

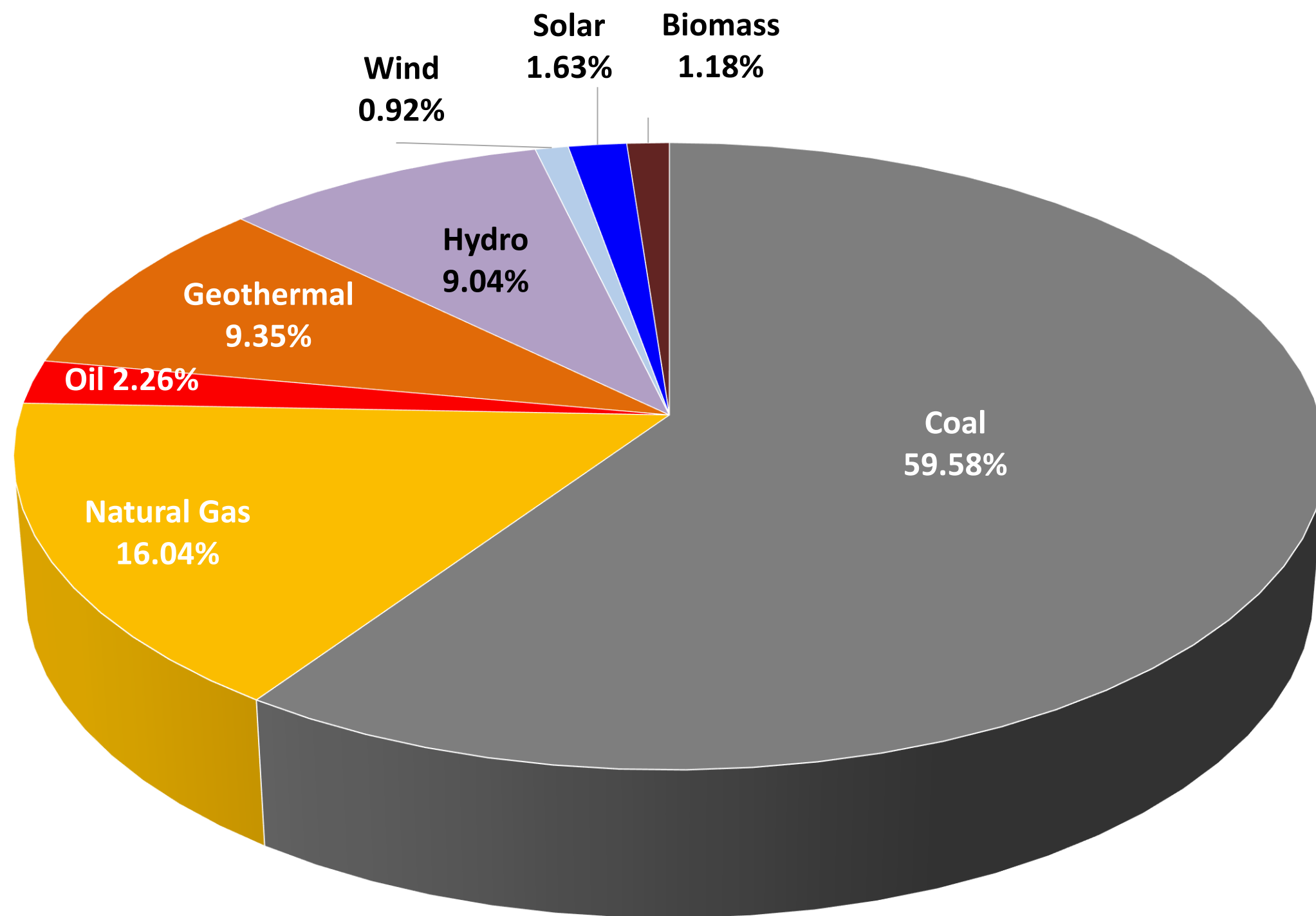


DOE Renewable Energy Adoption Roadmap

ROWENA CRISTINA L. GUEVARA, Ph.D.
Undersecretary

21 February 2024 | Grand Hyatt BGC

2022 Energy Mix



22.1%

24,684 GWh
POWER GENERATION

29.2%

8,264 MW
INSTALLED CAPACITY

GROSS GENERATION:
111,516 GWh

RE Share: 22.1%
Fossil Share: 77.9%



AMBISYON Natin 2040

A STRONGLY-ROOTED,
COMFORTABLE AND SECURE
LIFE FOR ALL FILIPINOS



8-POINT SOCIO-ECONOMIC AGENDA

