Development Plans in the Emerging Downstream Natural Gas Industry

Ma. Laura L. Saguin

Investment Forum and Stakeholders Conference

Theme: E-Power Mo

October 3, 2017

Grand Royal Hotel, Davao City

Presentation Outline

I. Overview of the Downstream Natural Gas Industry
II. Policy Thrust/Directions
III. Development Plans and Programs
IV. Challenges in the Development Plans

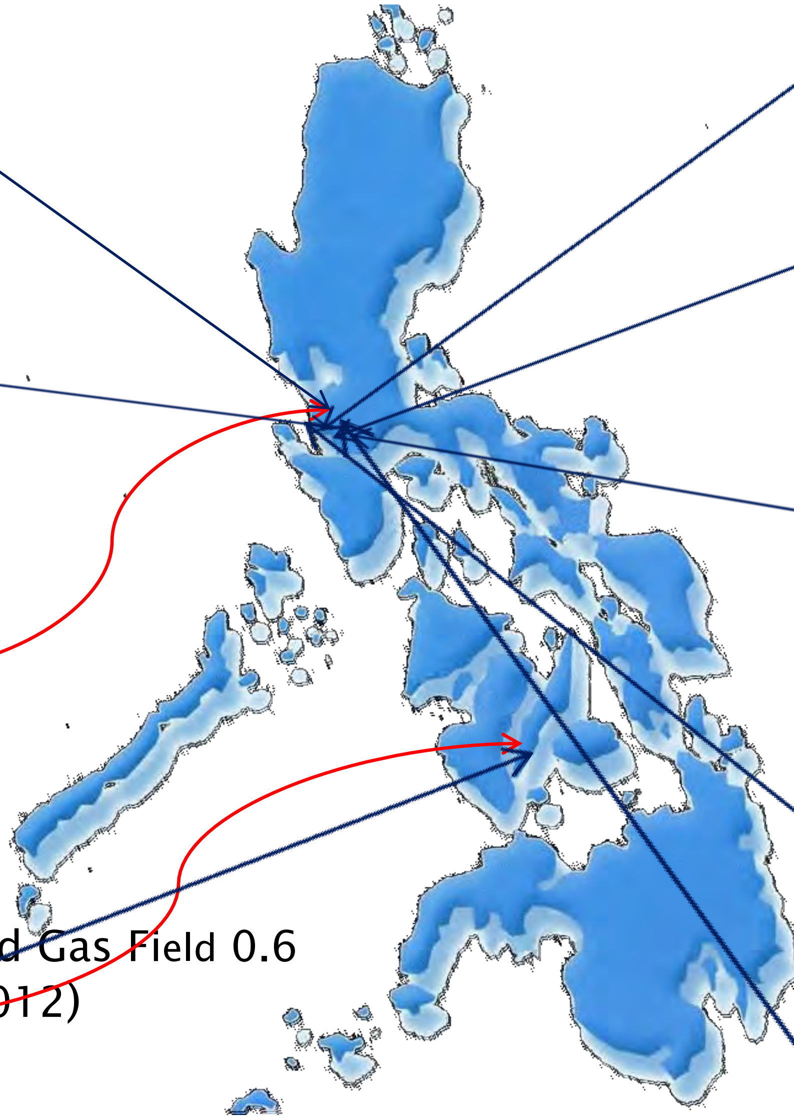
Overview of the Downstream Natural Gas Industry

414 MW San Gabriel
First Gen/ IPP

Shell Refinery

Malampaya Gas Field
2.7 TCF (2001)

Libertad Gas Field 0.6
BCF (2012)



97 MW Avion
First Gen/ IPP

560 MW San Lorenzo
First Gen/ IPP

1,000 MW Sta. Rita
First Gen/ IPP

1,200 MW Ilijan Power Plant
NPC IPP(KEPCO)

CNG Bus (2008)

