

RENEWABLE ENERGY MARKETS ASIA 2023 PANEL DISCUSSION

MARKET SPOTLIGHT: PHILIPPINES



Edward Neri

Supervising Science Research
Specialist, DOE Philippines



Kevin John Y Dela Cuesta

Market Development Manager,
Philippine Electricity Market
Corporation (PEMC)

Thursday, 27 April 3:30-4:00 PM



**Renewable Energy
Markets™ Asia 2023**

MARKET SPOTLIGHT:
PHILIPPINES

Renewable Energy Markets Asia 2023
27 – 28 April 2023

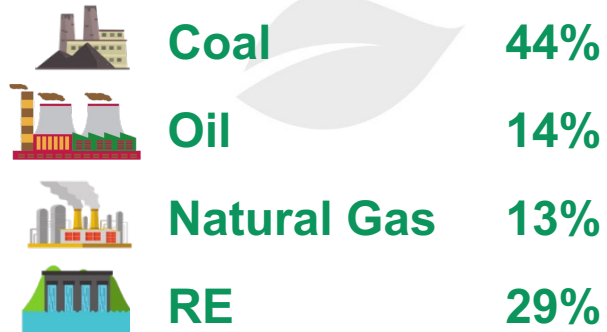


**Philippine Electricity
Market Corporation**



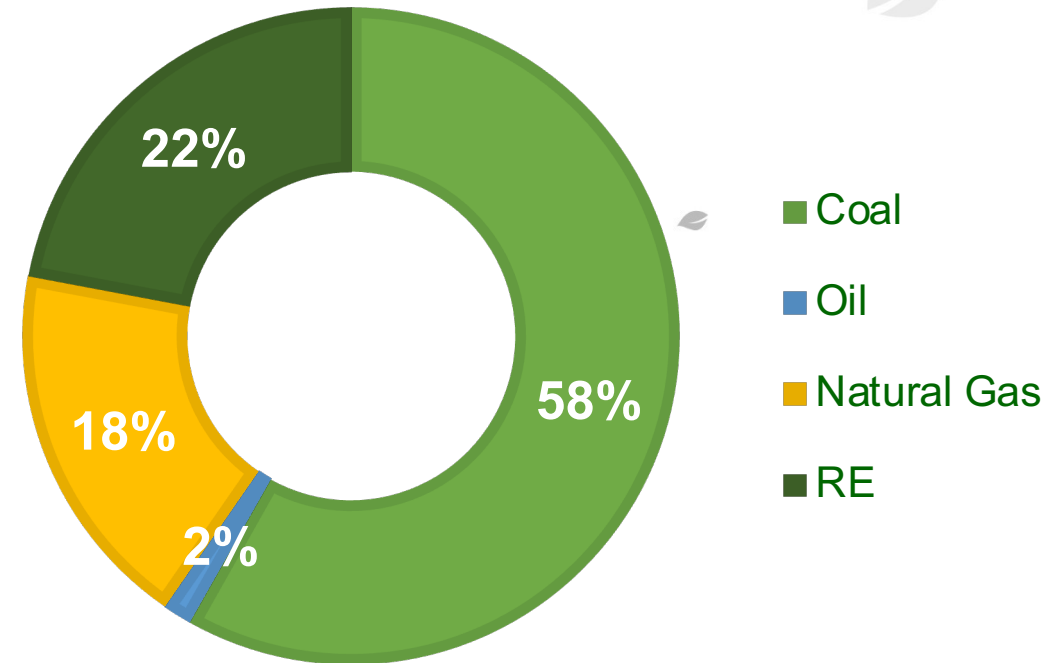
POWER STATISTICS

Installed Capacity* - 28,358 MW



RE comprised 29% of the installed capacity and 22% of the gross power generation of the country.

Gross Generation - 106,115 GWh**



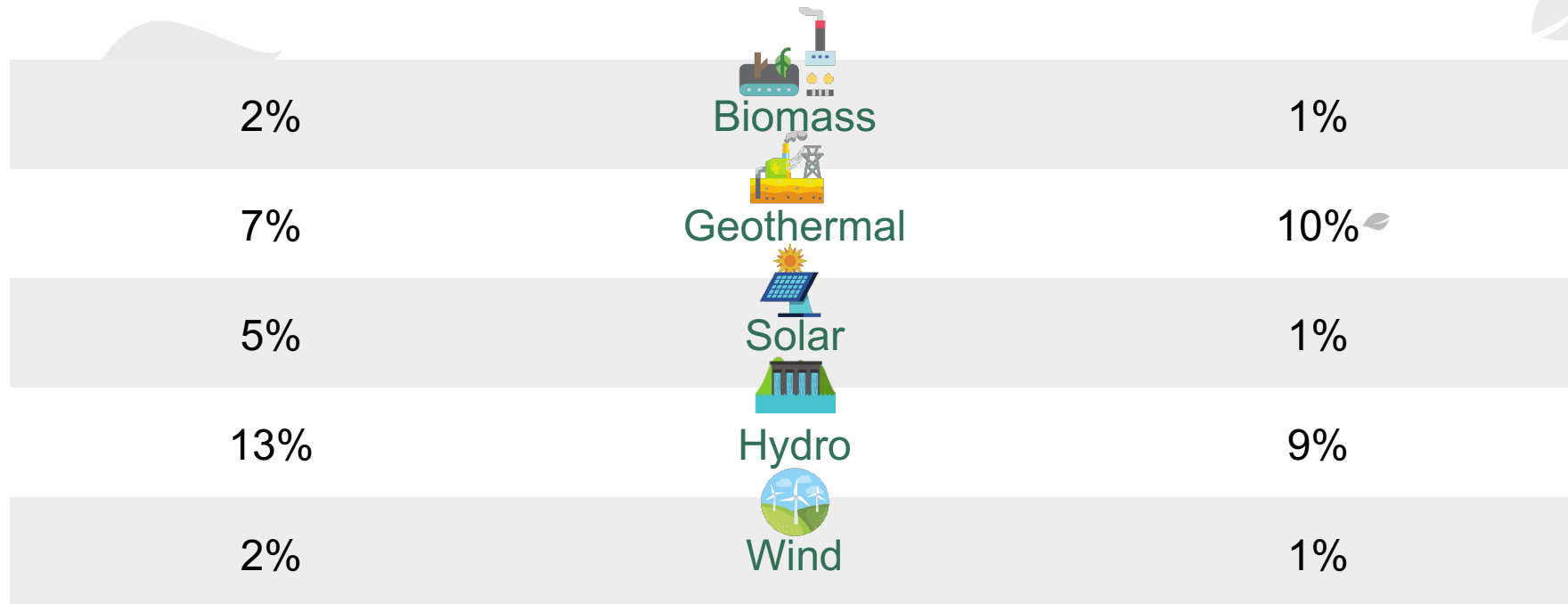
*As of 30 November 2022; **As of 31 December 2021



RENEWABLE ENERGY STATISTICS

Installed Capacity* - 8,255 MW
(29%)

Gross Generation** – 23,771 GWh
(22%)



