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

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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
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<tr>
<th>1</th>
<th>ENSURE ENERGY SECURITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>EXPAND ENERGY ACCESS</td>
</tr>
<tr>
<td>3</td>
<td>PROMOTE A LOW CARBON FUTURE</td>
</tr>
<tr>
<td>4</td>
<td>STRENGTHEN COLLABORATION AMONG ALL GOVERNMENT AGENCIES INVOLVED IN ENERGY</td>
</tr>
<tr>
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<td>IMPLEMENT, MONITOR AND INTEGRATE SECTORAL AND TECHNOLOGICAL ROADMAPS AND ACTION PLANS</td>
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<td>6</td>
<td>ADVOCATE THE PASSAGE OF THE DEPARTMENT’S LEGISLATIVE AGENDA</td>
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<td>8</td>
<td>FOSTER STRONGER INTERNATIONAL RELATIONS AND PARTNERSHIPS</td>
</tr>
</tbody>
</table>
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

**DOE Units**
EPPB - lead
EPIMB, OIMB, EUMB, ERDB, REMB, ITMS, LS, ERTLS, CWPO, IPO, LFO, VFO, MFO, FS, AS

**Attached Agencies**
NPC, TransCo, PNO, PSALM, NEA

**Other Partners**
NGCP, PEmC, NBB, NREB

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**1st Qtr**

- Plan Implementation Review
- Sectoral Planning Workshop/Coordination Meetings

**2nd Qtr**

- Public Consultations/Workshops
- Energy Plan Formulation

**3rd Qtr**

- Revision of PEP draft per ManCom’s comments
- Finalization of PEP
- Secretary’s Approval
- Submission to OP and Congress

**4th Qtr**

- PEP Launching & Implementation
- Printing of PEP for Publication

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**Timeline**

- 1st Qtr
- 2nd Qtr
- 3rd Qtr
- 4th Qtr
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
Total Final Energy Demand*: 33.12 MTOE

* Excludes non-energy used
By Fuel

- Natural Gas: 6.1%
- Coal: 22.0%
- Oil-based: 34.9%
- RE: 37.0%

By Source

- Indigenous: 55.3%
- Imported: 44.7%
- Clean Energy (RE + Nat Gas): 43.1%

PEP 2017 – 2040
2016 Total Primary Energy Supply

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

Imported Energy

- Oil, 33.55
- Coal, 10.85
- Biofuels, 0.32
2016 Actual
Total Energy: 53.2 MTOE

2040 Outlook
Total Energy: 137.8 MTOE
PEP 2017 – 2040
Fossil Fuels: Oil, Gas and Coal Production

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Current Production</th>
<th>Future Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIL</td>
<td>2.41 MMB</td>
<td>122.54 BCF</td>
</tr>
<tr>
<td>GAS</td>
<td>2.01 MMB</td>
<td>140.52 BCF</td>
</tr>
<tr>
<td>CONDENATE</td>
<td>3.75 MMB</td>
<td>7.38 MMMT</td>
</tr>
<tr>
<td>COAL</td>
<td>4.15 MMB</td>
<td>12.08 MMMT</td>
</tr>
</tbody>
</table>
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)
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)
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 MMT and 282 MMT production to contribute to the country’s energy requirements.
## PEP 2017 – 2040
### Renewable Energy: NREP 2011 – 2020

<table>
<thead>
<tr>
<th>Technology</th>
<th>Installed Capacity (as of 2010)</th>
<th>Target Capacity Addition 2011-2020</th>
<th>Installed Capacity (as of 31 December 2016)</th>
<th>Potential Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grid</td>
<td>Own-use</td>
<td>Total Installed</td>
<td></td>
</tr>
<tr>
<td>Geothermal</td>
<td>1,966.00</td>
<td>1,320.00</td>
<td>1,916.00</td>
<td>684.00</td>
</tr>
<tr>
<td>Hydro</td>
<td>3,400.00</td>
<td>3,502.30</td>
<td>3,618.00</td>
<td>10,792.37</td>
</tr>
<tr>
<td>Biomass</td>
<td>39.00</td>
<td>276.70</td>
<td>233.00</td>
<td>326.15</td>
</tr>
<tr>
<td>Wind</td>
<td>33.00</td>
<td>1,903.00</td>
<td>427.00</td>
<td>1,038.95</td>
</tr>
<tr>
<td>Solar</td>
<td>1.00</td>
<td>274.00</td>
<td>765.00</td>
<td>4,081.51</td>
</tr>
<tr>
<td>Ocean</td>
<td>-</td>
<td>35.50</td>
<td>-</td>
<td>26.00</td>
</tr>
<tr>
<td>Total</td>
<td>5,439.00</td>
<td>7,311.50</td>
<td>6,959.00</td>
<td>16,948.98</td>
</tr>
</tbody>
</table>
## PEP 2017 – 2040

### Renewable Energy: Awarded RE Projects (Dec 2016)

<table>
<thead>
<tr>
<th>Renewable Energy</th>
<th>Number of Awarded Projects</th>
<th>Potential Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Grid</td>
<td>Own-Use</td>
</tr>
<tr>
<td>Hydropower</td>
<td>413</td>
<td>-</td>
</tr>
<tr>
<td>Ocean Energy</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Geothermal</td>
<td>43</td>
<td>-</td>
</tr>
<tr>
<td>Wind</td>
<td>58</td>
<td>1</td>
</tr>
<tr>
<td>Solar</td>
<td>150</td>
<td>16</td>
</tr>
<tr>
<td>Biomass</td>
<td>45</td>
<td>22</td>
</tr>
<tr>
<td>SUB-TOTAL</td>
<td>716</td>
<td>39</td>
</tr>
<tr>
<td>TOTAL</td>
<td>755</td>
<td></td>
</tr>
</tbody>
</table>
RENEWABLE ENERGY ROADMAP

