



Department of Energy
Philippines

2022

Renewable Energy Act Implementation Status Report



Contents

Tables	2
Figures	2
Photos	2
Abbreviations	3
Major RE Policies and Programs	4
2022 RE Snapshot	5
2022 RE Policy Milestones	6
A. Installed Capacity and Gross Generation	7
B. RE Contracts	11
C. Investment Cost, Green Jobs, and Emission Reduction	11
National Renewable Energy Program 2020-2040	12
D. RE Policies and Programs	13
1. Feed-in Tariff	13
2. Renewable Portfolio Standards	13
3. Renewable Energy Market	14
4. Preferential Dispatch of All RE-Generating Units	15
5. Net-Metering Program for RE	15
6. Green Energy Option Program	15
7. Green Energy Auction Program	16
8. Easing Foreign Ownership Limit	17
9. Open and Competitive Selection Process	17
10. RE Trust Fund	17
11. RE Resource Development	17
11.1. Offshore Wind	17
11.2. Waste-to-Energy	18
11.3. Derisking Geothermal Energy Projects	18
11.4. Marine Energy	19
2022 Biofuel Highlights	20
Way Forward	21

Tables

Table 1. Philippines Installed Capacity and Gross Generation	7
Table 2. Luzon Installed Capacity and Gross Generation	8
Table 3. Visayas Installed Capacity and Gross Generation	8
Table 4. Mindanao Installed Capacity and Gross Generation.....	9
Table 5. 2022 Newly Operational RE Plants as of 30 November 2022	9
Table 6. Summary of Awarded RE Contracts as of 31 December 2022.....	11
Table 7. Key RE Indicators	11
Table 8. Status of FIT Implementation as of 31 December 2022.....	13
Table 9. Summary of Net-Metering Implementation per Grid	15
Table 10. Summary of GEOP End-Users	15
Table 11. Summary of Awarded GEA Capacity.....	16
Table 12. Biofuels Production and Sales as of 31 December 2022.....	20

Figures

Figure 1. Number of Approved REM Participants as of 31 December 2022	14
Figure 2. Potential OSW Development Zones in the Philippines	18

Photos

Photo 1. Launching of the REM Interim Commercial Operation at the Marquis Events Place, Bonifacio Global City, Taguig City on 28 July 2022.....	14
Photo 2. First GEA in the Philippines held on 17 June 2022 at DOE Main Office, BGC, Taguig City	16

Abbreviations

Carbon Dioxide	CO2
Department of Energy	DOE
Directly-Connected Customers	DCCs
Distribution Utilities	DUs
Feed-in Tariff	FIT
Green Energy Auction	GEA
Green Energy Auction Program	GEAP
Green Energy Option Program	GEOP
Hydroelectric Power Plant	HEPP
Marine Renewable Energy	MRE
Million Liters	ML
Million Liters per Year	MLPY
National Renewable Energy Program	NREP
Nationally Appropriate Mitigation Action	NAMA
Offshore Wind	OSW
Open and Competitive Selection Process	OCSP
Power Generation Companies	GenCos
Pre-Determined Areas	PDA
RE Trust Fund	RETF
Renewable Energy	RE
Renewable Energy Certificates	RECs
Renewable Energy Market	REM
Renewable Portfolio Standards	RPS
Retail Electricity Suppliers	RES
Southeast Asia Energy Transition Partnership	SEA ETP
Waste-to-Energy	WTE
Wholesale Electricity Spot Market	WESM

