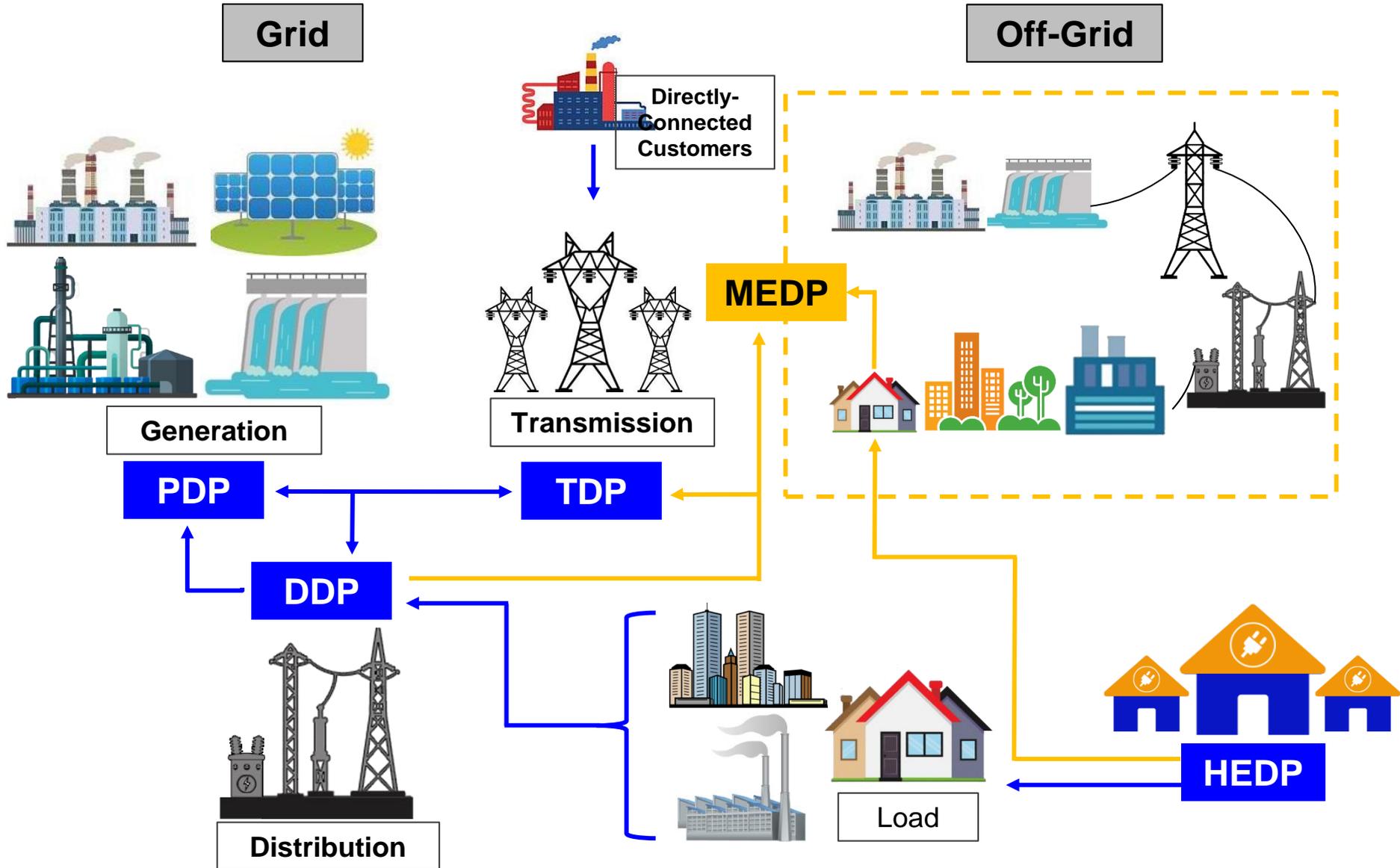
## EPIRA, Sec. 37(c):



Prepare and update annually a **Power Development Program (PDP)** and integrate the same into the Philippine Energy Plan. The PDP shall consider and **integrate** the individual or joint **development plans** of the **transmission, generation**, and **distribution** sectors of the electric power industry, which are submitted to the Department



