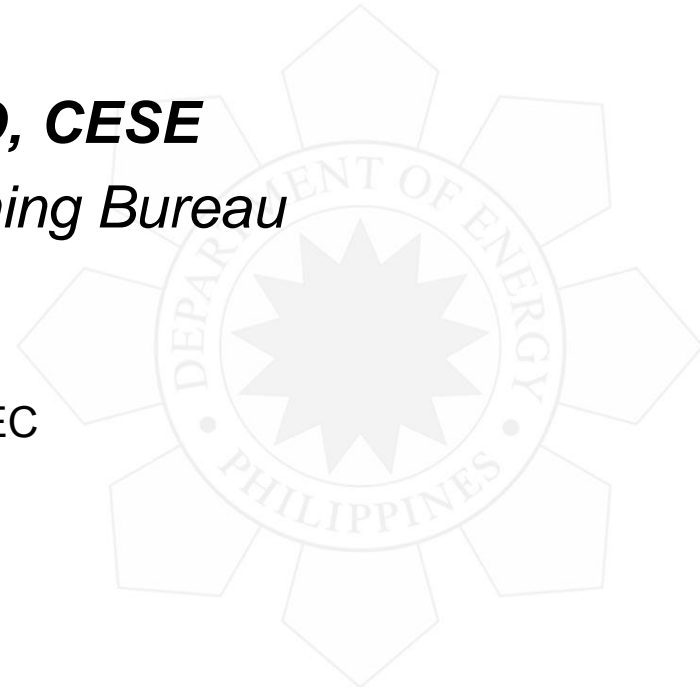


PHILIPPINE ENERGY PLAN 2017-2040 and Executive Order (EO) No. 30

DIR. PATRICK T. AQUINO, CESE
OIC, Energy Policy and Planning Bureau

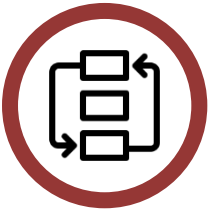
PEP Public Consultation / IEC
19 December 2017
F1 Hotel, Taguig City



Presentation Outline



Policy Initiatives



Energy Planning Process



Energy Plan Outline



PEP 2017 – 2040



Salient Features of EO 30





Policy Initiatives

Strategic Directions 2017 – 2040

1
**ENSURE
ENERGY
SECURITY**

2
**EXPAND
ENERGY
ACCESS**

3
**PROMOTE A
LOW CARBON
FUTURE**

4
**STRENGTHEN
COLLABORATION
AMONG ALL
GOVERNMENT
AGENCIES INVOLVED
IN ENERGY**

5
**IMPLEMENT,
MONITOR AND
INTEGRATE SECTORAL
AND TECHNOLOGICAL
ROADMAPS AND
ACTION PLANS**

6
**ADVOCATE THE
PASSAGE OF THE
DEPARTMENT'S
LEGISLATIVE
AGENDA**

7
**STRENGTHEN
CONSUMER
WELFARE AND
PROTECTION**

8
**FOSTER
STRONGER
INTERNATIONAL
RELATIONS AND
PARTNERSHIPS**





Policy Initiatives

Nine-Point Energy Agenda



DOE's NINE POINT ENERGY AGENDA



ACCESS TO BASIC ELECTRICITY FOR ALL FILIPINOS BY 2022



ADOPTING A TECHNOLOGY NEUTRAL APPROACH FOR AN OPTIMAL ENERGY MIX



IMPROVING THE SUPPLY OF POWER THAT IS RELIABLE, TO MEET DEMAND NEEDS BY 2040



DEVELOPING LNG NEEDS FOR THE FUTURE IN ANTICIPATION OF THE MALAMPAYA DEPLETION



FACILITATING THE COMPLETION OF TRANSMISSION PROJECTS BY 2020



PRO-CONSUMER DISTRIBUTION FRAMEWORK FOR AFFORDABILITY, CHOICE AND TRANSPARENCY



STREAMLINING DOMESTIC POLICY TO CUT RED TAPE



DOE TO DELIVER ON PSALM PRIVATIZATION



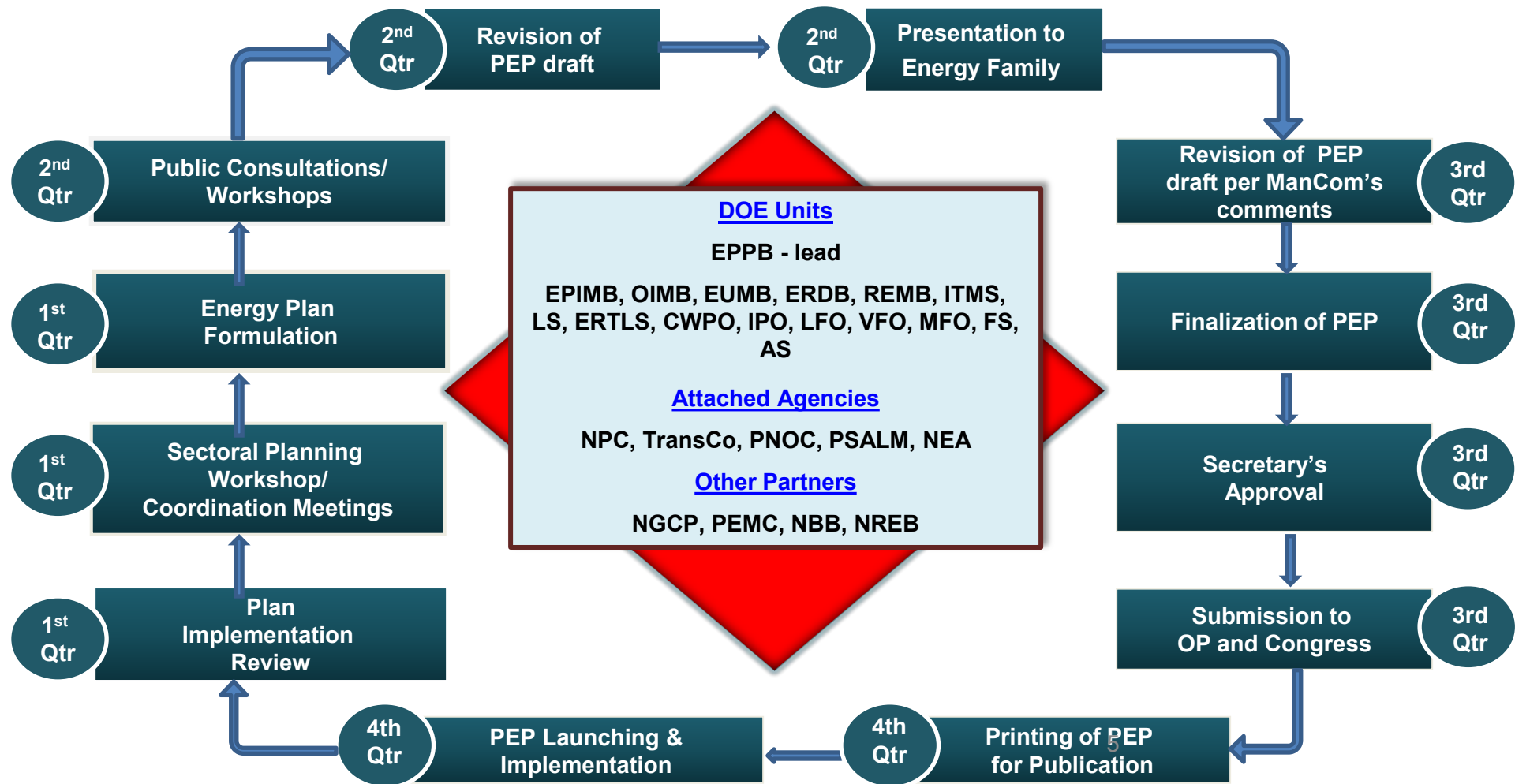
PROMOTING EFFICIENT USE OF POWER AMONG CONSUMERS THROUGH AN IEC





Energy Planning Process

PEP 2017 – 2040

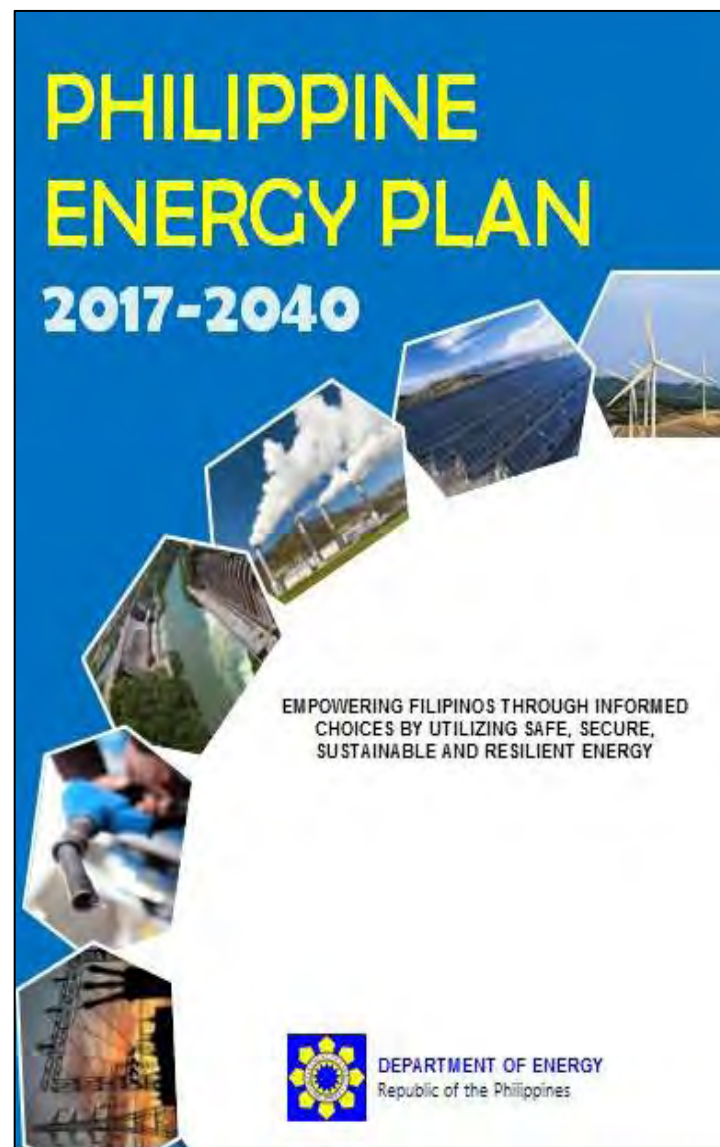




Energy Plan Outline

PEP 2017 – 2040

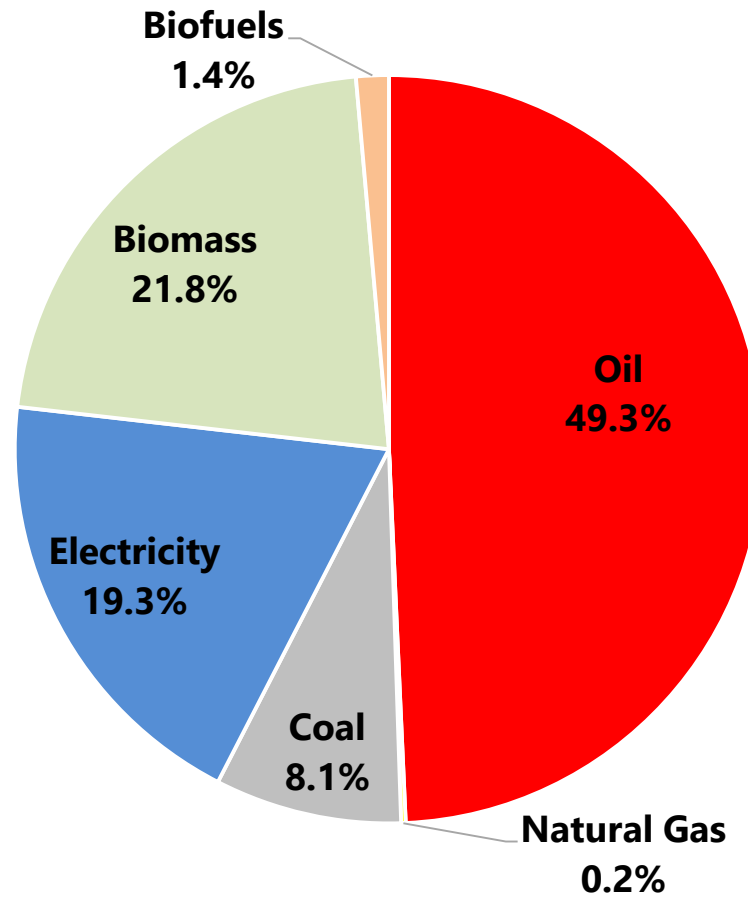
- Responding the Country's Energy Needs
- Renewable Energy for a Clean Energy Future
- Harnessing Conventional Fuels
- Advocating Infrastructure Development in the Downstream Sector
- Promoting Emerging Energy Technologies
- Empowering the Filipino
- Making Energy Efficiency a Way of Life
- Addressing the Environmental Impacts of Climate Change
- Gearing Towards Energy Resilient Communities
- Fostering Stronger International Relations and Partnerships
- Enabling the Energy Sector's Legislative Agenda





