

# Energy Sector Updates

Undersecretary **Felix William B. Fuentebella**

DEPARTMENT OF ENERGY

April 27, 2023

bai Hotel Cebu, Mandaue City

2023 VISAYAS ENERGY INVESTMENT FORUM

2023 Visayas Energy  
Investment Forum

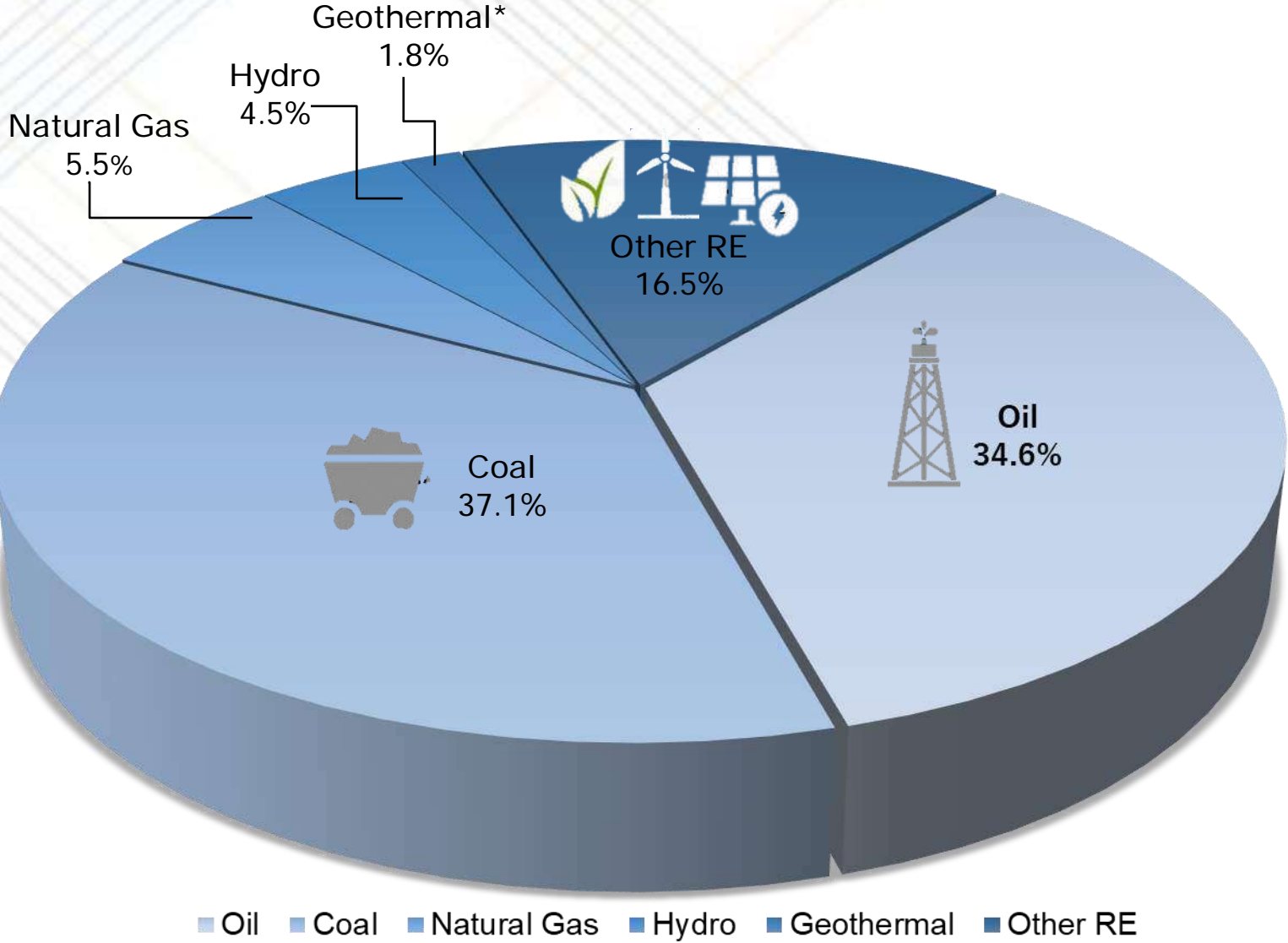
# Presentation Outline

- 1 Where are we now?
- 2 Where are we headed?
- 3 How do we get there?
- 4 Energy Investment Opportunities



**Where are we now?**

# Total Primary Energy Supply 2021



## 50.9 MTOE

2021 TOTAL PRIMARY ENERGY SUPPLY

### 43.2%

(22.0 MTOE)

INDIGENOUS

### 56.8%

(28.9 MTOE)