#1 PROTECT PURCHASING
POWER OF FAMILIES
#4 CREATE MORE JOBS

Reduce energy cost to families

Ensure energy security

ENERGY STRATEGIC FRAMEWORK

Access to
Affordable Energy

A

Reliability and
Resiliency

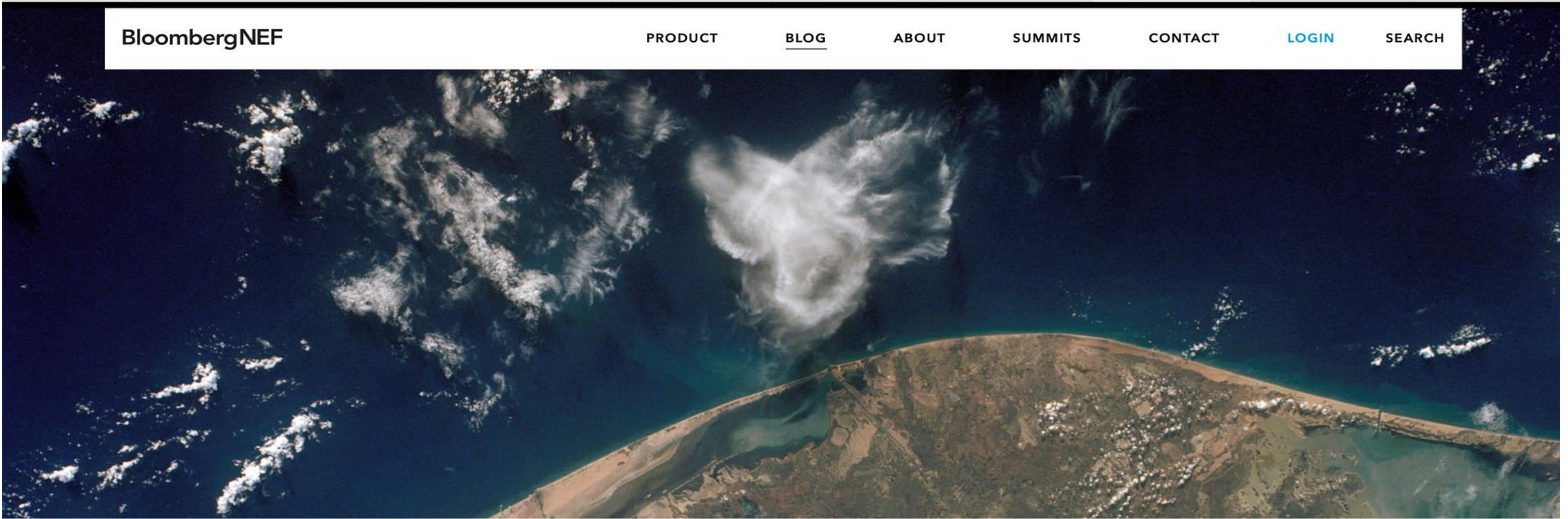
R

Clean and
Sustainable Energy

C

Short Term Goals (2023-2028)

- Ensure energy resiliency/quick restoration of energy services
- Address Non-Performing ECs
- Pursue Other Gas Exploration
- 100% Electrification
- NGCP Audit