PEP 2017 – 2040

2016 Total Final Energy Demand by Fuel



Total Final Energy Demand*: 33.12 MTOE

* Excludes non-energy used

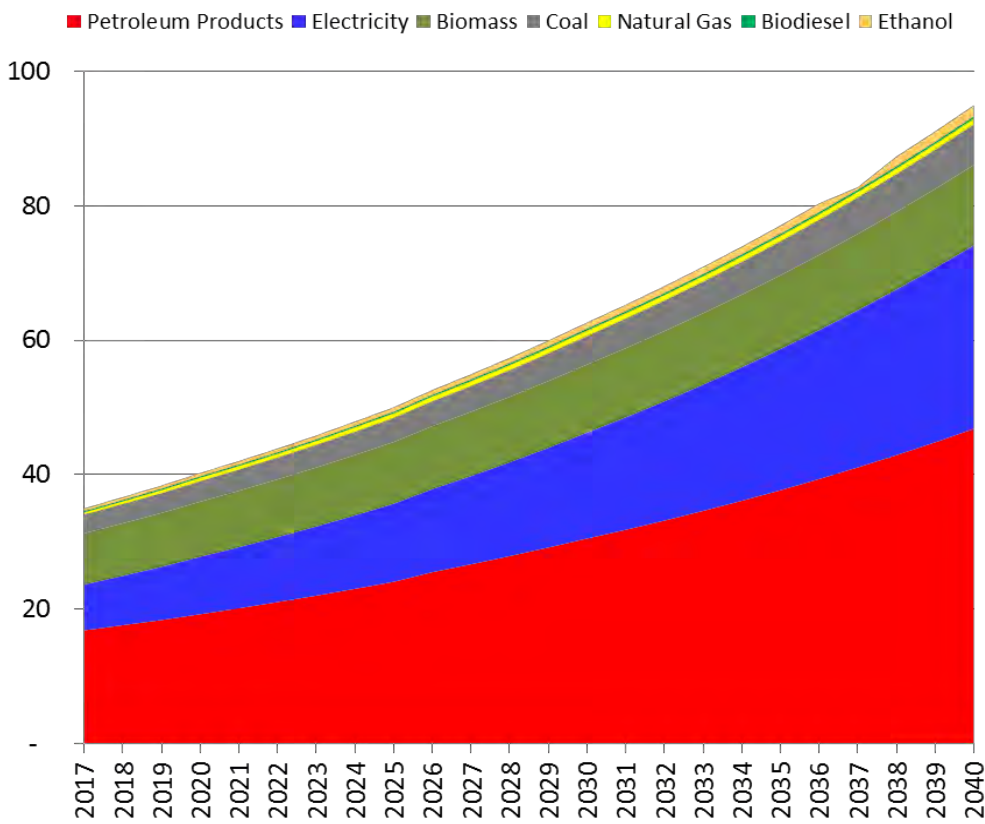




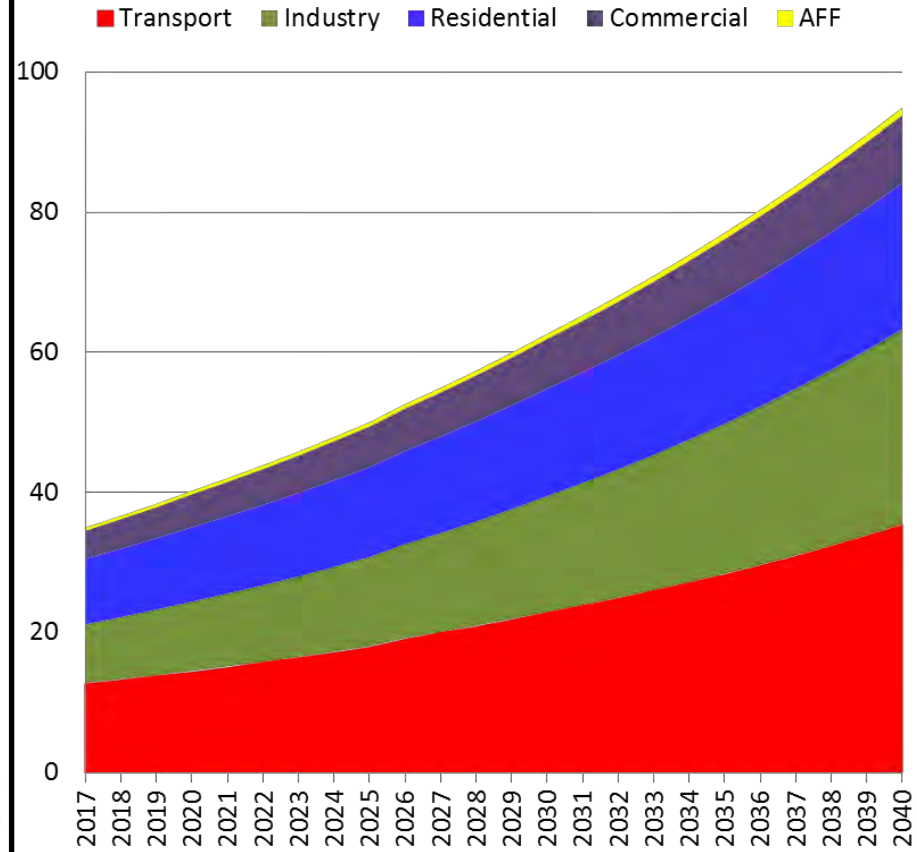
PEP 2017 – 2040

Energy Demand Outlook 2017 – 2040 (in MTOE)

By Fuel Type



By Sector

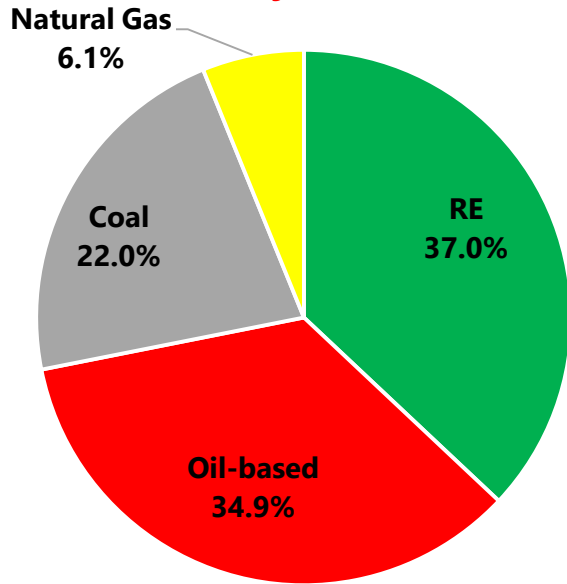




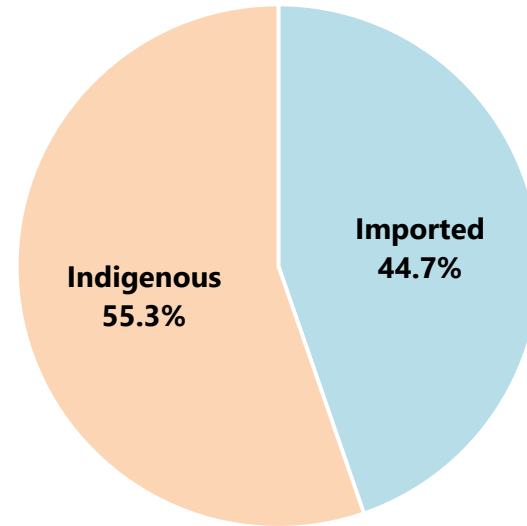
PEP 2017 – 2040

2016 Total Primary Energy Supply

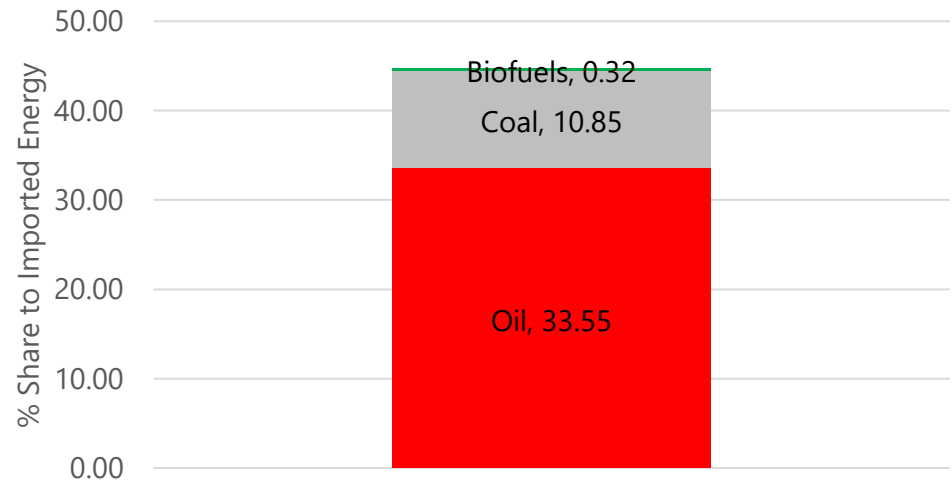
By Fuel



By Source



Imported Energy



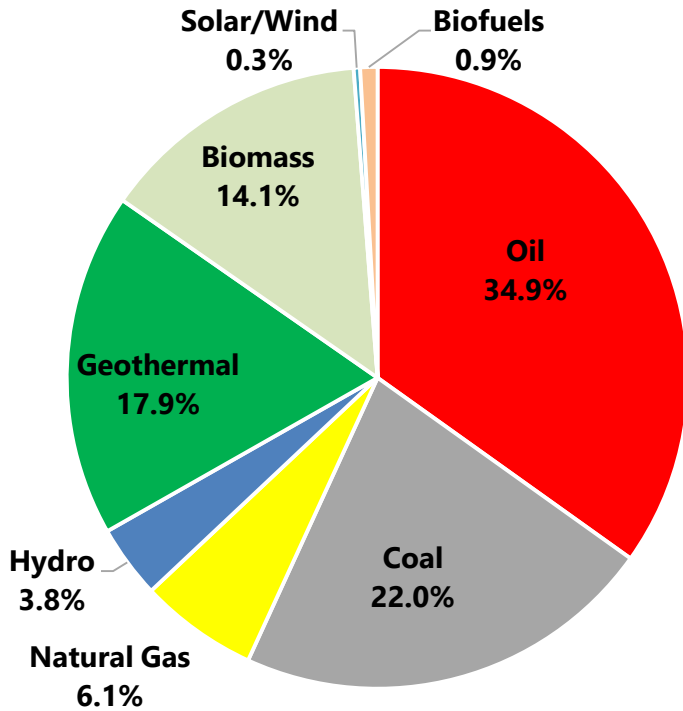
Total Energy	53.19 MTOE
Self-Sufficiency	55.3%
Renewable Energy (RE)	37.0%
Clean Energy (RE + Nat Gas)	43.1%