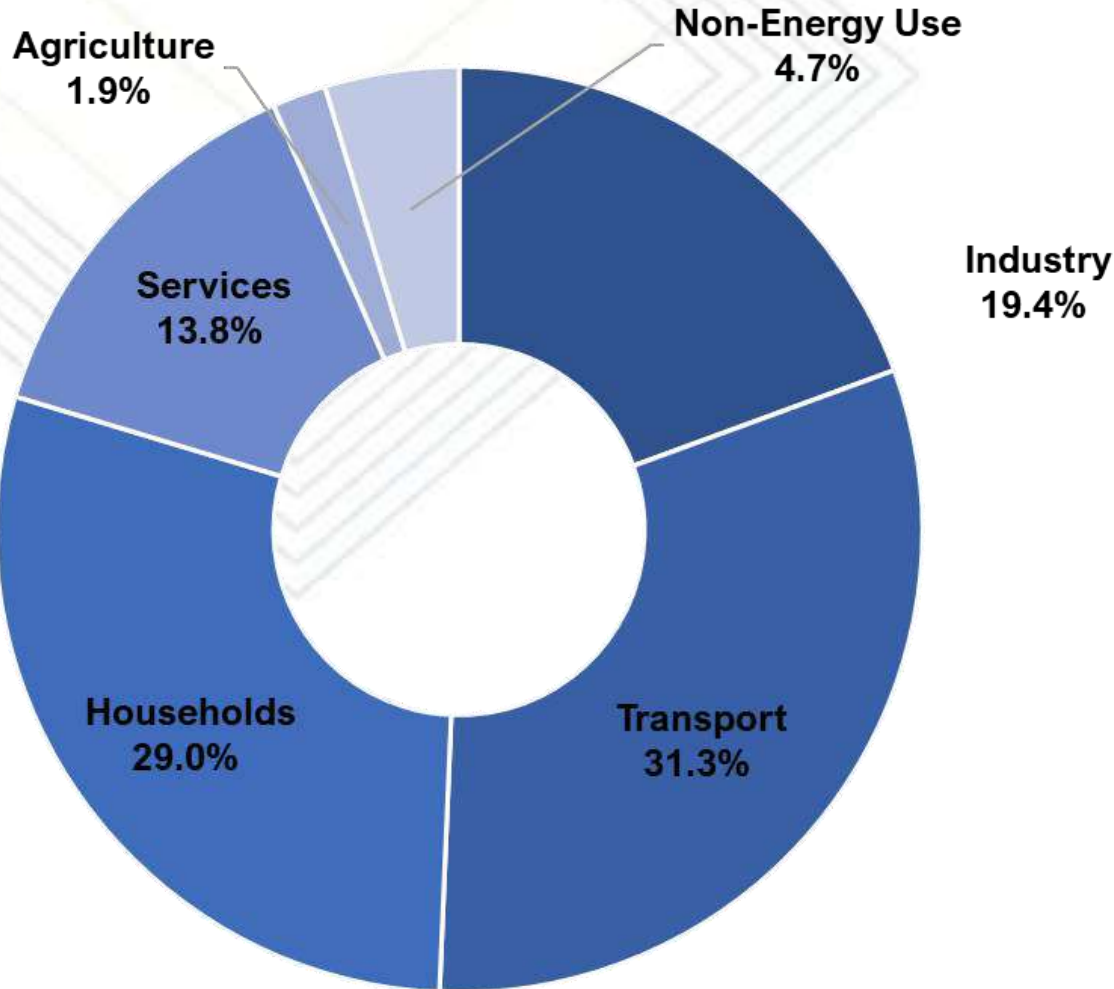
NET IMPORTED



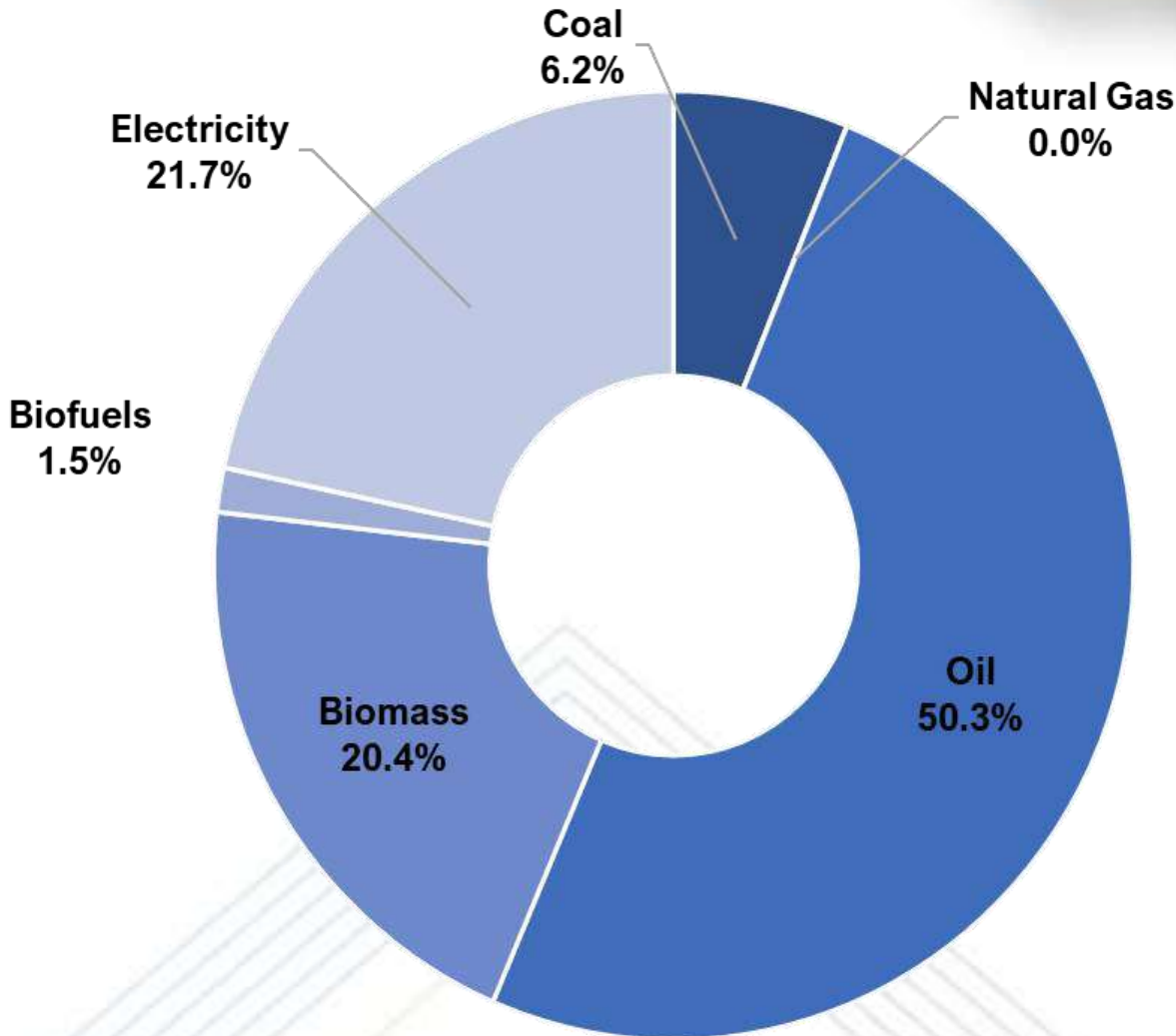
# Total Final Energy Consumption 2021

**35.1 MTOE\***

## By Sector



## By Fuel



# On-Grid Power Capacity and Generation Mix 2021

## COAL



43%

**11,669 MW**  
INSTALLED CAPACITY

46%

**10,913 MW**  
DEPENDABLE CAPACITY

58%

**62,052 GWh**  
POWER GENERATION

## RENEWABLE ENERGY



29%

**7,914 MW**  
INSTALLED CAPACITY

29%

**7,005 MW**  
DEPENDABLE CAPACITY

22%

**23,771 GWh**  
POWER GENERATION

## OIL-BASED



14%

**3,847 MW**  
INSTALLED CAPACITY

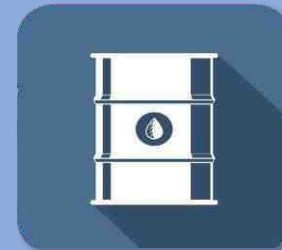
11%

**2,650 MW**  
DEPENDABLE CAPACITY

2%

**1,616 GWh**  
POWER GENERATION

## NATURAL GAS



13%

**3,453 MW**  
INSTALLED CAPACITY

14%

**3,286 MW**  
DEPENDABLE CAPACITY

18%

**18,675 GWh**  
POWER GENERATION

**16,036 MW**

2021 PEAK DEMAND

LUZON: 11,640 MW

VISAYAS: 2,252 MW

MINDANAO: 2,144 MW

**106,114 GWh**

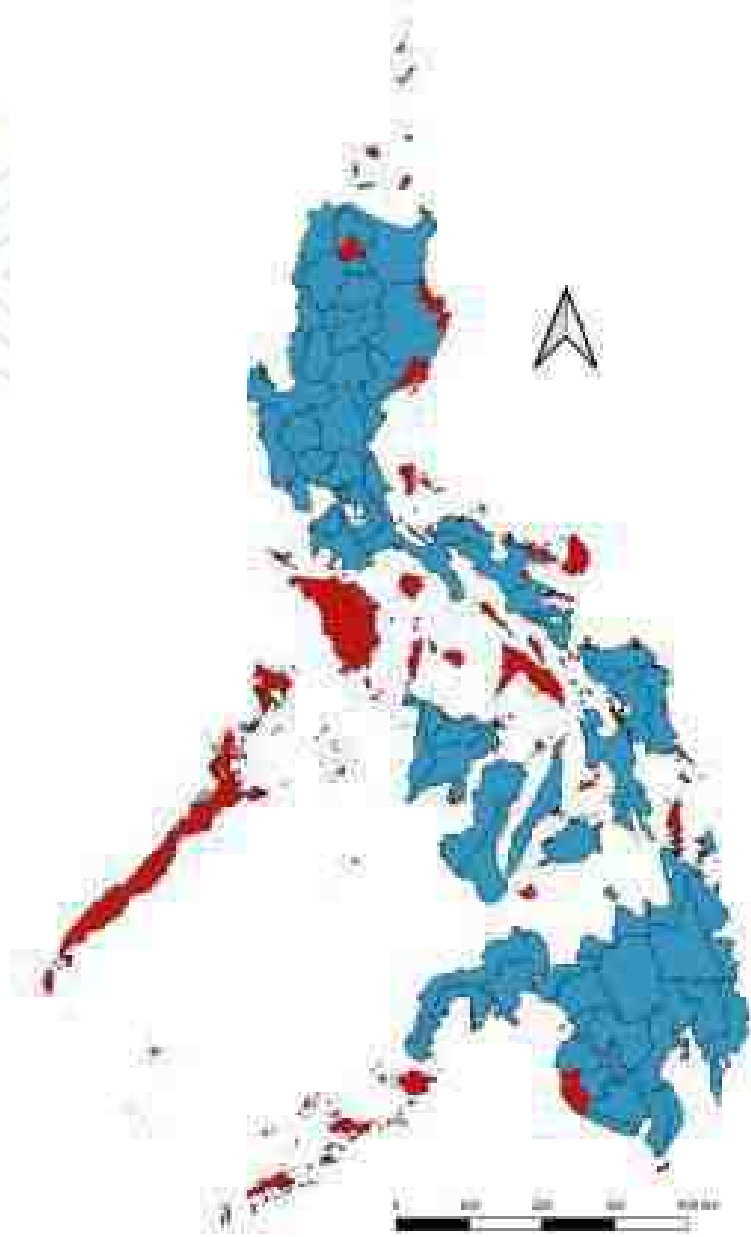
Indigenous: 45.1%

Imported: 54.9%

RE Share: 22%

Fossil Share: 78%

# Off-Grid Supply and Demand Profile, 2020



Peak Demand		AAGR
Luzon	234.49 MW	6.85%
Visayas	24.81 MW	9.42%
Mindanao	41.38 MW	5.40%
<b>Total Peak Demand</b>	<b>300.68 MW</b>	

