



DEPARTMENT OF ENERGY

Energy Sector Updates

Energy Investment Forum

FELIX WILLIAM B. FUE
UNDERS

OUTLINE

01. WHERE ARE WE RIGHT NOW?

a look at the country's energy profile, our power sources, and our current power situation

02. WHERE DO WE WANT TO BE IN THE FUTURE?

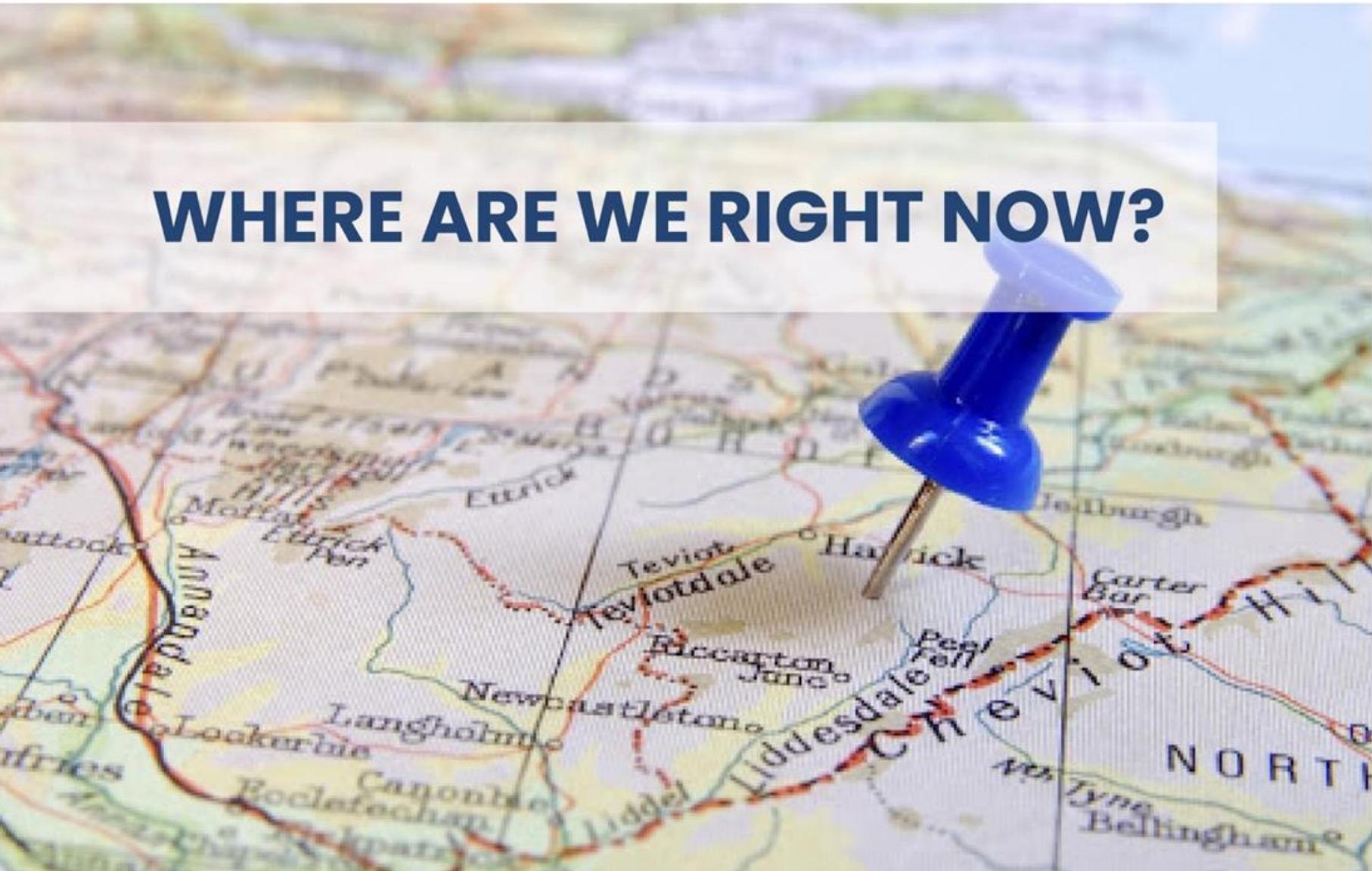
Department of Energy (DOE) envisions the country's energy future

03. HOW DO WE GET THERE?

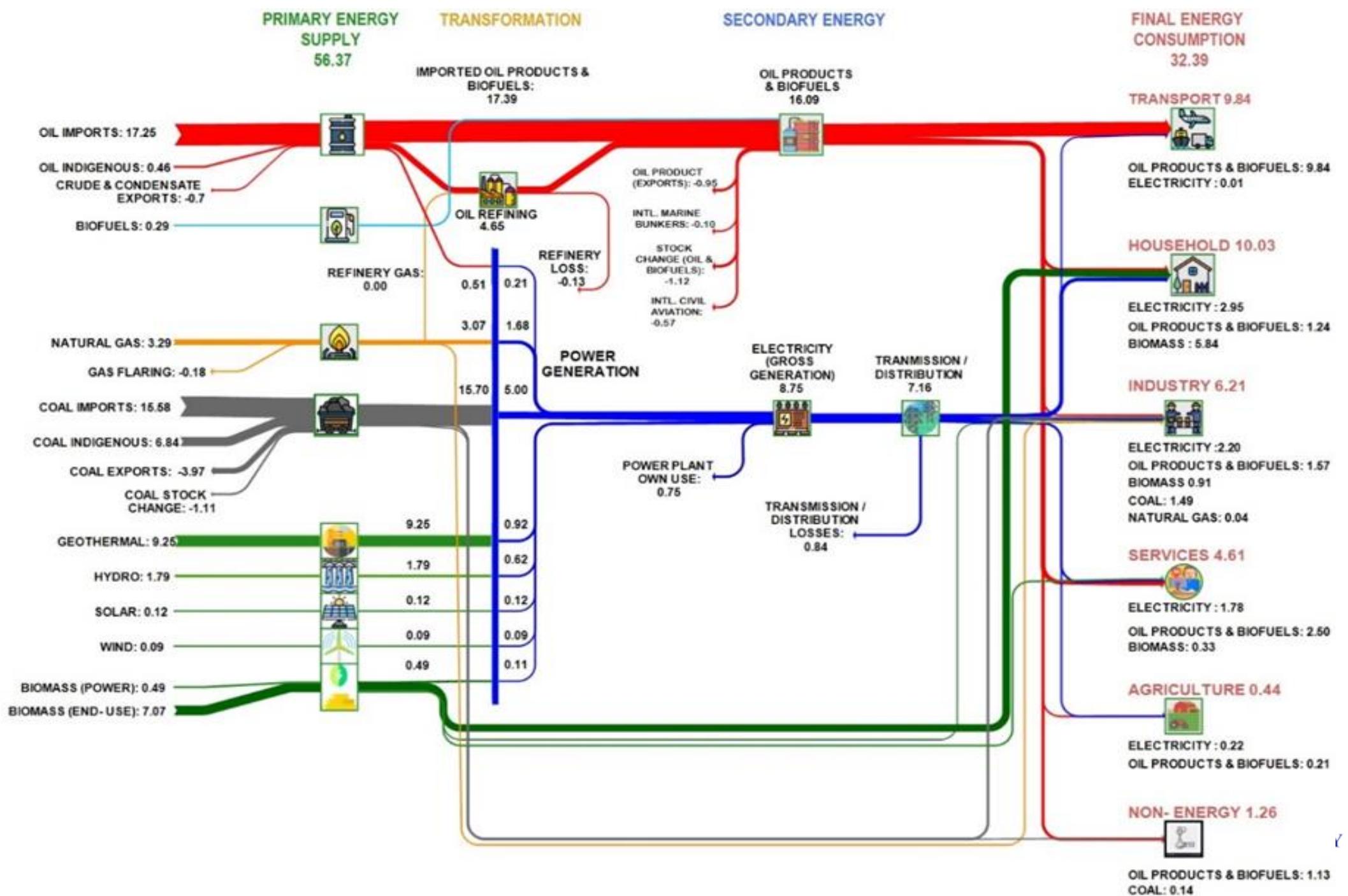
the various strategies we have been undertaking to help us realize our energy goals