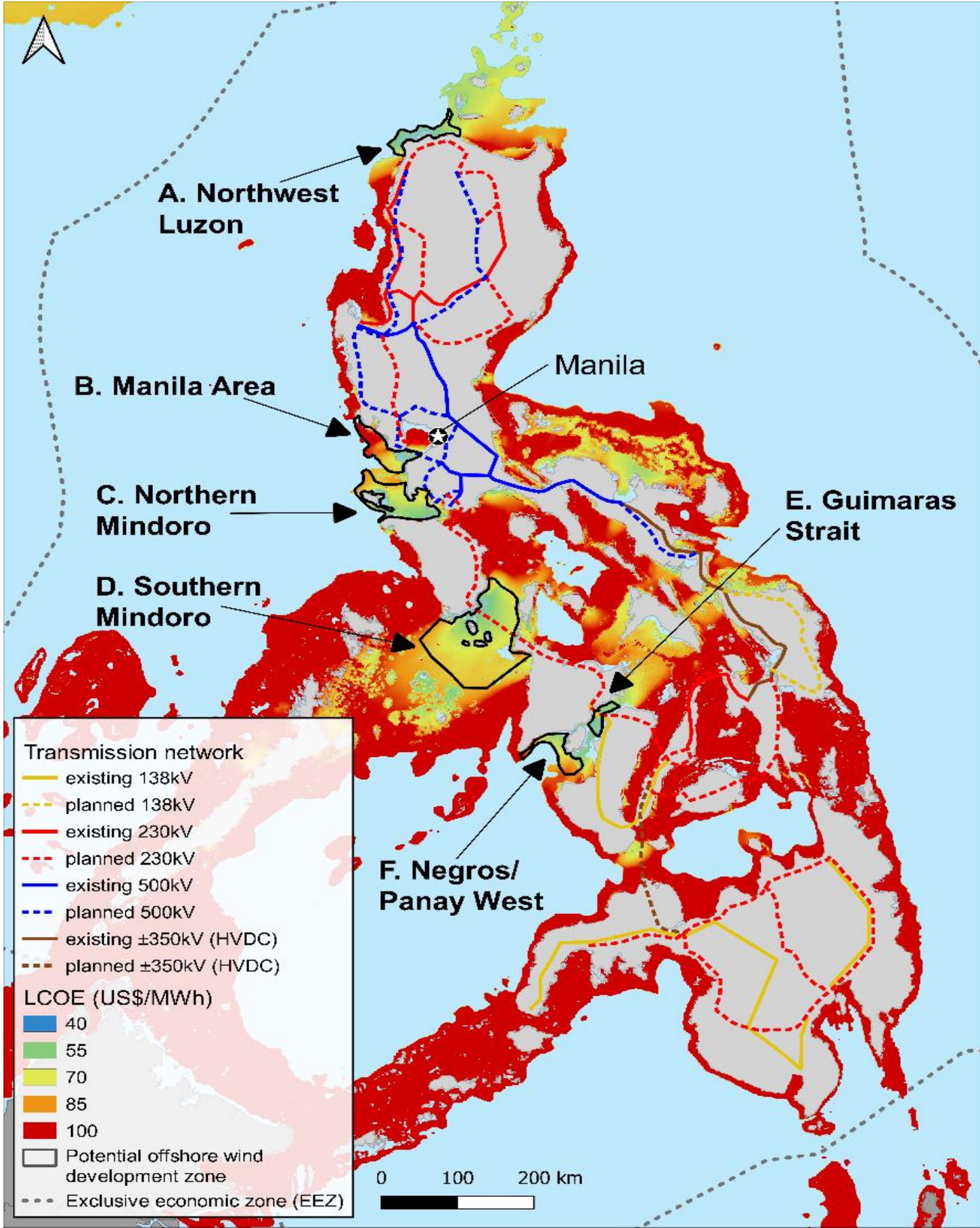


India, China, Chile, the Philippines, and Brazil Top Ranking as the Most Attractive Developing Economies for Clean Energy Investment According to Report



November 29, 2023

Accelerating Offshore Wind (OSW) Development Through Effective Policies and Programs



Six (6) Potential OSW Development Zones identified with potential capacity of 178 GW:

Development Zone	Type	Capacity
1. Northwest Luzon	Floating	2 - 5 GW
2. Manila area	Fixed and Floating	0 - 3 GW
3. Northern Mindoro	Floating	3 - 10 GW
4. Southern Mindoro	Floating	20 - 36 GW
5. Guimaras Strait	Fixed	0 - 1 GW
6. Negros / Panay area	Floating	2 - 3 GW



TRADE & ENERGY BUSINESS

Danish firm to invest \$5 B for offshore wind projects

Source: Manila Bulletin

Easing Foreign Ownership Limit in RE Investment

- ✓ 100% foreign RE projects
- ✓ Facilitates faster entry of RE investments

E.O. No. 21, Series of 2023; issued on 19 April 2023



MALACAÑAN PALACE
MANILA

BY THE PRESIDENT OF THE PHILIPPINES

EXECUTIVE ORDER NO. 21

DIRECTING THE ESTABLISHMENT OF THE POLICY AND
ADMINISTRATIVE FRAMEWORK FOR OFFSHORE WIND
DEVELOPMENT

WHEREAS, Section 2, Article XII of the Constitution provides that all forces of potential energy and other natural resources within the Philippine territory belong to the State, and their exploration, development, and utilization shall be under the full control of the State;

WHEREAS, Section 2 of Republic Act (RA) No. 9513 or the "Renewable Energy (RE) Act of 2008" declares it a policy of the State to accelerate the exploration and development, and increase the utilization of RE resources such as, but not limited to, biomass, solar, wind, hydropower, geothermal, and ocean energy resources, including hybrid systems;

WHEREAS, the Philippine Energy Plan 2020-2040 targets to increase the RE contribution in the power generation mix from the current share of 22%, to 35% RE share by 2030, and 50% RE share by 2040;

WHEREAS, the Philippine Offshore Wind Roadmap has identified a total technical potential capacity of 178 gigawatts that can be harnessed from Offshore Wind (OSW) resources;

WHEREAS, OSW resources, if optimally developed, will play a major role in our country's goal for a low-carbon future, improved energy security, and reduced dependence on imported fossil fuels; and

WHEREAS, there is a need to adopt a whole-of-government approach by streamlining and expediting the approval process by the Permitting Agencies for issuance of permits, licenses, and clearances for OSW Projects, and eliminate unnecessary delays in every stage of an OSW Project;

NOW, THEREFORE, I, FERDINAND R. MARCOS, JR., President of the Philippines, by virtue of the powers vested in me by the Constitution and existing laws, do hereby order:

THE PRESIDENT OF THE PHILIPPINES

PEP 2023 – 2050 Scenarios

REFERENCE

- 35% RE share in power generation mix by 2030
- 50% RE by 2040-2050

CLEAN ENERGY 1

(High RE with low OSW
+ Nuclear + Coal Repurposing)

- 35% RE share by 2030, 50% RE by 2040, more than 50% by 2050
- Coal repurposing
- Nuclear capacity of 1,200 MW by 2032, 2,400 MW by 2035 and 4,800 MW by 2050
- 19 GW of OSW by 2050