Missionary Areas	NPC-SPUG		NPPs and DU-Owned Generators		Total	
	Dependable Capacity (MW)	Number of Power Plants	NPPs and DU-Owned Generators (MW)	Number of Power Plants	Dependable Capacity (MW)	Number of Power Plants
Luzon	101.15 MW	202	296.49 MW	19	397.64 MW	221
Visayas	21.76 MW	49	18.89 MW	2	40.65 MW	51
Mindanao	54.35 MW	26	6.55 MW	2	60.90 MW	28
<b>Total</b>	<b>177.26 MW</b>	<b>277</b>	<b>321.93 MW</b>	<b>23</b>	<b>499.19 MW</b>	<b>300</b>



## 17 PETROLEUM SERVICE CONTRACTS (11 Exploration Phase; 6 Production Phase\*)

## 29 COAL OPERATING CONTRACTS (20 Development/Production; 9 Exploration)

2022 PRODUCTION	558.27 <sub>MB</sub>	Oil
	112.172 <sub>BCF</sub>	Gas
	2.71 <sub>MMB</sub>	Condensate

16.06 <sub>MMT</sub>	Production
36.14 <sub>MMT</sub>	Consumption
32.67 <sub>MMT</sub>	Imports
7.12 <sub>MMT</sub>	Exports



# Private Sector Initiated Projects

## Committed Projects

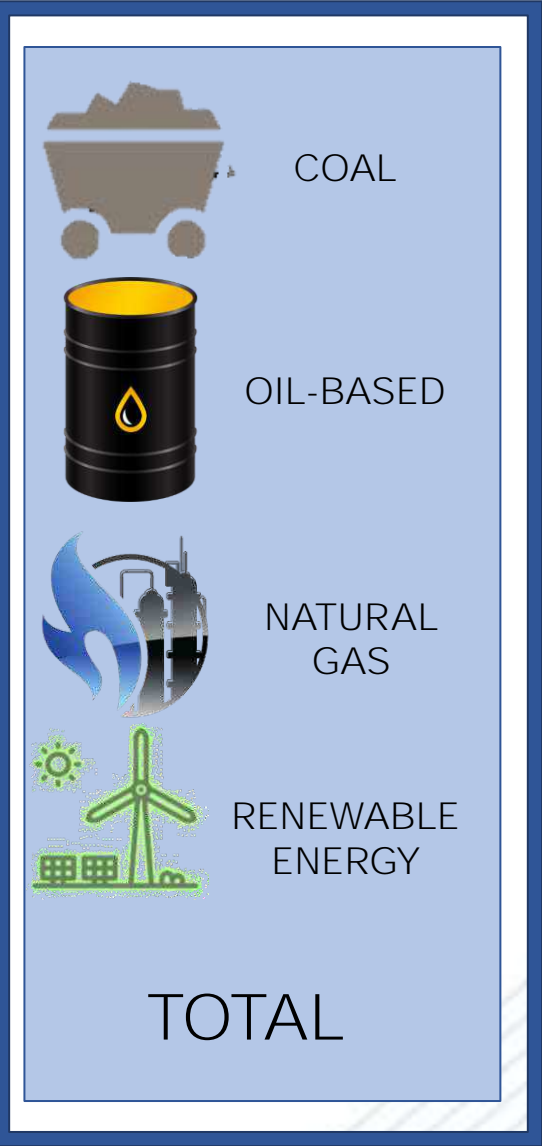
3,685.40 MW (35.93%)

41.75 MW (0.41%)

3,500.00 MW (34.13%)

3,028.90 MW (29.53%)

10,256.05 MW (100%)



## Indicative Projects

1,520.00 MW (2.97%)

335.00 MW (0.66%)

6,580.00 MW (12.86%)

42,723.53 MW (83.51%)

51,158.73 MW (100%)

# Existing Downstream Oil Facilities

DOI Player Participants	
Refiner	1
Importer	156
Importer and Bunker Trader	2
Importer and Terminal Operator/Lessor	3
Bulk Distributor	167
Bulk Distributor and Bunker Trader	2
Bulk Distributor and Hauler	11
Bulk Distributor and Terminal Operator/Lessor	5
Terminal Operator/Lessor	10
Bunker Trader	5
Hauler	83
Own-user	37
Retailer	25,847
Refiller	179
<b>Grand Total</b>	<b>26,508</b>

As of December 31, 2022

DOI Player Participants	*No. of Facility	Storage Working Capacity (MB)
Refinery	1	9,609
Import Terminal (LPP & LPG)	58	26,602
Distribution Depot (LPP & LPG)	92	5,422
LPG Refilling Plant	13,924	-
LF Retail Outlet	11,923	-
<b>Grand Total</b>	<b>4,771</b>	<b>6,619,940</b>

As of December 31, 2022





# Approved LNG Projects

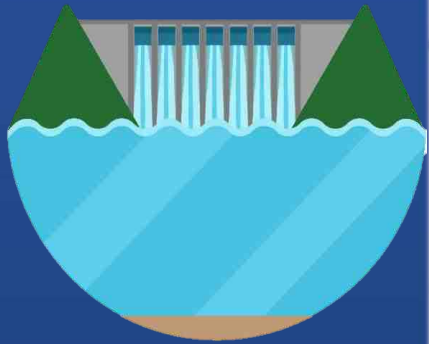
Item	Proponent	Project	Location	Capacity	Estimated COD <sup>1</sup>
1	FGEN LNG Corporation (Filipino)– 80% participating interest Tokyo Gas Co. Ltd (Japan)– 20% participating interest	Interim Floating Storage and Regasification Unit (FSRU) Liquefied Natural Gas Terminal	Barangays Sta. Clara, Sta. Rita Aplaya, and Bolbok in Batangas City	5.26 MTPA	Sep 2023
2	Luzon LNG Terminal Inc. Topline Energy & Power Dev Corporation (Filipino) -(i.e., currently planned for 30%)	Floating Storage Regasification Unit (FSRU) Liquefied Natural Gas Terminal	About 9.5 km offshore in Bay of Batangas	4.4 MTPA	Dec 2025
3	Energy World Gas Operations Philippines Inc. (Filipino)– 100% participating interest	LNG Storage and Regasification Terminal	Barangay Ibabang Polo, Pagbilao Grande Island, Quezon Province	3 MTPA	Dec 2023
4	Linseed Field Corporation (Filipino)– up to 100% participating interest Osaka Gas Co., Ltd (Japan) – has a Technical Services Agreement (TSA) with AG&P to provide support on O&M-related areas.	Floating Storage Unit (FSU) and Onshore Regasification and 60,000 cbm buffer LNG storage tank	Barangay Ilijan and Dela Paz, Batangas City	3 MTPA	FSU and Onshore Regasification – May 2023 Buffer LNG storage tank – Dec 2023
5	Shell Energy Philippines, Inc. (Filipino)– up to 100% participating interest	Floating Storage and Regasification Unit (FSRU) Terminal	Tabangao, Batangas City	3 MTPA	Sep 2025
6	Vires Energy Corporation – (Filipino)– up to 100% participating interest A Brown Company, Inc. (ABCI) (Filipino) – 100% ownership of Vires Energy Corporation as its Parent Company	Floating Storage and Regasification Unit (FSRU) Terminal	Barangay Simlong, Batangas City	3 MTPA	April 2026
7	Samat LNG Corporation - 100% foreign	Small-Scale LNG Terminal	Barangay Sisiman, Mariveles, Bataan	0.32 MTPA	Phase 1 : Mar 2024 Phase 2: May 2025



<sup>1</sup>COD - Commercial Operations Date

# Awarded Renewable Energy Contracts

## HYDROPOWER



432 Awarded Projects

12,271 MW  
POTENTIAL CAPACITY

1,129 MW  
INSTALLED CAPACITY

## OCEAN



8 Awarded Projects

24 MW  
POTENTIAL CAPACITY

## GEOTHERMAL



36 Awarded Projects

871 MW  
POTENTIAL CAPACITY

1,931 MW  
INSTALLED CAPACITY

## WIND

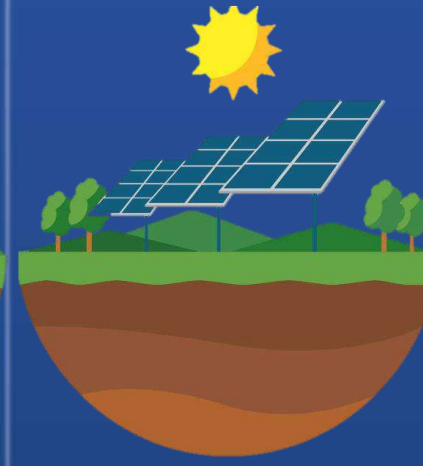


142 Awarded Projects

45,631 MW  
POTENTIAL CAPACITY

443 MW  
INSTALLED CAPACITY

## SOLAR



307 Awarded Projects

21,414 MWp  
POTENTIAL CAPACITY

1,290 MWp  
INSTALLED CAPACITY

## BIOMASS



77 Awarded Projects

186 MW  
POTENTIAL CAPACITY

777 MW  
INSTALLED CAPACITY



## RE Contracts Awarded

1,002 projects

5,571 MW installed capacity  
80,399 MW potential capacity



## RE Installed Capacity

7,914 MW (29%)