WHERE ARE WE RIGHT NOW?



2020 Reference Energy System, in MTOE

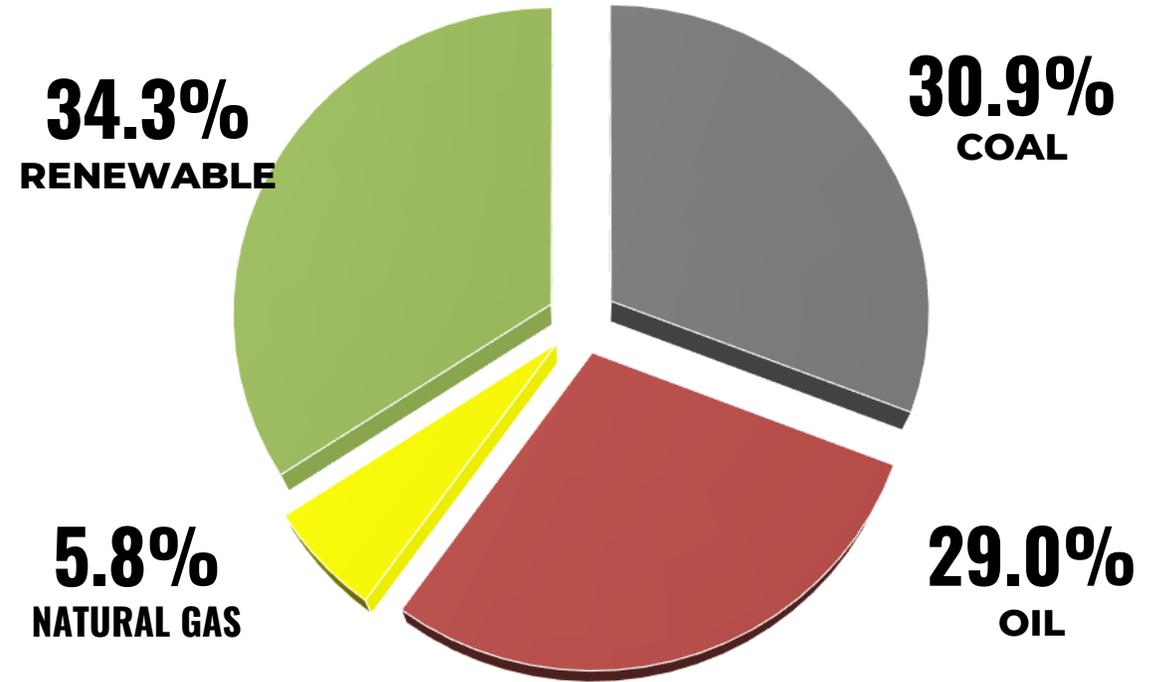




Energy Mix, by Fuel

	2018	2019
OIL	33.5%	32.1%
RENEWABLE	33.1%	32.8%
COAL	27.4%	29.1%
NATURAL GAS	6.0%	6.0%
TPES	59.7 MTOE	60.1 MTOE

	2018	2019
INDIGENOUS	50.9%	51.4%
NET IMPORTED	49.1%	48.6%



2020 TPES : 56.4 MTOE
 Indigenous: 52.6%
 Net Imported: 47.4%

Total Final Energy Consumption

2019 TFEC: 36.3 MTOE vs 2020 TFEC: 32.4 MTOE
▼ 10.7%

BY SECTOR (LEVELS | SHARES%)



12.7 MTOE | 35.0%
▼ 22.5%
 9.8 MTOE | 30.4%
Transport



4.9 MTOE | 13.6%
▼ 6.6%
 4.6 MTOE | 14.2%
Services



9.7 MTOE | 26.8%
▲ 3.3%
 10.0 MTOE | 31.0%
Households



0.5 MTOE | 1.3%
▼ 7.7%
 0.4 MTOE | 1.3%
Agriculture



7.3 MTOE | 20.1%
▼ 15.1%
 6.2 MTOE | 19.2%
Industry



1.1 MTOE | 3.1%
▲ 11.2%
 1.3 MTOE | 3.9%
Non-Energy Use

BY FUEL (LEVELS | SHARES%)



18.5 MTOE | 50.9%
▼ 13.2%
 16.0 MTOE | 49.4%
Oil



2.4 MTOE | 6.5%
▼ 30.8%
 1.6 MTOE | 5.0%
Coal



7.5 MTOE | 20.7%
▼ 4.4%
 7.2 MTOE | 22.1%
Electricity



0.6 MTOE | 1.5%
▼ 15.0%
 0.5 MTOE | 1.5%
Biofuels



7.3 MTOE | 20.2%
▼ 3.5%
 7.1 MTOE | 21.8%
Biomass



0.06 MTOE | 0.2%
▼ 39.5%
 0.04 MTOE | 0.1%
Natural Gas

Note: details may not add up due to rounding



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Power Capacity and Generation: Levels | Shares%