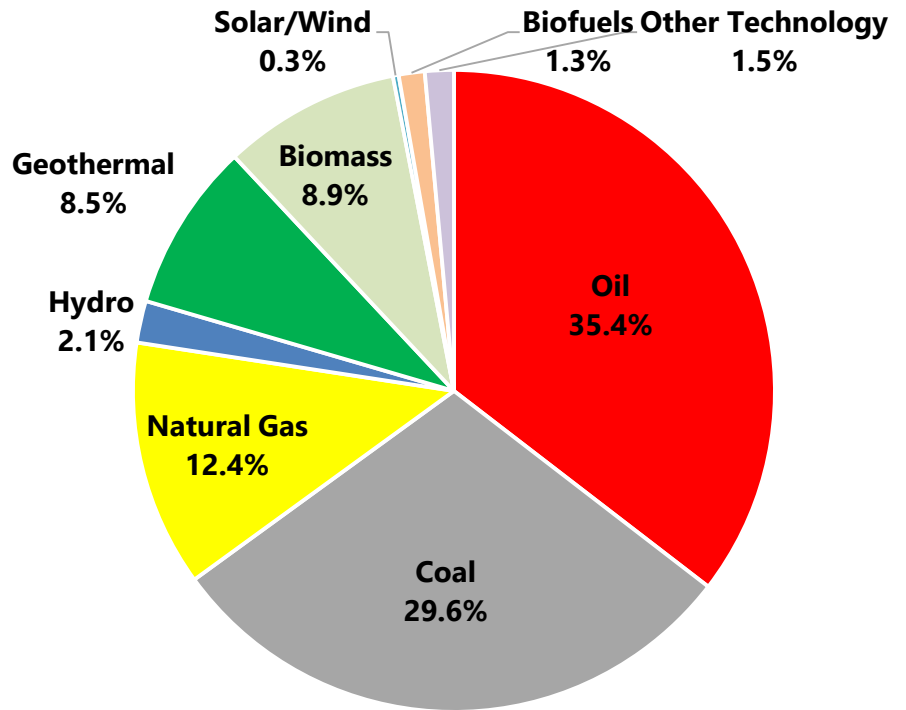


PEP 2017 – 2040

Total Primary Energy Supply, 2016 and 2040

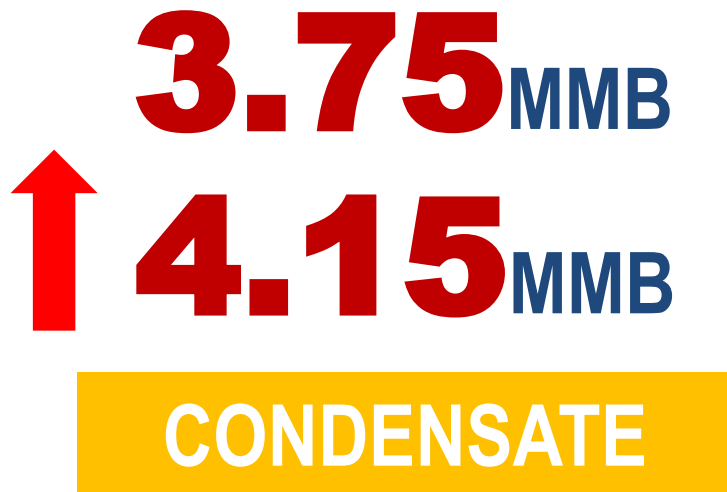
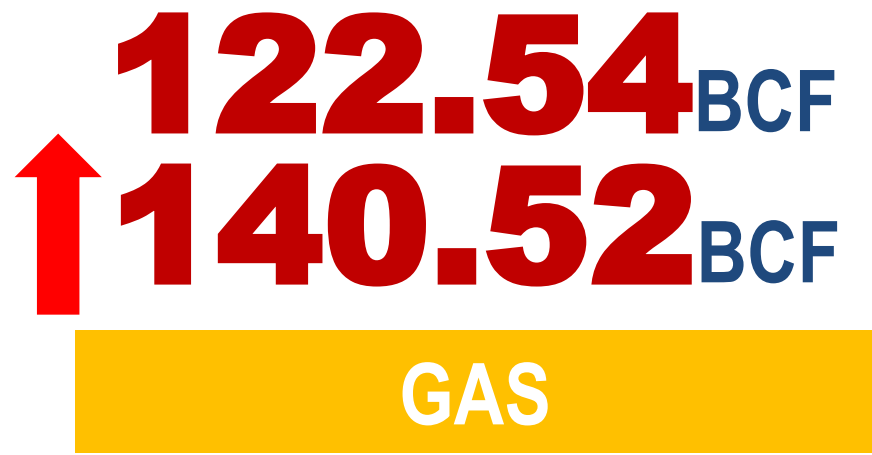
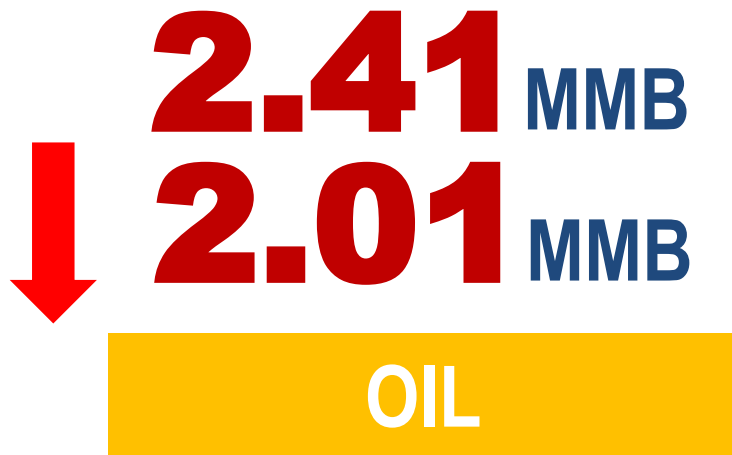


2016 Actual
Total Energy: 53.2 MTOE



2040 Outlook
Total Energy: 137.8 MTOE



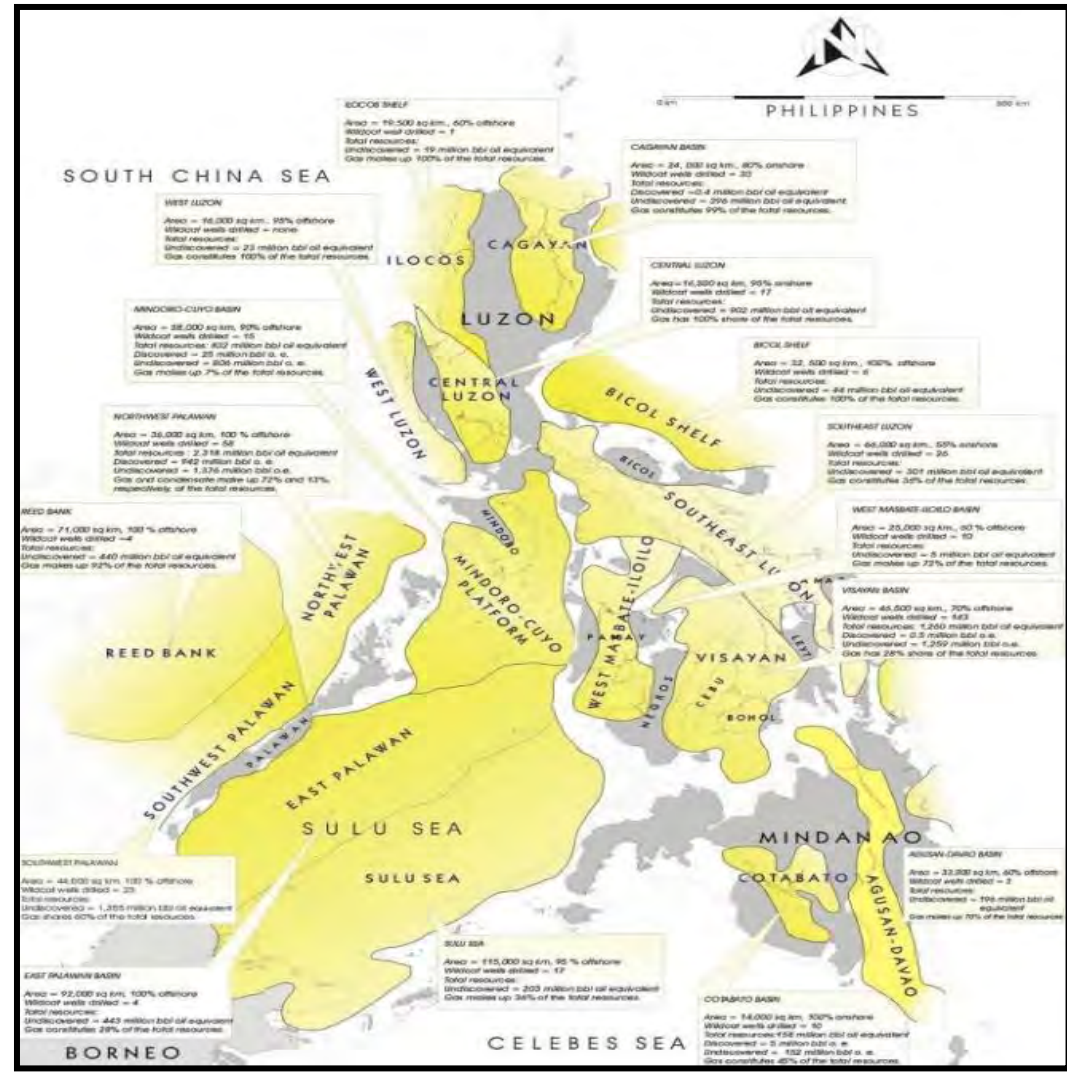




PEP 2017 – 2040

Fossil Fuels: Oil and Gas

- 16 Sedimentary basins with a combined potential of 4,777 million barrels of fuel oil equivalent (MMBFOE)
- [24 Service Contract \(SC\)](#) holders are monitored and supervised
- Philippine Conventional Energy Contracting Program (PCECP)



Sedimentary Basins in the Philippines

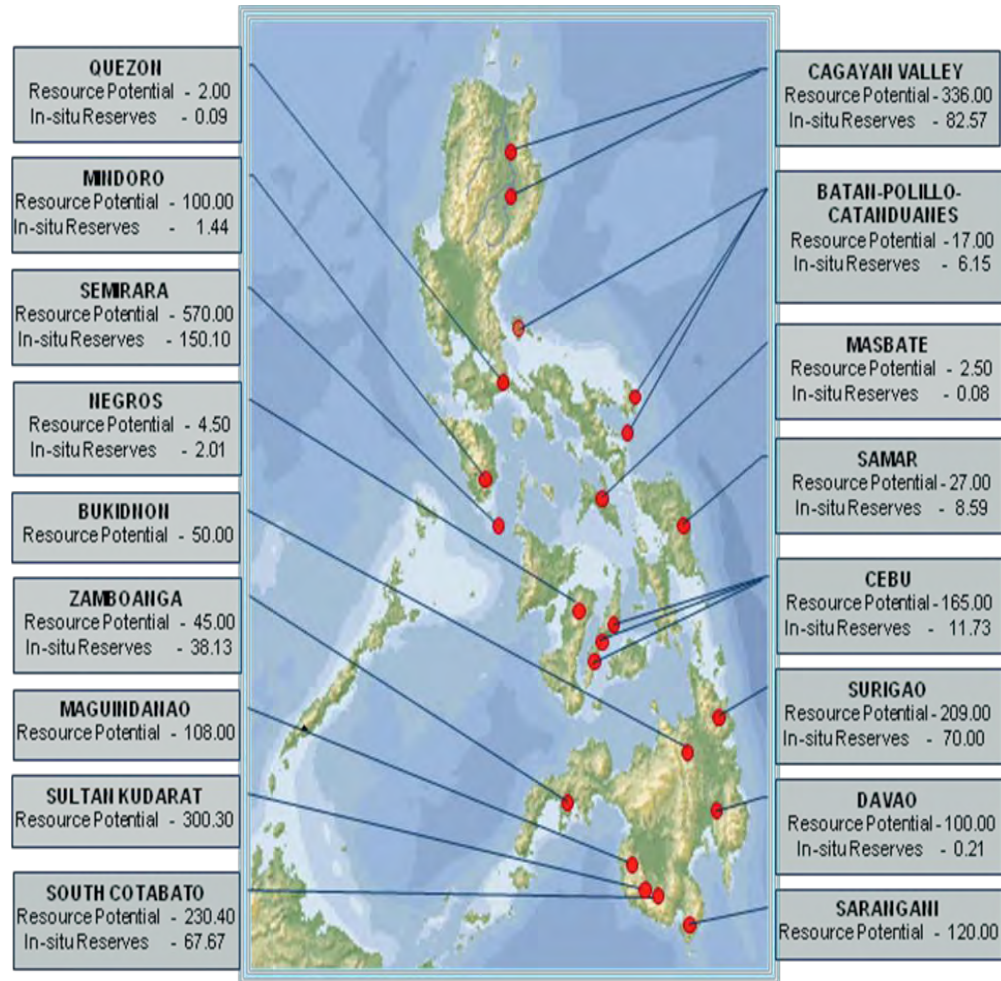




PEP 2017 – 2040

Fossil Fuels: Coal

- Thirteen (13) coal basins with a total resource potential of 2.4 billion metric tons
- 78 active coal operating contract (COC) holders
 - [48 exploration](#)
 - [30 development/production](#)
- The PECR also includes coal in its offered areas
 - 15 new coal contracts in PECR 4 (2011)
 - 7 new coal contracts in PECR 5 (2014)



Coal Reserves in the Philippines



UPSTREAM OIL AND GAS ROADMAP



Overall Objective by 2040



Increase indigenous petroleum reserves to 57.12 MMB Oil, 5.87 TCF Gas and 56.81 MMB Condensate and produce 115.37 MMB Oil, 4.04 TCF Gas and 45.93 MMB Condensate to contribute to the country's energy requirements



COAL ROADMAP



Overall Objective by 2040



Increase indigenous coal reserves to 766 MMMT and 282 MMMT production to contribute to the country's energy requirements