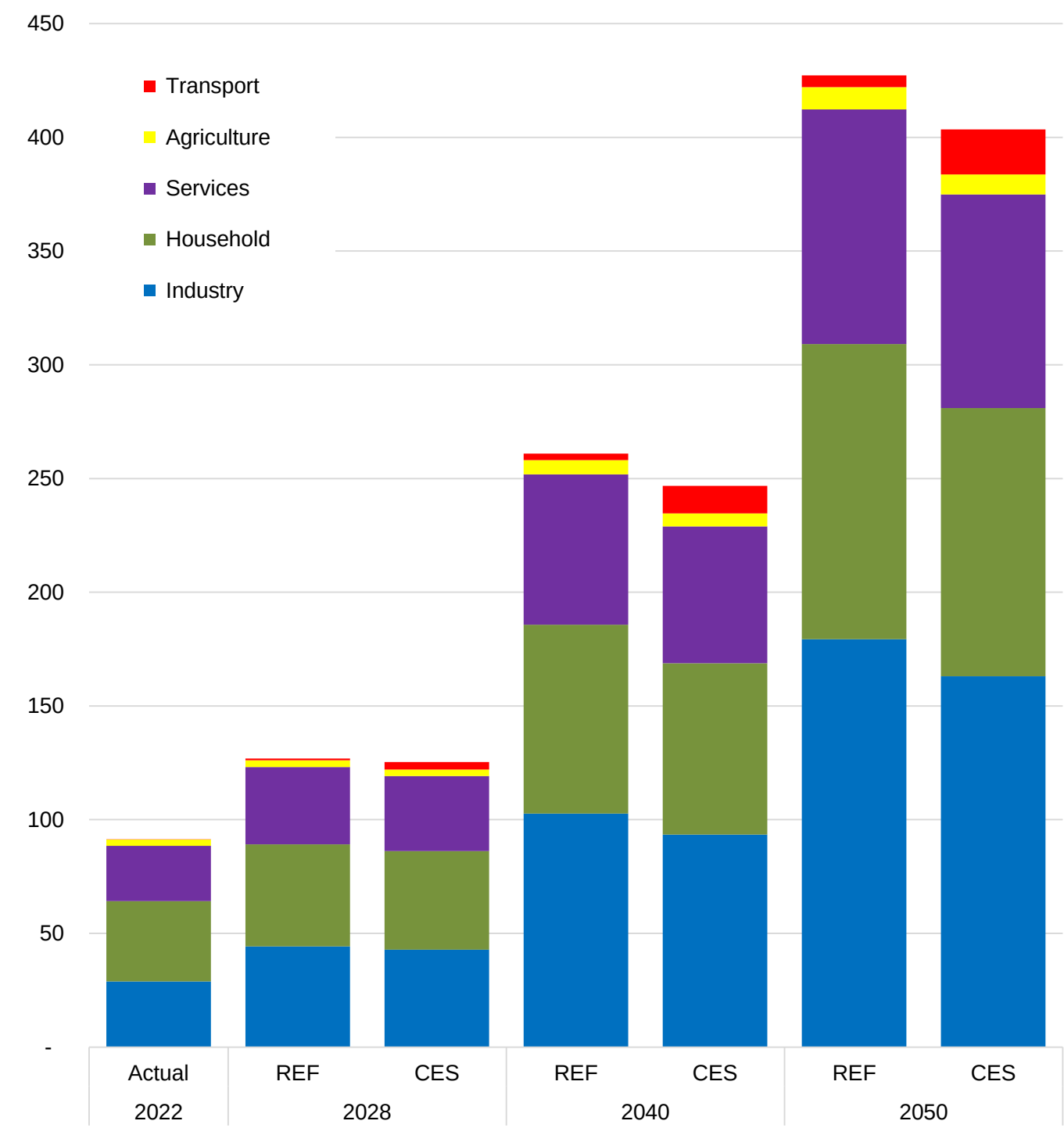
CLEAN ENERGY 2

(High RE with high OSW
+ Nuclear + Coal Repurposing)

- 35% RE share by 2030, 50% RE by 2040, more than 50% by 2050
- Coal repurposing
- Nuclear capacity of 1,200 MW by 2032, 2,400 MW by 2035 and 4,800 MW by 2050
- 50 GW of OSW by 2050

Electricity Consumption (By Sector)