Installed Generating Capacity

2019: 25,531 MW
▲ 3.0%
2020: 26,286 MW



Coal

10,417 MW | 41%
▲ 5.1%
10,944 MW | 42%



Renewable Energy

7,399 MW | 29%
▲ 3.4%
7,653 MW | 29%



Oil-based

4,262 MW | 17%
▼ 0.6%
4,237 MW | 16%



Natural Gas

3,453 MW | 14%
▼ 0.01%
3,453 MW | 13%



Coal

57,890 GWh | 55%
▲ 0.5%
58,176 GWh | 57%



Renewable Energy

22,044 GWh | 21%
▼ 2.0%
21,609 GWh | 21%



Oil-based

3,752 GWh | 4%
▼ 34.1%
2,474 GWh | 2%



Natural Gas

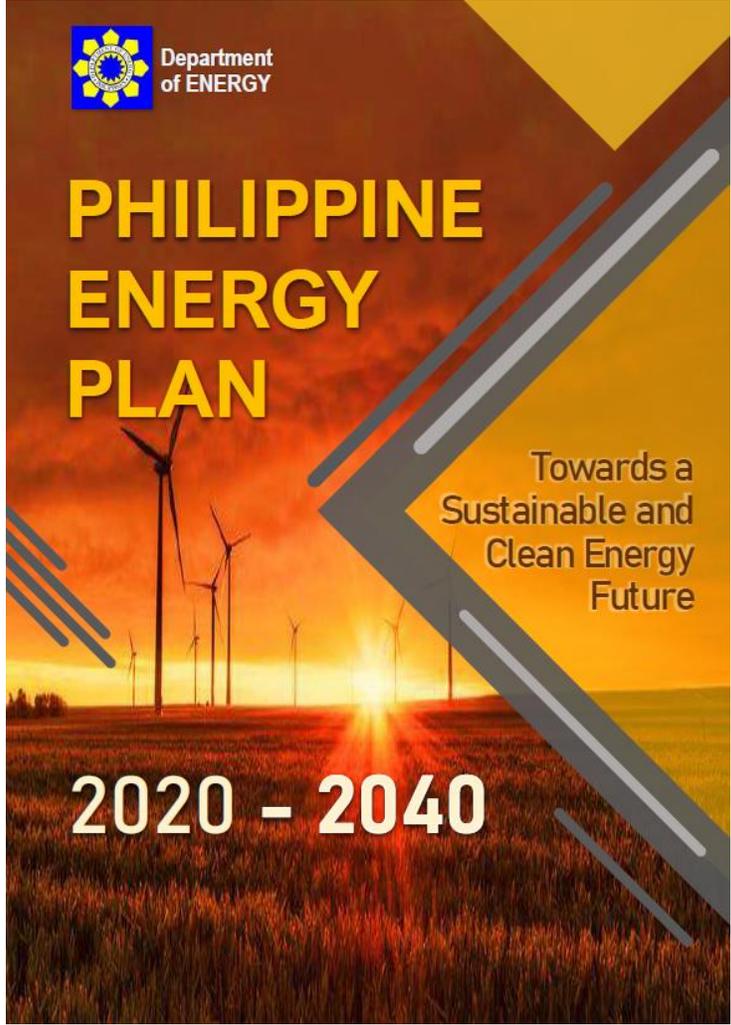
22,354 GWh | 21%
▼ 12.8%
19,497 GWh | 19%

Gross Power Generation

2019: 106,041 GWh
▼ 4.0%
2020: 101,756 GWh



**WHERE DO WE WANT
TO BE IN THE FUTURE?**



Department
of ENERGY

PHILIPPINE ENERGY PLAN

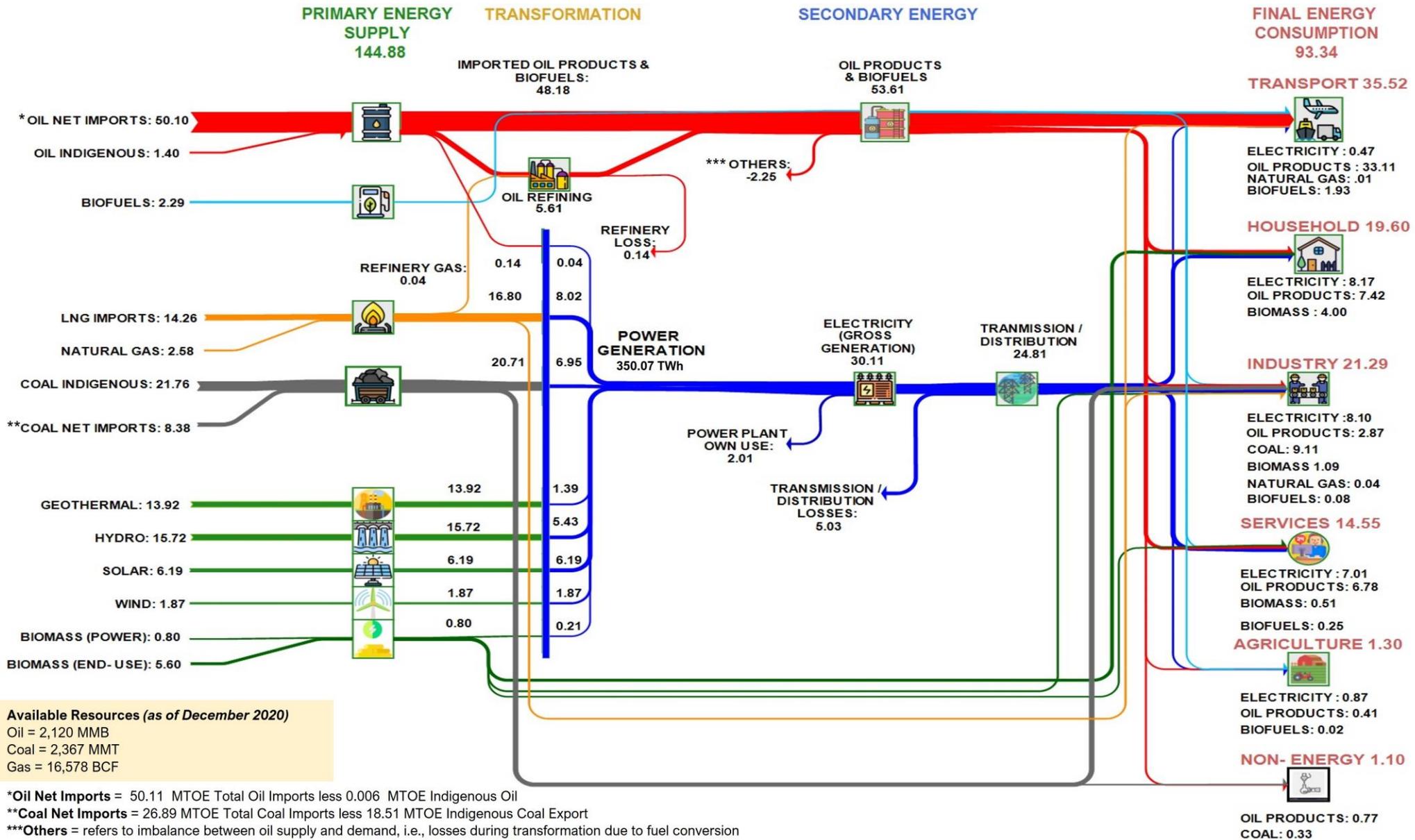
Towards a
Sustainable and
Clean Energy
Future