Due to rounding, totals may not correspond to the sum of the separate figures

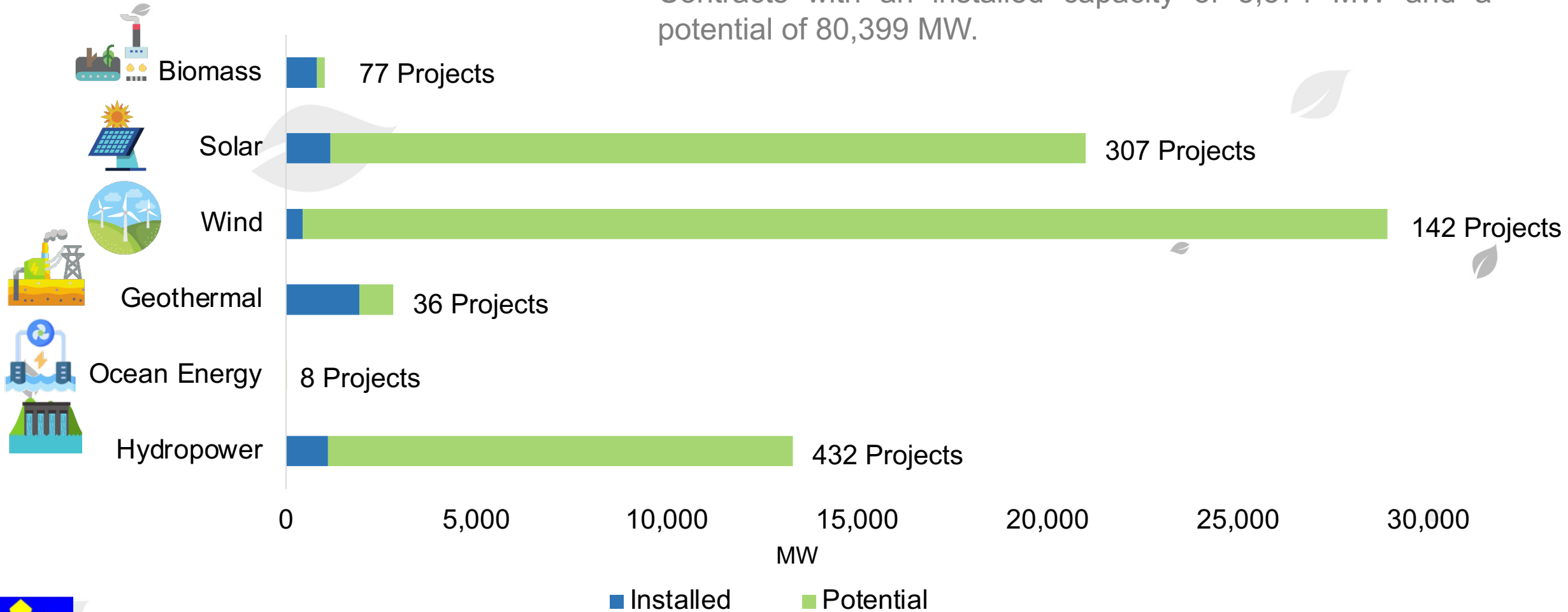


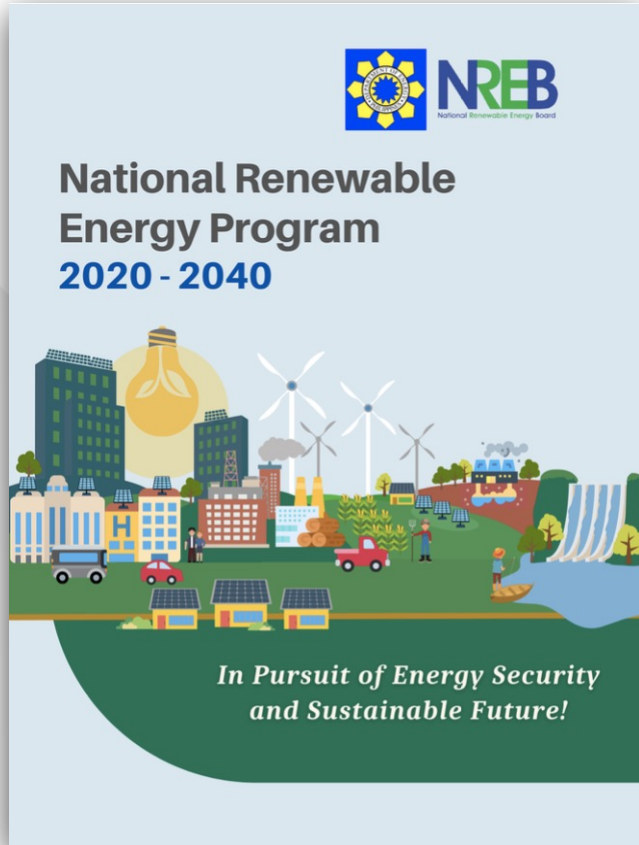
*As of 30 November 2022; **As of 31 December 2021



AWARDED RE CONTRACTS

As of 31 December 2022, 1,002 projects were awarded RE Contracts with an installed capacity of 5,571 MW and a potential of 80,399 MW.





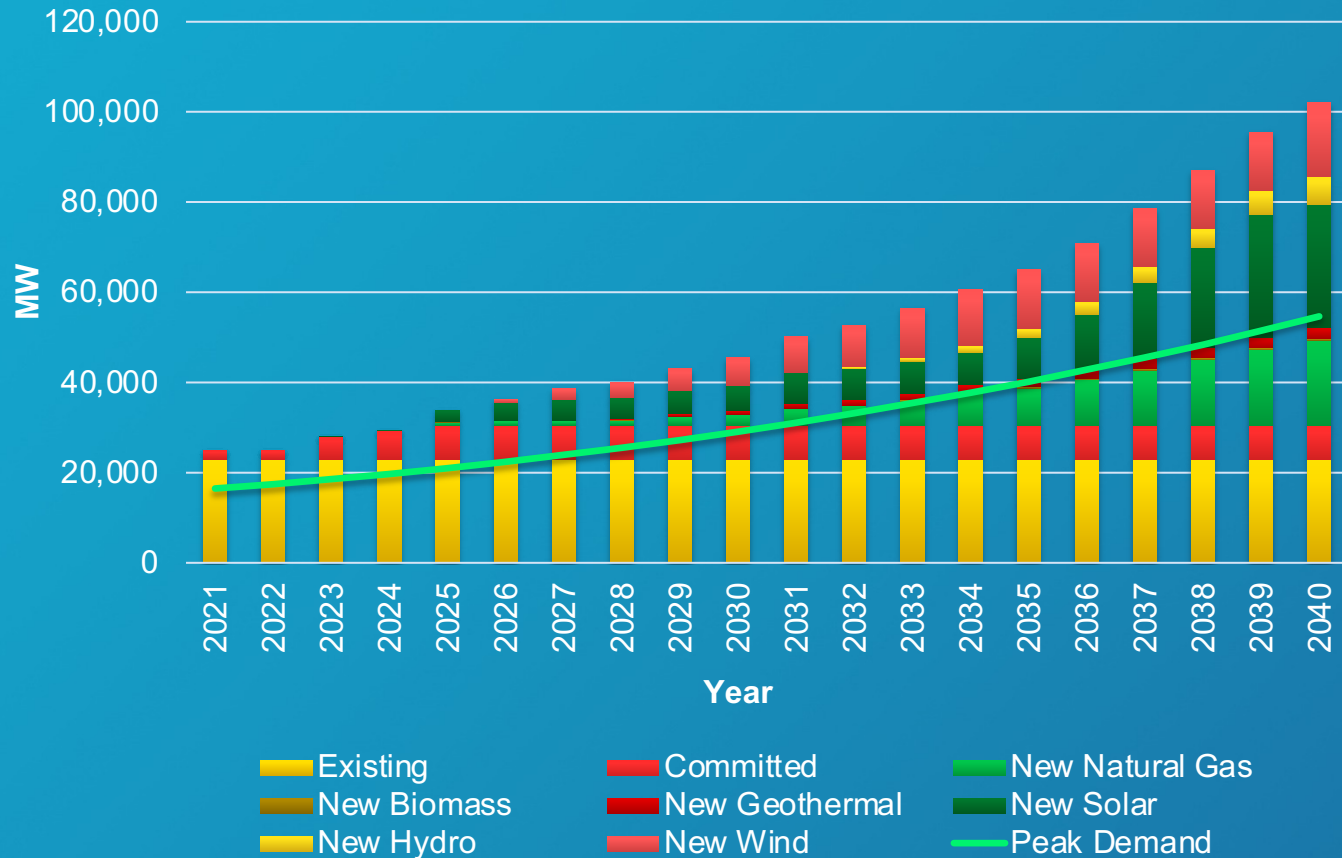
National Renewable Energy Program 2020-2040