In Terawatt-Hours (TWh): REF vs CES



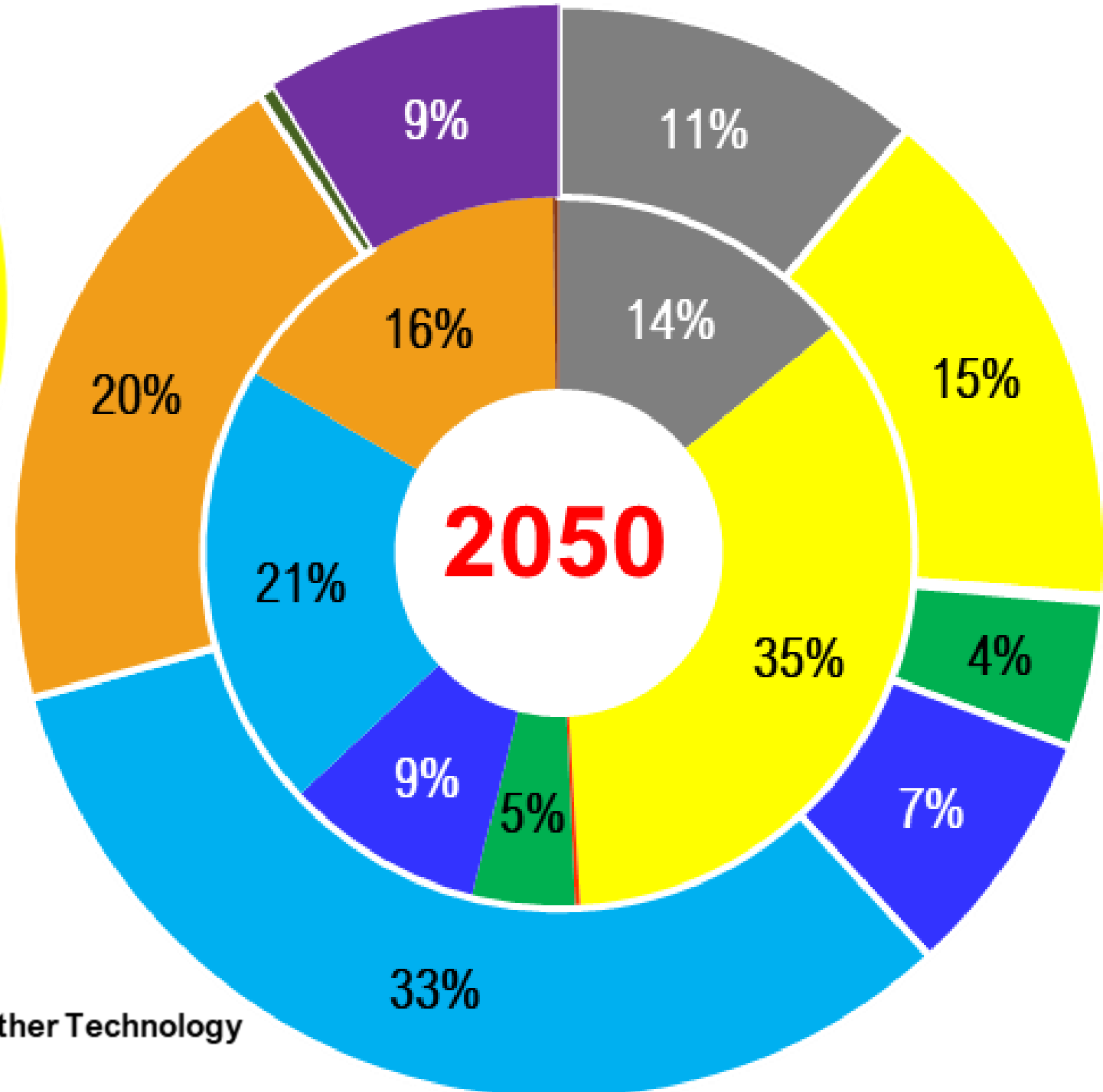
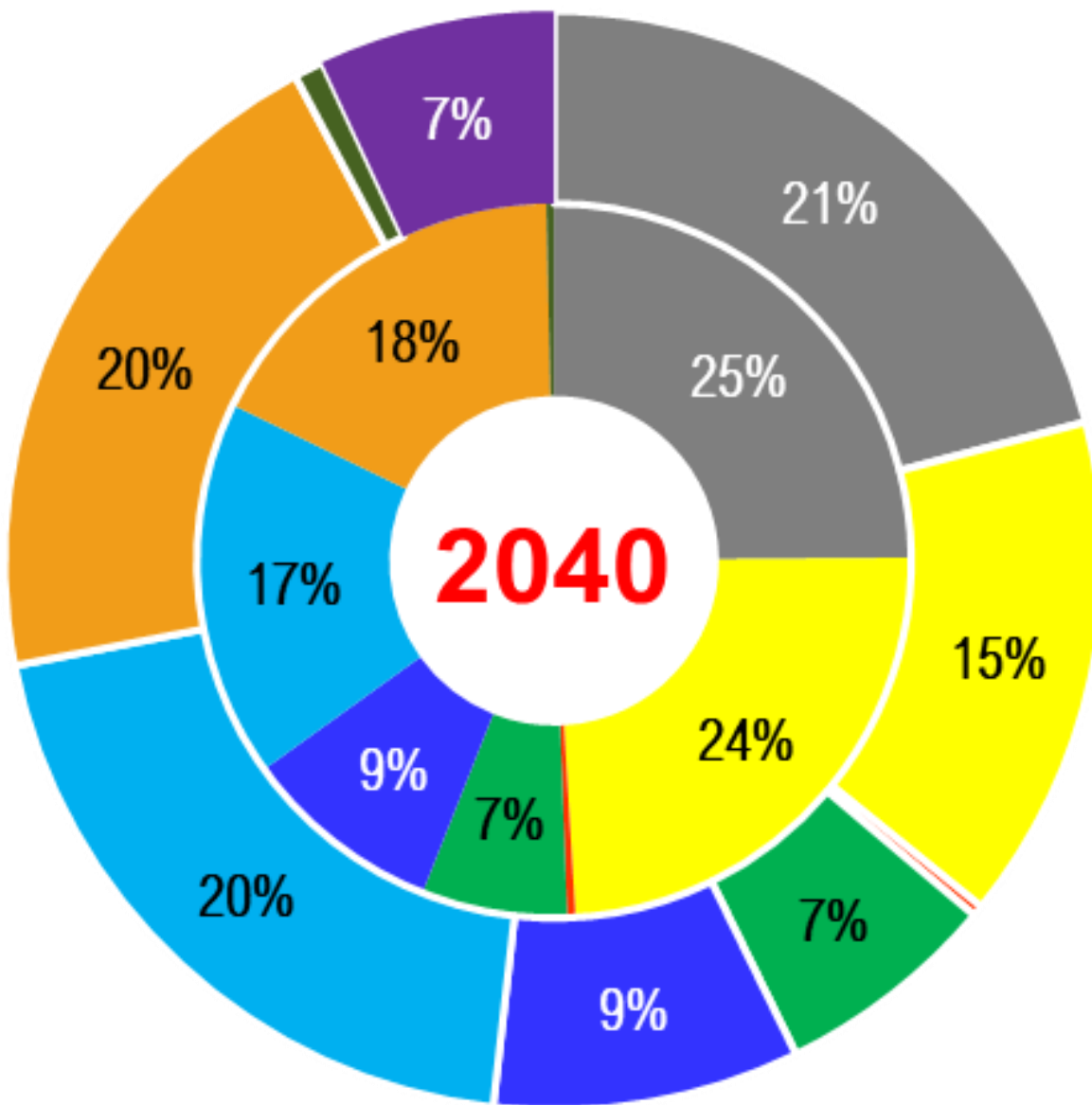
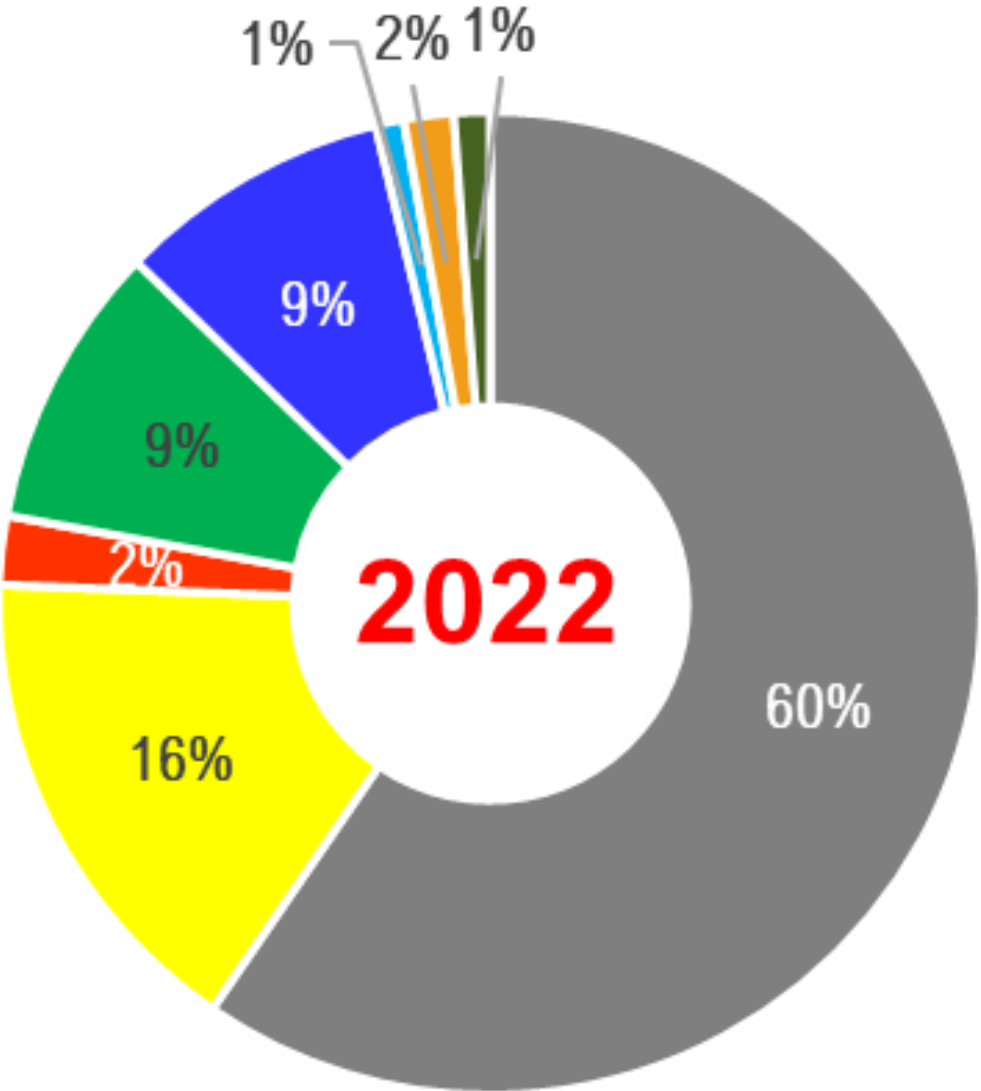
	2022		2028				AAGR	
	Actual		REF		CES		2022-2028	
	TWh	Shares	TWh	Shares	TWh	Shares	REF	CES
Agriculture	2.75	3.0	2.92	2.3	2.83	2.3	1.0%	0.4%
Industry	28.84	31.6	44.25	34.9	42.82	34.2	7.4%	6.8%
Services	24.29	26.6	34.05	26.8	32.95	26.3	5.8%	5.2%
Households	35.32	38.7	44.87	35.4	43.42	34.7	4.1%	3.5%
Transport	0.12	0.1	0.75	0.6	3.29	2.6	36.1%	74.1%
Total	91.33	100.0	126.83	100.0	125.30	100.0	5.6%	5.4%