2020 - 2040



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2040 CLEAN ENERGY SCENARIO (CES) Energy Flow, in MTOE



ENERGY EFFICIENCY

Available Resources (as of December 2020)

Oil = 2,120 MMB
 Coal = 2,367 MMT
 Gas = 16,578 BCF

*Oil Net Imports = 50.11 MTOE Total Oil Imports less 0.006 MTOE Indigenous Oil

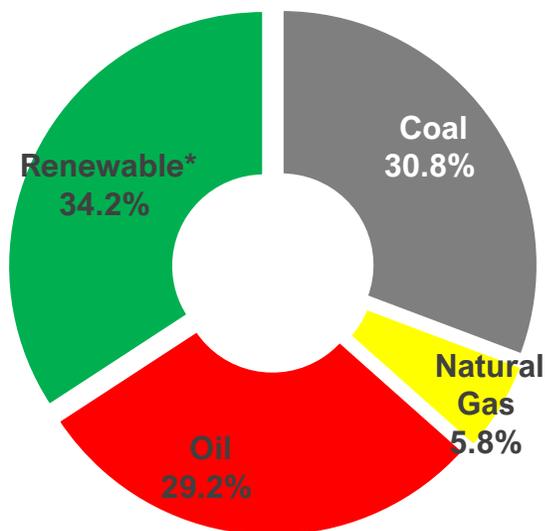
**Coal Net Imports = 26.89 MTOE Total Coal Imports less 18.51 MTOE Indigenous Coal Export

***Others = refers to imbalance between oil supply and demand, i.e., losses during transformation due to fuel conversion

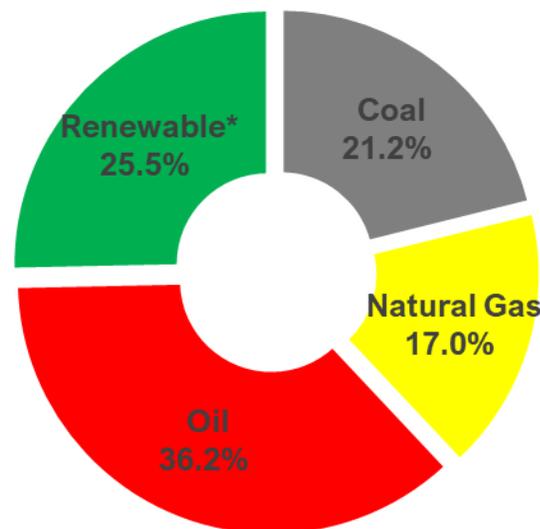




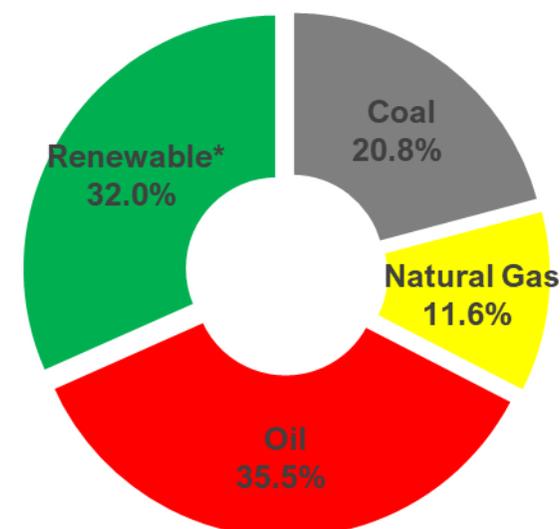
Total Primary Energy Supply, by Fuel



2020 Actual: 56.4 MTOE
Self-Sufficiency: 52.6%



2040 REF: 156.6 MTOE
Self-Sufficiency: 51.1%



2040 CES: 144.8 MTOE
Self-Sufficiency: 59.9%

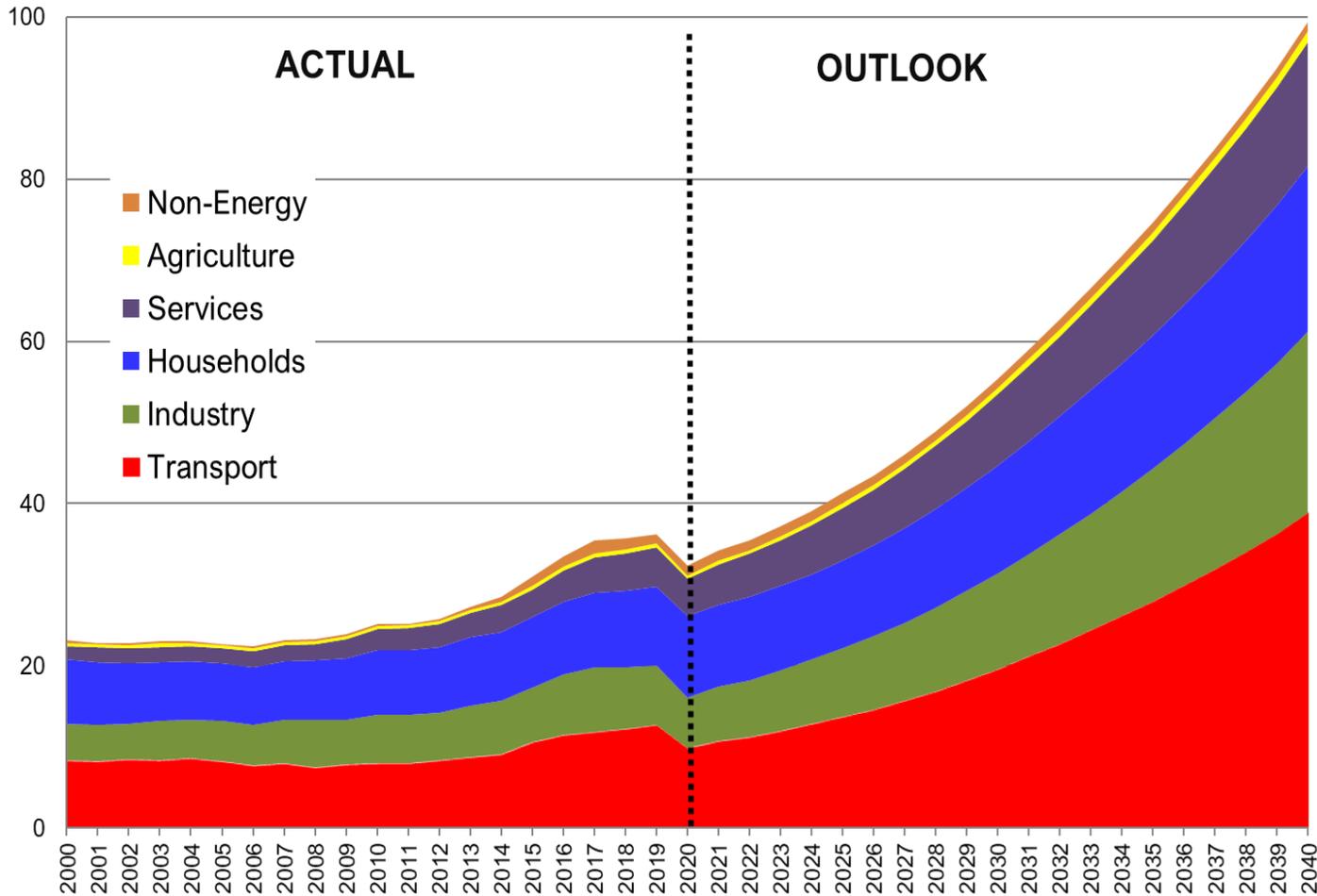
Fuel Type (TWh)	2020		2040				AAGR 2020-2040	
	Actual	%Shares	REF	%Shares	CES	%Shares	REF	CES
Coal	17.3	30.8	33.1	21.2	30.1	20.8	3.3%	2.8%
Natural Gas	3.3	5.8	26.5	17.0	16.8	11.6	11.0%	8.5%
Oil-based	16.5	29.2	56.4	36.2	51.5	35.5	6.4%	5.9%
Renewable	19.3	34.2	39.7	25.5	46.4	32.0	3.7%	4.5%
Total	56.4	100.0	155.6	100.0	144.8	100.0	5.2%	4.8%