**Other Activities**
- Creation of Conducive Business Environment
- Acceleration of RE Positioning
- Reliable and Efficient Infrastructure
- Promote and Enhance RD&D Agenda

**Overall Objective by 2040**

Increase RE installed capacity to at least 20,000 MW
Pursue the development of Biofuels in compliance with the Biofuels Act of 2006 (R.A. 9367)
• 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:

<table>
<thead>
<tr>
<th>Facilities Inspected</th>
<th>Liquid Petroleum Products</th>
<th>LPG Establishments</th>
<th>Bulk Depots</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2016)</td>
<td>2,586</td>
<td>2,216</td>
<td>95</td>
</tr>
<tr>
<td>(1H 2017)</td>
<td>343</td>
<td>1,247</td>
<td>62</td>
</tr>
<tr>
<td>Total Facilities</td>
<td>6,804</td>
<td>15,000</td>
<td>163</td>
</tr>
</tbody>
</table>
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

Legislative Agenda and Policy Advocacy Campaign

Fuel Quality Standards Development

Continuing Activities

Facility Standards Development

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.
<table>
<thead>
<tr>
<th>Natural Gas</th>
<th>Production and Consumption, in Million Standard Cubic Feet (MMSCF)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1994-2015</td>
</tr>
<tr>
<td>Production(^1)</td>
<td>1,666,685</td>
</tr>
<tr>
<td>Consumption (^2)</td>
<td>1,597,751</td>
</tr>
<tr>
<td>Power (^3)</td>
<td>1,568,673</td>
</tr>
<tr>
<td>Industrial</td>
<td>28,893</td>
</tr>
<tr>
<td>Transport</td>
<td>184</td>
</tr>
</tbody>
</table>

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.
## Table 26. PROPOSED NATURAL GAS INFRASTRUCTURE PROJECTS

<table>
<thead>
<tr>
<th>Target Operation</th>
<th>Project Description</th>
<th>Proponent</th>
<th>Location</th>
<th>Capacity</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 for 1 storage tank and initial 400 MW gas plant</td>
<td>LNG Import Receiving/Hub Terminal</td>
<td>Energy World Corp. Ltd. (EWCL)</td>
<td>Brgy. Ibabang Polo, Grande Island, Pagbilao Quezon</td>
<td>2 x 130,000 cu.m. LNG storage tanks, 600 MW gas fired plant anchor market</td>
<td>Granted Provisional Permit for 5 years. Provisional permit expires in Jan 2016. DOE issued 12 month extension of the Permit.</td>
</tr>
</tbody>
</table>
| 2018 | • 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 |  |  |  |  | |
| 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 |
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**
- 2016 Electricity Sales:
  - Residential: 33%
  - Commercial: 34%
  - Industrial: 4%
  - Others: 29%

**Generation**
- 199 GenCos
- 21.42 GW Installed Capacity
- 90,798 GWh Gross Generation

**Transmission**
- 31,501 MVA
- 20,053 ckt-km

**Distribution**
- 23 PIOUs
- 100 ECs
- 2 LGUOUs

**Peak Demand:** 13.272 GW

- PIOUs - Private-Investor Owned Utilities
- ECs - Electric Cooperatives
- LGUOUs - LGU-Owned Utilities

Sources of Data: DOE; NGCP
PEP 2017 – 2040
Power Development: Off-grid System

Load

- Residential: 8%
- Commercial: 12%
- Industrial: 24%
- Others: 56%

1,020.1 GWh
2015 Electricity Sales

64.3%* Energized

Distribution

- 21 ECs
- 2 MPCs
- 3 LGUOUUs
- 1 QTP

Generation

- 291 NPC
- 30 Non-NPC

406.1 MW Total Installed Capacity

Transmission

- 170 MVA
- 770 ckt-km

Load

- Residential: 24%
- Commercial: 56%
- Industrial: 8%

45% NPC
55% Non-NPC

Gross Generation

- 1,075 GWh

Source of Data: DOE; NPC

*excluding ARMM areas

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

<table>
<thead>
<tr>
<th>Capacity Addition</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseload</td>
<td>25,265</td>
</tr>
<tr>
<td>Midmerit</td>
<td>14,500</td>
</tr>
<tr>
<td>Peaking</td>
<td>4,000</td>
</tr>
<tr>
<td>Total</td>
<td>43,765</td>
</tr>
</tbody>
</table>

Philippines will need 43,765 MW additional capacity by 2040.
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
Overall Objective by 2040
Total electricity access in the country
### 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
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

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**Continuing Promotion of Alternative Fuel Vehicles and Energy Technologies**
Overall Objective by 2040

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

Energy Projects

National Government Agencies (NGA) and Local Government Units (LGU)

- Permits
- Licenses
- Endorsements

3-5 Years

Project Implementation
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

EICC

Harmonize, integrate and streamline regulatory processes, requirements and forms

NGAs and LGUs

30 Days or less

Inter-Agency EICC SECRETARIAT

- Provides Administrative and Technical Support
- Serve as Repository of Documents
- Web-based Monitoring of all Energy Projects

Energy Projects of National Significance (EPNS)
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 its policies
- Call on other government agencies
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
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)
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
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.
Executive Order No. 30
Environmental Compliance Certificate for EPNS
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.
Thank You!

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