Major RE Policies and Programs

RE Policy or Program	Description
Feed-in Tariff (FIT)	The FIT provides guaranteed twenty-year fixed payments for electricity produced from renewable energy (RE) resources, excluding generation for own use. It also grants priority connection to the grid for eligible RE facilities, and priority purchase, transmission, and payment for their corresponding power generation.
Renewable Portfolio Standards (RPS)	The RPS requires all load-serving industry players to source or produce a minimum portion of their electricity requirements from RE.
Renewable Energy Market (REM)	The REM serves as the venue for trading Renewable Energy Certificates (RECs) equivalent to an amount of power generated from RE resources. It is intended as a facility for mandated participants to comply with their RPS obligations.
Preferential Dispatch in the Wholesale Electricity Spot Market (WESM)	This policy provides priority in the WESM dispatch schedule to all RE-generating units to ensure maximum output injection in the grid.
Net-Metering	The net-metering scheme allows end-users to generate electricity from RE-based systems up to 100 kW for their own use and sell the excess to the grid.
Green Energy Option Program (GEOP)	The GEOP enables end-users, with an average peak demand of 100 kW and above for the past 12 months, to source their electricity directly from their preferred RE power suppliers.
Green Energy Auction Program (GEAP)	The GEAP provides an additional market for RE through competitive electronic bidding of RE capacities.
RE Trust Fund (RETF)	The RETF was established to promote the development and greater utilization of RE. It shall be sourced from various entities and mechanisms as enumerated in Section 28 of the RE Act and Section 34 of its Implementing Rules and Regulations. It may be used in the form of grants, loans, equity investments, loan guarantees, insurance, counterpart fund, or other financial arrangements.
Open and Competitive Selection Process (OCSP)	The OCSP is an investment promotion mechanism where potential areas for RE development (pre-determined areas [PDAs]) will be offered and bid out to private investors.

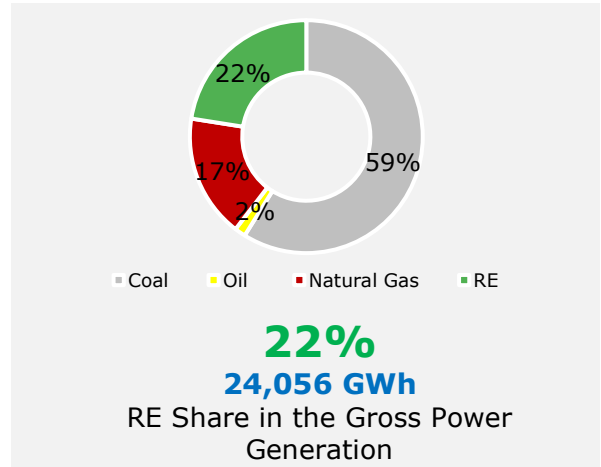
2022 RE Snapshot

RE Installed Capacity:

8,255 MW

29% of the Installed Capacity

Coal	44%
Oil	14%
Natural Gas	13%
RE	29%



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.



PhP 278 Billion

RE Investment Cost

4,365 kt ~ Carbon dioxide (CO₂) Emission Reduction from RE

357,248

Green Jobs



192.397 MW

remaining **Feed-in Tariff Balance for Hydro**

7,583 Net-Metering

Customers

=
63 MWp Rated Capacity

18 Green Energy Option Program Operating Permits

199 Customer Switched ~
61 MW Non-Coincidental Peak Demand

Green Energy Auction Program

capacity committed that will be operational from 2023-2025:

1,866.13 MW

from 18 Certificates of Award



2022 RE Policy Milestones

FEBRUARY

Waste-to-Energy

DC2022-02-0002

Prescribing the Policies and Programs to Promote and Enhance the Development of Biomass Waste-to-Energy Facilities

APRIL

Offshore Wind Roadmap

In April 2022, the "Offshore Wind Roadmap for the Philippines" was published.

JUNE

1st Green Energy Auction

On 17 June 2022, the 1st GEA was conducted which bid out 2,000 MW RE capacities.

RETF Guidelines

DC2022-06-0018

Adopting the Guidelines and Procedures in the Fund Sourcing, Accounting, and Audit of Renewable Energy Trust Fund Pursuant to Section 28 of the Renewable Energy Act of 2008

REM Interim

Commercial Operation

DC2022-06-0019

Declaring the Interim Commercial Operations of the Renewable Energy Market

REM Rules Amendments

DC2022-06-0026

Adopting Amendments to the Renewable Energy Market (REM) Rules

JULY

Publication of National Renewable Energy Program 2020-2040

SEPTEMBER

Increased the Annual RPS On-Grid

Percentage Increment Requirement to 2.52%

DC2022-09-0030

Prescribing the Adjusted Annual Percentage Increment to be imposed on All Mandated Participants on the Renewable Portfolio Standards for On-Grid Areas

OCTOBER

All RE as Preferential Dispatch in the WESM

DC2022-10-0031

Declaring All Renewable Energy Resources as Preferential Dispatch Generating Units in the Wholesale Electricity Spot Market Amending for this Purpose Department Circular No. DC2015-03-0001