*includes geothermal, hydro, wind, solar & biomass



Total Final Energy Consumption, by Sector

In MTOE : Reference Scenario

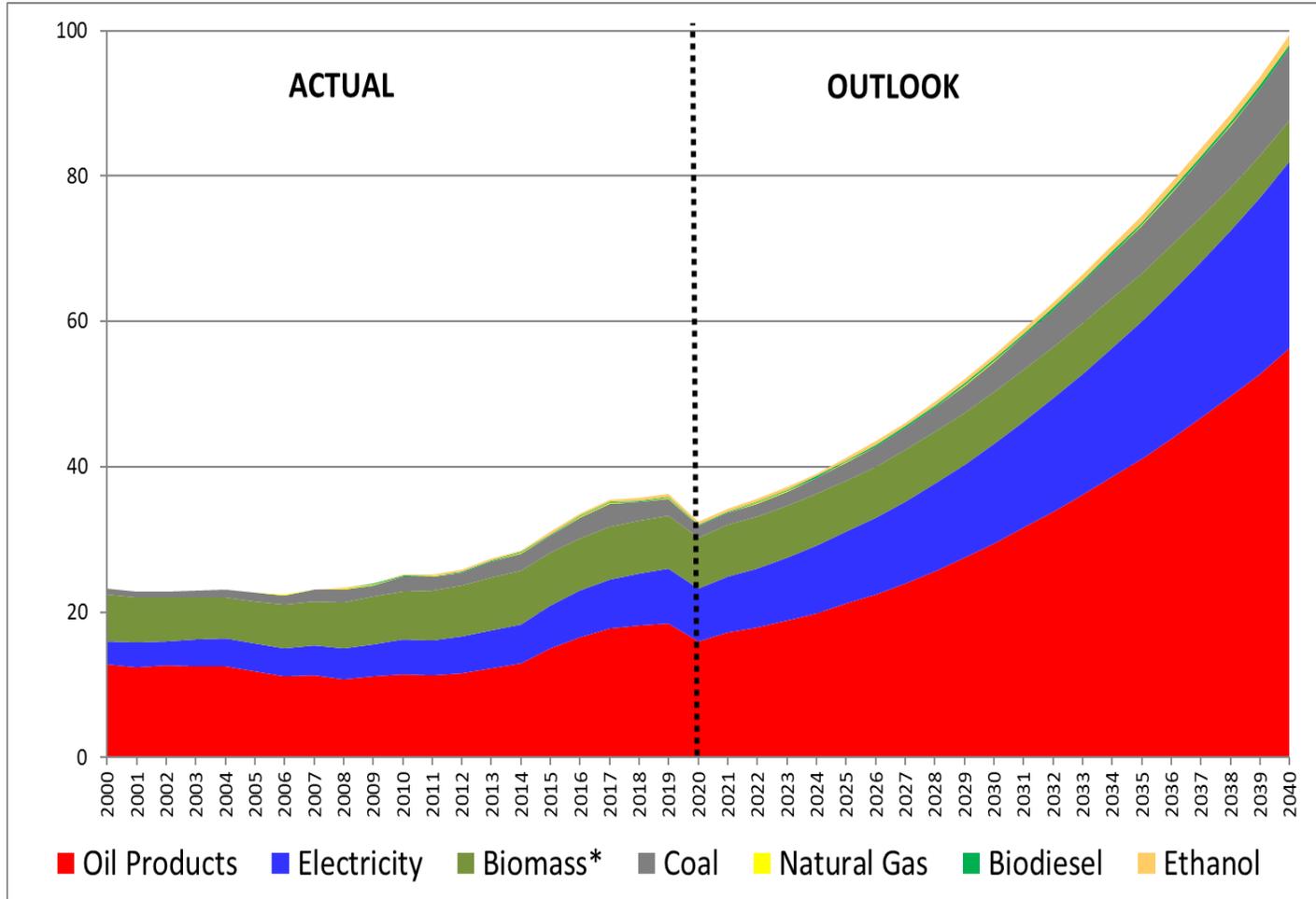


	2020		2040		AAGR
	MTOE	% Shares	MTOE	% Shares	2020-2040
Agriculture	0.44	1.3	1.36	1.4	5.9%
Industry	6.21	19.2	22.32	22.5	6.6%
Services	4.61	14.2	15.30	15.4	6.2%
Households	10.03	31.0	20.40	20.5	3.6%
Transport	9.84	30.4	38.84	39.1	7.1%
Non-Energy	1.26	3.9	1.10	1.1	-0.7%
Total	32.39	100.0	99.32	100	5.8%