PEP 2017 – 2040

Renewable Energy: NREP 2011 – 2020

Technology	Installed Capacity (as of 2010)	Target Capacity Addition 2011-2020	Installed Capacity (as of 31 December 2016)			Potential Capacity
			Grid	Own-use	Total Installed	
Geothermal	1,966.00	1,320.00	1,916.00		1,916.00	684.00
Hydro	3,400.00	3,502.30	3,618.00		3,618.00	10,792.37
Biomass	39.00	276.70	233.00	119.86	352.86	326.15
Wind	33.00	1,903.00	427.00		427.00	1,038.95
Solar	1.00	274.00	765.00	3.22	768.22	4,081.51
Ocean	-	35.50	-	-	-	26.00
Total	5,439.00	7,311.50	6,959.00	123.08	7,082.08	16,948.98





PEP 2017 – 2040

Renewable Energy: Awarded RE Projects (Dec 2016)

Renewable Energy	Number of Awarded Projects		Potential Capacity (MW)	
	Grid	Own-Use	Grid	Own-Use
Hydropower	413	-	10,792.37	-
Ocean Energy	7	-	26.00	-
Geothermal	43	-	684.00	-
Wind	58	1	1,038.95	-
Solar	150	16	4,077.22	4.29
Biomass	45	22	312.38	13.77
SUB-TOTAL	716	39	16,930.92	18.06
TOTAL	755		16,948.98	



RENEWABLE ENERGY ROADMAP

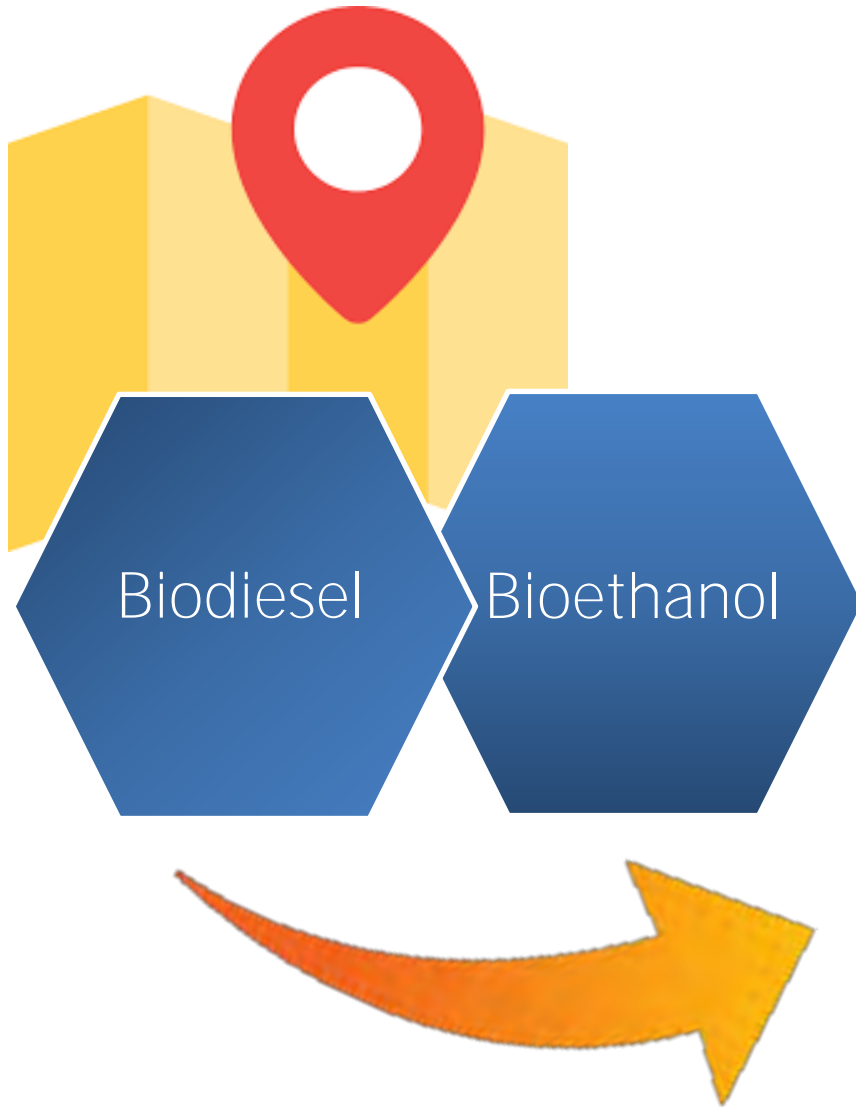


**Overall
Objective by 2040**

Increase RE installed capacity to at least 20,000 MW



BIOFUELS ROADMAP



Overall Objective by 2040



Pursue the development of Biofuels in compliance with the Biofuels Act of 2006 (R.A. 9367)





PEP 2017 – 2040

Downstream Oil Industry

- 271 new players with total investments reaching PhP 56.35 Billion
- Formulated/Amended technical standards for fuel quality (CME and B5 specifications) and facilities (Code of Safety Practice in LPG Refilling Plant)
- Ensured availability of biofuels blend in compliance with the Biofuels Law
- Monitored and inspected facilities for compliance to quality and quantity standards:

Facilities Inspected (2016)	2,586	2,216	95
Facilities Inspected (1H 2017)	343	1,247	62
Total Facilities	6,804	15,000	163
	Liquid Petroleum Products	LPG Establishments	Bulk Depots





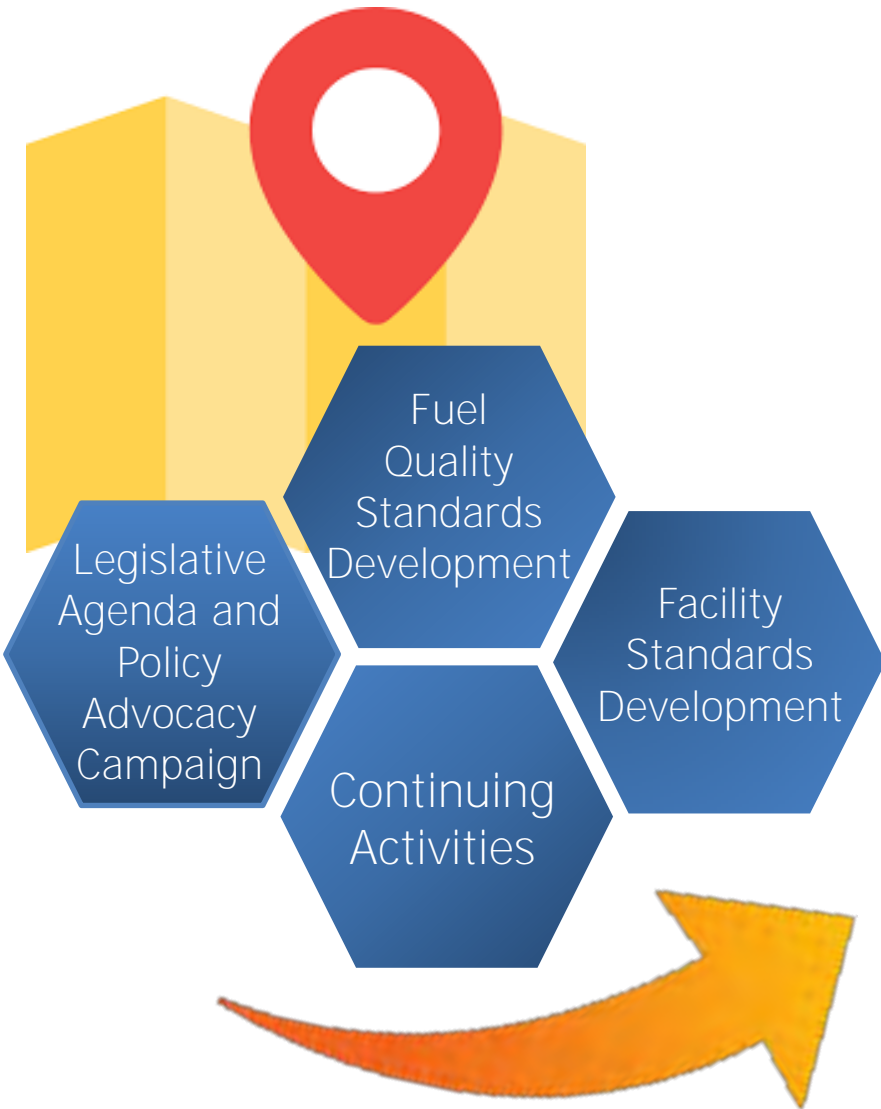
PEP 2017 – 2040

Downstream Oil Industry

- 0.9 percent increase in crude oil imports (from 78,060 MB in 2015 to 78,772 MB in 2016)
- The country has 285 thousand barrels per stream day (MBSD) as the current maximum working crude distillation capacity
- 12.9 percent increase in petroleum product imports (from 76,276 MB in 2015 to 86,108 MB in 2016)
- 1.5 percent decline in petroleum product exports (from 13,988 MB in 2015 to 13,771 MB in 2016)
- Continued enforcement of Minimum Inventory Requirement (MIR)



DOWNSTREAM OIL INDUSTRY ROADMAP



Overall Objective by 2040



Improved policy governing the Downstream Oil Industry to ensure continuous supply of high quality and right quantity of petroleum products in the market





PEP 2017 – 2040

Downstream Natural Gas

Natural Gas	Production and Consumption, in Million Standard Cubic Feet (MMSCF)			
	1994-2015	2016	1 st Half 2017	Total
Production¹	1,666,685	140,516	61,571.73	1,868,772.73
Consumption²	1,597,751	135,132	59,192.28	1,792,075.28
Power ³	1,568,673	132,350	58,364.67	1,759,387.67
Industrial	28,893	2,782	827.61	32,502.61
Transport	184	0	0	184

1 Data from 1994-2008 includes production from San Antonio gas field. Libertad gas field started its commercial production at 1400hrs, 03 February 2012

2 Submission from gas users

3 Commercial operations for Ilijan/SR/SL using natural gas as the primary fuel commenced in 2002. The power plants partly operated on liquid fuel (gasoil, naphtha, and condensate) for start-up operations until the end of 2001. Production and consumption data for 2001 may not reconcile accurately due to rounding off.





PEP 2017 – 2040

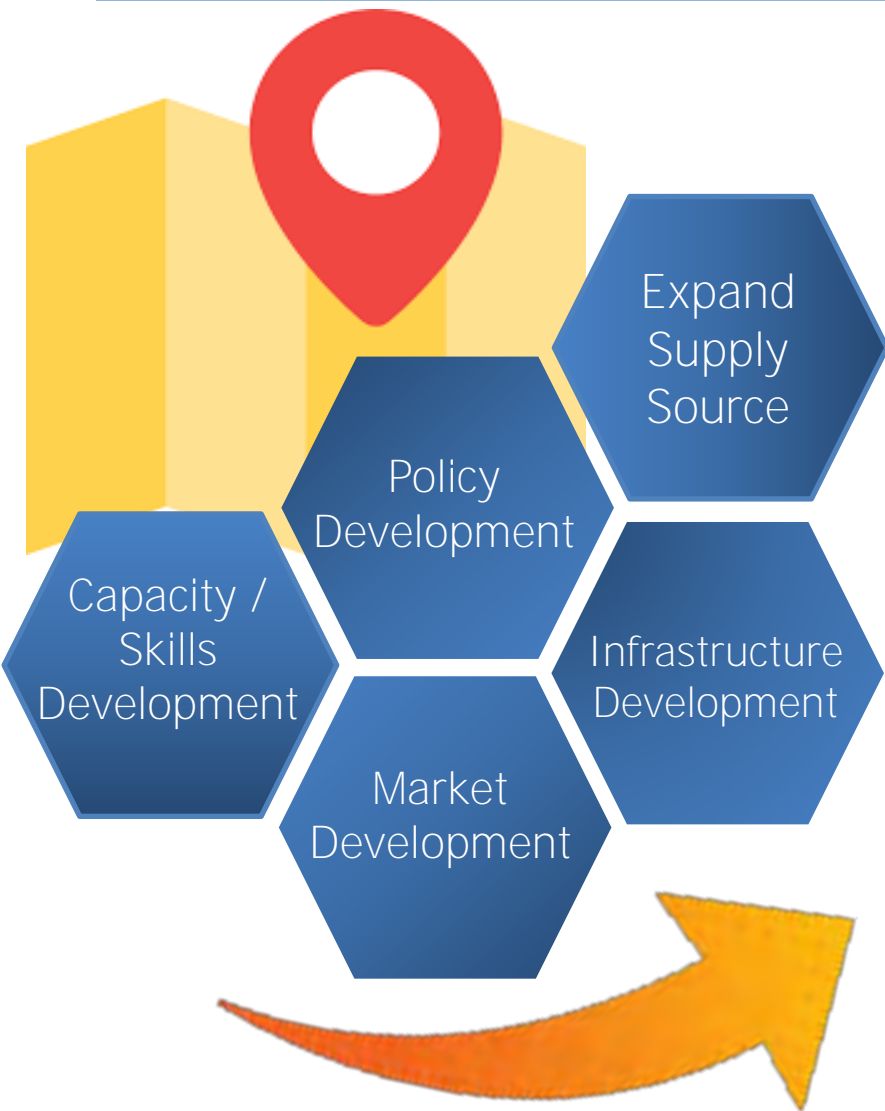
Downstream Natural Gas: Proposed Infrastructure Projects