	2022		2050				AAGR	
	Actual		REF		CES		2022-2050	
	TWh	Shares	TWh	Shares	TWh	Shares	REF	CES
Agriculture	2.75	3.0	9.71	2.3	8.82	2.2	4.6%	4.2%
Industry	28.84	31.6	179.36	41.9	163.05	40.4	6.7%	6.4%
Services	24.29	26.6	103.23	24.1	93.84	23.3	5.3%	4.9%
Households	35.32	38.7	129.76	30.3	117.96	29.2	4.8%	4.4%
Transport	0.12	0.1	5.19	1.4	19.78	4.9	14.5%	20.1%
Total	91.33	100.0	427.24	100.0	403.47	100.0	5.7%	5.4%

Installed Capacity (By Technology)

In Terawatt (TW)	2022	2028		2040		2050	
	Actual	REF	CES-1	REF	CES-1	REF	CES-1
Coal	12.43	14.73	11.11	14.73	11.11	14.73	11.11
Natural Gas	3.73	6.14	6.14	11.34	7.60	25.61	19.72
Oil	3.83	3.85	3.85	3.85	3.85	3.85	3.85
Geothermal	1.95	2.38	2.38	2.98	2.83	3.31	2.96
Hydro	3.75	4.04	4.52	7.98	8.51	14.01	10.55
Wind	0.43	4.13	6.34	18.70	20.49	32.27	45.89
Solar	1.53	10.85	7.76	36.61	33.59	56.47	54.69
Biomass	0.61	0.65	0.73	0.65	0.75	0.70	0.75
Nuclear and Other Tech	-		-		2.40		4.80
Total	28.26	46.78	42.83	96.84	91.13	150.96	154.32
RE Share	29.2%	47.1%	50.7%	69.1%	72.6%	70.7%	74.4%
BESS	-	2.24	2.24	2.24	7.70	3.78	22.02

Generation Mix



Inner Pie: REF

Outer Pie: CES 1

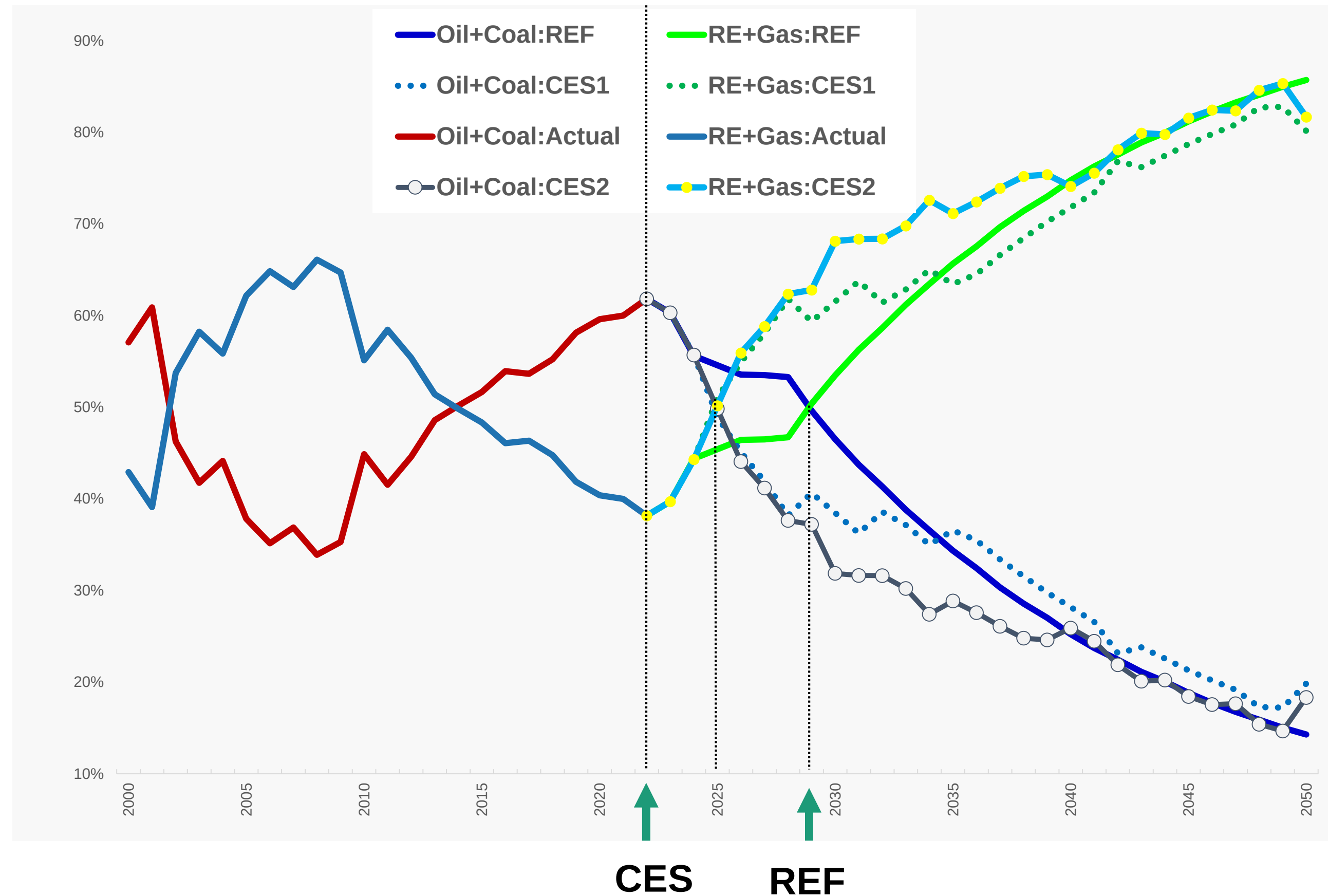
Coal Natural Gas Oil Geothermal Hydro Wind Solar Biomass Nuclear and Other Technology