NREP sets a target of at least **35% RE Share** in the power generation mix by 2030

NREP aspires to increase the **RE Share to 50%** by 2040



RE OUTLOOK: 2021-2040

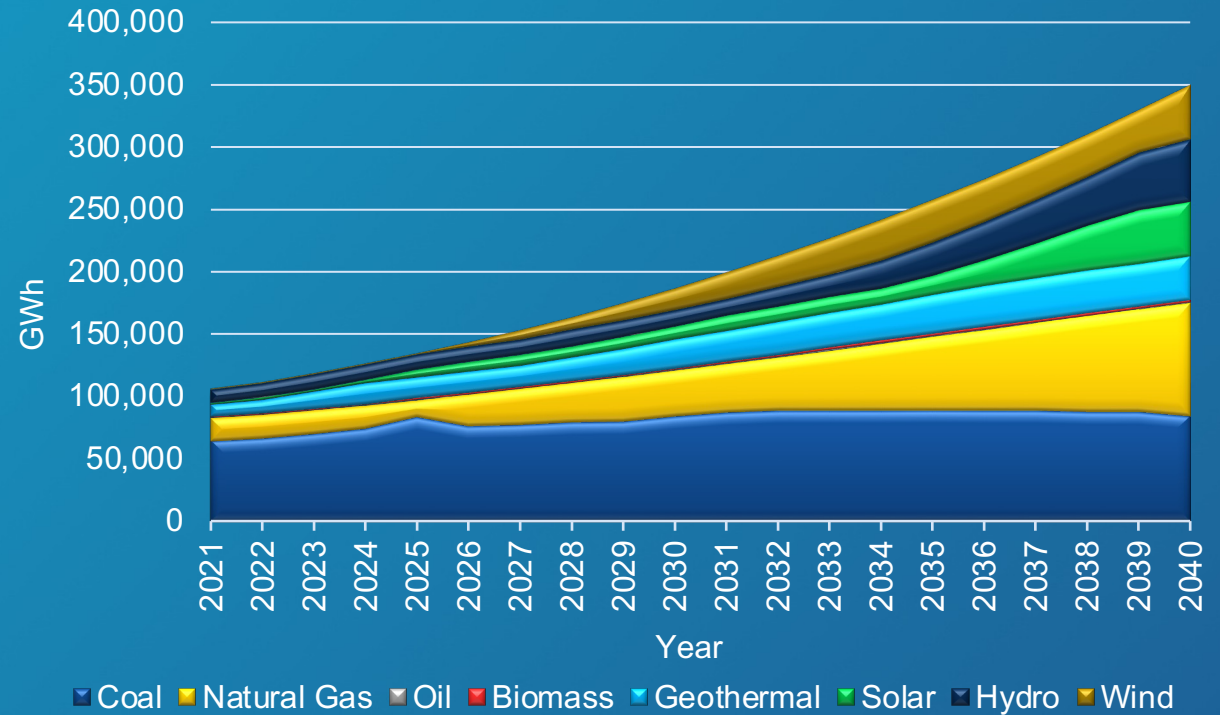


Particulars, in MW	2021	2025	2030	2035	2040
New Natural Gas	0	759	2,259	8,159	18,859
New Biomass	0	120	120	360	364
New Geothermal	0	0	850	1,900	2,500
New Solar	0	2,660	5,585	8,910	27,162
New Hydro	0	0	0	2,200	6,150
New Wind	0	0	6,450	13,050	16,650
Cumulative New RE	0	2,780	13,005	26,420	52,826
Committed Capacity	2,066	7,512	7,592	7,592	7,592
Existing Capacity	22,954	22,954	22,954	22,954	22,954
Peak Demand	16,482	21,019	29,128	40,209	54,655



RE OUTLOOK: 2021-2040

Plant Type	2030		2040	
	Power Generation in Gwh	Percent Share	Power Generation in Gwh	Percent Share
Coal	84,306	45	84,491	24
Oil-based	308	0	365	0
Natural Gas	36,618	20	89,866	26
Renewable Energy	65,316	35	174,783	50
Biomass	1,455	1	2,353	1
Geothermal	23,293	12	35,321	10
Solar	10,436	6	43,686	12
Hydro	12,884	7	49,697	14
Wind	17,250	9	43,726	13
Total	186,547	100	349,505	100



The resulting power generation mix will reach the 35% and 50% RE share targets by 2030 and 2040, respectively.



MAJOR RE POLICIES AND PROGRAMS



- 1 RENEWABLE PORTFOLIO STANDARDS (RPS)**

Requires all load-serving entities to source or produce a specified portion of their supply from eligible RE facilities
- 2 NET-METERING**

Allows end-users to generate electricity from RE-based systems up to 100 kW for own use and sell excess to the grid.
- 3 GREEN ENERGY OPTION PROGRAM (GEOP)**

Provides end-users the option to choose RE resources as their source of energy
- 4 FEED-IN TARIFF**

Provides guaranteed fixed payments per kWh of electricity produced from emerging RE resources
- 5 RENEWABLE ENERGY MARKET (REM)**

Serves as the venue for the transparent and fair trading of RE Certificates.

- 6 GREEN ENERGY AUCTION PROGRAM (GEAP)**

Intends to provide an additional market for RE through competitive electronic bidding of RE capacities

- 7 PREFERENTIAL DISPATCH OF RE**

All RE-generating units are given preference in the Wholesale Electricity Spot Market dispatch schedule to ensure their maximum output injection in the grid.

- 8 EASING FOREIGN OWNERSHIP LIMIT IN RE INVESTMENTS**

Removes foreign ownership restrictions that hamper the flow of investments in the RE sector

- 9 RE RESOURCE DEVELOPMENT**

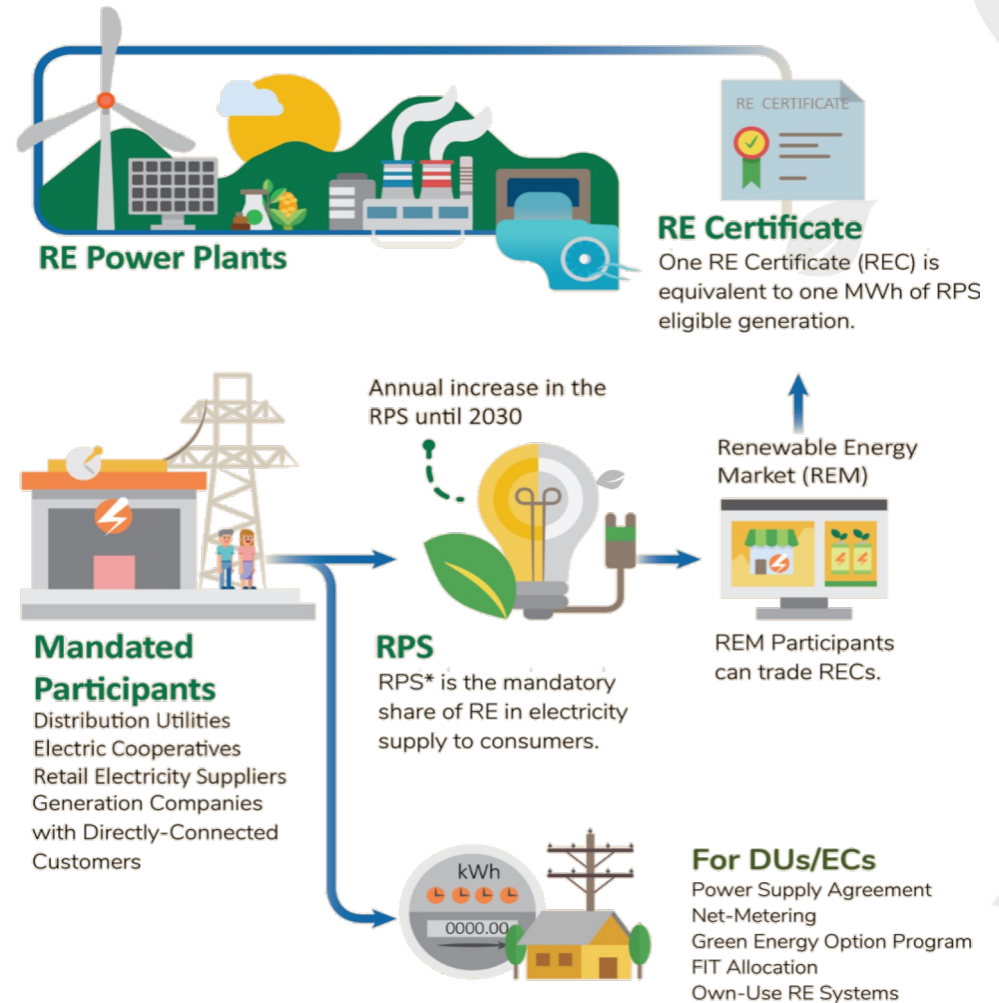
Geothermal Energy, Offshore Wind, Waste-to-Energy, Ocean and Tidal Energy, Expanded Rooftop Solar Program