# Power-Related Development Plans Linked

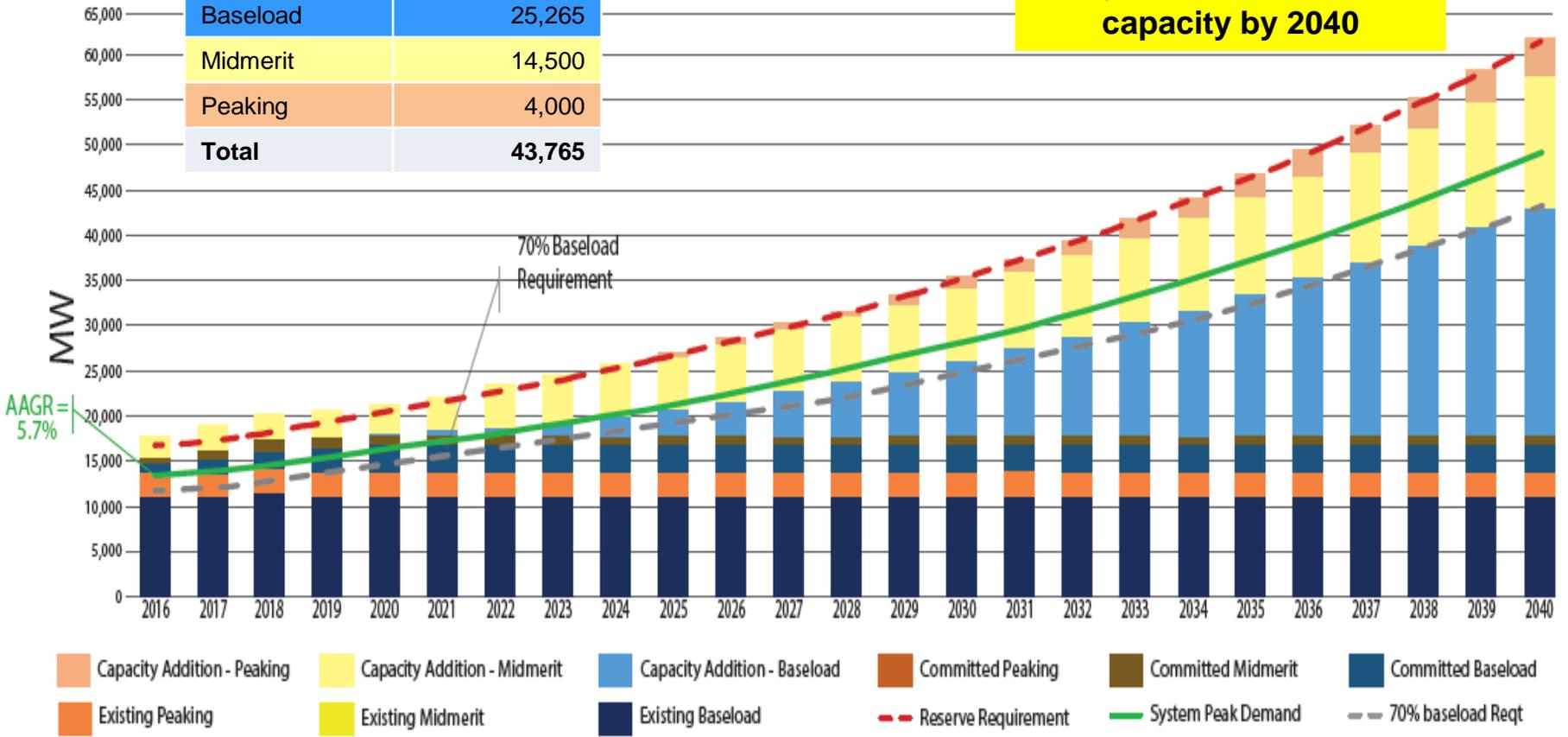


# Power Demand and Supply Outlook

## Philippines Demand and Supply