

Philippines Energy Transition Roadmap and Integration of Renewable Energy Solutions

FERDINAND B. BINONDO

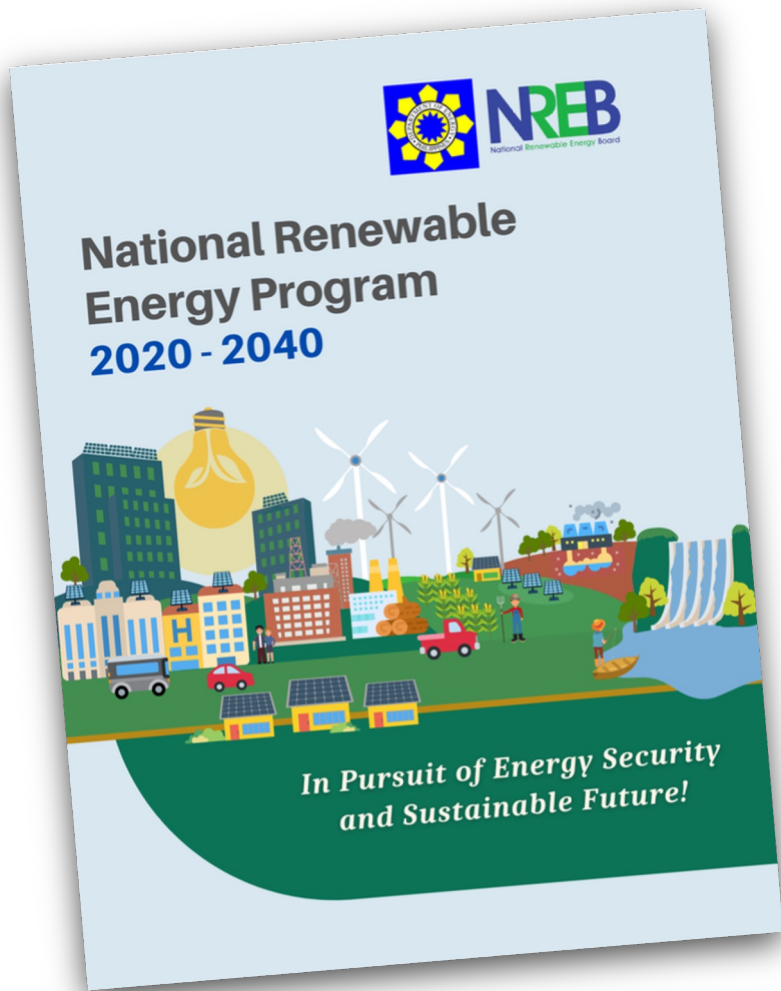
Renewable Energy Management Bureau
Department of Energy

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ADB HQ, Headquarters, Manila,





National Renewable Energy Program 2020-2040

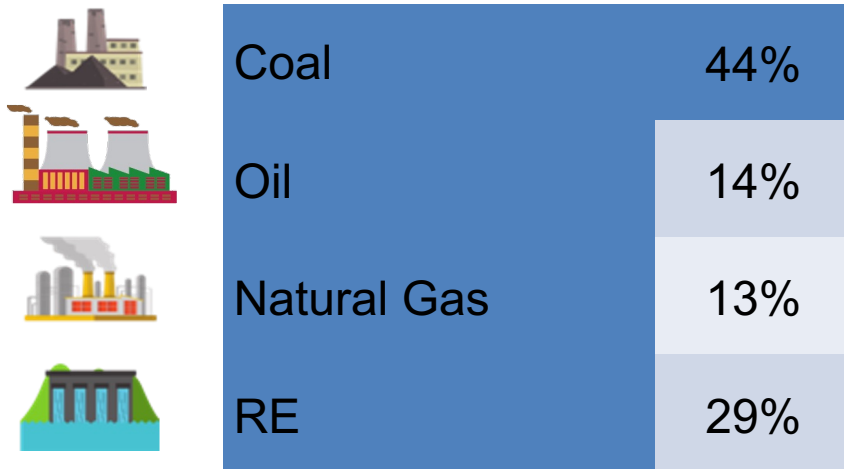
NREP sets a target of at least **35% RE Share** in the power generation mix by 2030