NOVEMBER

Foreign Ownership of RE Projects

DC2022-11-0034

Prescribing Amendments to Section 19 of Department Circular No. 2009-05-0008 Entitled, Rules and Regulations Implementing Republic Act No. 9513, Otherwise known as "The Renewable Energy Act of 2008"

Accelerating RE development remains a priority of the government toward a sustainable and clean energy future. Utilizing RE reduces emissions and dependence on imported conventional energy resources. This minimizes the country’s exposure to global price fluctuations, making the supply and delivery of electricity more stable and secure.

To achieve the aspirational target of 35% RE share in the country’s power generation mix by 2030 and 50% by 2040, as defined in the National Renewable Energy Program (NREP) 2020-2040, the Department of Energy (DOE) continued to promulgate and implement various policies and programs in 2022 to support the RE industry.

A. Installed Capacity and Gross Generation

Installed capacity from RE increased by 4 percent from 7,914 MW in 2021 to 8,255 MW in 2022 (Table 1). Said growth was mainly attributed to the entry of new solar, biomass, and hydro plants in 2022, as listed in Table 5. However, the share of RE to the total installed capacity, however, was maintained at 29 percent.

On the other hand, RE comprised 22 percent or 23,771 GWh of the total gross power generation in 2021, which is a one percentage point increase from 2020. Pioneer RE technologies, namely geothermal and hydro, remained the country’s primary RE source, with a combined share of almost 20%.

Table 1. Philippines Installed Capacity and Gross Generation*

Technology	Installed Capacity** (MW)	Percent Share	Gross Generation*** (GWh)	Percent Share
Coal	12,441	44	62,919	59
Oil	3,931	14	1,627	2
Natural Gas	3,732	13	18,261	17
RE	8,255	29	24,056	22
Geothermal	1,932	7	10,147	10
Hydro	3,745	13	10,001	9
Biomass	603	2	1,138	1
Solar	1,548	5	1,775	2
Wind	427	2	995	1
Total	28,358	100	106,864	100

* Covers grid-connected areas only

** As of 30 November 2022

*** As of 31 December 2022 NGCP Gross Generation

On a per grid basis, Visayas has the highest share of RE both in terms of installed capacity (47%) and gross generation (42%), followed by Mindanao and Luzon (Tables 2-4). Geothermal and solar plants were the primary source of RE in Visayas.



Historical Power and RE Statistics can be accessed through the QR code.

Table 2. Luzon Installed Capacity and Gross Generation*

Technology	Installed Capacity** (MW)	Percent Share	Gross Generation*** (GWh)	Percent Share
Coal	8,759	44	46,258	59
Oil	2,369	12	837	1
Natural Gas	3,731	19	18,261	23
RE	4,909	25	12,842	17
Geothermal	865	4	5,091	7
Hydro	2,542	13	5,162	7
Biomass	206	1	691	1
Solar	959	5	1,058	1
Wind	337	2	840	1
Total	19,767	100	75,243	100

* Covers grid-connected areas only

** As of 30 November 2022

*** As of 31 December 2022 NGCP Gross Generation

Table 3. Visayas Installed Capacity and Gross Generation*

Technology	Installed Capacity** (MW)	Percent Share	Gross Generation*** (GWh)	Percent Share
Coal	1,414	35	8,446	58
Oil	743	18	560	4
Natural Gas	1	0	0	0
RE	1,905	47	5,554	38
Geothermal	955	24	4,391	30
Hydro	37	1	37	1
Biomass	318	8	364	2
Solar	505	12	608	4
Wind	90	2	155	1
Total	4,064	100	14,560	100

* Covers grid-connected areas only

** As of 30 November 2022

*** As of 31 December 2022 NGCP Gross Generation

Table 4. Mindanao Installed Capacity and Gross Generation*

Technology	Installed Capacity** (MW)	Percent Share	Gross Generation*** (GWh)	Percent Share
Coal	2,268	50	8,215	58
Oil	819	18	230	2
Natural Gas	0	0	0	0
RE	1,441	32	5,660	40
Geothermal	112	2	664	4
Hydro	1,166	26	4,803	34
Biomass	79	2	83	1
Solar	84	2	110	1
Wind	0	0	0	0
Total	4,528	100	14,105	100