Outlook, 2016-2040

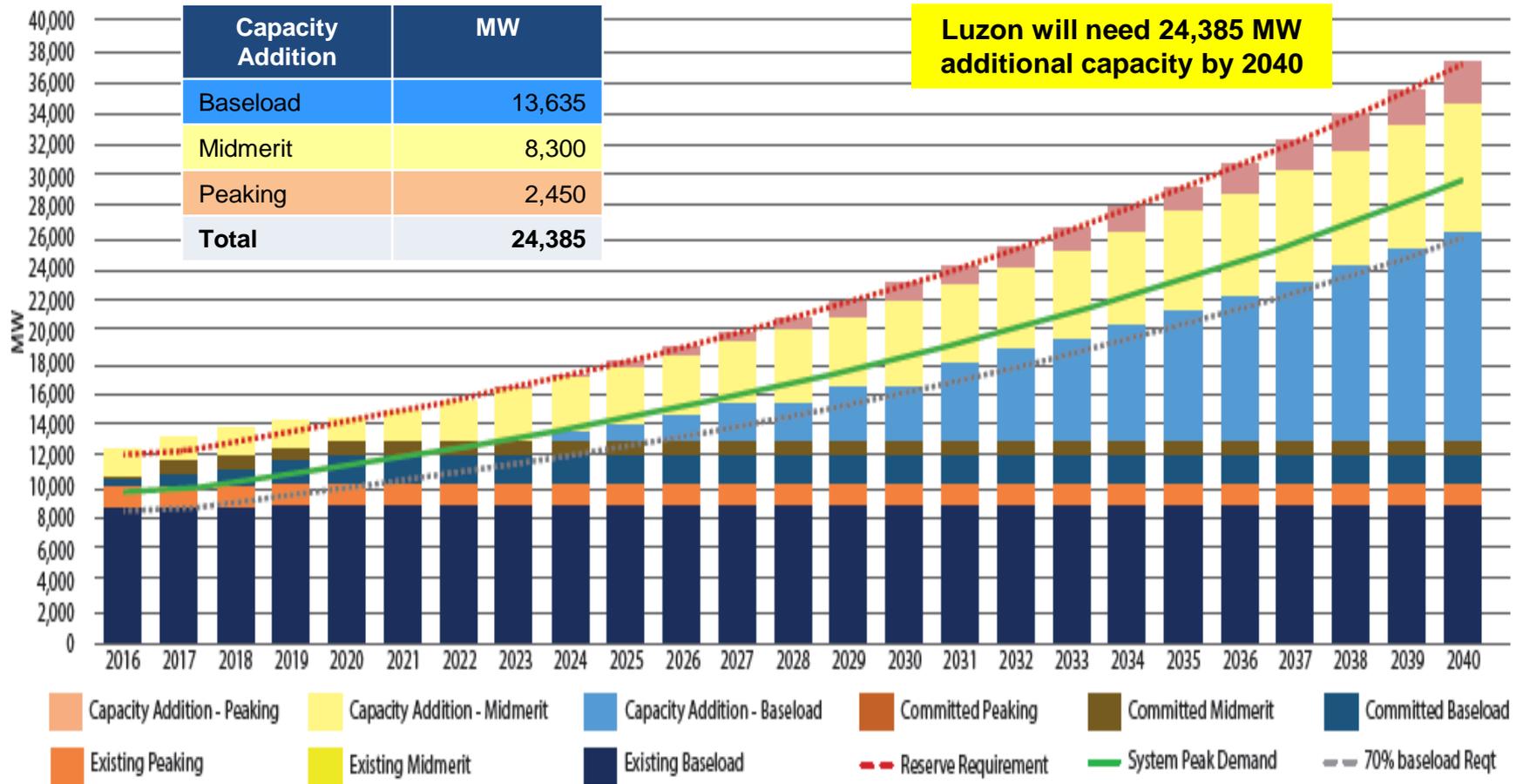
Capacity Addition	MW
Baseload	25,265
Midmerit	14,500
Peaking	4,000
<b>Total</b>	<b>43,765</b>