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

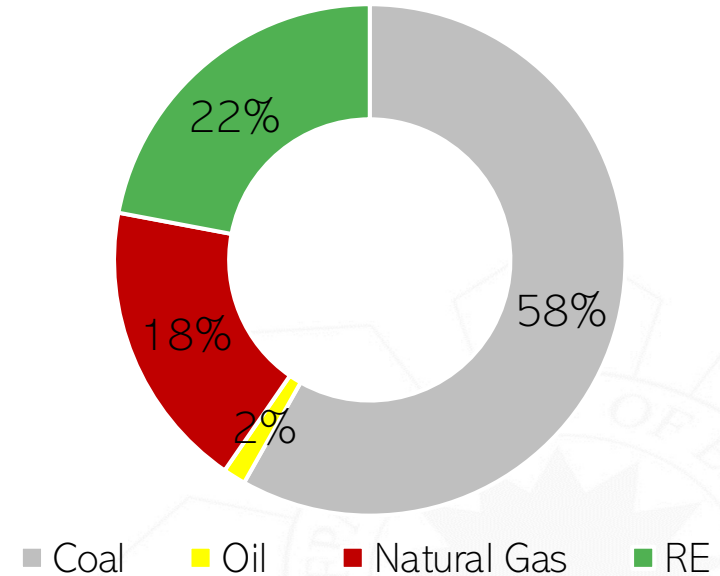


Power Statistics, Philippines

Installed Capacity* - 28,358
MW



Gross Generation** - 106,115
GWh



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

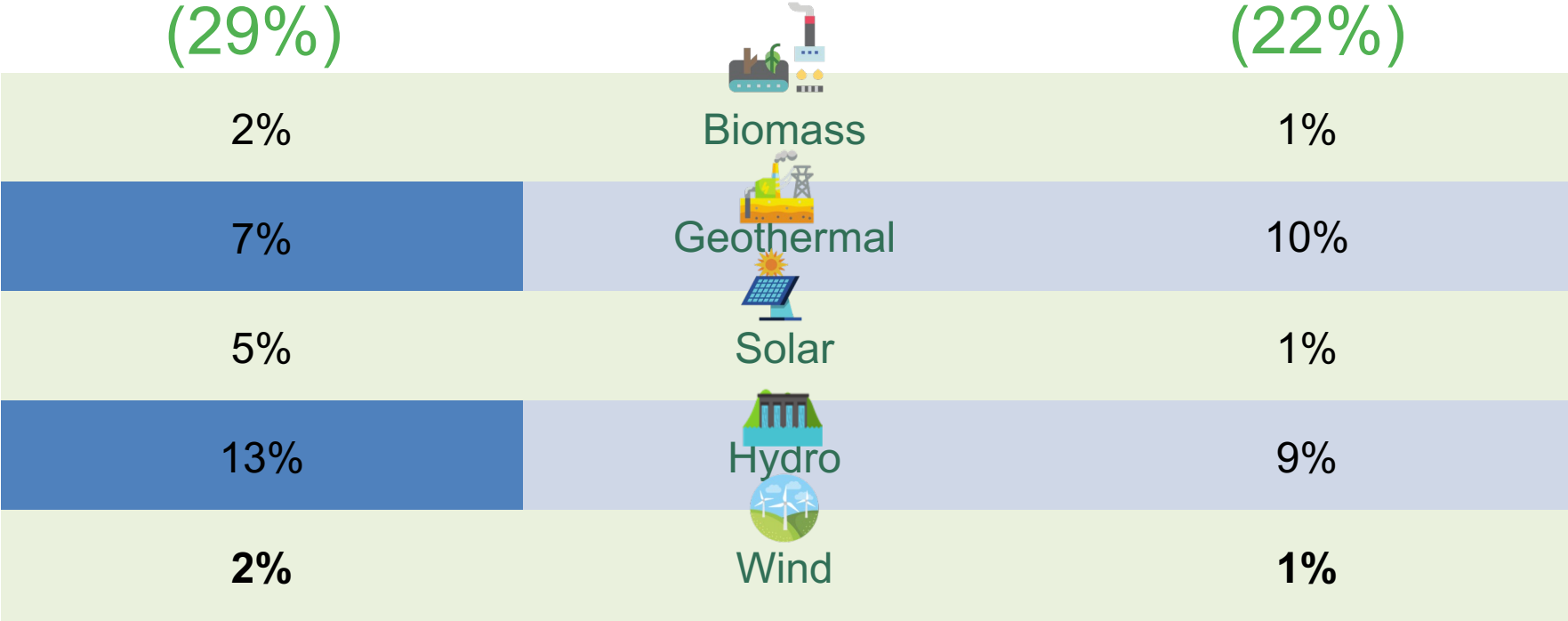
*As of 30 November 2022; **As of 31 December 2021