* Covers grid-connected areas only

** As of 30 November 2022

*** As of 31 December 2022 NGCP Gross Generation

Table 5. 2022 Newly Operational RE Plants as of 30 November 2022

Power Plant	Installed Capacity	Location	Operator
Luzon			
Biomass	12.0		
Hypergreen Rice Husk-fired	12.0	Brgy. Taal, Bocaue, Bulacan	Hypergreen Energy Corporation
Solar	170.9		
Sta.Rita Solar (Phase 3B)	34.4	Mt. Sta. Rita, Subic Bay Freeport Zone	Jobin-Sqm Inc. (JOBIN)
Sta Rosa Solar	60.1	Brgy. Sta. Rosa, Concepcion , Tarlac	Terasu Energy Inc.
Bataan Solar Energy Project	4.4	Barangay Batangas-II, Mariveles, Bataan	Bataan Solar Energy, Inc. (BSEI)
Arayat-Mexico Solar Power Plant	72.0	Barangay San Antonio, Arayat, Pampanga	Greencore Power Solutions 3, Inc.
Hydro	4.6		
Butao Irrigation Drop	1.4	Sitio Butao, Brgy. Guiset Sur, San Manuel, Pangasinan	Mindoro Grid Corporation
Man-Asok	3.24	Barangay Sebang, Buguias, Benguet	Benguet Electric Cooperative, Inc.
Sub-Total	187.5		

Power Plant	Installed Capacity	Location	Operator
Visayas			
Hydro	15.9		
Tubig Hydroelectric Power Plant (HEPP)	15.9	Taft, Eastern Samar & Hinabangan, Samar	Taft Hydroenergy Corporation
Biomass	70.0		
San Carlos Biopower (SCBP)	20.0	Circumferential Road, San Carlos Economic Zone II, Barangay Palampas, San Carlos City, Negros Occidental	San Carlos Biopower, Inc.
South Negros Biopower	25.0	Barangay Cubay, La Carlota City, Negros Occidental	South Negros Biopower, Inc.
North Negros Biopower	25.0	Barangay Sta. Teresa, Manapla, Negros Occidental	North Negros Biopower, Inc.
Sub-Total	85.9		
Mindanao			
Hydro			
Marbel 1 HEPP	0.8	Barangay Carpenter Hill, Koronadal City, South Cotabato	Euro Hydro Power (Asia) Holdings, Inc.
Geothermal			
Mindanao 3 Binary Geothermal Power Plant	3.6	Kidapawan City, North Cotabato	Energy Development Corporation
Sub-Total	4.4		
Total	277.8		

Source: List of Existing Power Plants as of 30 November 2022, grid-connected areas only

B. RE Contracts

As of 31 December 2022, a total of 1,002 projects were awarded RE Contracts. Of these, 216 are existing facilities, with a total installed capacity of 5,571 MW.

Meanwhile, 786 projects with a potential capacity of 80,399 MW are still under the pre-development and development stage. Variable RE technologies, namely wind and solar, have the

highest combined potential of 67,046 MW, comprising 83 percent of the total potential capacity. For ocean energy, 24 MW is the potential from 8 proposed projects.



The complete list and details of awarded RE Contracts can be accessed through the QR code.

Table 6. Summary of Awarded RE Contracts as of 31 December 2022

Technology	Installed Capacity MW		No. of Projects	Potential Capacity MW		No. of Projects
	Commercial	Own-Use		Commercial	Own-Use	
Hydropower	1,129.32		68	12,270.95	1.56	364
Ocean	-		0	24.00	-	8
Geothermal	1,931.67		12	870.60	-	24
Wind	442.90	0.01	9	45,631.18	-	133
Solar	1,283.37	6.43	75	21,413.65	1.07	232
Biomass	594.23	183.36	52	186.23	-	25
Total	5,381.49	189.80	216	80,396.61	2.63	786

C. Investment Cost, Green Jobs, and Emission Reduction

Following the RE Act's implementation in 2009, the total investment cost generated from new RE facilities reached PhP 280 billion. The RE capacity addition led to an estimated emission reduction of 4,365 kt of CO₂ equivalent from 2009-2022. Meanwhile, around 357,000 people were employed in renewables during the said period.