Table 26. PROPOSED NATURAL GAS INFRASTRUCTURE PROJECTS

Target Operation	Project	Proponent	Location	Capacity	Status
2018 for 1 storage tank and initial 400 MW gas plant	LNG Import Receiving/Hub Terminal	Energy World Corp. Ltd. (EWCL)	Brgy. Ibabang Polo, Grande Island, Pagbilao Quezon	2 x 130,000 cu.m. LNG storage tanks 600 MW gas fired plant anchor market	Granted Provisional Permit for 5 years Provisional permit expires in Jan 2016 DOE issued 12 month extension of the Permit
2018	<ul style="list-style-type: none"> Floating Storage Unit Submerged Regasification Unit 	VIRES Energy	Simlong, Batangas	Floating Power Plant (1x400 MW)	Completed FS Study
2022	LNG Floating Storage and Regasification Unit (FSRU)	Shell Gas and Energy Philippines	Pilipinas Shell Petroleum Corporation's (PSPC's) Refinery area at Batangas Bay, Tabangao, Batangas	170,000 cu m, Initial 450MW gas fired plant anchor market	Completed the FS of the LNG Facility & Front End Engineering Design (FEED). Public consultation on Environmental Impact Statement (EIS)
2019 for Phase 1: 1.0-1.4 MTPA or 1,414 MW 2022 for Phase 2: 3.6 – 5.0 MTPA	Floating Storage and regasification unit (FSRU)	First Gen	San Gabriel, Batangas	1.0-1.4 MTPA or 1,414 MW (Phase 1) 3.6-5.0 MTPA (Phase 2)	Completed feasibility study and FEED of the LNG facility Filed its Permit application to the DOE
Phase 1: 2018	Energy City LNG	Araneta Group of Companies	Philippine National Oil Company-Alternative Fuel Corporation (PNOC-AFC) compound in Mariveles and Limay, Bataan	1x180,000 cu.m onshore tank 1,600 MW gas fired plant anchor market	Completed the pre-FS of the LNG Facility. Issued ECC for the LNG project. Financing activities ongoing; Equity partnership discussion ongoing
Phase 2: 2021				2x180,000 cu.m onshore tank Additional 800 MW with a total of 2,400 MW	
2018	Petroleum Brunei & Brunei LNG	Petroleum Brunei and Brunei and LNG	Tagoloan, Misamis Oriental in Mindanao.	163 cu m/hr of LNG 500 MW CCGT anchor market	Completed FS study for the location of the onshore power plant
2020	Batangas-Manila Pipeline	Philippine National Oil Company	Batangas-Navotas	A 121 km high-pressure gas transmission pipeline that will service the converted Sucat thermal plant; ecozones and industries along the route	Completed detailed feasibility study and market study Approval of the Batman Project by the Joint Cabinet-Investment Coordinating Council



DOWNSTREAM NATURAL GAS ROADMAP



Overall Objective by 2040

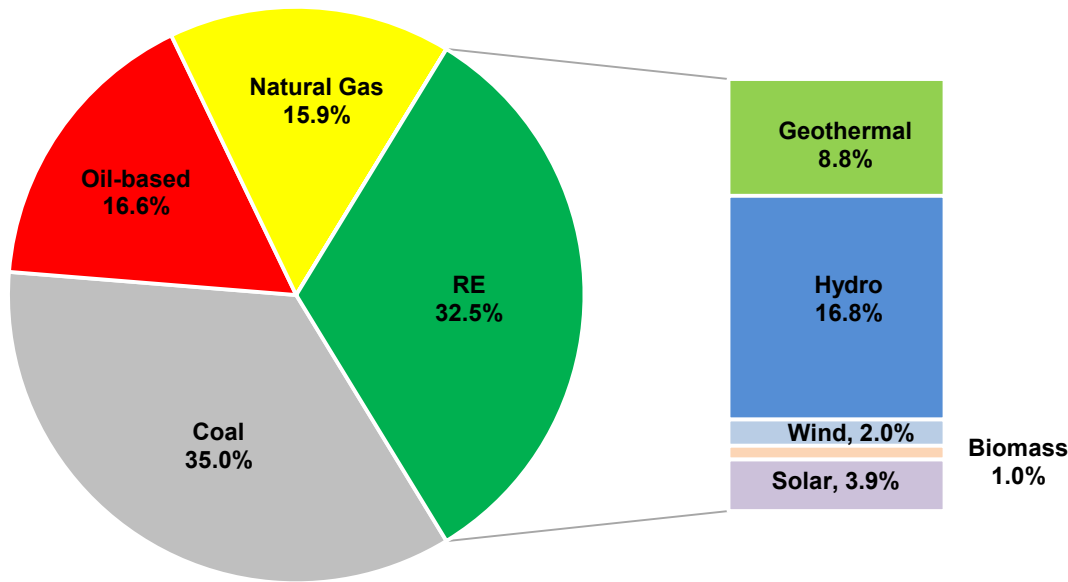
To establish a world-class, investment driven and efficient natural gas industry that makes natural gas the preferred fuel by all end-use sectors



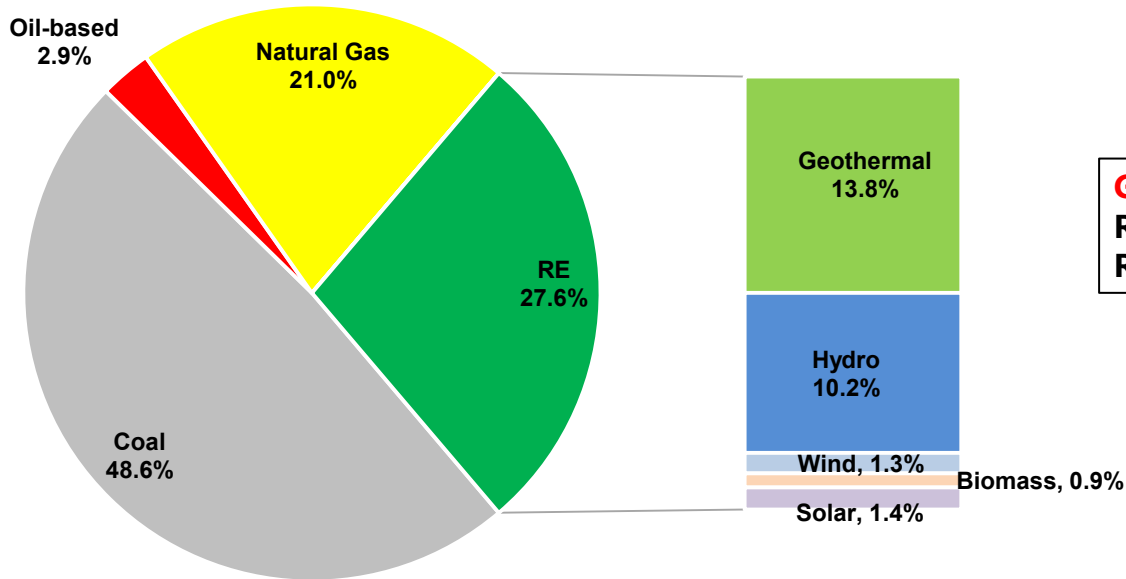


PEP 2017 – 2040

1H 2017 Power Capacity and Gross Generation



Total Installed Capacity:	21,621 MW
Renewable Energy Share:	32.5%



Gross Generation:	44,649 GWh
Renewable Energy:	27.6%
RE + Nat Gas:	48.5%





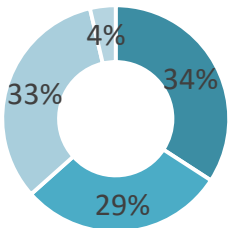
PEP 2017 – 2040

Power Development: Grid System



Load

74,154 GWh



- Residential
- Commercial
- Industrial
- Others



Distribution

23 **PIOU**s

100 **EC**s

2 **LGUOU**s



Transmission



31,501 **MVA**



20,053 **ckt-km**

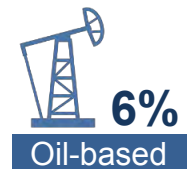


Generation

199 **GenCos**

21.42 **Installed Capacity**
GW

90,798 **Gross Generation**
GWh



Peak Demand: 13.272 GW

- PIOU**s - Private-Investor Owned Utilities
- EC**s - Electric Cooperatives
- LGUOU**s - LGU-Owned Utilities

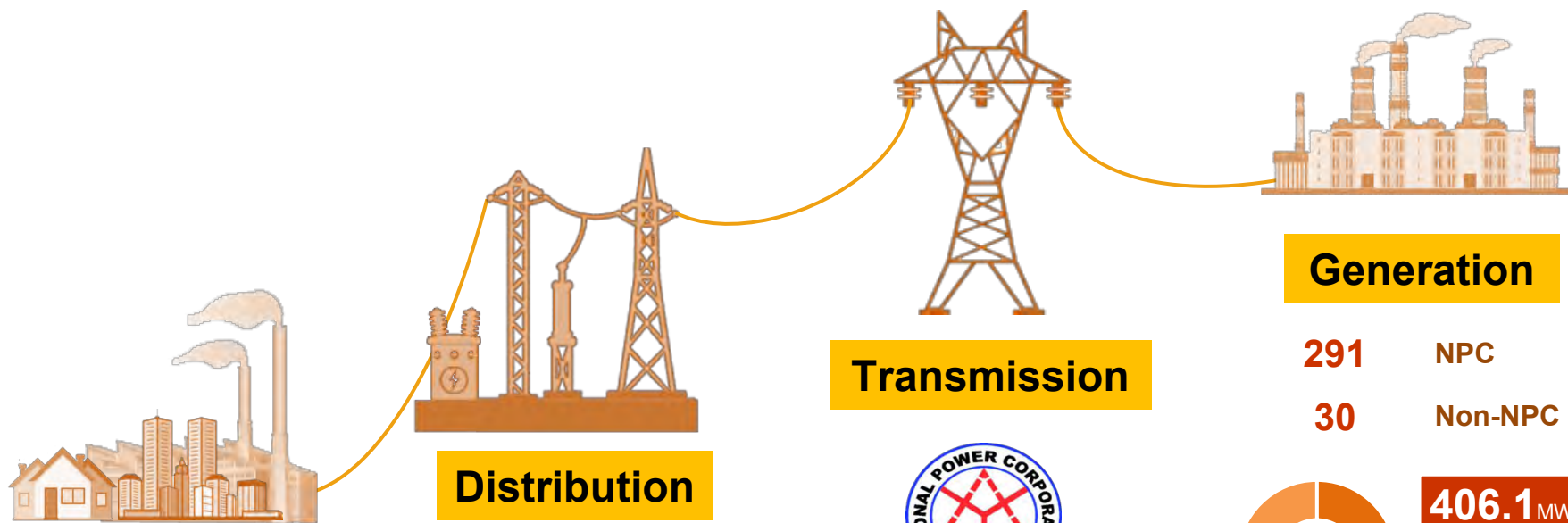
Sources of Data: DOE; NGCP



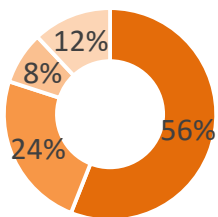


PEP 2017 – 2040

Power Development: Off-grid System



Load



1,020.1
GWh

2015
Electricity
Sales

- Residential
- Commercial
- Industrial
- Others

64.3%*
Energized

Distribution

- 21** ECs
- 2** MPCs
- 3** LGUOUS
- 1** QTP

- ECs - Electric Cooperatives
- MPCs - Multi-Purpose Cooperatives
- LGUOUS - LGU-Owned Utilities
- QTP - Qualified Third Parties