RENEWABLE PORTFOLIO STANDARDS (RPS)

On-Grid

- Under [DC2022-09-0030](#), the minimum annual RE percentage increment was increased from 1% to 2.52% starting in 2023.
- Finalization of **RPS On-Grid Rules Amendments** to empower consumers towards establishing Voluntary Renewable Energy Market.



*The RPS increments may increase annually based on the recommendations of the RPS composite team and the NREB.



GREEN ENERGY AUCTION PROGRAM – 1 (GEA-1)

GEA-1 Potential RE Generation, MWh

The GEA-1 was successfully conducted on 17 June 2022.



18

Winning Bidders



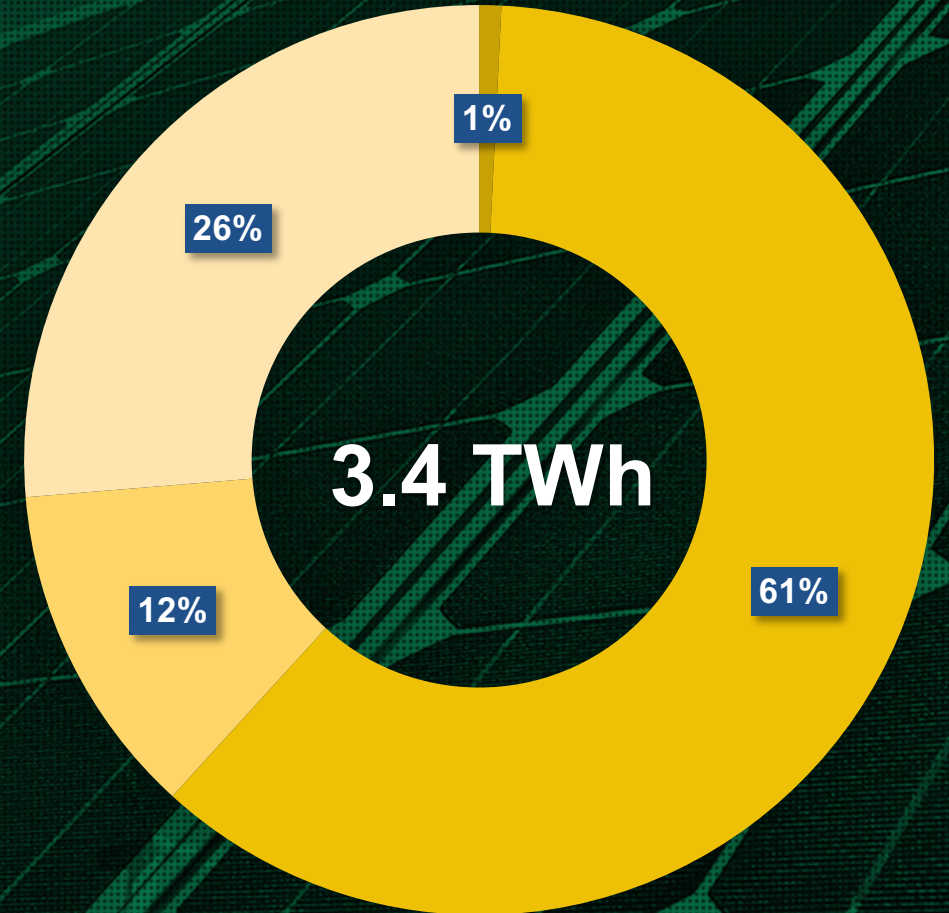
1,866.13 MW

Installed Capacity



2023-2025

Delivery Period



■ Biomass ■ Solar ■ Hydro ■ Wind



GREEN ENERGY AUCTION PROGRAM – 2 (GEA-2)

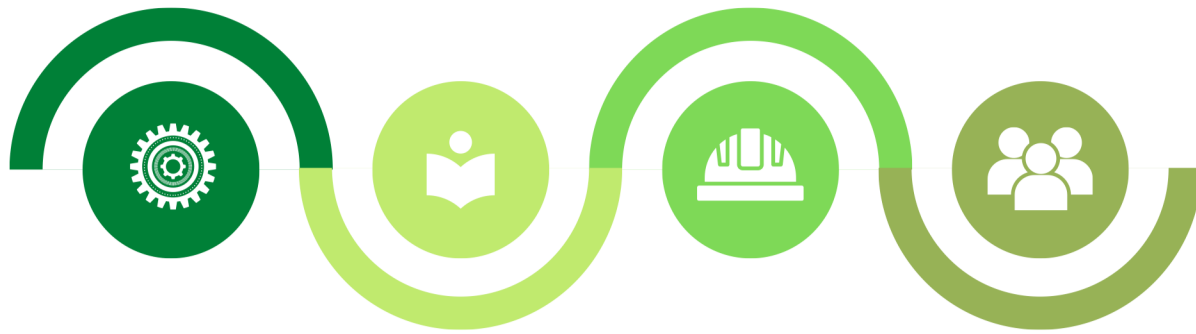


Year	Installation Target in MW
2024	3,600
2025	3,600
2026	4,400
Total	11,600

- The GEA-2 is set to be conducted in June 2023.
- From 2024-2026, a total of **11,610 MW** capacity is expected to be auctioned under GEA-2.
- The Notice of Auction was published on 27 March 2023, while the Terms of Reference was published on 17 April 2023.



Easing Foreign Ownership Limit in RE Investments



On 15 November 2022, the DOE issued DC2022-11-0034 entitled “Prescribing Amendments to Section 19 of Department Circular No. DC2009-05-0008 Titled, Rules and Regulations Implementing Republic Act No. 9513, Otherwise Known as “The Renewable Energy Act of 2008”.



RE RESOURCE DEVELOPMENT



Geothermal Energy

The government may allow 100% foreign ownership/participation for large-scale projects. A study regarding de-risking of geothermal energy investments is ongoing.



Offshore Wind

The Philippine Offshore Wind Roadmap was published in April 2022, identifying 178 GW of potential offshore wind in the country.



Waste-to-Energy

On 17 February 2022, the DOE issued DC No. DC2022-02-0002 entitled “Prescribing the Policies and Programs to Promote and Enhance the Development of Biomass Waste-to-Energy (WTE) Facilities.”



Marine Energy

The “Philippines Marine Renewables: Sustainable Energy from Ocean Spaces and Resources” report was completed in December 2021. In line with this, the Philippine Marine Energy Roadmap shall be developed.



Expanded Solar Rooftop Program

The ESRP will allow end-users, solar PV developers, and installers to utilize available rooftop spaces for solar energy production.



OPEN AND COMPETITIVE SELECTION PROCESS 4

The DOE approved **19 Pre-Determined Areas** (PDAs) to be offered under the OCSP 4. A Circular providing the list of these PDAs, including the guidelines for the conduct of OCSP 4, will be issued by the DOE in 2023.