Table 7. Key RE Indicators*

Technology	Investment Cost In Billion PhP	Emission Reduction In kt of CO ₂ Equivalent	Green Jobs
Biomass	38	2,211	21,495
Geothermal	12	217	10,261
Solar	135	1,239	20,3378
Hydropower	42	84	94,835
Wind	53	614	27,340
Total	280	4,365	357,309

*Cumulative from 2009-2022

National Renewable Energy Program

2020-2040

Renewable Energy Target

It sets the target of reaching at least 35 percent RE share in the power generation mix by 2030, and more than 50 percent by 2040. To achieve this, the NREP provides a recalibrated framework comprised of four sub-components namely: RE Transition Pathways, RE Transition Enablers, RE Off-Grid and Productive Uses of RE, and Resource-Specific Programs.

[Read More](#)

The Program

The NREP 2020-2040, as endorsed by the National Renewable Energy Board, was signed by the DOE on 29 June 2022 and published on 19 July 2022. It serves as the country's long-term program to accelerate the development and utilization of RE towards achieving energy security, sustainable development, and climate change mitigation, that are embodied in the RE Act.



D. RE Policies and Programs

1. Feed-in Tariff

The FIT installation targets for wind, solar, and biomass at 400MW, 500MW, and 250MW, respectively, have been fully subscribed since 2019.

Considering the number of hydro projects still vying for FIT, the DOE issued a certification on 08 June 2022, increasing the FIT installation target for run-of-river hydro from 250 MW to 350 MW. As of 31 December 2022, a total of 192.397 MW hydro capacity is still open for subscription under the adjusted FIT target (Table 8).

2. Renewable Portfolio Standards

The DOE issued Circular No. DC2022-09-0030 entitled, "Prescribing the Adjusted Annual Percentage Increment to be Imposed on All Mandated Participants of the Renewable Portfolio Standards for On-Grid Areas," on 23 September 2022. This Circular increased the minimum RPS annual percentage increment requirement from 1% to 2.52% starting the year 2023 for grid-connected areas. The RPS mandate was adjusted to achieve the country's aspirational target under the NREP.

Table 8. Status of FIT Implementation as of 31 December 2022

RE Technology	Installation Target (MW)	ERC-Approved FIT Rates (PhP / kWh)	With Certificate of Endorsement to ERC		Installation Target Balance (MW)
			No. of Projects	Capacity (MW)	
Hydro	350	5.90	5	35.956	192.397
		5.8705 ^c	1	8.500	
		5.8705 ^d	8	102.901	
		To be determined	6	10.246	
Wind	200	8.53	3	249.900	-
	200 ^a	7.40 ^b	3	144.000	
Solar	50	9.68	6	67.600	-
	450 ^a	8.69 ^b	18	476.030	
Biomass	250	6.63	12	117.351	-
		6.5969 ^c	4	18.064	
		6.19 ^d	14	121.63	
Ocean	10	Deferred	-	-	-
Total	1,510.00	-	80	1,352.178	192.397

^a Additional Installation Targets

^b FIT rates for the additional installation targets (Wind –ERC Resolution No. 14, Series of 2015; Solar – ERC Resolution No. 6, Series of 2015)

^c Degressed FIT rates (Hydropower and Biomass – ERC Resolution No. 1, Series of 2017)

^d Degressed FIT rates (Hydropower and Biomass – ERC Resolution No. 6, Series of 2021)

2.52%

Minimum annual RPS percentage increment requirement starting year 2023

For the RPS Rules in Off-Grid Areas, focused group discussions with distribution utilities (DUs) and power generation companies serving off-grid areas, which include the National Power Corporation-Small Power Utilities Group, New Power Providers, and Qualified Third Parties, were conducted last May 2022. A writing workshop to finalize the said rules was also organized last 27 October 2022.

3. Renewable Energy Market

On 10 June 2022, the DOE issued Circular No. DC2022-06-0019 entitled, "Declaring the Interim Commercial Operations of the Renewable Energy Market". Pursuant to this, the REM Interim Commercial Operation was formally launched on 28 July 2022.