Power Statistics, Philippines

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

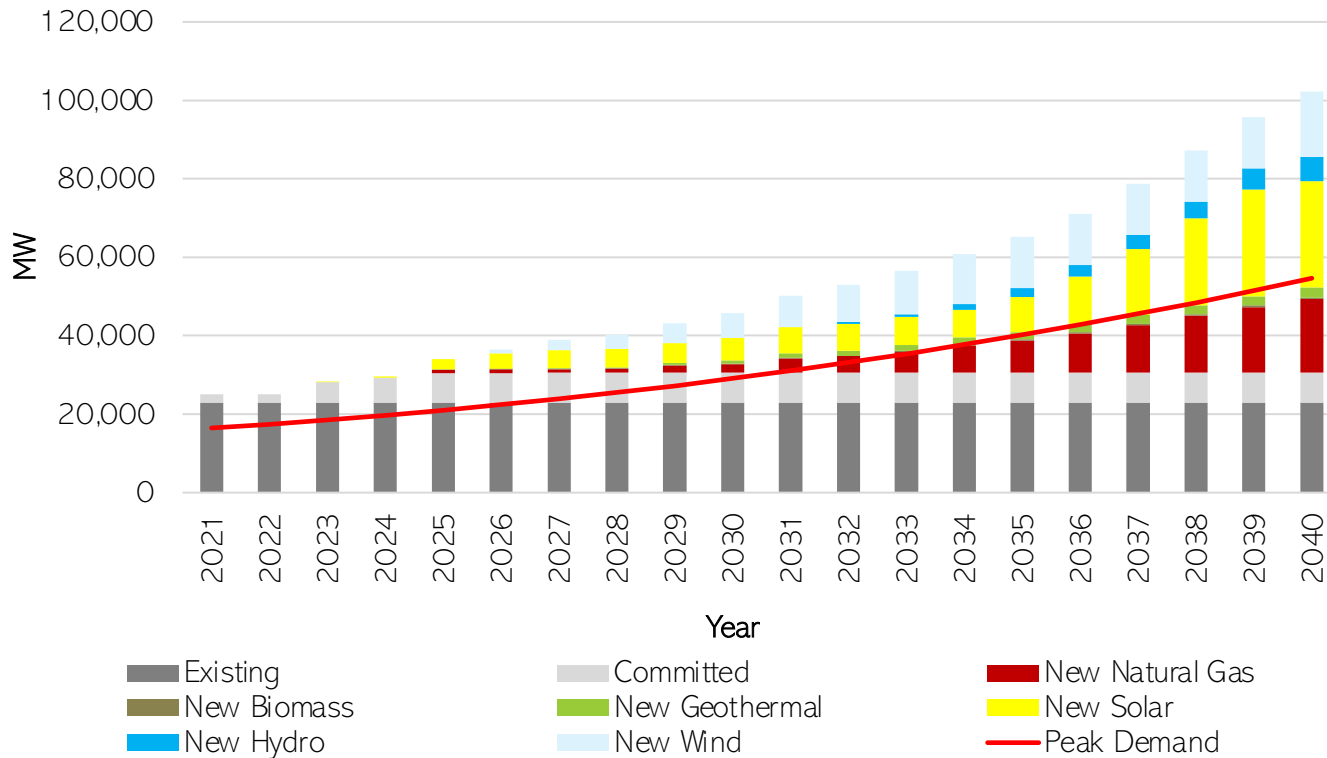
Gross Generation** - 23,771
GWh
(22%)