Total Final Energy Consumption, by Fuel

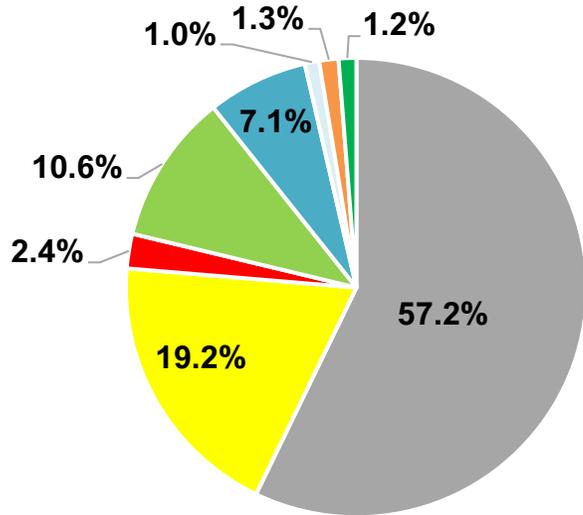
In MTOE : Reference Scenario



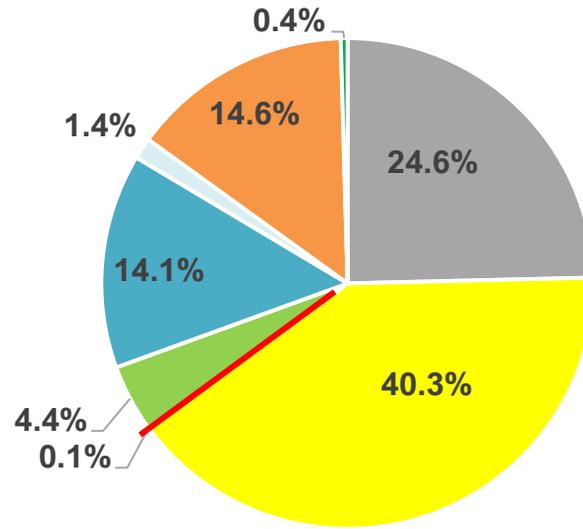
	2020		2040		AAGR
	MTOE	% Shares	MTOE	% Shares	2020-2040
Coal	1.63	5.0	9.89	10.0	9.4%
Natural Gas	0.04	0.1	0.04	0.0	0.6%
Oil Products	16.01	49.4	56.33	56.7	6.5%
Biodiesel	0.15	0.5	0.50	0.5	5.6%
Bioethanol	0.32	1.0	1.24	1.3	6.3%
Electricity	7.16	22.1	25.69	25.9	6.6%
Biomass	7.07	21.8	5.63	5.7	-1.1%
Total	32.39	100.0	99.32	100.0	5.8%

Power Generation, by Fuel

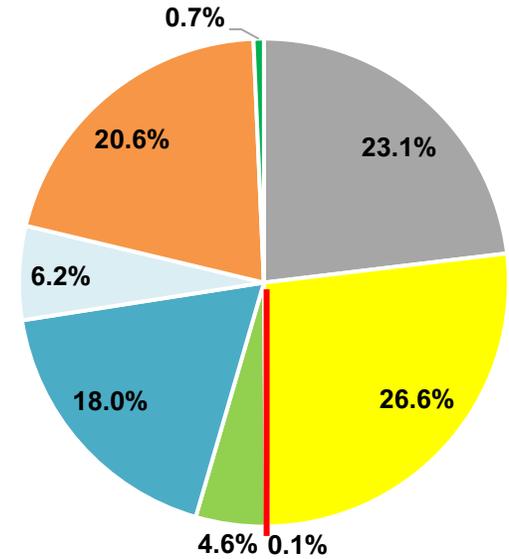
■ Coal ■ Natural Gas ■ Oil-based ■ Geothermal ■ Hydro ■ Wind ■ Solar ■ Biomass



2020: 101.8 TWh
RE Share: 21.2%



2040 REF: 364.4 TWh
RE Share: 35.0%



2020 CES: 356.9 TWh
RE Share: 50.0%

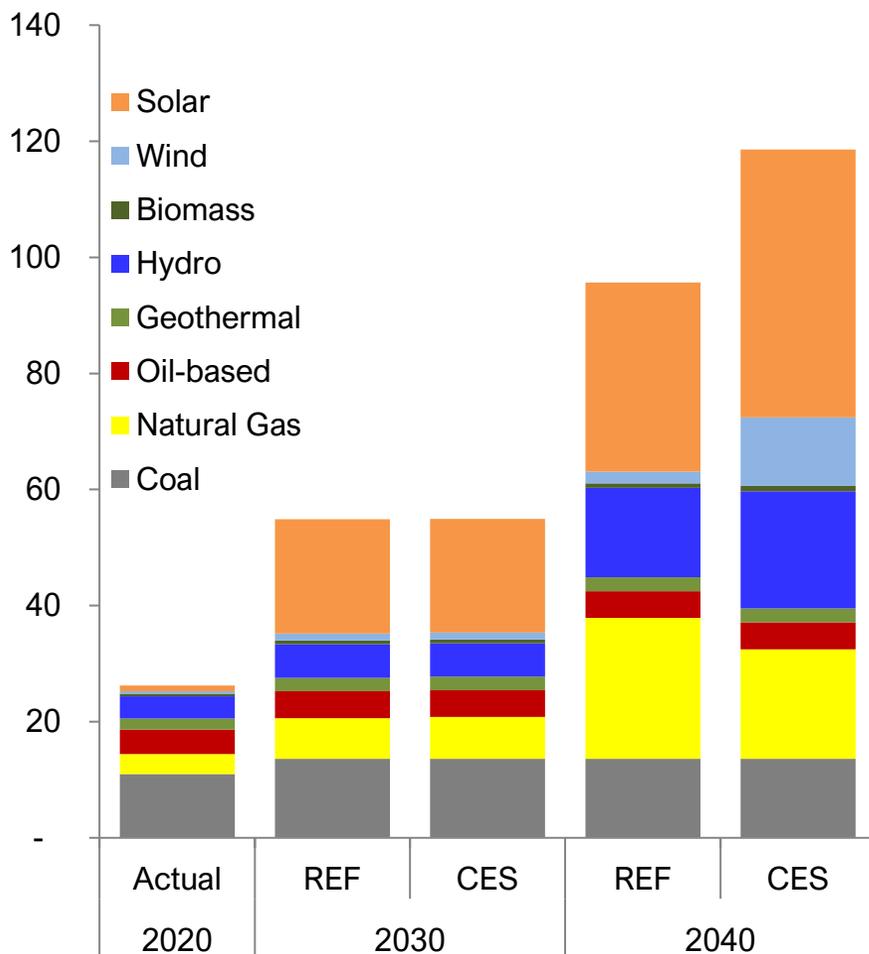
Fuel Type (TWh)	2020		2040				AAGR 2020-2040	
	Actual	%Shares	REF	%Shares	CES	%Shares	REF	CES
Coal	58.2	57.2	89.7	24.6	82.6	23.1	2.2%	1.8%
Natural Gas	19.5	19.2	146.9	40.3	95.3	26.7	10.6%	8.3%
Oil-based	2.5	2.4	0.3	0.1	0.5	0.1	-10.4%	-7.4%
Renewable	21.6	21.2	127.5	35.0	178.5	50.0	9.3%	11.1%
Total	101.8	100.0	364.4	100.0	356.9	100.0	6.6%	6.5%