Transmission

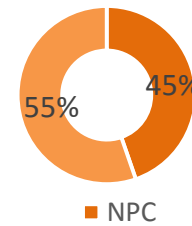


170
MVA

770
ckt-km

Generation

- 291** NPC
- 30** Non-NPC



406.1 MW

Total
Installed
Capacity

- NPC
- Non-NPC

1,075 GWh

Gross
Generation

96%
Diesel

4%
Hydro

Source of Data: DOE; NPC

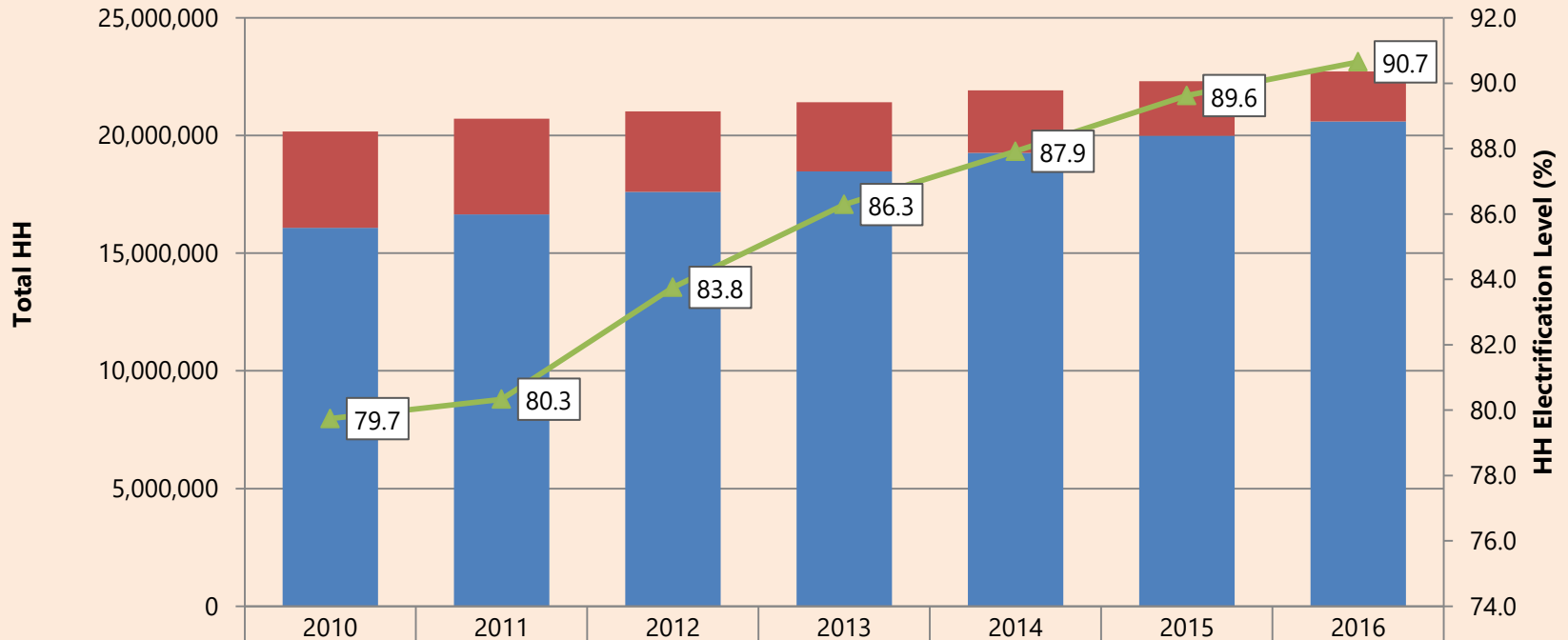




PEP 2017 – 2040

Household Electrification

Household Electrification (2010 - 2016)



■ Unelectrified	4,087,637	4,075,447	3,416,501	2,936,115	2,648,225	2,315,652	2,124,110
■ Electrified	16,084,262	16,643,948	17,611,023	18,475,327	19,267,084	19,994,430	20,597,320
▲ HH Electrification Level	79.7	80.3	83.8	86.3	87.9	89.6	90.7

- Household electrification level reached 90.7 percent in December 2016





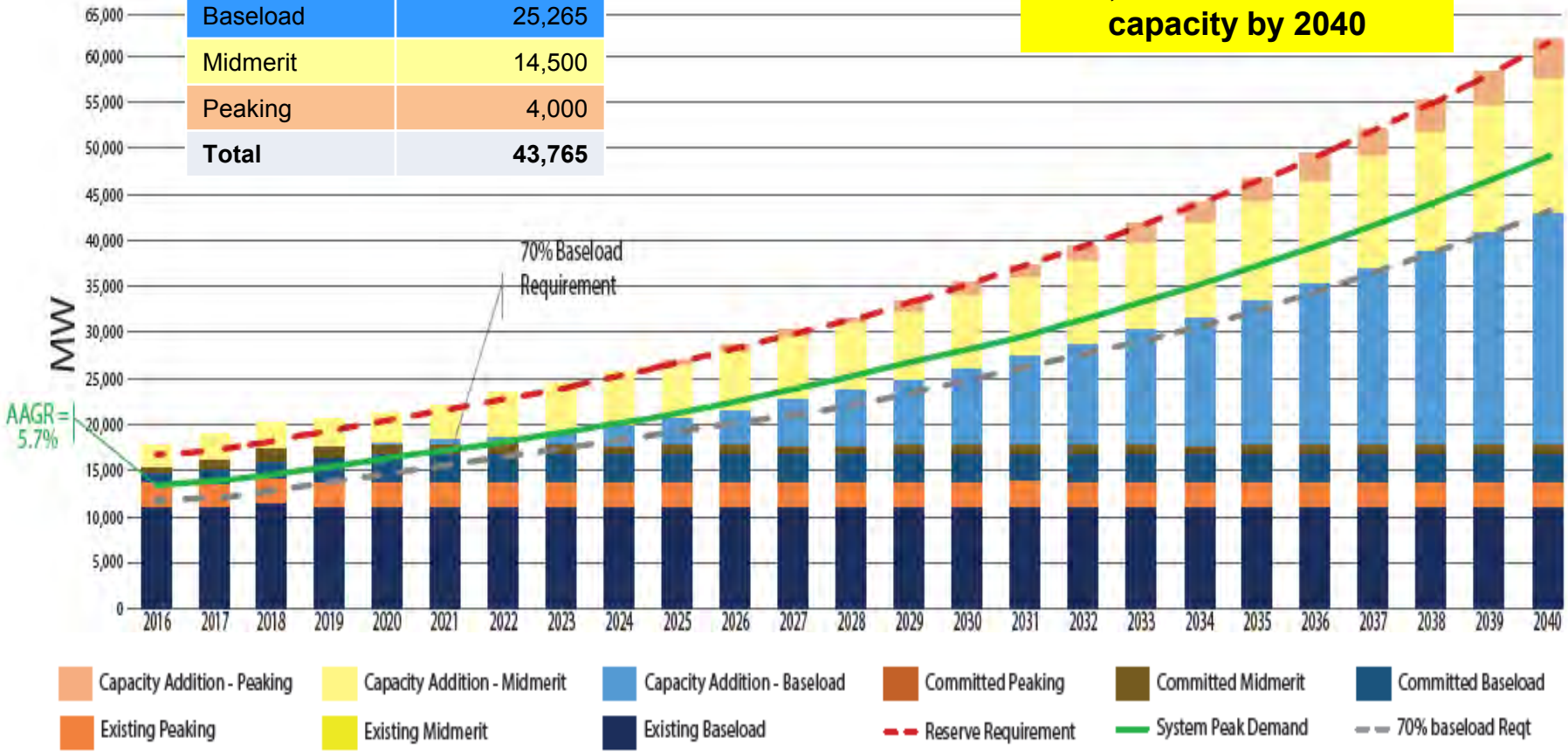
PEP 2017 – 2040

Additional Power Capacities 2017 – 2040

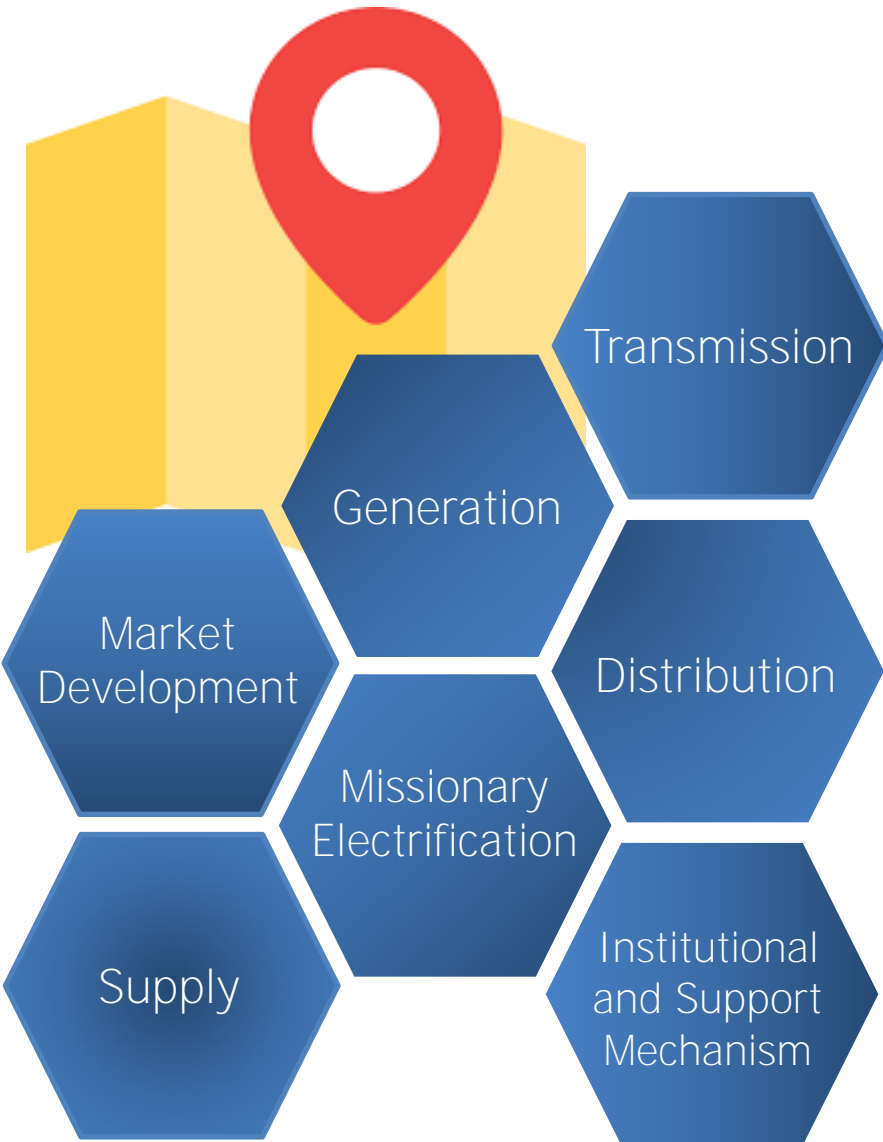
Philippines Demand and Supply Outlook, 2016-2040

Capacity Addition	MW
Baseload	25,265
Midmerit	14,500
Peaking	4,000
Total	43,765

Philippines will need 43,765 MW additional capacity by 2040



POWER SECTOR ROADMAP



Overall Objective by 2040

- Ensure quality, reliable, affordable and secure supply
- Expand access to electricity
- Ensure a transparent and fair playing field in the power industry



ELECTRIFICATION ROADMAP



**Overall
Objective by 2040**



Total electricity access
in the country





PEP 2017 – 2040

Alternative Fuels and Energy Technologies



Promotion of Alternative Fuel Vehicles

1. Conducted ten (10) IEC Events
2. Creation of an Inter-Agency Auto-LPG Technical Working Group
3. Partnership with SUCs for skills development of Auto-LPG technicians
Policy research/formulation on market promotion and infrastructure support for E-Vehicles
4. Promotion of next-generation vehicles through the implementation of the Non-Project Grant Aid of Japan

Formulation of policies

1. Joint Budget Circular for implementation of Sec. 36 of 2017 GAA
2. Creation of a TWG for the integration of EV Charging Station with the existing Liquid Fuel Refilling Station
3. Inclusion of AFVs in the IPP of DTI-BOI
4. Update of PNS 05:1983 – Code of Practice for the use of LPG in internal combustion engines

Emerging Indigenous Energy Technologies

1. Technology Evaluation for Locally Proposed Energy Technologies
2. Partnership with Central Mindanao University to conduct study on the use of grass-based fuel for domestic cooking
3. Partnership with Isabela State University for prototyping of LPG-fueled farm equipment

Continuing Promotion of Alternative Fuel Vehicles and Energy Technologies



ALTERNATIVE FUELS & ENERGY TECHNOLOGIES ROADMAP



Overall Objective by 2040



Ensure secured and stable supply of energy through technology responsive energy sector



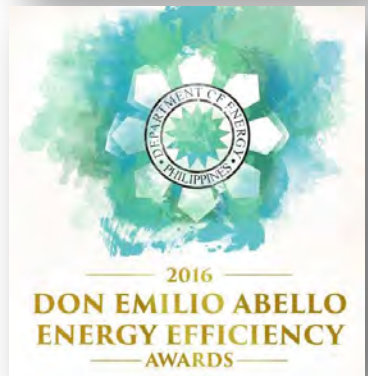


PEP 2017 – 2040

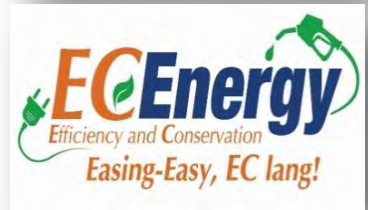
Energy Efficiency and Conservation



- **Government Energy Management Program (GEMP)**
 - Issued 20 Certificates of Energy Savings
 - Conducted energy audits in 45 government agencies and 2 commercial/industrial establishments
 - Deferred capacity from energy savings reached 2,547 MW (2015-2016)