RE Technology	No. of PDAs	Potential Capacity in MW
Geothermal	3	160
Hydropower	13	86.25
Wind	3	To be determined

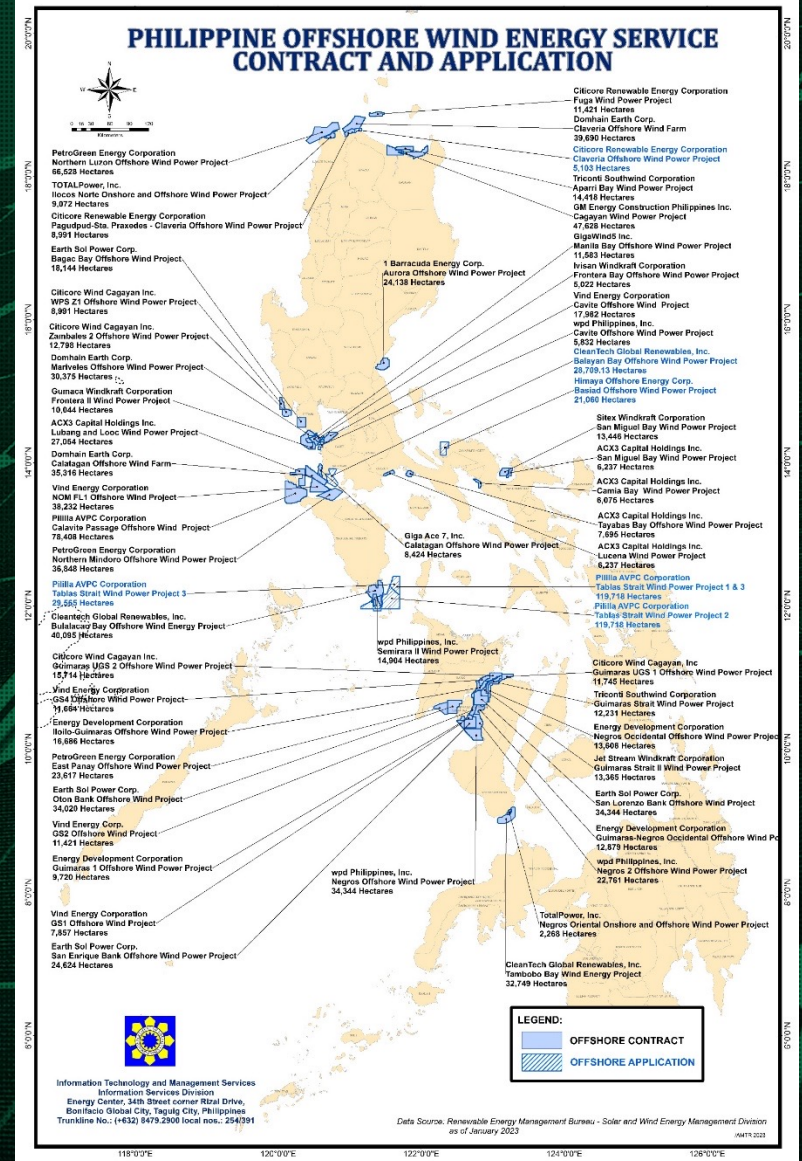


OFFSHORE WIND

The DOE awarded **57 Offshore Wind (OSW) Energy Contracts** with a potential capacity of **42.22 GW** as of 15 March 2023.

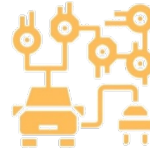
- A **DOE Circular** and an **Executive Order** defining the procedures and requirements for awarding OSW Energy Contracts and streamlining the permitting process, respectively, shall be issued.

On 30 March 2023, the DOE awarded **three OSW RE Contracts** to Copenhagen Infrastructure New Markets Fund, the **first 100 percent foreign-owned company** to venture into OSW development in the Philippines.



WHERE WE ARE HEADED

Resilient Infrastructure



Competitive Energy Sector

Emerging and Innovative Technologies

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

Smart Homes and Cities



Sustainable Energy



Energy Efficiency and Conservation

5% energy savings on oil products and electricity by 2040

Information and Communications Technology

Adopting advanced and interoperable ICT in the energy chain

Energy Security



Renewable Energy

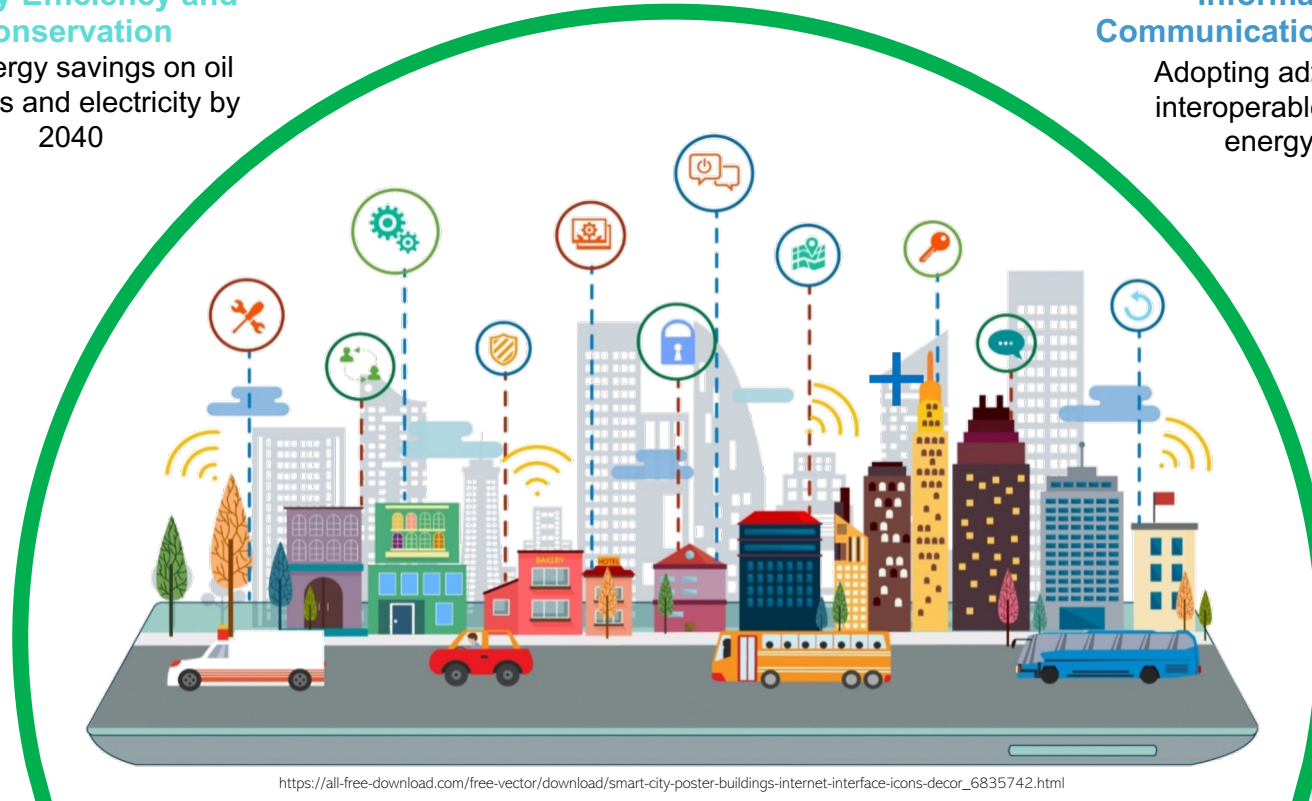
35% of power generation mix by 2030; and 50% by 2040

Empowered Consumers



Energy Resiliency

Resilient and climate-proof energy infrastructure



MARKET SPOTLIGHT:
PHILIPPINES

Renewable Energy Markets Asia 2023
27 – 28 April 2023



**Philippine Electricity
Market Corporation**



RENEWABLE ENERGY MARKET

Section 8 of the RE Act and Section 11 of its IRR

PEMC shall, under the supervision of the DOE, establish and operate the Renewable Energy Registrar (RER) and shall issue, keep, and verify RE Certificates (RECs)