## Green Energy Auction (GEA) 1

18 Certificates of Award  
1,866 MW committed  
capacity starting 2025



## Green Energy Option Program

19 RE Suppliers

- 199 customers switched
- 61 MW non-coincidental peak demand



## Net Metering

7,583 customers  
• 63 MWp rated capacity



## RE Investments Generated under RE Act 2008

Ph 278 billion

- 357,248 green jobs generated
- 4,365 kiloton CO<sub>2</sub> emission reduction



# Energy Efficiency and Conservation and Alternative Fuels



## 44 Energy Service Companies (ESCOs)

Electricity Savings	11.09 GWh*
Total Savings	Php 0.86 Billion*

## Government Energy Management Program (GEMP)

Electricity Savings	276.97 GWh
Fuel Saved	113,951.82 Liters
Total Savings	Php 2.72 Billion

## 7,144 EE Designated Establishments (DEs)

Electricity Savings	4,063.42 GWh*
Total Savings	Php 8.591 Billion*

\*Subject to validation

As of 25 April 2023

Filinvest – Battery Swapping Station  
Alabang, Muntinlupa

Unioil EVCS (DC Fast Charger)  
Subic Bay Freeport Zone, Zambales

UP EEI (AC Charger)  
UP Diliman, Quezon City

## Electric Vehicles (EVs)

EVCS Locations <small>(As of April 2023)</small>	338 EVCS
AC (Slow Charge)	258
DC (Fast Charge)	59
Battery Swapping Stations	21

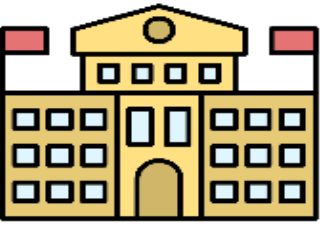
# EVOSS Snapshot and Application Monitoring (As of 25 March 2023)



Republic Act No. 11234

*Energy Virtual One-Stop Shop (EVOSS) Act*

*Prospective energy companies can apply, monitor, and receive all the necessary permits, and pay for charges and fees, through the EVOSS' online platform*



9 Government Offices and Entities



Processes in the EVOSS System

- 48 processes included in the system
- 36 processes for integration
- 4 additional entities



5,985  
Received Applications



3,707  
Approved Applications



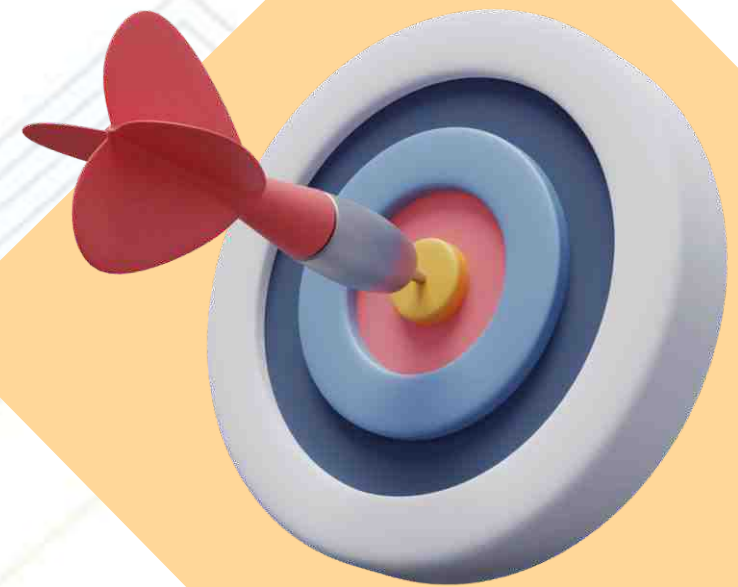
150  
Applications On-going Evaluation



559  
Disapproved Applications

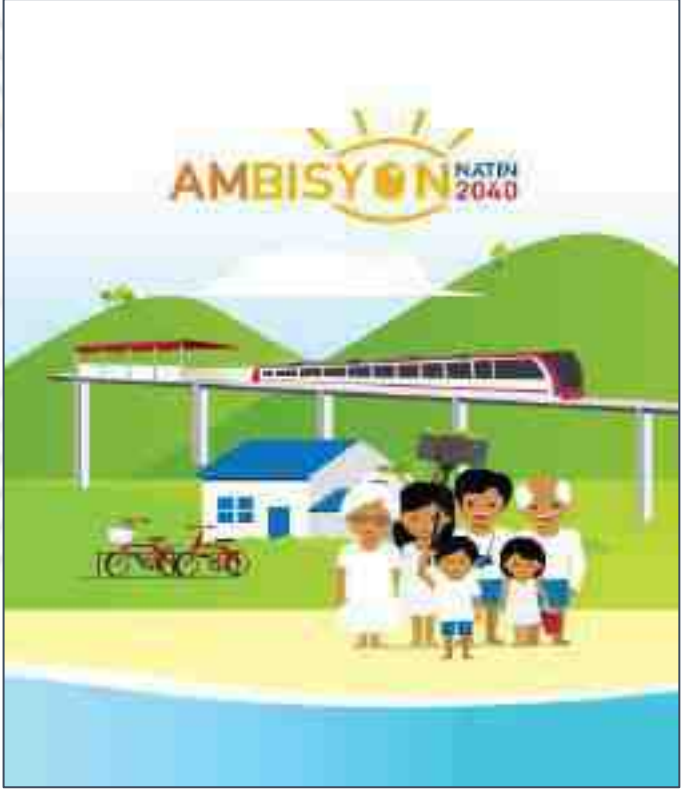
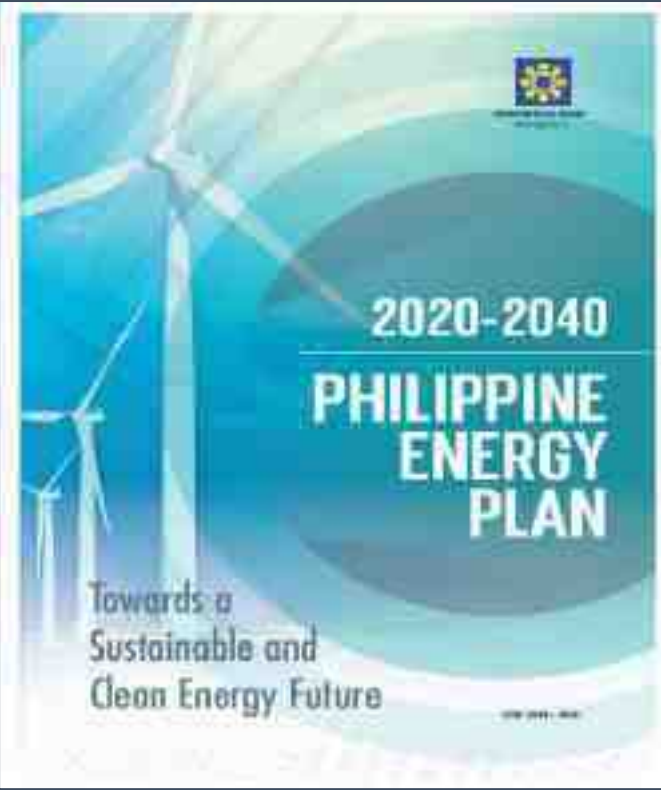