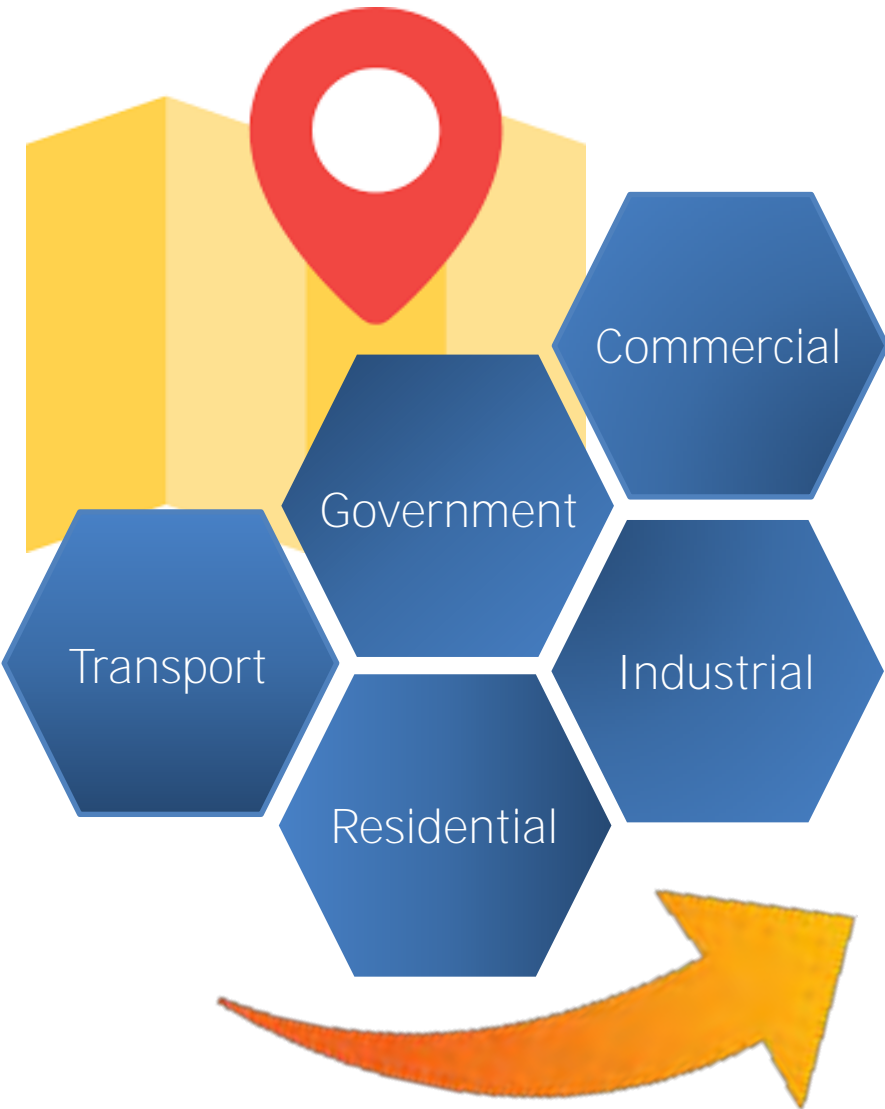
- **Don Emilio Abello Energy Efficiency Awards**
 - Awarded 456 companies from 2010 to 2016 for reported generated savings of 1,280,089,210.73 kWh



- **Policy Development**
 - Directing compliance of commercial, industrial and transport establishments with the Philippine Minimum Energy Performance Program as policy of Government (2017)



ENERGY EFFICIENCY AND CONSERVATION ROADMAP



Overall Objective by 2040

Measurable reduction in energy intensity and consumption per year versus business as usual (BAU)

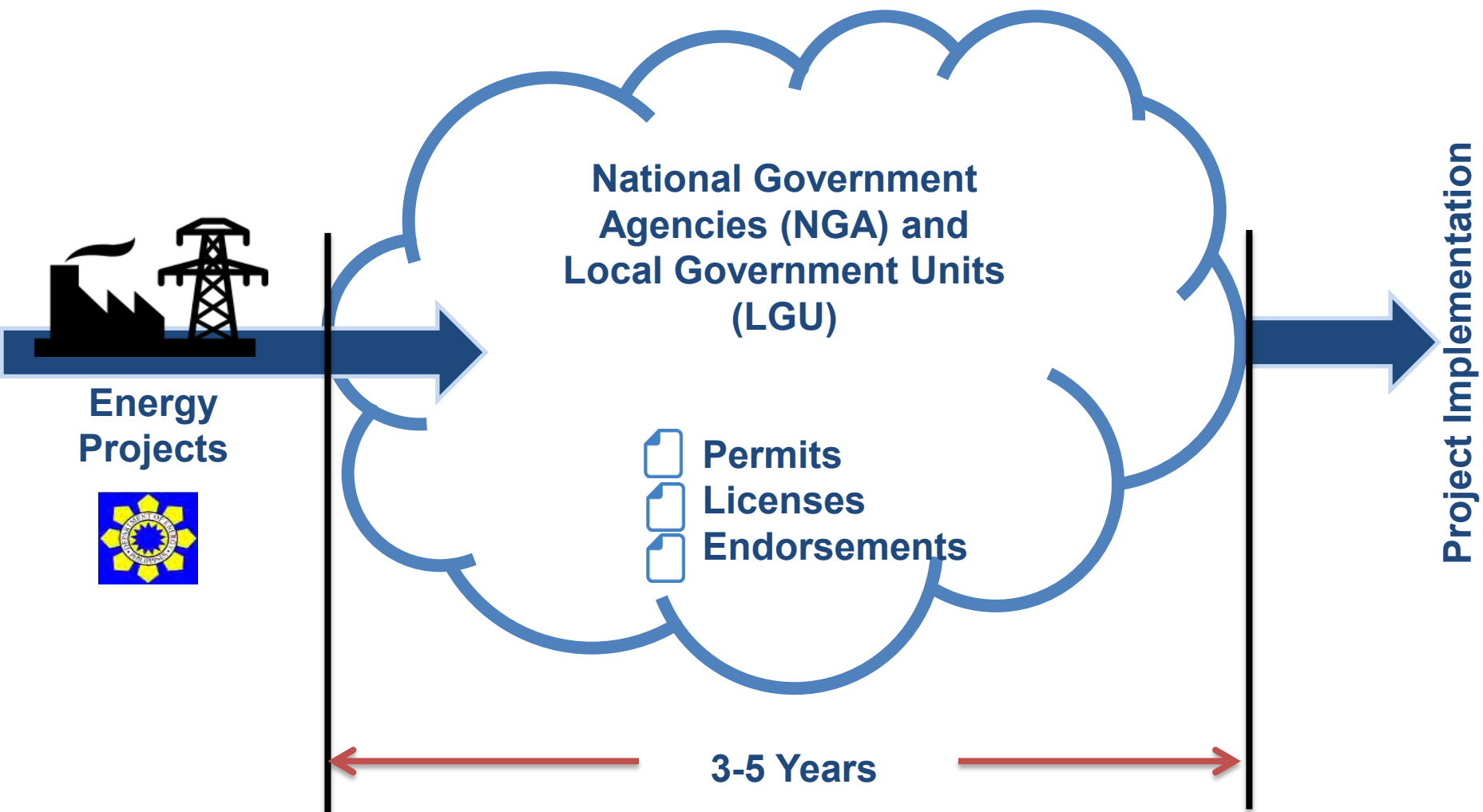


EXECUTIVE ORDER NO. 30 (EO 30)





Executive Order No. 30



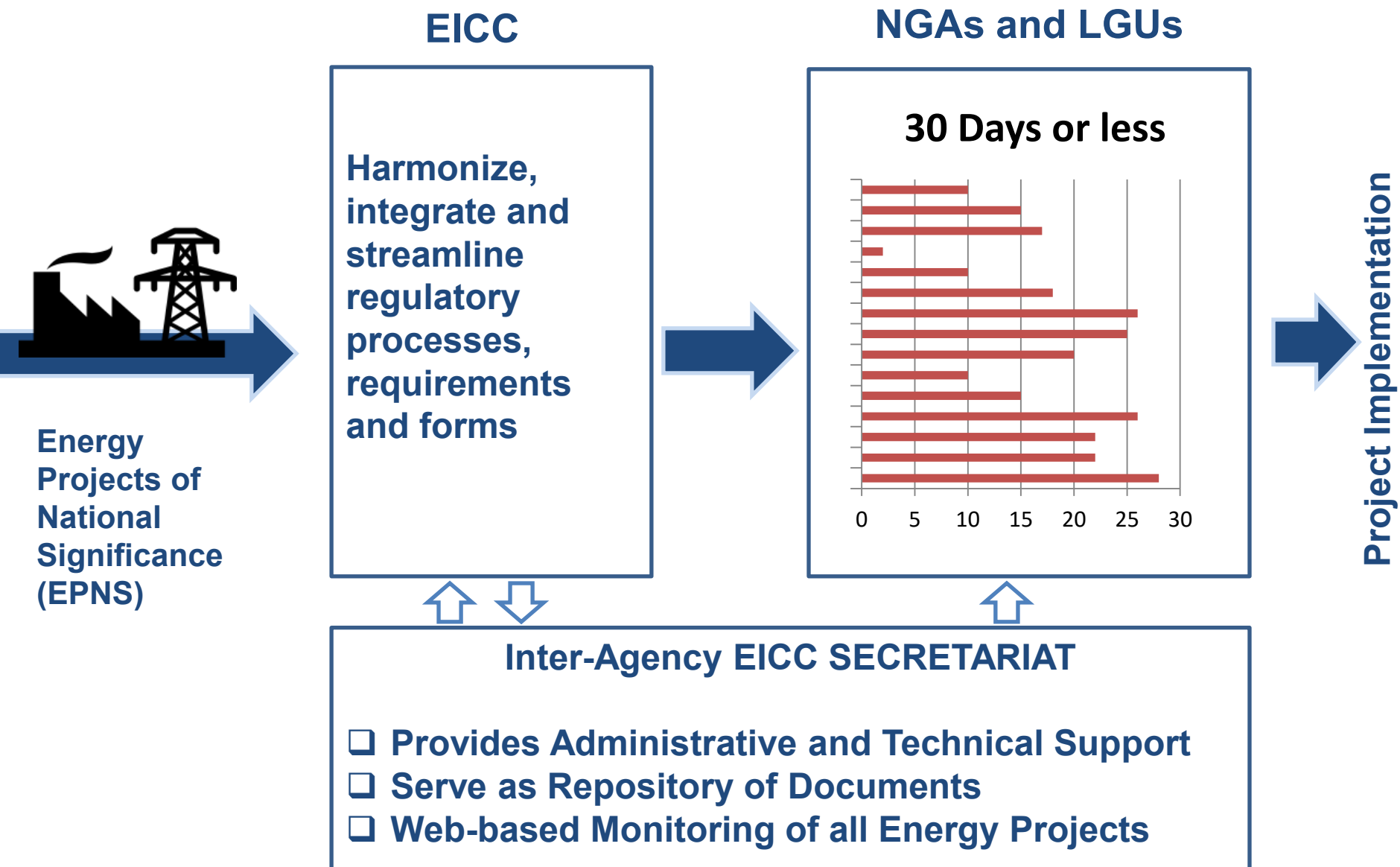


**Creating the Energy Investment
Coordinating Council (EICC) in Order to
Streamline the Regulatory Procedures
Affecting Energy Projects issued on 28 June
2017**





Executive Order No. 30





Energy Investment Coordinating Council (EICC)

Rationale

- Promote a just and social order, prosperity, independence, freedom from poverty through policies that provide adequate social services, promote full employment, a rising standard of living and an improved quality of life
- Strengthen the following existing laws:
 - RA 7638, Sec. 23 (DOE Law)
 - RA 9136 (EPIRA Law)
- The Philippine Energy Plan (PEP) was crafted to mainstream access of the larger populace to reliable and affordable energy services
- Priority of the government to streamline its processes to ensure effective and timely implementation of projects





Energy Investment Coordinating Council (EICC)

Mandate

- ❑ To spearhead and coordinate national government efforts to harmonize, integrate and streamline regulatory processes, requirements and forms relevant to the development of energy investments in the country
- ❑ To call on other agencies and government instrumentalities whose participation in the EICC may be deemed necessary





Energy Investment Coordinating Council (EICC)

Composition



Department of Energy - Chair



National Electrification Administration (NEA)



National Grid Corporation of the Philippines (NGCP)



National Power Corporation (NPC)



National Transmission Corporation (Transco)