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

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

RE Outlook, 2021-2040



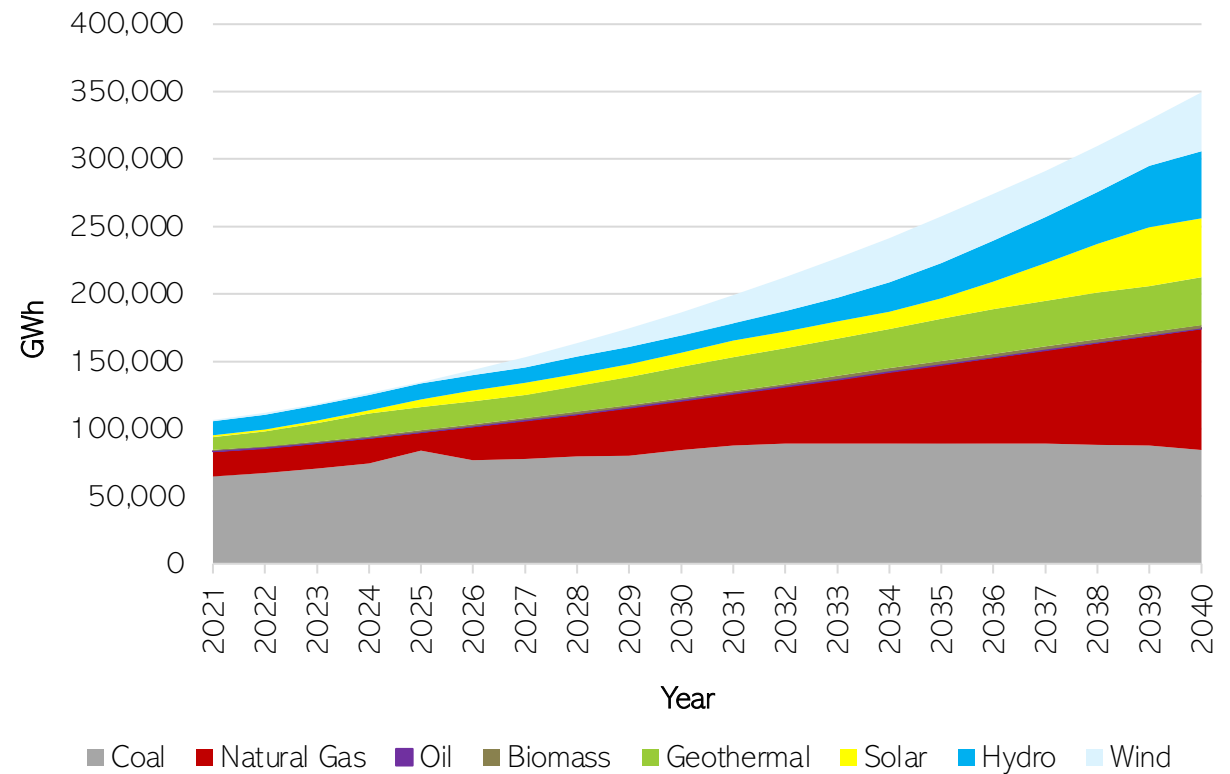
Particulars, in MW	2021	2025	2030	2035	2040
New Natural Gas	0	759	2,259	8,159	18,859
New Biomass	0	120	120	360	364
New Geothermal	0	0	850	1,900	2,500
New Solar	0	2,660	5,585	8,910	27,162
New Hydro	0	0	0	2,200	6,150
New Wind	0	0	6,450	13,050	16,650
Cumulative New RE	0	2,780	13,005	26,420	52,826
Committed 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

To reach the RE target, a total of 52,826 MW additional RE capacity is needed by 2040, which is more than six times the current level at 8,255 MW.