RPS Rules

Mandating the electric power industry participants to source or produce a portion of electricity from eligible RE resources



REM Rules

Establishing the basic rules, requirements and procedures that govern the operation of the REM

PREMS and RE Registrar

PEMC to develop PREMS

1 year or less from the start of commercial operations of the REM, the RER functions, assets and liabilities of PEMC shall be transferred to the entity performing market operations

REM Manuals and WESM Rules Amendment

To operationalize the relevant provisions in the REM Rules and harmonization of policies



RENEWABLE ENERGY CERTIFICATE

ONE

RENEWABLE
ENERGY
CERTIFICATE



ONE

MWh

ACTUAL
ELIGIBLE RE
GENERATION



Philippine Electricity
Market Corporation

REM MEMBERSHIP CATEGORIES



RPS MANDATED PARTICIPANTS

- Distribution Utilities serving Captive Customers
- Retail Market Suppliers
- Generators of DCCs



MANDATORY REM GENERATORS

- Generation companies owning eligible RE facilities that generate electricity and are registered in the WESM
- Embedded eligible RE facilities that are WESM members
- Hybrid system or dual-fired generator



VOLUNTARY GENERATORS

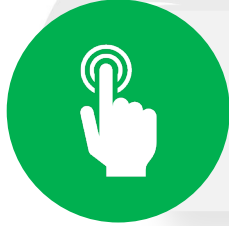
- Facilities under the Green Energy Option Program (GEOP)
- Net-metered RE facilities
- RE facilities for own-use or embedded facilities that are not WESM member



RER FUNCTIONS



Issue RECs to eligible recipients for every MWh of eligible RE generation



Administer and maintain the registry and REC transactions



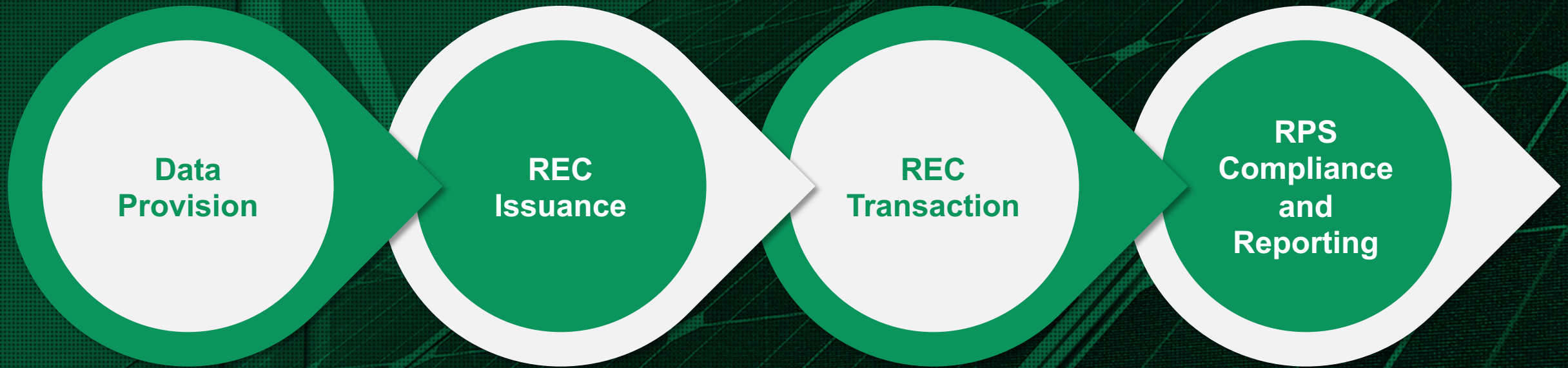
Facilitate REM registration and accounts management



Develop, improve, and maintain systems, processes, and procedures to be used in the operation of the REM and the administration of the Registry



OVERVIEW OF REM OPERATIONS



REC TRANSACTIONS



TRANSFER

Transfer of a REC between REM Participants



BANK

REC has a lifespan of 3 YEARS from the date of issuance. A REC expires three years from the date it was issued



SURRENDER

Mandated Participants must surrender a REC that has not been retired or expired for compliance with Annual RPS Obligation

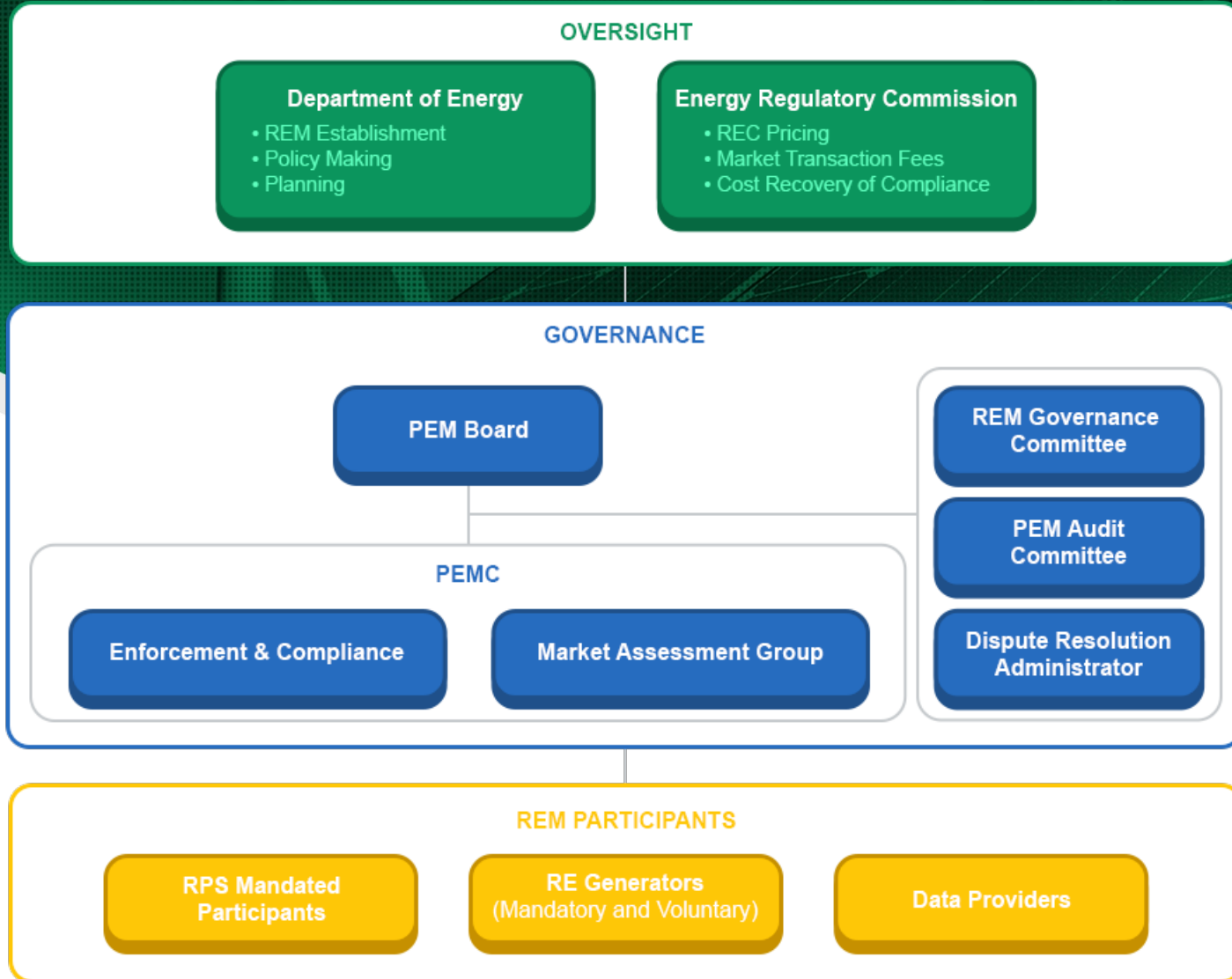


RETIRE

Surrendered RECs shall be RETIRED by the RER for RPS Compliance. Retired RECs cannot be transferred, banked or surrendered