Some amendments to the REM Rules were also undertaken through DC2022-06-0026 issued on 20 June 2022. As of 31 December 2022, the total number of registered participants in the REM reached 258. Almost half (47%) are distribution utilities (DUs) as shown in Figure 1.

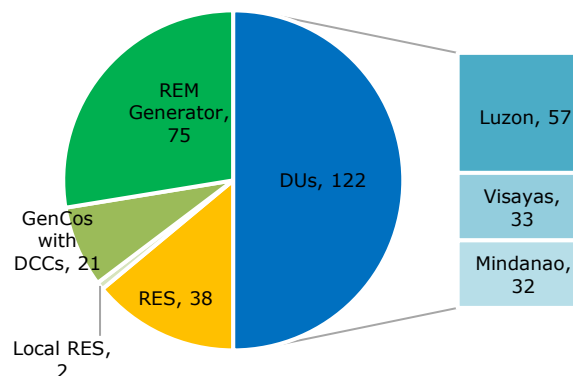


Figure 1. Number of Approved REM Participants as of 31 December 2022

Source: Philippine Electricity Market Corporation

The remaining half are REM Generators, Retail Electricity Suppliers (RES), Power Generation Companies (GenCos) with Directly-Connected Customers (DCCs), and local RES.



Photo 1. Launching of the REM Interim Commercial Operation at the Marquis Events Place, Bonifacio Global City, Taguig City on 28 July 2022

4. Preferential Dispatch of All RE-Generating Units

On 05 October 2022, the DOE issued Circular No. DC2022-10-0031 entitled, "Declaring All Renewable Energy Resources as Preferential Dispatch Generating Units in the Wholesale Electricity Spot Market Amending for this Purpose Department Circular No. DC2015-03-0001".

Pursuant to this Circular, all intermittent or variable RE, which includes wind, solar, run-off-river hydro, and ocean energy, retained its Must Dispatch status in the WESM. On the other hand, those that are not Must Dispatch, such as biomass, geothermal, and impounding hydro plants, shall be given the option or preference to enjoy Priority Dispatch in the WESM while considering their contractual obligations.

Giving preferential dispatch to RE-generating plants shall encourage additional investments because of guaranteed dispatch in the grid at their full available capacity, allowing recovery of investments.

5. Net-Metering Program for RE

On 22 April 2022, the DOE published the "Guidebook on Net Metering in the Philippines," which provides the guidelines, standards, and procedures for all net-metering arrangements from offer to after-sales services by installers and practitioners.

As of 31 December 2022, a total of 7,583 qualified end-users, covering 65 DUs, were registered in the program. This is equivalent to 63,258.68 kWp, largely from Luzon (71%), followed by Visayas (24%) and Mindanao (5%).

Table 9. Summary of Net-Metering Implementation per Grid

Grid	Qualified End-Users	Capacity (kWp)
Luzon	6,120	45,132.76
Visayas	1,168	15,017.01
Mindanao	295	3,108.92
Total	7,583	63,258.68

6. Green Energy Option Program

As of 31 December 2022, the DOE has issued 18 GEOP Operating Permits to RE Suppliers. A total of 199 customers have already switched to the GEOP, which is equivalent to 61 MW estimated non-coincidental peak demand.

Table 10. Summary of GEOP End Users

Grid	End-Users	Capacity (kWp)
Luzon	147	44,571.20
Visayas	52	16,421.16
Total	199	60,992.36



Photo 3. First GEA in the Philippines held on 17 June 2022 at DOE Main Office, BGC, Taguig City

7. Green Energy Auction Program

On 17 June 2022, the 1st Green Energy Auction (GEA) Round was conducted, which bid out 2,000 MW RE capacities. At the end of the 1st GEA, the DOE issued 18 Certificates of Award covering 1,866.13 MW of RE capacity which are committed to being operational from 2023-2025 (Table 11).

1,866.13 MW

Awarded Capacity from the 1st Green Energy Auction

Table 11. Summary of Awarded GEA Capacity

Technology	Capacity (MW)			Delivery Commencement Year
	Luzon	Visayas	Mindanao	
Hydro	80.00	-	19.15	2025
Biomass	-	-	3.40	2023
Solar	1,070.38	300.00	120.00	2025
Wind	260.00	13.20	-	
Total	1,410.38	313.20	142.55	

8. Easing Foreign Ownership Limit

The foreign ownership restriction that hampers the flow of RE-sector investments is now lifted under DOE Circular No. 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", which was issued on 15 November 2022.