**Philippines will need 43,765 MW additional capacity by 2040**



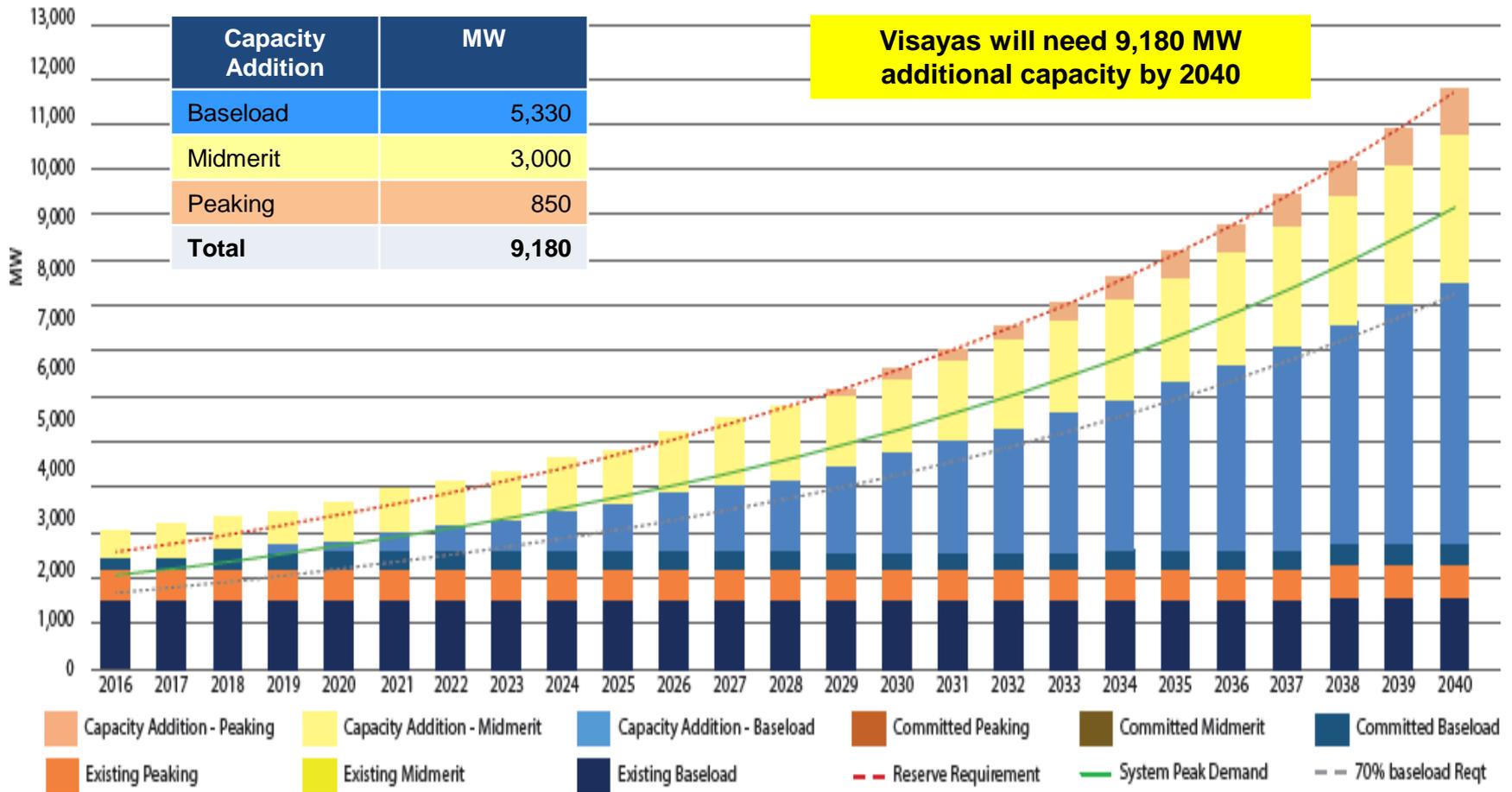
# Power Demand and Supply Outlook

## Luzon Demand and Supply Outlook, 2016-2040



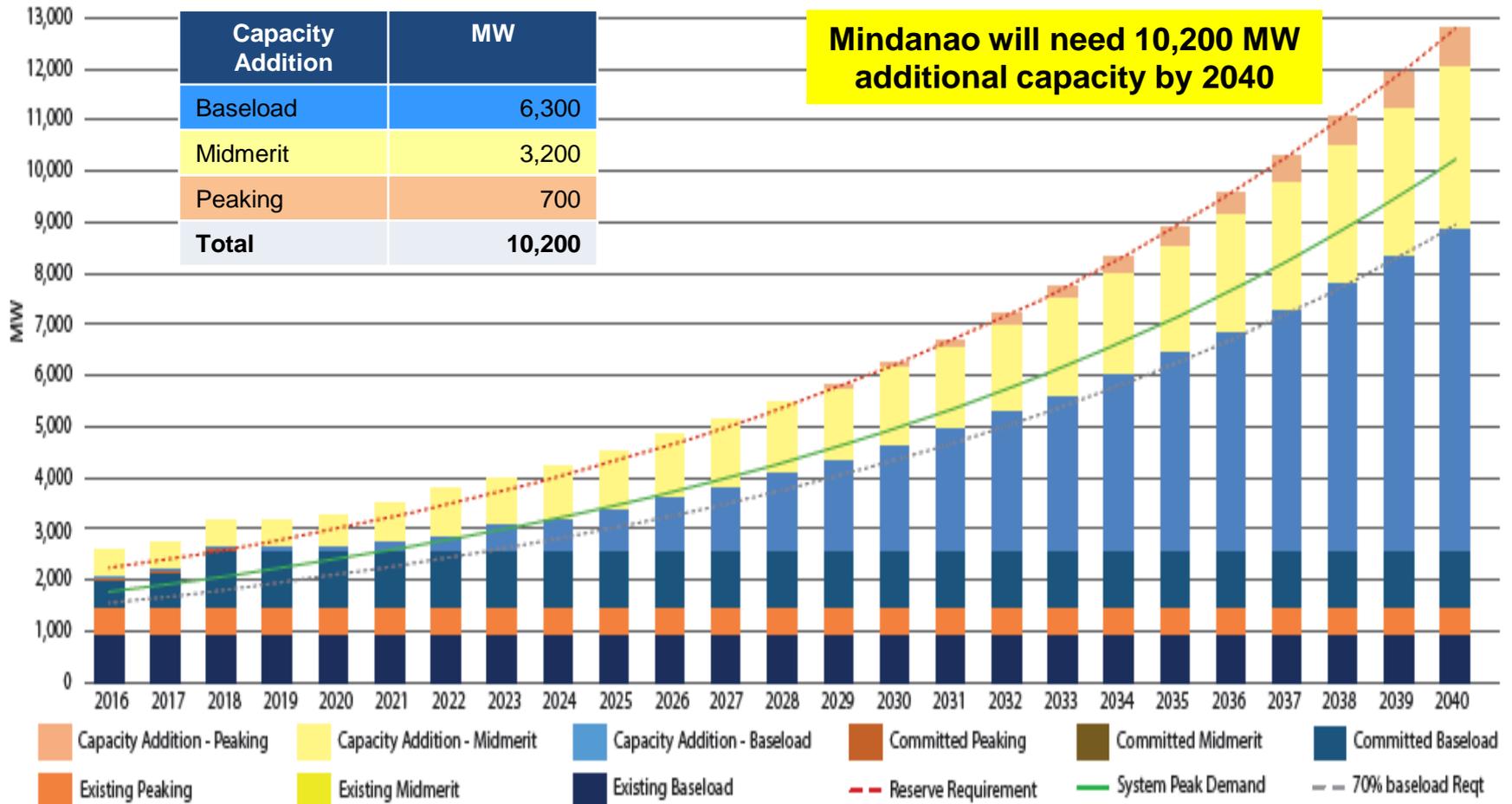
# Power Demand and Supply Outlook

## Visayas Demand and Supply Outlook, 2016-2040

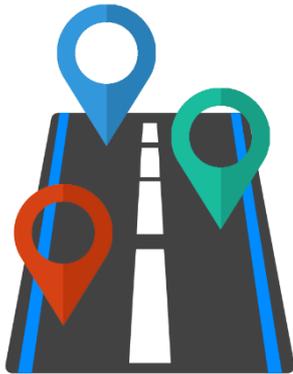


# Power Demand and Supply Outlook

## Mindanao Demand and Supply Outlook, 2016-2040



# Power Development Plan to 2040



## Power Sector Roadmap

**1** Generation

**2** Transmission

**3** Distribution and Supply

**4** Market Development

**5** Institutional and Support Mechanism

**6** Missionary Electrification

**7** Electrification





# Policy Initiatives for the Implementation of Power Sector Roadmaps



# DOE Vision

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“ A **globally-competitive DOE** powering up Filipino communities through **clean, efficient, robust and sustainable energy systems** that will **create wealth, propel industries** and **transform the lives** of men and women and the generations to come.