Installed Generating Capacity

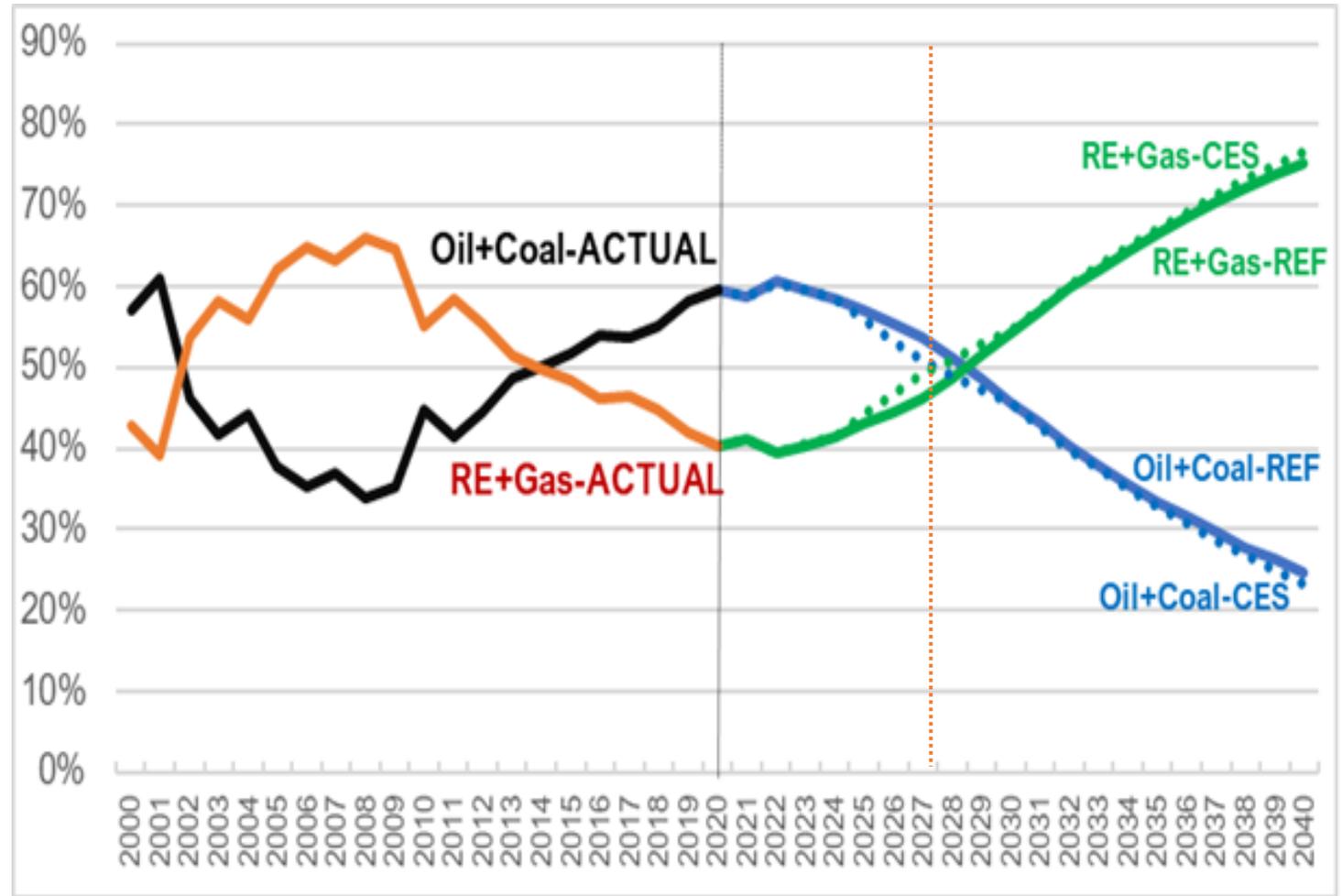
In GW



Capacities by Source: 2020, 2030 and 2040

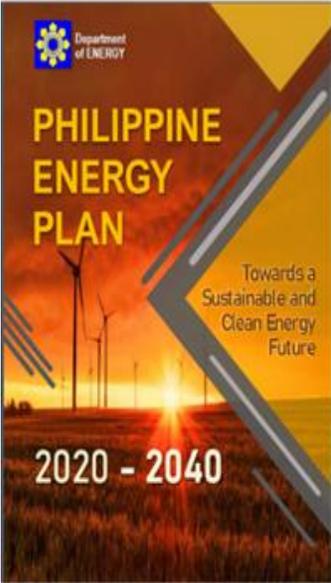
Fuel Type (MW)	2020		2040				Total Additions by 2040	
	Actual	% Shares	REF	% Shares	CES	% Shares	REF	CES
Coal	10,944	41.7	13,585	14.2	13,585	11.5	2,641	2,641
Natural Gas	3,453	13.2	24,263	25.4	18,883	15.9	20,810	15,430
Oil-based	4,237	16.1	4,618	4.8	4,618	3.9	381	381
Renewable	7,617	29.0	53,205	55.6	81,485	68.7	45,588	73,868
<i>Geothermal</i>	1,928	7.3	2,408	2.5	2,408	2.0	480	480
<i>Hydro</i>	3,779	14.4	15,426	16.1	20,176	17.0	11,647	16,397
<i>Wind</i>	443	1.7	2,027	2.1	11,830	10.0	1,584	11,387
<i>Solar</i>	1,019	3.9	32,590	34.1	46,137	38.9	31,571	45,118
<i>Biomass</i>	447	1.7	753	0.8	933	0.8	306	486
Total	26,250	100.0	95,670	100.0	118,570	100.0	69,420	92,320

ENERGY TRANSITION: Clean Fuels and Technologies Dominating the Power Mix



PHILIPPINE ENERGY PLAN 2020-2040 TARGETS

Sustainable Path Towards Clean Energy

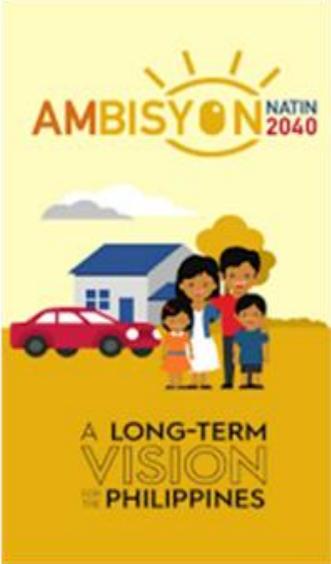


Reference Scenario
+ RE
+ EE and C
+ Other Energy Technologies
+ ICT
+ Resiliency



Clean Energy Scenario

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



Philippine Energy Plan Targets

Boost Indigenous Energy Production

- Reserves : 766 MMT Coal, 116 MMB Oil, 6 TCF Gas
- Production: 282 MMT Coal, 66 MMB Oil, 4 TCF Gas
- RE – 45,588 MWe

Install Additional Capacities

- 92,320 MW Generating Capacity under CES
- Complete the Programmed Transmission and Inter-Island Connection
- Put up about 13 MTPA LNG Terminals
- Expand Oil Storage Capacity
- Establish Strategic Petroleum Reserve