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 (DC2022-10-0030)

2 GREEN ENERGY OPTION PROGRAM (GEOP)

Provides end-users the option to choose RE resources as their source of energy (DC2018-07-0019; DC2020-04-0009)

3 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. (DC2022-10-0031)

4 GREEN ENERGY AUCTION PROGRAM (GEAP)

Intends to provide an additional market for RE through competitive electronic bidding of RE capacities (DC2021-11-0036)

5 EASING FOREIGN OWNERSHIP LIMIT IN RE INVESTMENTS

Removes foreign ownership restrictions that hamper the flow of investments in the RE sector (DC2022-11-0034)

6 ADEQUATE AND EFFECTIVE POLICES, RULES AND GUIDELINES

Aims to provide effective policies and clear rules and guidelines for the implementation of RE Projects (DC2019-10-0013; DC2023-04-0008; EO21)



Green Energy Auction Program - 2

NOTICE OF AUCTION

Pursuant to Section 4.12 of Department Circular (DC) No. DC2021-11-0036, titled "Providing the Revised Guidelines for the Green Energy Auction Program in the Philippines", the Department of Energy (DOE) through the Green Energy Auction Committee (GEAC) invites all Qualified Suppliers¹ to participate in the Second Green Energy Auction (GEA-2) for Renewable Energy (RE). GEA-2 shall cover the Luzon, Visayas and Mindanao with the following installation targets for delivery dates for the years 2024, 2025, and 2026²:

2024 Installation Targets in Megawatts (MW)

RE Resource	Luzon	Visayas	Mindanao
Ground-mounted Solar	1,420	325	280
Roof-mounted Solar	160	45	30
Onshore Wind	800	400	0
Biomass	20	100	20
Sub-total	2,400	870	330
Total	3,600		

2025 Installation Targets in MW

RE Resource	Luzon	Visayas	Mindanao
Ground-mounted Solar	1,420	400	320
Roof-mounted Solar	200	30	30
Onshore Wind	700	470	0
Biomass	5	10	15
Sub-total	2,325	910	365
Total	3,600		

2026 Installation Targets in MW

RE Resource	Luzon	Visayas	Mindanao
Ground-mounted Solar	1,900	350	300
Floating Solar	300	0	0
Roof-mounted Solar	50	40	20
Onshore Wind	700	500	150
Biomass	10	25	25
Waste-to-Energy	30	0	0
Sub-total	2,990	915	495
Total	4,400		

Activities	Timeline (D=Day)
1. Publication of the Notice of Auction	D
2. Release of Terms of Reference (TOR) and Auction Round Procedures (ARP)	D1 + 20
3. Issuance of GEAR Price by ERC	D21 + 10
4. Start of Registration of Qualified Suppliers	D31 + 7
5. Last day of Registration of Qualified Suppliers	D38 + 10
6. Evaluation of Qualified Suppliers	D48 + 5
7. Posting of Qualified Bidders	D53 + 3
8. Pre-Bid Conference for Qualified Bidders	D56 + 3
9. Conduct of Auction	D59 + 20
10. Issuance of the Notice of Award	D79 + 9