According to Section 2(B) of this Circular, the State may now *"directly undertake the exploration, development, production, and utilization of RE resources, or it may enter into RE Service or Operating Contracts with Filipino and/or foreign citizens or Filipino and/or foreign-owned corporations or associations."*

9. Open and Competitive Selection Process

In 2022, the DOE approved twenty-one PDAs (3 geothermal, 15 hydro, and 3 wind) to be offered under the OCSP 4. A DOE Circular providing the list of these PDAs, including the guidelines for the conduct of OCSP 4, shall be issued by the DOE in 2023.

10. RE Trust Fund

Department Circular No. DC2022-06-0018 entitled, "Adopting the Guidelines and Procedures in the Fund Sourcing, Accounting and

Audit of the Renewable Energy Trust Fund Pursuant to Section 28 of the Renewable Energy Act of 2008", was signed on 10 June 2022. This Circular shall guide RETF Contributors and concerned DOE offices in the process of sourcing, billing, collection, remitting, accounting, and auditing the RETF.

The DOE is also formulating the RETF Operations Manual, providing guidelines on the utilization of the fund, qualification of eligible organizations, types of financial support, institutional structures and mechanisms, and application and approval process. Said manual is targeted to be completed and issued by the end of 2023.

11. RE Resource Development

11.1. Offshore Wind

The "Philippine Offshore Wind Roadmap" was published in April 2022 through the support of the World Bank Group. Under the roadmap, 178 GW of offshore wind (OSW) potential capacity (18 GW fixed and 160 GW floating) was identified, located in various areas of the country (Figure 2).

The DOE is currently reviewing existing policies and drafting an executive order to strengthen and rationalize the regulatory framework for the immediate development of OSW in the country.

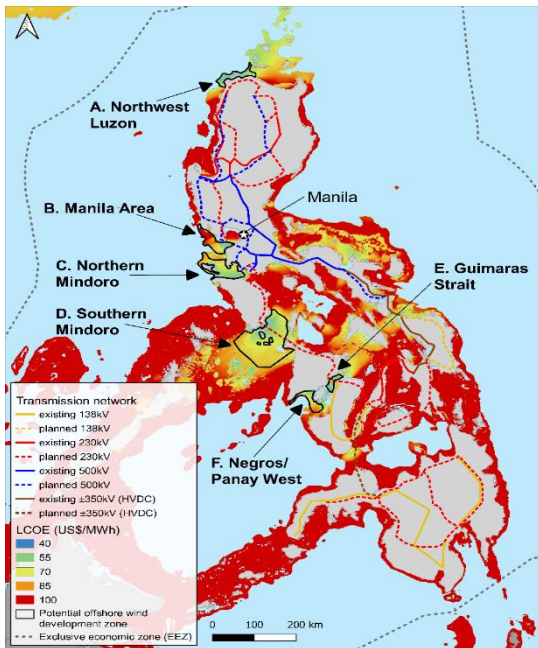


Figure 3. Potential OSW Development Zones in the Philippines

As of 31 December 2022, the DOE awarded 50 OSW Energy Service Contracts with a potential capacity of 36.3 GW.

178 GW

Offshore Wind Potential

11.2. Waste-to-Energy

On 17 February 2022, the DOE issued DC2022-02-0002 entitled, "Prescribing the Policies and Programs to Promote and Enhance the Development of Biomass Waste-to-Energy (WTE) Facilities". As of 31 December 2022, a total of 13 Biomass Contracts for WTE projects were issued. Of these, 6 are operational with 10.414 MW capacity and 7 are under

ongoing development /construction with 41.559 MW potential capacity.

An "Assessment of the Potential of WTE Technology in the Philippines" was conducted in 2022. The study assessed waste streams from 33 highly urbanized cities and 246 existing sanitary landfill sites and corresponding potential power generation. The study also evaluated the most appropriate WTE system in the country, including possible financing schemes and business models.

To increase public awareness of the current policies and programs for WTE, the DOE, in partnership with various government agencies, conducted a WTE Forum in three areas of the country (Naga, Cebu, and Davao City).