# Where are we headed?





# Philippine Energy Plan 2020-2040 Targets



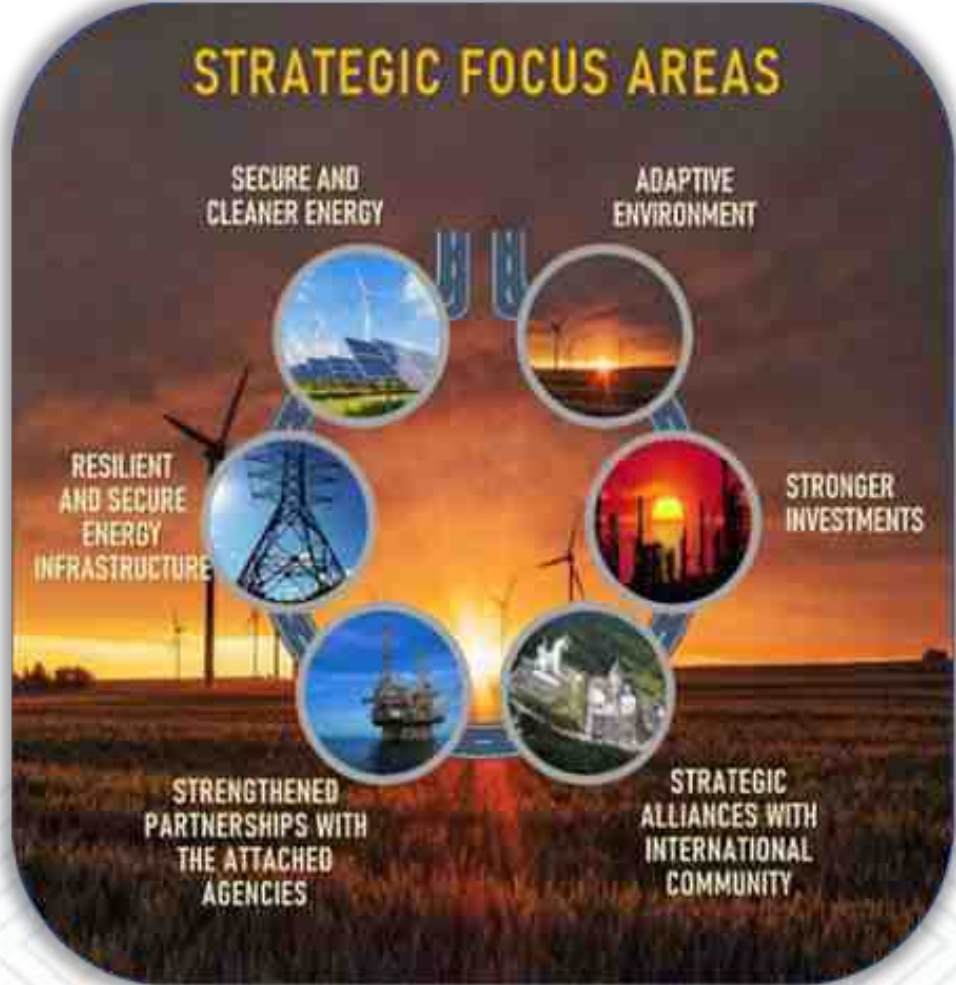
**“Sustainable Path Towards Clean Energy”**

- Reference Scenario
- + RE
- + EE and C
- + Other Energy Technologies
- + ICT
- + Resiliency



- Energy Security
- Sustainable Energy
- Resilient Infrastructure
- Competitive Energy Sector
- Smart Homes and Cities
- Empowered Consumers

Clean Energy Scenario



# Future Energy Scenario



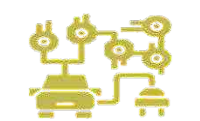
Renewable Energy

35% of power generation mix by 2030; and 50% by 2040



Energy Efficiency and Conservation

5% energy savings on oil products and electricity by 2040



Emerging and Innovative Technologies

10% EV penetration rate in road transport by 2040; Exploring new and efficient technologies



Information and Communications Technology

Adopting advanced and interoperable ICT in the energy chain



Energy Resiliency

Resilient and climate-proof energy infrastructure



# Power Generation Mix, 2040

## REFERENCE SCENARIO

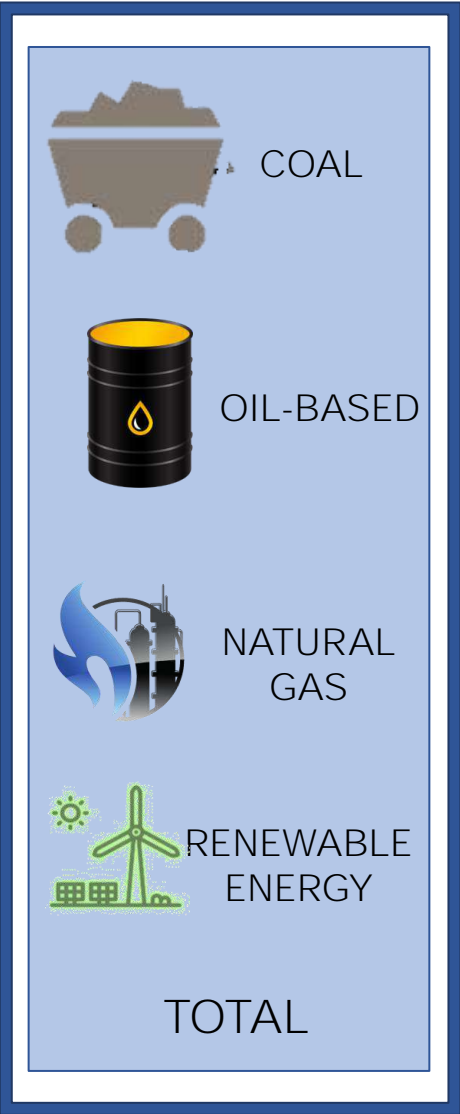
89,717 GWh (24.6%)

276 GWh (0.1%)

146,858 GWh (40.3%)

111,361 GWh (34.9%)

364.4 TWh (100%)



## CLEAN ENERGY SCENARIO

80,827 GWh (23.1%)

515 GWh (0.1%)

93,240 GWh (26.6%)

175,492 GWh (50.1%)

350 TWh (100%)

How do we get there?



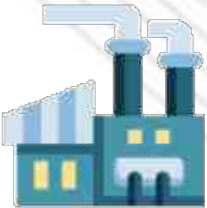


# Market-Driven Policies



## Republic Act (RA) No. 7638 or the Department of Energy Act of 1992

*Develop and update Philippine energy programs which shall provide for integrated and comprehensive exploration, development, utilization, distribution and conservation of energy resources, with preferential bias for environment-friendly, indigenous, and low-cost sources of energy*



## RA No. 9136 of the Electric Power Industry Reform Act of 2001

Promote the utilization of *indigenous, and new and RE* resources in power generation to reduce dependence on imported energy



## RA No. 9513 or the Renewable Act of 2008

Accelerate the exploration, development, utilization, and commercialization of RE



## RA No. 11234 or the Energy Virtual One Stop Shop Act of 2019

Online platform to streamline the processing of energy application



## RA 11285 or the Energy Efficiency and Conservation Act

Institutionalize energy efficiency and conservation as a national way of life and promote/encourage the development and utilization of efficient renewable energy technologies



## RA No. 11697 or the Electric Vehicle Industry Development Act of 2022

Establish the Comprehensive Roadmap for the Electric Vehicle Industry to accelerate the development, commercialization and utilization of EVs



## RA No. 11952 or the LPG Industry Regulation Act

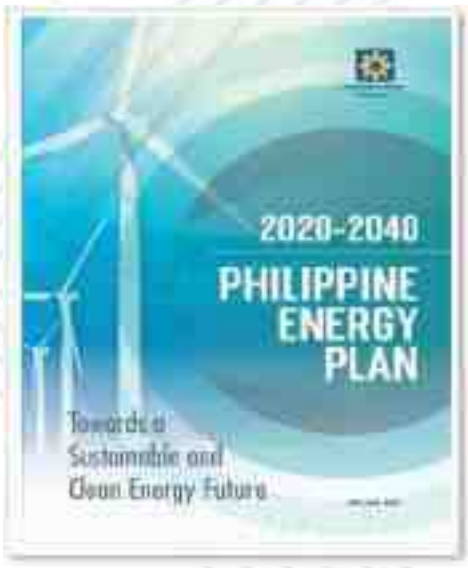
Establish regulatory framework for the LPG industry



## RA No. 11646 or the Microgrid Systems Act

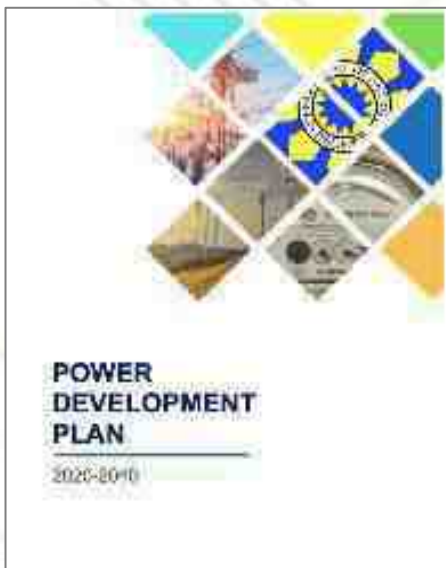
Fill the gap in the country's goal of achieving 100 percent electrification by encouraging the installation of microgrids in unserved and underserved areas