Palawan Council for Sustainable Development (PCSD)



Department of Environment and Natural Resources (DENR)



Department of Finance (DOF)



Department of Justice (DOJ)



Department of Transportation (DOTr)



Housing and Land Use Regulatory Board (HLURB)

- ✓ *Other agencies and government instrumentalities whose participation in the EICC may be deemed necessary by the EICC to attain the objectives of this Order*





Energy Investment Coordinating Council (EICC)

EICC vis-à-vis Member Agencies

- Platform of dialogue
- Oversight role
- Organizational, analytical and professional support
- Monitoring the effectiveness of it's policies
- Call on other government agencies





Energy Investment Coordinating Council (EICC)

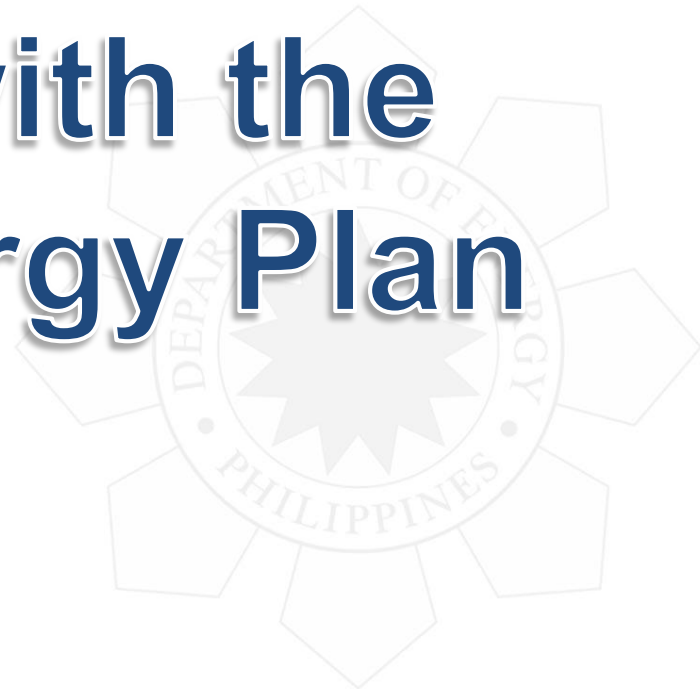
Functions

Section 5 of EO 30

- Establish a simplified approval process, and harmonize the relevant rules and regulations
- Prepare rules governing the resolution of inter-agency issues
- Maintain database and a web-based monitoring system
- As necessary, create Inter-agency subcommittees
- Submit quarterly progress report
- Perform such other functions



Energy Projects of National Significance in compliance with the Philippine Energy Plan





Executive Order No. 30

What is EPNS?

Energy Projects of National Significance (EPNS) are “major energy projects identified and endorsed by the DOE as “projects of national significance” that are in consonance with the policy thrust and implementation of the Philippine Energy Plan (PEP).”
(Section 2 of EO 30)





Executive Order No. 30

Attributes of EPNS

Apart from being the policy thrust and in consonance with PEP, EPNS should possess **any** of the following significant attributes:

- ✓ Capital investment of at least P3.5 Billion
- ✓ Contribution to the country's economic development
- ✓ Consequential economic impact
- ✓ Potential contribution to the country's balance of payments
- ✓ Impact on the environment
- ✓ Complex technical processes and engineering designs
- ✓ Infrastructure requirements



LNG Tanker





Executive Order No. 30

Baselines in Processing EPNS

Major energy projects for power generation, transmission and/or ancillary services including those required to maintain grid stability and security, identified and endorsed by the DOE as “project of national significance” that are in consonance with Philippine Energy Plan

Section 7 provides for the following:

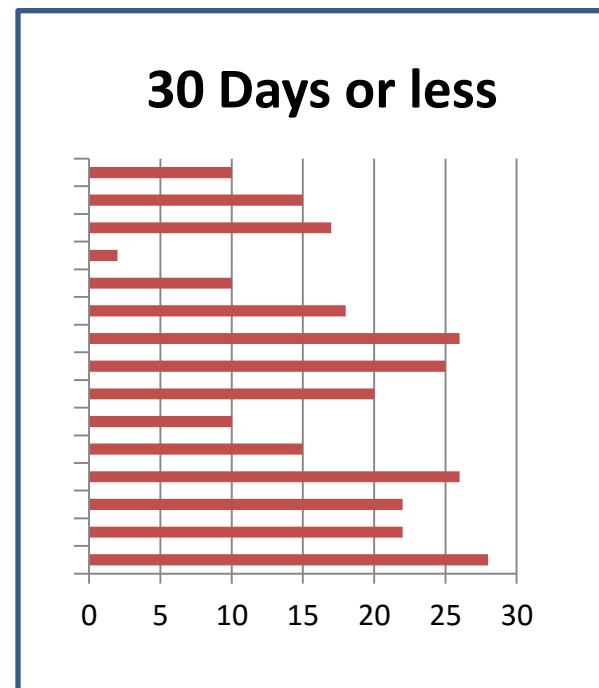
- **Presumption of Prior Approvals**

Agencies to process EPNS without awaiting any action from other agencies

- **Action within 30 days**

EPNS should be processed within 30 days from complete submission of documentary requirements. Otherwise, issue the permit 5 working days after lapse of processing timeframe

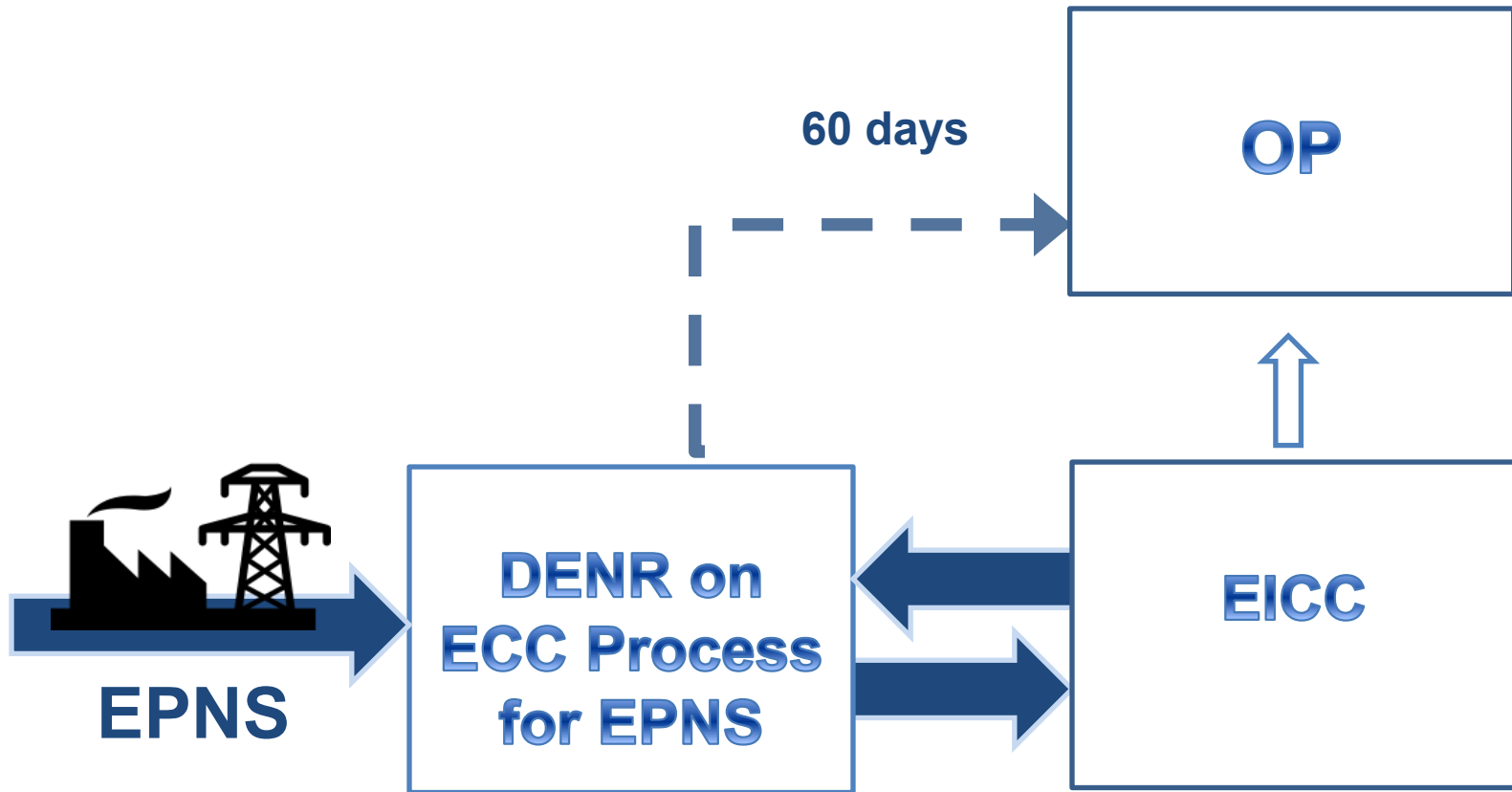
NGAs and LGUs





Executive Order No. 30

Environmental Compliance Certificate for EPNS

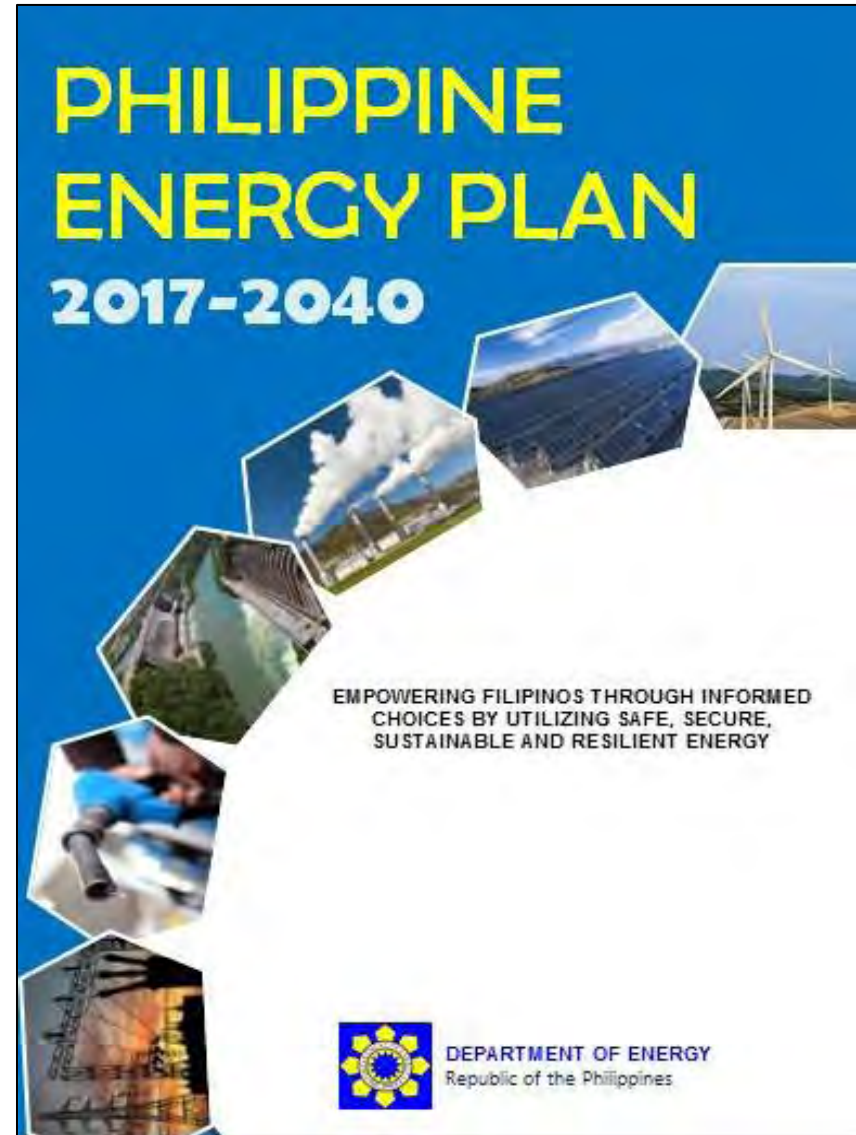




Executive Order No. 30

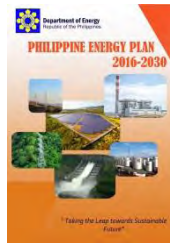
What is the Philippine Energy Plan?

The Philippine Energy Plan (PEP) is a comprehensive roadmap of programs and projects of the energy sector to ensure sustainable, stable, secure, sufficient, accessible and reasonably-priced energy.



Philippine
Development
Plan 2017-2022

Philippine
Development
Plan



Philippine
Energy
Plan



DOE



Project
Proponents



EPNS



Thank You!



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