”



# Power Sector Roadmap Towards .....



**Quality, Reliable,  
Affordable and Secured  
Supply**

**Transparent and Fair  
Playing Field in the  
Power Industry**

**Electricity  
Access for All  
Filipinos**



# DOE Major Accomplishments



## Quality, Reliable, Affordable and Secured Supply

Formulated Power-Related Development Plans

Policy on Resiliency

EO 30 - Creation of the EICC



## Transparent and Fair Playing Field in the Power Industry

WESM Mindanao Launch

WESM Design Enhancements

Governance and Market Audits



## Electricity Access for All Filipinos

90% HH Electrification Achieved in 2016

NIHE Implementation

DOE-DPWH Joint Department Circular

**EPIRA IRR Review**

**Policy on G, T, D Performance Assessment**

EICC – Energy Investment Coordinating Council

GTD- Generation, Transmission, Distribution



# Quality, Reliable, Affordable and Secured Supply



**Policy for the integration of Energy Storage Systems (ESS) in the Power System**



**Policy Study on Electric Power Distribution Loss**



**Policy on Embedded Generation**



**Policy on Smart Grid**

**Quality, Reliable, Affordable  
and Secured Supply**

Transparent and fair playing field  
in the power industry

Electricity Access for All Filipinos



# Quality, Reliable, Affordable and Secured Supply

## OFF-GRID



**Policy Research/Study on Island Interconnection**



**RE Hybridization of NPC-SPUG Power Plants**

**Quality, Reliable, Affordable  
and Secured Supply**

Transparent and fair playing field  
in the power industry

Electricity Access for All Filipinos



# Transparent and fair playing field in the power industry



**Policy on Causer Pays Mechanism for the proper utilization and fair recovery of the Ancillary Services**



**Providing policies on the implementation of Retail Competition and Open Access (RCOA) through Voluntary Participation of the Contestable Customer and effective participation of Retail Electricity Suppliers in the Retail Market**

Quality, Reliable, Affordable and Secured Supply

**Transparent and fair playing field in the power industry**

Electricity Access for All Filipinos



# Electricity Access for All Filipinos



**Policy study on the allocation of PSALM capacity in Mindanao to marginalized customers and economic zones**



**Implementation of the Annual Work Program pursuant to Section 6a, Rule 29 (Part A) of the EPIRA IRR**



**Policy Review of the Implementation of the DILG-DOE Joint Circular 95-01 & 98-01 National Wealth Tax which is part of Rule 29 Part B of the EPIRA IRR**

Quality, Reliable, Affordable and Secured Supply

Transparent and fair playing field in the power industry

**Electricity Access for All Filipinos**



# Initial Assessment of Household Electrification

Based on 2015 Census

**>2 Million Households**  
to be electrified by 2022  
based on 2015 Census



Distribution Utilities (in Millions HH)	HH Population C2015	Served HH	Unserved HH	HH Electrification Level (%) June 2017
119 Electric Cooperatives	14.57	11.99	2.58	82.29%
MERALCO	6.48	6.48 (6.92)**	0	100.00%
Other Distribution Utilities	1.93	1.93 (1.95)**	0	100.00%
Philippines	22.98	20.41	2.57	<b>88.77%</b>