# Comprehensive Energy Plans and Programs



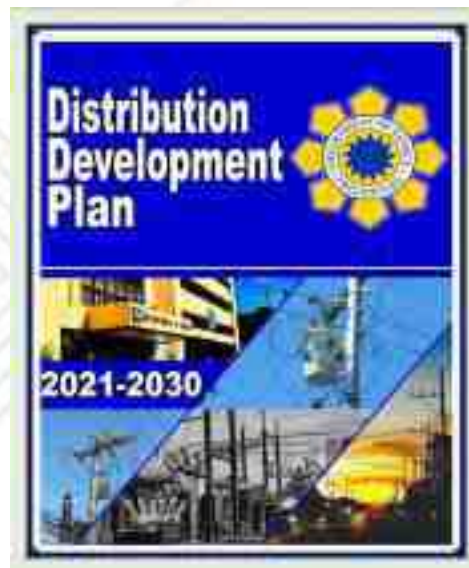
*Philippine Energy Plan, 2020-2040*

*Transformational plan to bring in more clean energy fuels and technologies*



*Power Development Plan (PDP), 2020-2040*

*Adopted the national RE power generation mix targets in line with the commitment towards a cleaner energy transition*



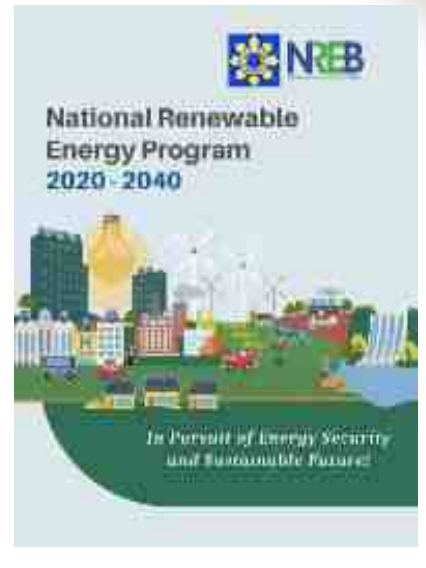
*Distribution Development Plan (DDP), 2021-2030*

*Annual program of DUs for managing the distribution system to ensure the continuity, reliability and affordability of electricity service to the consumers*



*Missionary Electrification Development Plan (MEDP), 2021-2025*

*Developed to ensure quality, reliable, secure, and affordable electricity services, especially in the far-flung areas in the Philippines*



*Proposed National Renewable Energy Program (NREP), 2020-2040*

*Embodies the **country's** long-term RE targets and policy and program mechanisms to achieve the targets*



*Comprehensive Roadmap for the Electric Vehicle Industry (CREVI)*

*National Development Plan for the EV industry to accelerate the development, commercialization, and utilization of EVs in the Philippines*

# Investment Opportunities

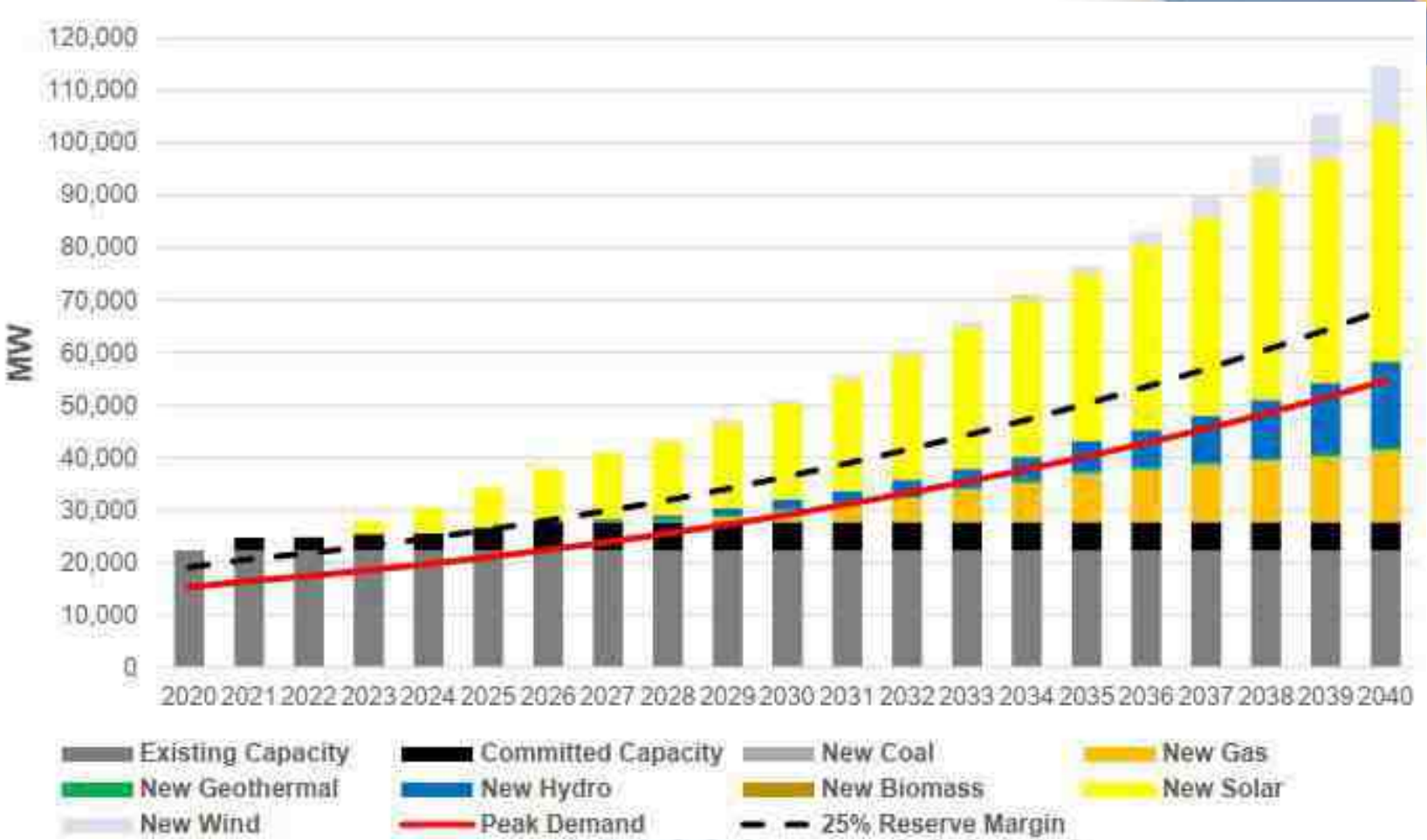




# Power Supply and Demand Outlook, 2025 - 2040

Particulars	2025	2030	2035	2040
New Coal	0	0	0	0
New Gas	40	2,000	9,140	13,680
New Geothermal	150	400	400	480
New Hydro	0	1,905	5,880	16,315
New Solar	7,297	18,299	32,028	44,863
New Wind	0	631	1,451	11,255
New Biomass	0	0	45	270
Existing Capacity	22,317	22,317	22,317	22,317
Committed Capacity	4,321	5,421	5,421	5,421
Peak Demand	21,019	29,128	40,209	54,655
20% Reserve Margin	5,255	7,282	10,052	13,664

The Philippines need a total of 21,235 MW additional RE capacity to attain the 35% share of RE in the power generation mix by 2030 and 73,183 MW additional capacity to attain the 50% share by 2040.