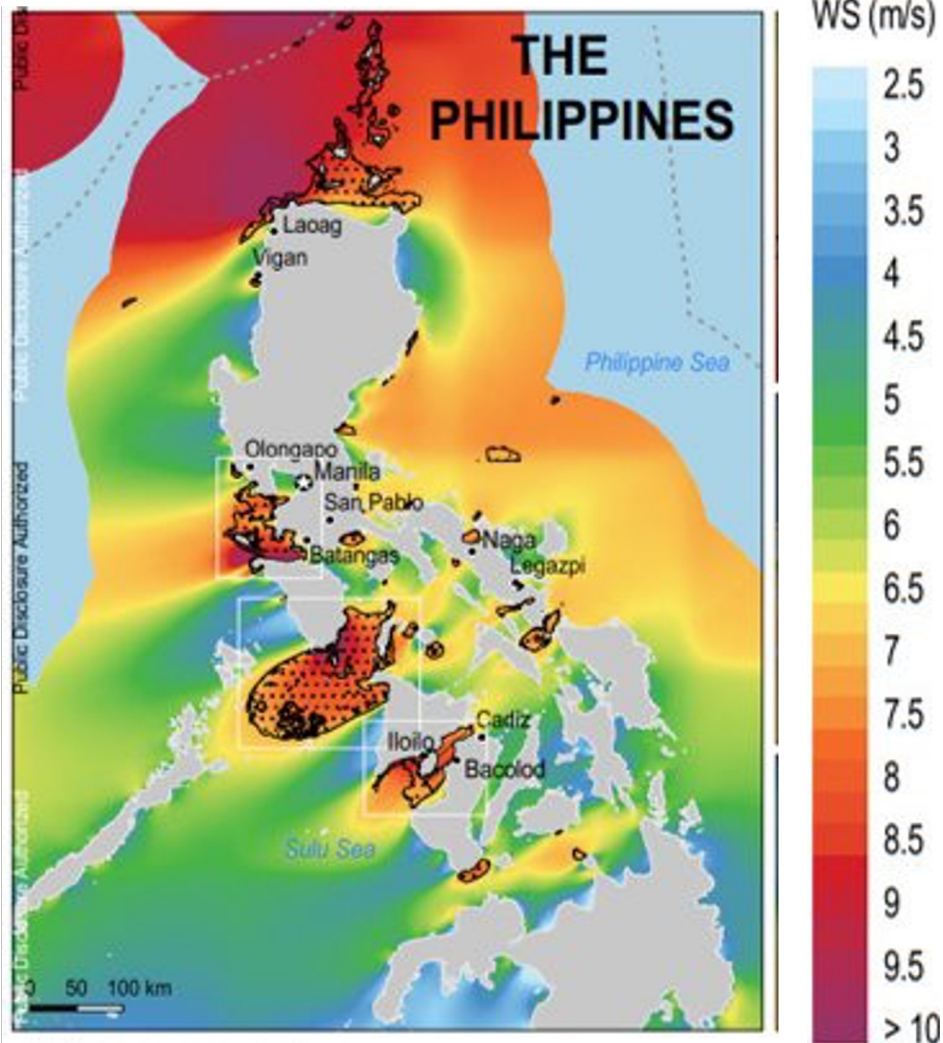
Activities	Old Timeline	New Timeline
Last day of Registration of Qualified Suppliers*	12 May 2023	19 May 2023
Evaluation of Qualified Suppliers	15-17 May 2023	22-24 May 2023
Posting of Qualified Bidders	24 May 2023	01 June 2023
Pre-Bid Conference for Qualified Bidders	29 May 2023	06 June 2023



Offshore Wind Roadmap

178 GW of OSW Potential

(18 GW Fixed and 160 GW Floating)



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

- To date, a total of **65** OSW Service Contracts/WESCs were awarded with approximate potential aggregate capacity of **51** GW spread mainly in north of Luzon, west of Metro Manila, north and south of Mindoro, Panay and Guimaras Strait.



Policy on Energy Storage System

ESS refers to a facility capable of absorbing energy generated from an RE Plant or from a generation facility connected to the Grid or Distribution System, and stored energy when prompted, needed to ensure reliability and balanced power system. (DC2023-04-0008)

ESS	P_{Max} and Ramp Rate	Connections
Stand Alone ESS	ESS Capacity and Ramp Rate	Connected either to the Grid or Distribution System
Generating Plant and ESS	Generating Plant Capacity and ESS Capacity, and Ramp Rate	ESS is connected to the Generating Plant/s and can be charged from the Generating Plant/s or to the Grid or Distribution System
Integrated RE and ESS	RE Plant's Capacity and Ramp Rate	ESS is only connected to the RE Plants/s
Integrated Non-RE and ESS	Conventional Plant's Capacity and Ramp Rate	ESS is only connected to the Conventional Plants/s

- **The RE developer may avail the incentives under the RE Act for its Integrated RE Plant + ESS such as income tax holiday, duty-free importation, zero-rated VAT, and other applicable incentives.**



Thank You



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



(632) 840 2151



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remb9513@doe.gov.ph