REM GOVERNANCE STRUCTURE



REM GOVERNANCE COMMITTEE (RGC)

Key Functions

Approves or disapproves Rules and Manual Change Proposals

Refer approved proposals to the DOE for promulgation, subject to endorsement of PEM Board

Recommends to the PEM Board the imposition of financial and/or non-financial penalties for breaches of the REM Rules and Manuals



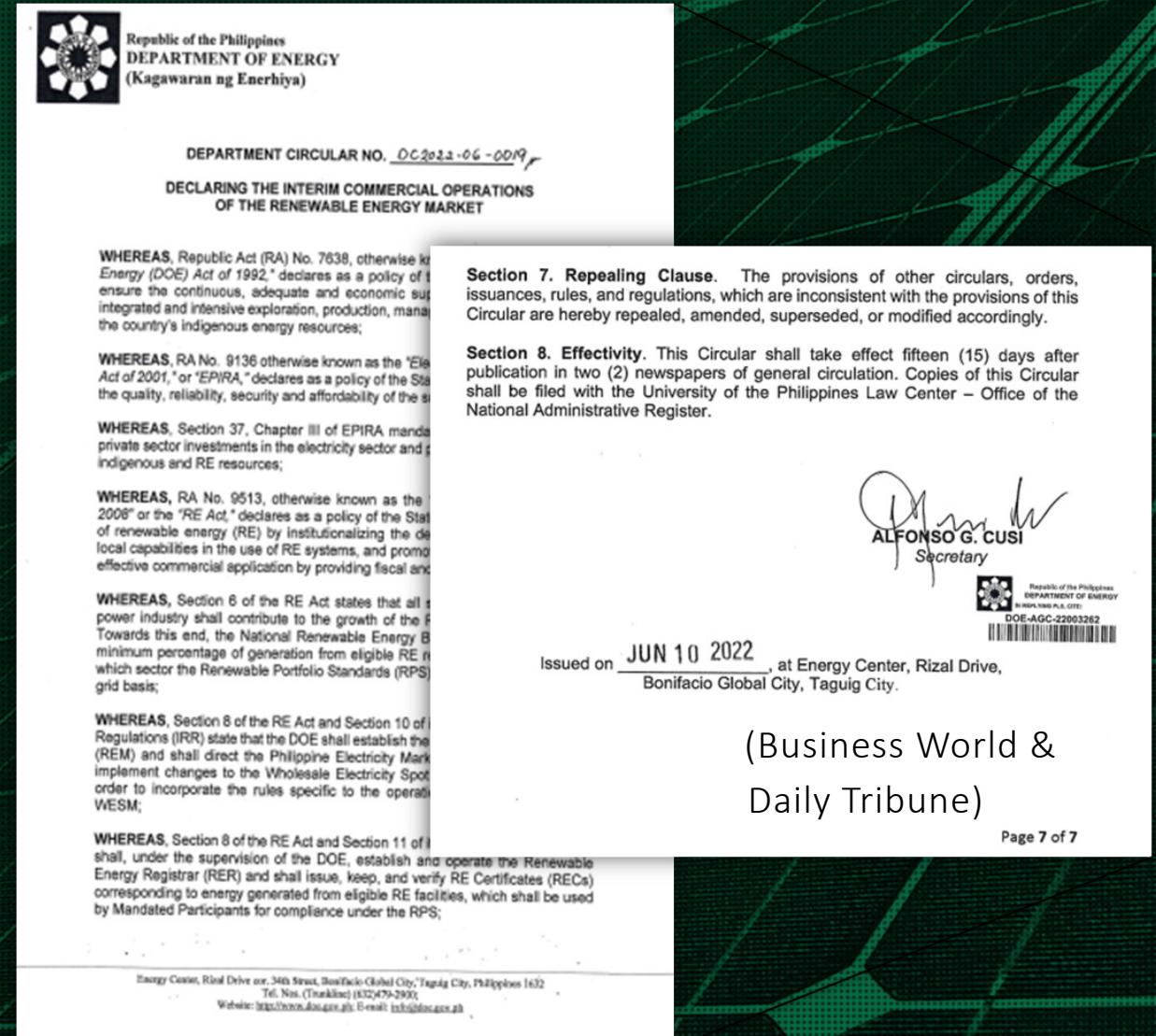
DC No. DC2022-06-0019

“Declaring the Interim Commercial Operations of the Renewable Energy Market”

Date Signed: June 10, 2022

Date Published: June 30, 2022

Effectivity Date: July 15, 2022



Republic of the Philippines
DEPARTMENT OF ENERGY
(Kagawaran ng Enerhiya)

DEPARTMENT CIRCULAR NO. DC2022-06-0019

DECLARING THE INTERIM COMMERCIAL OPERATIONS
OF THE RENEWABLE ENERGY MARKET

WHEREAS, Republic Act (RA) No. 7638, otherwise known as the "Energy (DOE) Act of 1992," declares as a policy of the State to ensure the continuous, adequate and economic supply of energy, to promote the integrated and intensive exploration, production, and management of the country's indigenous energy resources;

WHEREAS, RA No. 9136 otherwise known as the "Electricity Act of 2001," or "EPIRA," declares as a policy of the State to ensure the quality, reliability, security and affordability of the electric power supply;

WHEREAS, Section 37, Chapter III of EPIRA mandates the Department to encourage private sector investments in the electricity sector and to promote the use of indigenous and RE resources;

WHEREAS, RA No. 9513, otherwise known as the "Renewable Energy Act of 2008" or the "RE Act," declares as a policy of the State to promote the use of renewable energy (RE) by institutionalizing the development of local capabilities in the use of RE systems, and promote the effective commercial application by providing fiscal and other incentives;


WHEREAS, Section 6 of the RE Act states that all power industry shall contribute to the growth of the RE industry. Towards this end, the National Renewable Energy Board (NREB) shall determine the minimum percentage of generation from eligible RE in the electricity grid which sector the Renewable Portfolio Standards (RPS) shall be based on;

WHEREAS, Section 8 of the RE Act and Section 10 of the Electric Power Regulations (IRR) state that the DOE shall establish the Renewable Energy Market (REM) and shall direct the Philippine Electricity Market Corporation (PEMCO) to implement changes to the Wholesale Electricity Spot Market (WESM) in order to incorporate the rules specific to the operation of the WESM;

WHEREAS, Section 8 of the RE Act and Section 11 of the Electric Power Regulations (IRR) shall, under the supervision of the DOE, establish and operate the Renewable Energy Registrar (RER) and shall issue, keep, and verify RE Certificates (RECs) corresponding to energy generated from eligible RE facilities, which shall be used by Mandated Participants for compliance under the RPS;

Section 7. Repealing Clause. The provisions of other circulars, orders, issuances, rules, and regulations, which are inconsistent with the provisions of this Circular are hereby repealed, amended, superseded, or modified accordingly.

Section 8. Effectivity. This Circular shall take effect fifteen (15) days after publication in two (2) newspapers of general circulation. Copies of this Circular shall be filed with the University of the Philippines Law Center – Office of the National Administrative Register.


ALFONSO G. CUSI
Secretary

Republic of the Philippines
DEPARTMENT OF ENERGY
DOE-AGC-22003262

Issued on JUN 10 2022, at Energy Center, Rizal Drive,
Bonifacio Global City, Taguig City.