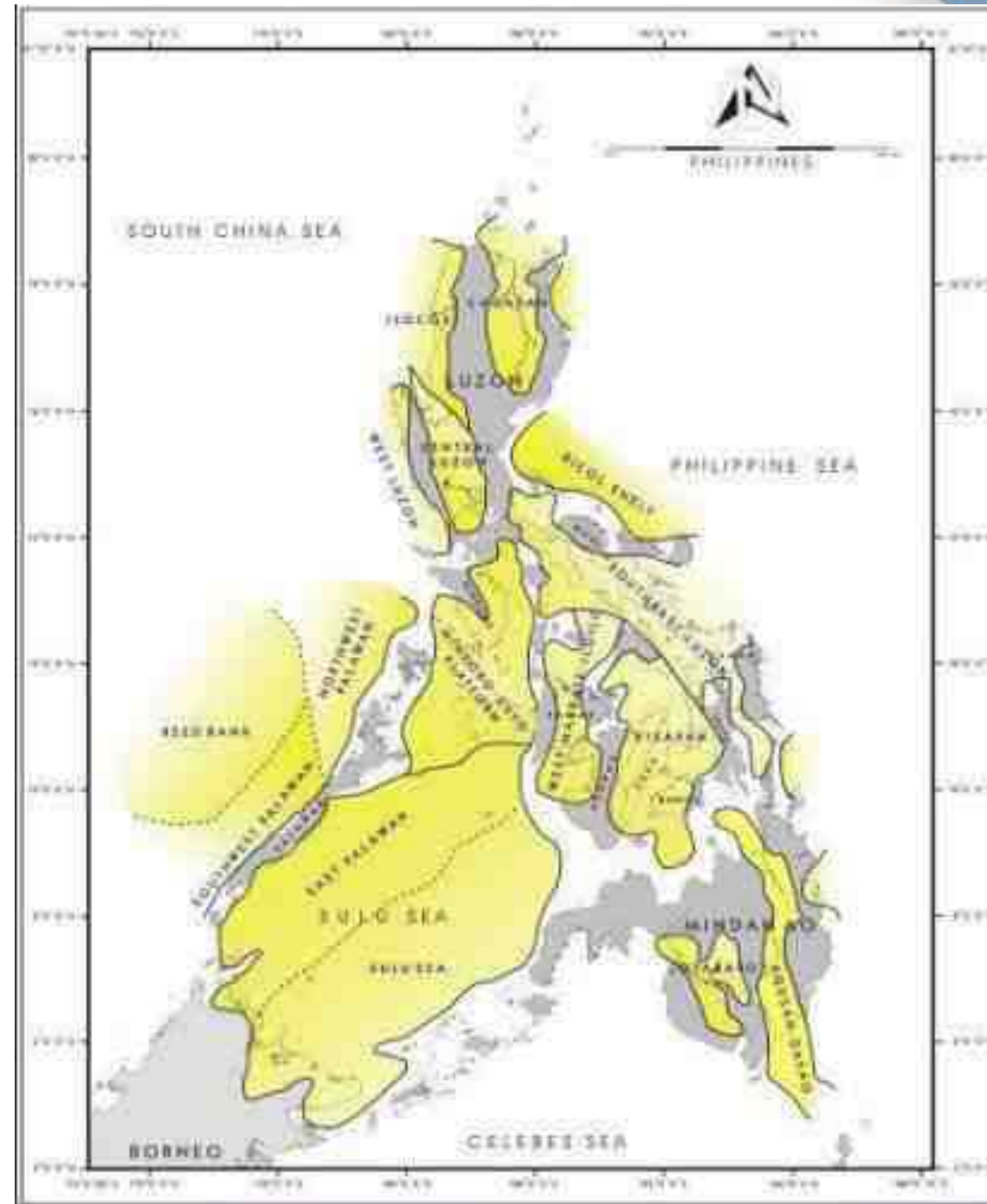


# Philippine Sedimentary Basins

Total area: 709,000 sq km

Combined Potential: 8,895 MMBFOE

1. Ilocos Shelf
2. Cagayan Basin
3. Central Luzon Basin
4. Bicol Shelf
5. Southeast Luzon Basin
6. Mindoro-Cuyo Basin
7. West Masbate-Iloilo Basin
8. Visayan Basin
9. Agusan-Davao Basin
10. Cotabato Basin
11. Sulu Sea Basin
12. East Palawan Basin
13. Southwest Palawan Basin
14. Reed Bank Basin
15. Northwest Palawan Basin
16. West Luzon Trough



\*source: PHILPRA (2002) for update of DOE

# Petroleum Service Contracts (PSC) for Possible **Joint Venture / Farm-in Agreements**

	SERVICE CONTRACT (SC) NO.	LOCATION (Sedimentary Basin)	AREA (hectares)	OPERATOR	PHASE/REMARKS
1	SC-6B	NW Palawan	53,293.95	The Philodrill Corporation	Production
2	SC-14C1	NW Palawan	16,300.95	NPG Pty. Ltd.	Production
	SC-14C2	NW Palawan	17,649.54	The Philodrill Corp.	Production
3	SC-37	Cagayan	36,000	PNOG Exploration Corp.	Production
4	SC-38	NW Palawan	86,000	Prime Energy Resources Development B. V.	Production
5	SC-40	Visayan	340,000	Forum Exploration, Inc.	Production
6	SC-49	Visayan	42,749	China Int'l Mining Petroleum Co. Ltd.	Production
7	SC-53	Mindoro-Cuyo Platform	724,000	The Philodrill Corp.	Exploration
8	SC-54	NW Palawan	43,515	Nido Petroleum Philippines Pty. Ltd.	Exploration

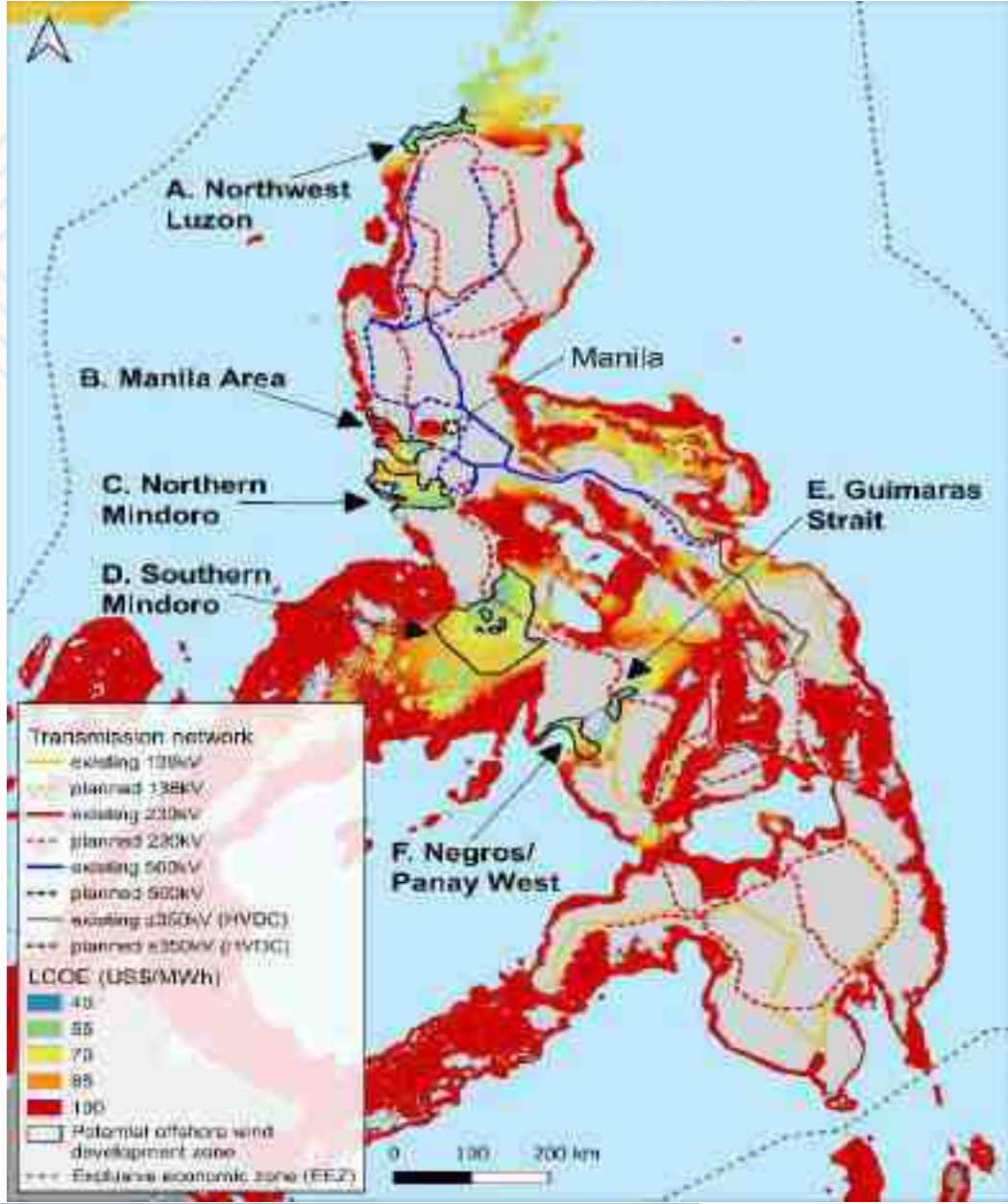
	SERVICE CONTRACT (SC) NO.	LOCATION (Sedimentary Basin)	AREA (hectares)	OPERATOR	PHASE/REMARKS
9	SC-55	SW Palawan	988,000	Palawan55 Exploration & Production Corp.	Exploration
10	SC-57	NW Palawan	712,000	PNOG Exploration Corp.	Exploration
11	SC-58	NW Palawan	1,344,000	Nido Petroleum Philippines Pty. Ltd.	Exploration
12	SC-59	SW Palawan	1,476,000	PNOG Exploration Corp.	Exploration
13	SC-72	Recto Bank	880,000	Forum (GSEC 101) Ltd.	Exploration
14	SC-74	NW Palawan	426,800	PXP Energy Corp.	Exploration
15	SC-75	NW Palawan	616,000	PXP Energy Corp.	Exploration
16	SC-76	East Palawan	648,000	Ratio Petroleum Ltd.	Exploration
17	SC-77	Cotabato Basin	72,000	SK Liguasan Oil and Gas Corp.	Exploration