Promote & Expedite Investment

- Develop Local Energy Plans
- Operate full on-line processing of permits and licenses
- Set Minimum Energy Performance Standards

Promote Consumer Welfare

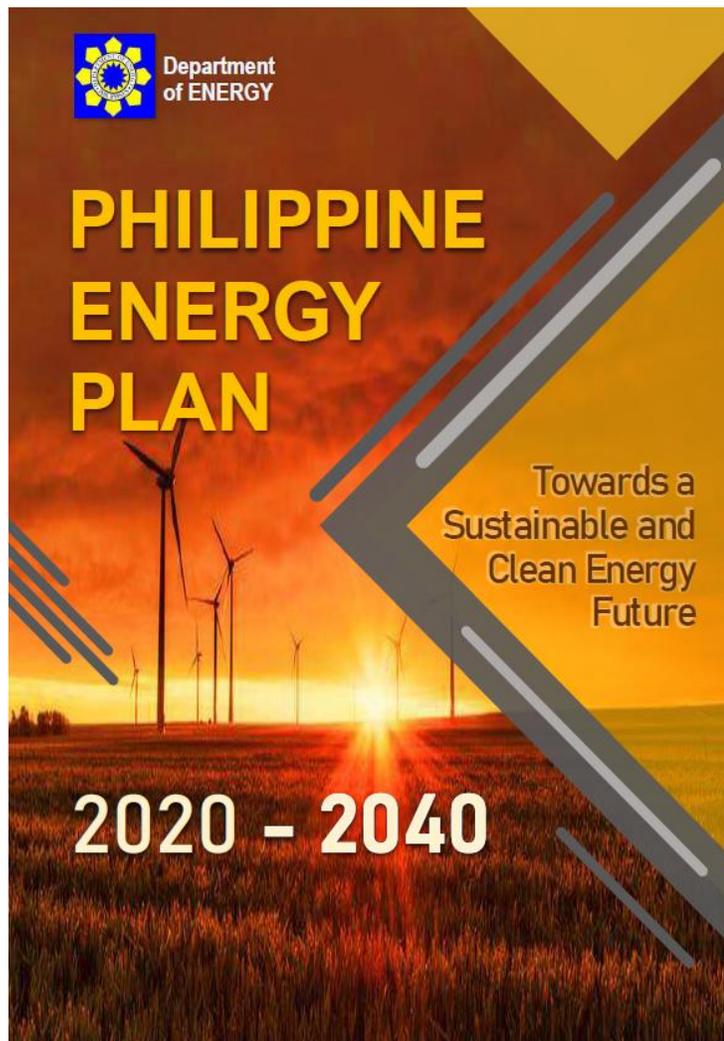
- 100% Household Electrification
- Ensure 24/7 Energy Supply
- Advocate Efficiency as a Way of Life for Filipinos

Strengthen Partnerships – local and international

- Adoption of new and more efficient technologies
- Policy Review
- Promote investments in the energy sector



INVESTMENT AND EMPLOYMENT OPPORTUNITIES IN THE ENERGY SECTOR



Sector	Scenario	
	REF	CES
Upstream¹	1,176.50	1,176.50
Oil and Gas	502.51	502.51
Coal	656.06	656.06
Renewable Energy (Pre-Development)	17.93	25.30
Downstream	384.90	354.73
Oil Depot	103.51	93.94
Oil Import Terminal	67.76	53.11
LNG Terminal ²	88.77	88.77
Biodiesel	0.28	4.84
Bioethanol ³	124.59	114.07
Power	5,582.00	6,110.90
Generation	5,233.70	5,762.60
Transmission ⁴	348.30	348.30
Total	7,143.40	7,649.50

Notes: 1. Includes exploration and development (production)

2. Based on the approved LNG Project applications

3. All bioethanol supply requirement is to be produced locally

4. Proposed Transmission Projects from 2021-2030 (Source: Draft Transmission Development Plan 2021-2040)



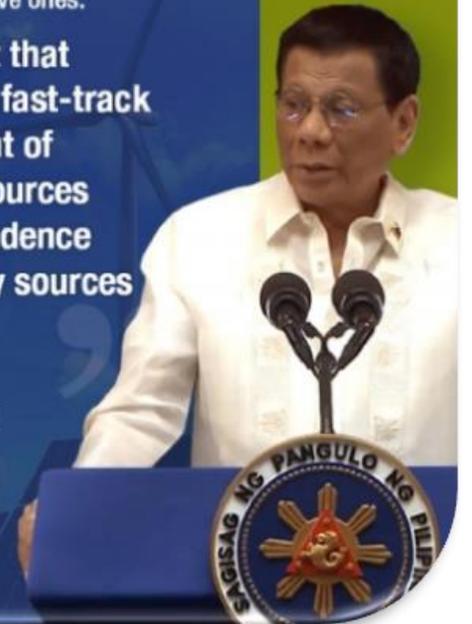
HOW DO WE GET THERE?



We recognize the urgent need to ensure the sustainability and availability of resources and development of alternative ones.

In this regard, I trust that Secretary Cusi shall fast-track also the development of renewable energy sources and to reduce dependence on traditional energy sources such as coal.

PRES. RODRIGO DUTERTE
SONA, July 22, 2019



Enabling Policies and Programs

Policies, programs and laws for the benefit of consumers and industry players

- RPS
- GEAP
- Net Metering
- **GEOP**
- RE Paradigm Shift
- National Wealth Tax
- GHG Reduction

CONVENTIONAL AND RENEWABLE ENERGY



- Uniform Bill Format
- Murang Kuryente Act of 2019
- Suspension of UC-EC
- CSP
- **RCOA**
- Benefits to Host Communities

POWER SECTOR



- Fuel Cost Unbundling
- Fuel Quality and Facility and Process Standards Development
- Strategic Petroleum Reserve/Interim Oil Stockpiling

DOWNSTREAM OIL INDUSTRY



- **Energy Efficiency and Conservation Act of 2019**
- GHG Reduction
- Energy Performance Standards
 - Energy Labeling
 - Energy Audit

ENERGY EFFICIENCY AND CONSERVATION



- Multi-partite Monitoring Team (MMT)
- Climate Change Mitigation and Adaptation
- Energy Sector NDCs
- GHG Reduction

ENVIRONMENTAL MANAGEMENT



- Energy Resiliency Policy
- Task Force on Energy Resiliency (TFER)
- National Energy Contingency Plan (NECP)
- Energy Sector COVID-19 Response Protocol

ENERGY RESILIENCY



- **LGU Energy Code (DOE and DILG Joint Memorandum Circular No. 2020-01)**
- EVOSS
- EO 30 and EPNS
- EODBC Act of 2018
- AO 23

INVESTMENT PROMOTION



- Consumer Offices of the DOE, ERC, NEA, and DUs

CONSUMER WELFARE






THANK YOU AND MABUHAY!