(Business World &
Daily Tribune)

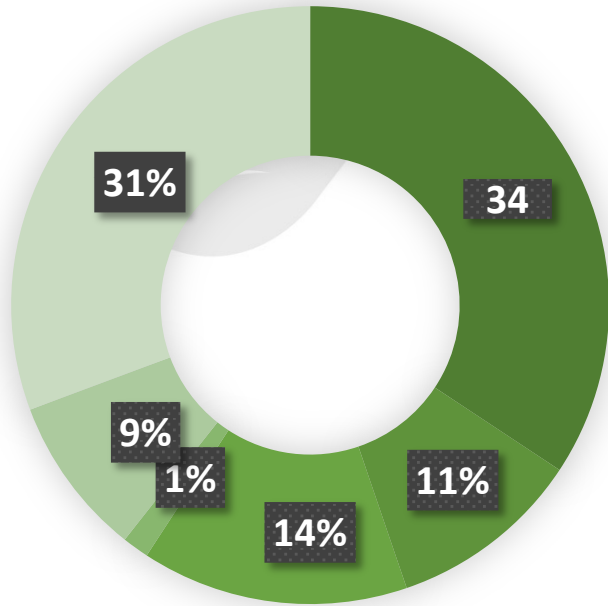
Page 7 of 7

Energy Center, Rizal Drive cor. 34th Street, Bonifacio Global City, Taguig City, Philippines 1632
Tel. Nos. (Toll-free) (832)470-2900;
Website: <http://www.doe.gov.ph>; E-mail: info@doe.gov.ph



RENEWABLE PORTFOLIO STANDARDS: COMPLIANCE

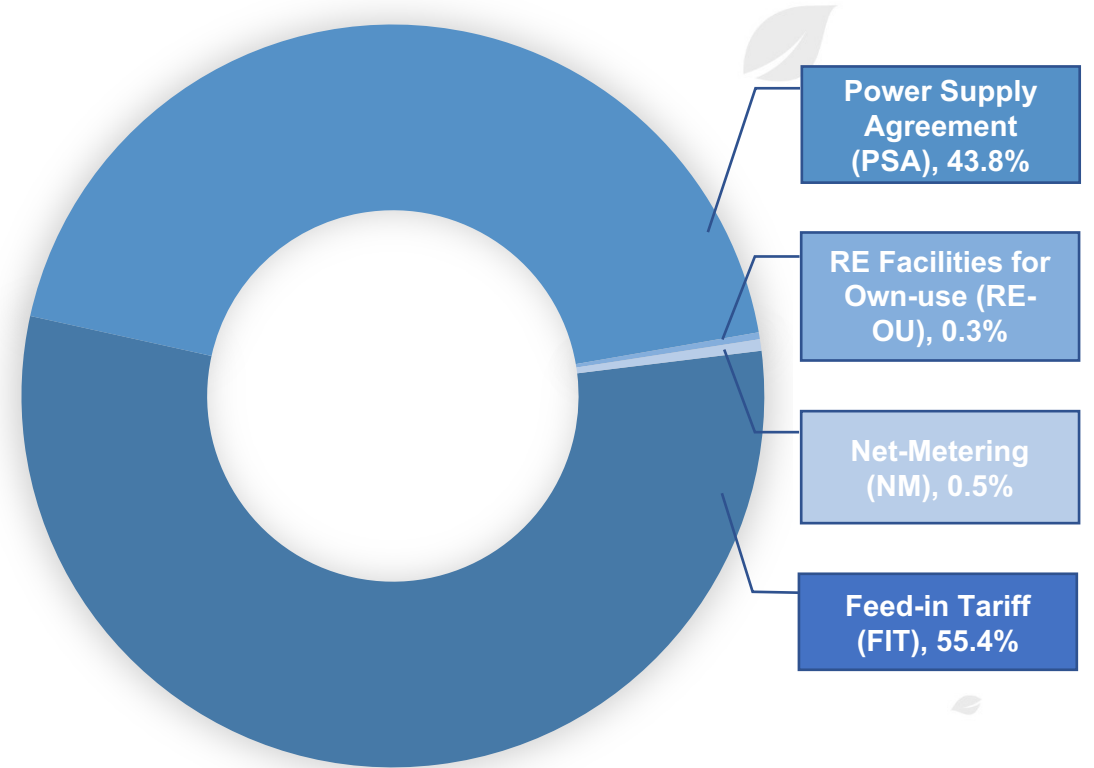
276 Approved REM Participants*



- Electric Cooperative (EC)
- Distribution Utility (DU)
- Retail Electricity Suppliers (RES)
- Local RES

*As of 31 March 2023, Philippine Electricity Market Corporation (PEMC)

5.8 Million RE Certificates (RECs) for 2021
Compliance of On-Grid Mandated Participants*

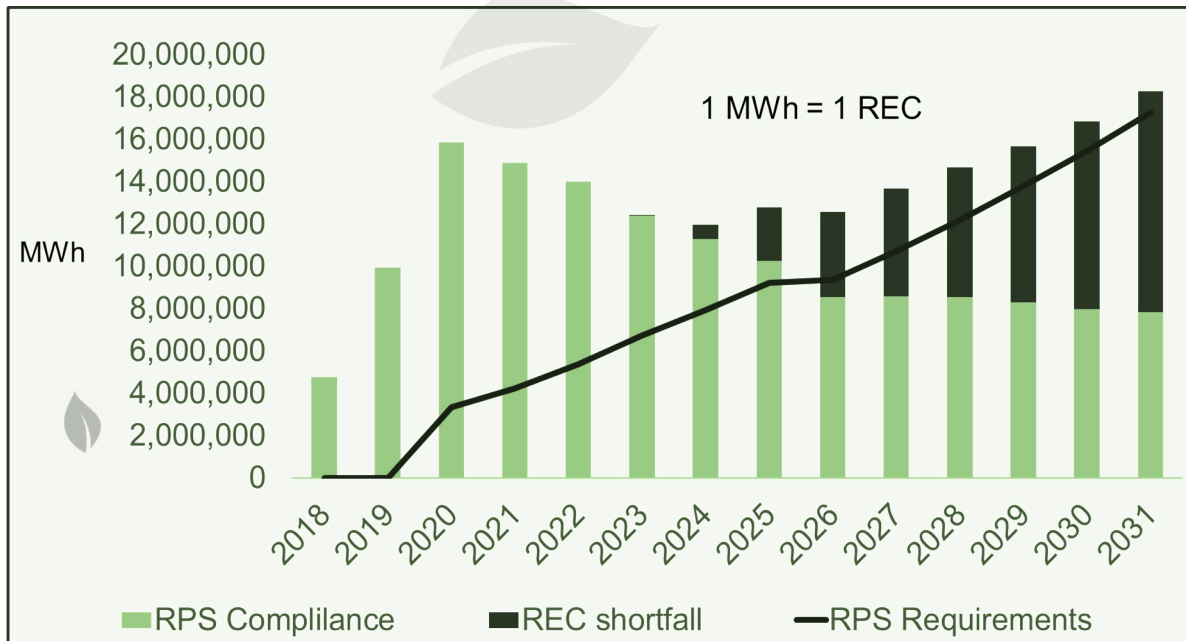


*2022 RPS Form Submission of Mandated Participants



RENEWABLE PORTFOLIO STANDARDS: PROJECTION

Total RPS Requirements Vis-a-Vis Compliance of On-Grid Mandated Participants, 2018-2031



Potential Annual Energy Generation of RE Facilities Eligible for RPS Compliance*


RE Technology	Eligible Capacity, MW				Potential RE Generation, TWH ¹
	FIT	PSA	WESM	No COP ²	
Biomass	202.2	9.0	-	116.4	2.6
Geothermal	-	208.0	10.5	-	1.6
Solar	526.3	237.0	549.6	-	1.8
Hydro	151.1	240.9	20.8	-	1.7
Wind	393.9	16.0	-	-	1.0
Total RE	1,273.5	711.0	580.9	116.4	8.7


*As of 31 December 2021




THANK YOU!





 Rizal Drive Corner 34th St.
Bonifacio Global City
Taguig City

 (632) 8840 2151

 www.doe.gov.ph


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


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

 remb9513@doe.gov.ph




**Philippine Electricity
Market Corporation**

 18F, Robinsons Equitable Tower
ADB Avenue, Ortigas Center
Pasig City

 (632) 8631 8734

 www.wesm.ph

 [pemcinfo](https://www.facebook.com/pemcinfo)

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

 reregistrar@wesm.ph