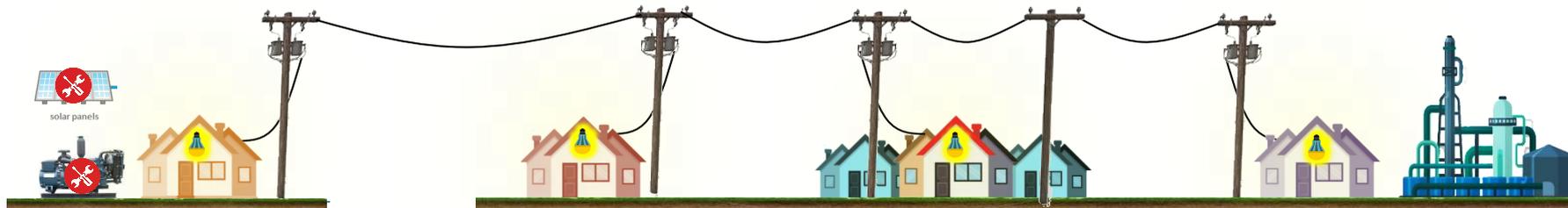
\*Based on NEA Status of Energization Report as of June 2017

\*\* Based on PIOUs and LGUOUS DDP 2017-2026 Household Electrification Level (%) as of Dec. 2016. Number of served households are already more than the number of household provided un Census 2015



# Electricity Access for All Filipinos

## GRID ELECTRIFICATION PROGRAMS AND PROJECTS



### NEA- Barangay Line Enhancement Program (BLEP)

- Extension of DX lines to previous off-grid electrified areas, enhancement of lines and/or submarine cables

### NEA- Sitio Electrification Program (SEP)

-Extension DX lines to far flung areas and sitios

### Nationwide Intensification of Household Electrification (NIHE)

- Intensification of Household Electrification through grant house-wiring subsidy

### ER 1-94 Electrification Fund Program

-Provision of electrification projects leading to 100% electrification of to Host Communities

Quality, Reliable, Affordable and Secured Supply

Transparent and fair playing field in the power industry

Electricity Access for All Filipinos

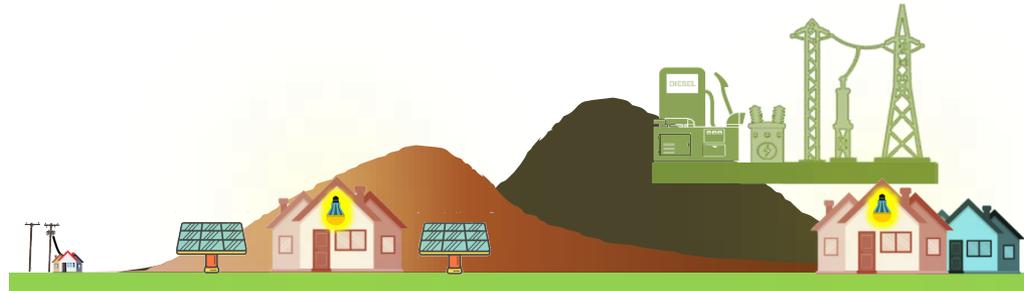


# Electricity Access for All Filipinos

## OFFGRID ELECTRIFICATION PROGRAMS AND PROJECTS

### DOE-PV Mainstreaming Program (PVM)

-Provision of individual PV SHS to off-grid/unviable areas



### Qualified Third Program (QTP)

-Provision of Generation to Distribution services to areas deemed unviable and waived by the DUs

### DOE- Household Electrification Program using RE System (HEP)

-Provision of individual PV SHS if a hydropower resource is available within a reasonable distance from the clustered household beneficiaries.



### NPC Missionary Electrification Program (MEP)

-Provision of Generation Capacity to Off-grid Areas

Quality, Reliable, Affordable and Secured Supply

Transparent and fair playing field in the power industry

Electricity Access for All Filipinos



# Electricity Access for All Filipinos



**Rationalization of UCME Subsidy System**



**Research on the Improvement of Private Sector Participation (PSP) Program for Missionary Areas**



**Preparation of Philippine Total Household Electrification Master Plan for Off-grid Areas**

Quality, Reliable, Affordable and Secured Supply

Transparent and fair playing field in the power industry

**Electricity Access for All Filipinos**



# Electricity Access for All Filipinos



**Conduct series of Public Consultation together with NEA and NPC on Total Electrification by 2022**



**Issuance of detailed yearly plans & target for each of Electrification Programs to achieve Total Household Electrification target**

Quality, Reliable, Affordable and Secured Supply

Transparent and fair playing field in the power industry

**Electricity Access for All Filipinos**



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# Thank You!



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