Topics related to solid waste management, environmental technology verification, financing, and public-private opportunities for WTE projects were discussed during the said forum.

11.3. Derisking Geothermal Energy Projects

The project involving the development of a "Roadmap for Geothermal Derisking of the Philippines," initiated by the Asian Development Bank in partnership with the DOE, kicked off on 20 September 2022. Said project aims to

identify, evaluate, and recommend geothermal pre-development stage derisking strategies to assist the DOE in assessing and prioritizing regulations governing geothermal energy development in the country.

The final report for the project is expected to be completed in 2023.

11.4. Marine Energy

In 2022, the DOE requested technical assistance from the Southeast Asia (SEA) Energy Transition Partnership (ETP) for the development of the country's marine renewable energy (MRE) stocktake and options report entitled "The Philippines' Marine Renewables: Sustainable Energy from Ocean Spaces and Resources." Said report provides the country's available MRE resource potential and information on emerging technologies. It also includes recommendations regarding pathways to harness the said resource and collaboration

opportunities for MRE investments.

The DOE, in collaboration with the Nationally Appropriate Mitigation Action (NAMA) Support Organization, submitted a grant funding proposal to the NAMA Facility Board for the project entitled, "Decarbonization of Electricity Generation on Philippine Islands Using Tidal Stream (TSE) and Solar Photovoltaic (PV)". Said project primarily aims to displace fossil fuel use in off-grid islands by developing hybrid energy systems and bridging the financing gap for new RE technologies. The result of the proposal is set to come out in the 1st quarter of 2023.

The Philippine Tidal Energy Forum and Webinar on Harnessing the Power from Ocean and Seas were held to promote MRE on 03 March 2022 and 14 December 2022, respectively. These events were supported by the NAMA Support Organization and the SEA ETP, respectively, along with several industry partners.

2022 Biofuel Highlights

In 2022, the local biofuel industry gradually recovered from the effects of the COVID-19 pandemic. The sector posted a 6% and 3% sales increase for biodiesel and bioethanol, respectively, compared to the previous year.

As of 31 December 2022, the total annual rated capacities of the twelve accredited biodiesel production plants and thirteen accredited bioethanol production plants reached 677.9-million liters per year (MLPY) and 466-MLPY, respectively, which are equivalent to about 310% of the 2% biodiesel (B2) blend mandate and 66% of the 10% bioethanol (E10) blend mandate.

2022 Biofuels Production

203.42 ML Biodiesel
374.78 ML Bioethanol

led to emission reduction of
1,323 kt
of CO₂ equivalent



and created
3,563
Green Jobs



PhP 35.74 Billion
Investment Cost

since the implementation
of Biofuels Act in 2007

Table 12. Biofuels Production and Sales as of 31 December 2022

Biofuel	Accredited Biofuel Producers		Production (ML)	Sales (ML)
	No. of Producers	Capacity (million liters per year)		
Biodiesel	12	677.9	203.42	202.14
Bioethanol	13	466	374.78	368.12

To provide in-depth knowledge and understanding of biofuels, the DOE conducted information, education, and communication (IEC) campaigns in five Science High Schools in Metro Manila. The discussion revolved around the significant contribution of biofuels to the environment and economy, its production process, and related research studies.

Students under the Science, Technology, Engineering and Mathematics (STEM) strand were selected to participate in the IECs.

Way Forward

- 1 Update the NREP covering the period 2023-2050
- 2 Issue Department Circulars pertaining to the following:
 - Amendments to the RPS On-Grid Rules
 - RPS Rules for Off-Grid Areas
 - Expanded Rooftop Solar Program
 - Amendments to the GEOP Rules
- 3 Full Commercial Operation of the REM
- 4 Conduct the 2nd Round of the Green Energy Auction
- 5 Publish the RETF Operations Manual
- 6 Conduct the 4th Open and Competitive Selection Process
- 7 Amend the Omnibus Guidelines Governing the Award and Administration of Renewable Energy Contracts and the Registration of Renewable Energy Developers
- 8 Publish various reports related to RE resource assessment and development



**DEPARTMENT OF ENERGY
RENEWABLE ENERGY MANAGEMENT BUREAU**

☎ (632) 8840 2151

✉ remb9513@doe.gov.ph

🌐 www.doe.gov.ph