Generation Mix (CES Scenario)

In Terawatt-Hours (TWh)	2022	2040	2050
Coal	66.43	58.45	48.64
Natural Gas	17.88	41.59	67.87
Oil	2.52	0.88	0.88
Geothermal	10.42	18.40	19.25
Hydro	10.08	25.22	32.79
Wind	1.03	56.32	144.54
Solar	1.82	56.52	88.99
Biomass	1.32	2.45	2.33
Nuclear and Other Tech	-	19.36	38.62
Total	111.52	279.19	443.90
RE Share	22.1%	56.9%	64.9%
BESS	-	7.78	24.55

Energy Transition (Generation Mix)

The Clean Energy Scenario (CES) ushers **Energy Transition** *four (4) years* [2025] ahead of the Reference Scenario [2029]



Market-Driven RE Development Mechanisms

RENEWABLE PORTFOLIO STANDARDS

Requires electricity suppliers to source an agreed portion of their supply from eligible RE facilities

1



GREEN ENERGY AUCTION PROGRAM

Sets the framework for the facilitation of immediate and timely investment for new and additional RE capacities to ensure the provision of adequate supply under a competitive process

2



GREEN ENERGY OPTION PROGRAM

Provides end-users the option to choose RE resources as their source of energy

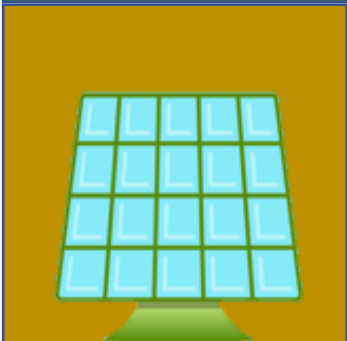
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RE MARKET

Serves as venue for buying and selling RE Certificates (REC) in compliance with the RPS

4



EXPANDED ROOFTOP SOLAR PROGRAM

5



6

RENEWABLE ENERGY TRUST FUND

To finance research, development, demonstration, and promotion of the widespread and productive use of RE systems

7

NET-METERING PROGRAM

End-users can install up to 100-kW RE systems to reduce their electricity bills and sell the surplus to the grid

8

PREFERENTIAL DISPATCH IN THE WESM

DC 2022-10-0031

9

FEED IN TARIFF SYSTEM

Fiscal Incentives

1

7-YEAR INCOME TAX HOLIDAY

For the first seven (7) years of its commercial operations, the duly registered RE developer shall be exempt from income taxes levied by the national government.

2

DUTY-FREE IMPORTATION

Within the first ten (10) years upon the issuance of a certification of an RE developer, the importation of machinery and equipment, and materials and parts thereof, including control and communication equipment, shall not be subject to tariff duties:

3

SPECIAL REALTY TAX RATES ON EQUIPMENT AND MACHINERY

Realty and other taxes on civil works, equipment, machinery, and other improvements of a Registered RE Developer actually and exclusively used for RE facilities shall not exceed one and a half percent (1.5%)



4

NET OPERATING LOSS CARRY-OVER

5

CORPORATE TAX RATE

After seven (7) years of income tax holiday, all RE Developers shall pay a corporate tax of ten percent (10%) on its net taxable income

6

ACCELERATED DEPRECIATION

7

ZERO PERCENT VALUE-ADDED TAX RATE

The sale of fuel or power generated from renewable sources, shall be subject to zero percent (0%) value-added tax (VAT)

8

CASH INCENTIVE OF RENEWABLE ENERGY DEVELOPERS FOR MISSIONARY ELECTRIFICATION

entitled to a cash generation-based incentive per kilowatt hour rate generated, equivalent to fifty percent (50%) of UCME

9

TAX EXEMPTION OF CARBON CREDITS

10

TAX CREDIT ON DOMESTIC CAPITAL EQUIPMENT AND SERVICES

Completed and Ongoing Studies on Philippine Energy Transition

- Smart and Green Grid Plan (SGGP)
- Distribution Utility Franchise Performance Assessment
- Futures Market
- Capacity Market
- Offshore Wind (OSW) Map and Ports
- Coal Transition Program Investment Plan



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