# Regional Coal Reserves





# Off-Shore Wind Potentials



## 178 GW of OSW Potential

(18 GW Fixed and 160 GW Floating)

- Six (6) potential OSW development zones identified:
  - Environmental and social restrictions and exclusions.
  - Levelized cost of energy (wind speed is critical – consider measurement campaign).
  - Transmission and port infrastructure and demand centers.
- Needed to complete proportionate Marine Spatial Planning and **publish final map by end 2023.**

Potential Development Zone	Type	Practical Capacity
A: Northwest Luzon	Floating	2 to 5 GW
B: Manila area	Fixed and floating	0 to 3 GW
C: Northern Mindoro	Floating	3 to 10 GW
D: Southern Mindoro	Floating	20 to 36 GW
E: Guimaras Strait	Fixed	0 to 1 GW
F: Negros / Panay area	Floating	2 to 3 GW



# Competitive Renewable Energy Zones (CREZ) Potential

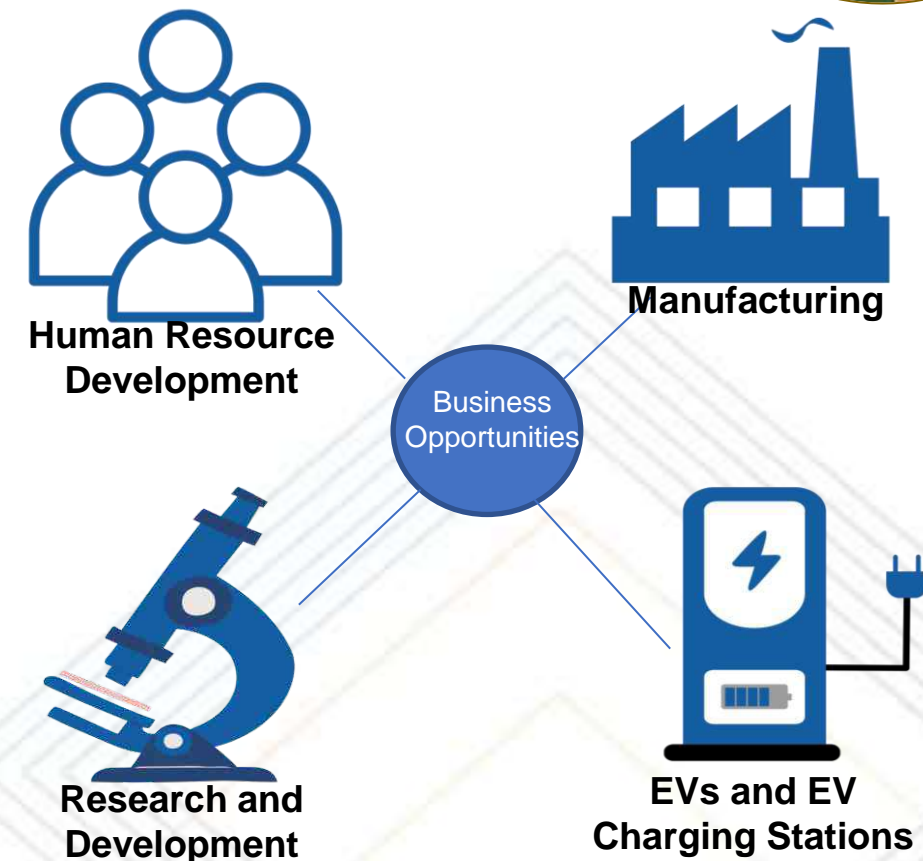
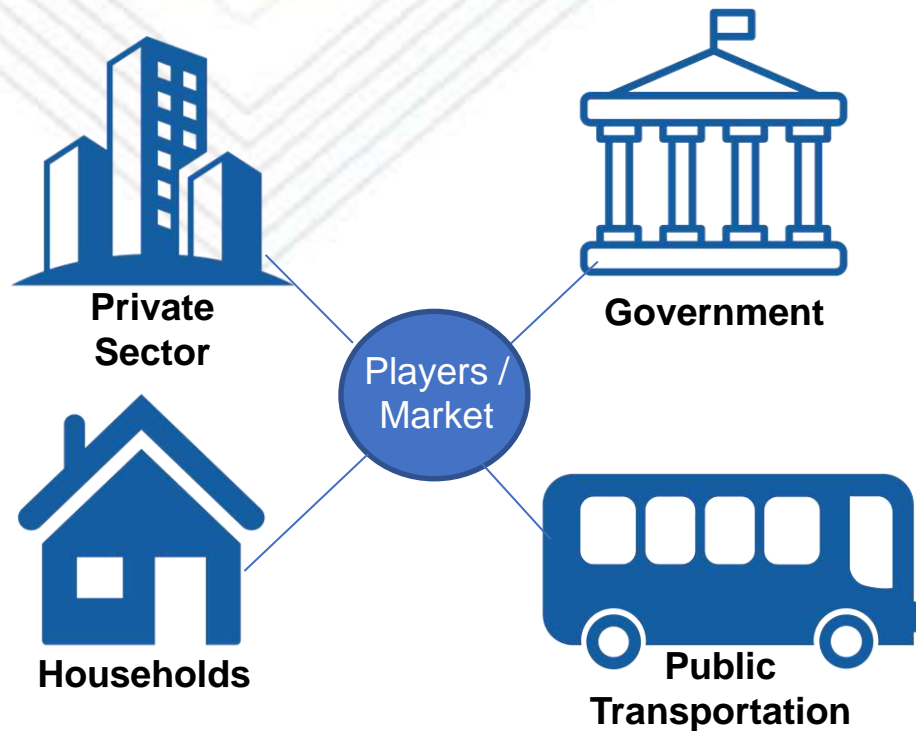


- DOE initiated the Competitive Renewable Energy Zones (CREZ) Project in 2018
- Identified 25 Strategic Areas with high concentration of solar and wind resources throughout the country
- 58,110 MW Solar PV and 93,987 MW Wind potential capacities
- Other CREZ Potentials

	Geothermal (MW)	Hydropower (MW)	Biomass (MW)
Luzon	285.00	270,603.00	210.00
Visayas	40.00	1,917.00	71.00
Mindanao	40.00	382,514.00	93.00
Philippines	365.00	655,034.00	374.00

## Electric Vehicles and Charging Stations

To achieve complete electrification of all new vehicles by 2040 with the Government as an early adopter





# Energy Investment Requirements



**USD 153 Billion**  
Total Required Energy Investments

## UPSTREAM



**USD 10.05 Billion**  
Oil and Gas Exploration  
and Development



**USD 13.12 Billion**  
Coal Exploration and  
Production



**USD 510 Million**  
Renewable Energy  
(Pre-Development  
Activities)

## DOWNSTREAM



**USD 2.94 Billion**  
Oil Distribution Depots  
And Import Terminals



**USD 1.78 Billion**  
Liquefied Natural Gas  
(LNG) Terminals



**USD 2.38 Billion**  
Biofuels Production

## POWER



**USD 115.3 Billion**  
Construction of New  
Power Plants

Conventional: USD 21.0 Billion  
Renewable Energy: USD 94.3 Billion



**USD 6.97 Billion**  
Transmission Projects



# Contact Us

## Department of Energy Investment Promotion Office

 (632) 8 479 2900 loc. 371 and 389

 Rizal Drive Corner 34<sup>th</sup> Street  
Bonifacio Global City, Taguig City

 [www.doe.gov.ph](http://www.doe.gov.ph)

 [doe.gov.ph](https://www.facebook.com/doe.gov.ph)

 [doegovph](https://twitter.com/doegovph)