Policy Thrust/Directions

1 ENSURE ENERGY SECURITY

2 EXPAND ENERGY ACCESS

3 A LOW CARBON FUTURE

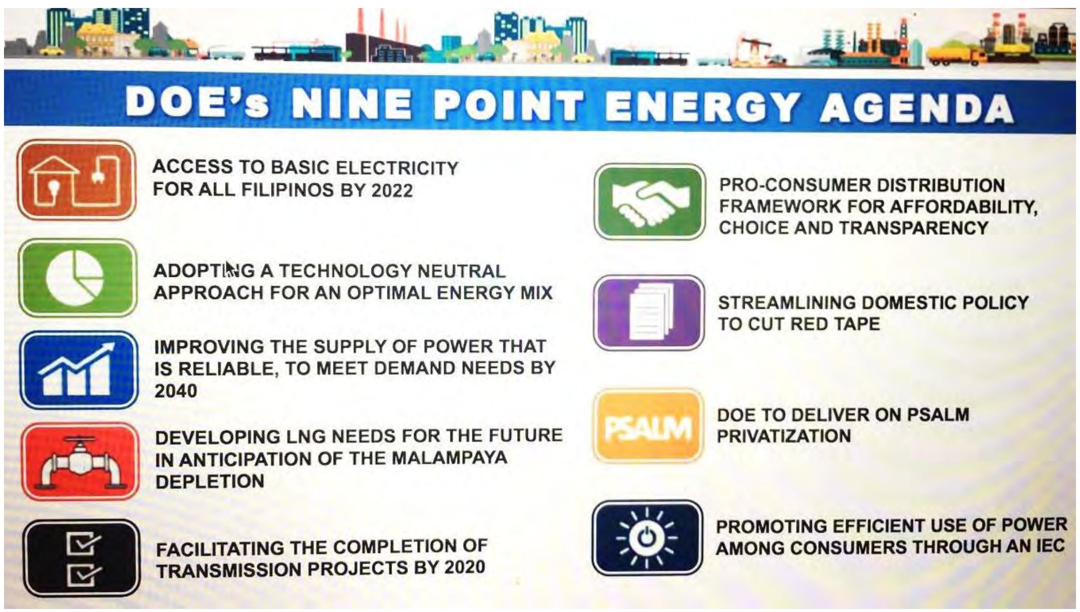
4 STRENGTHEN COLLABORATION AMONG ALL GOVERNMENT AGENCIES INVOLVED IN ENERGY

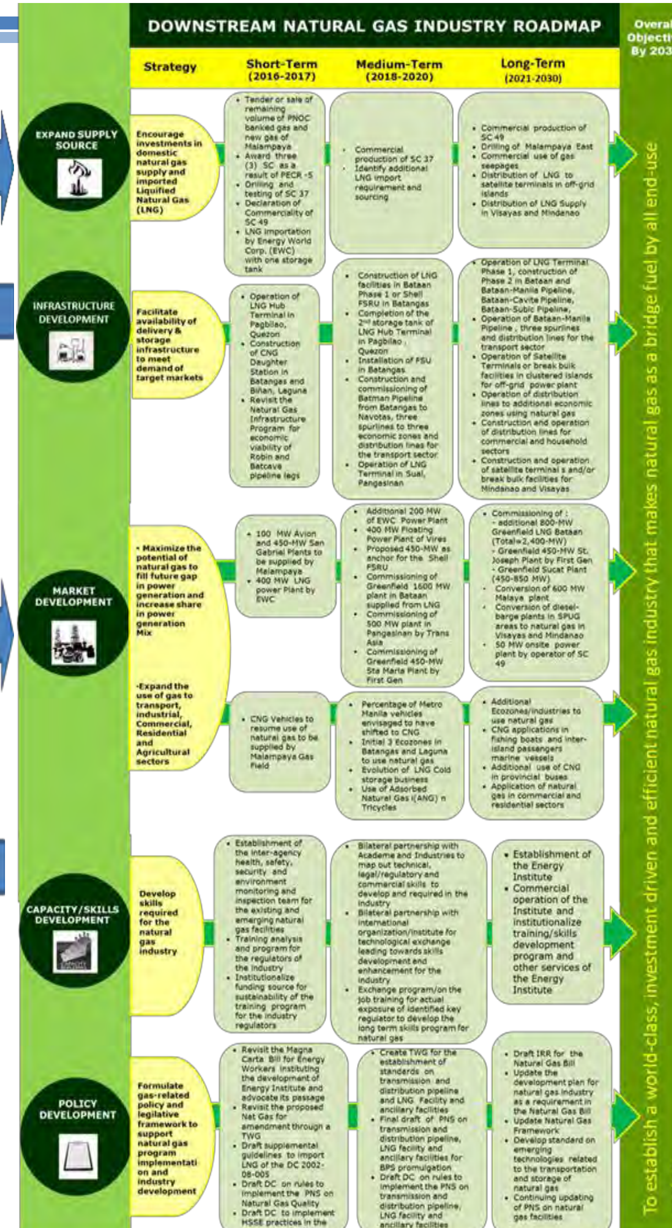
5 IMPLEMENT, MONITOR AND INTEGRATE SECTORAL AND TECHNOLOGICAL ROADMAPS AND ACTION PLANS

6 PROMOTE A LOW CARBON FUTURE

7 STRENGTHEN CONSUMER WELFARE AND PROTECTION

8 FOSTER STRONGER INTERNATIONAL RELATIONS AND PARTNERSHIPS



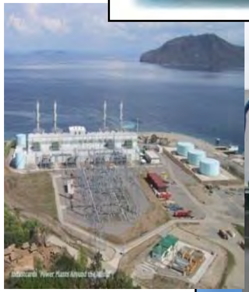


Development Plans and Programs

To increase the utilization of natural gas :

- **Expand Supply Source**

  -**intensifying exploration for indigenous gas deposits and studying options for economically using imported LNG**



- **Market Development**

  - vigorously promoting its use in the transportation, commercial and residential sectors

- **Develop Critical Infrastructures**

  - **that will efficiently deliver gas to the demand centers**

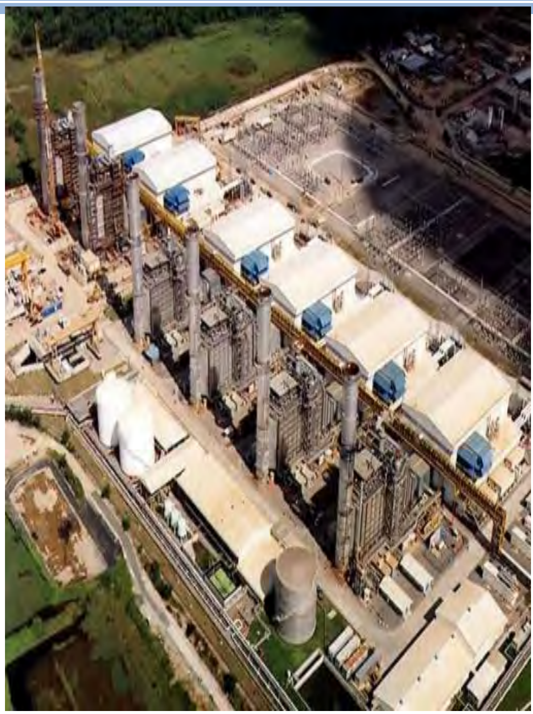
- **Establish Public-Private Partnership**

  - **continue to encourage the private sector to assist government in developing the natural gas industry.**

- **Capacity Building**

  - develop skills and competencies to manage the industry

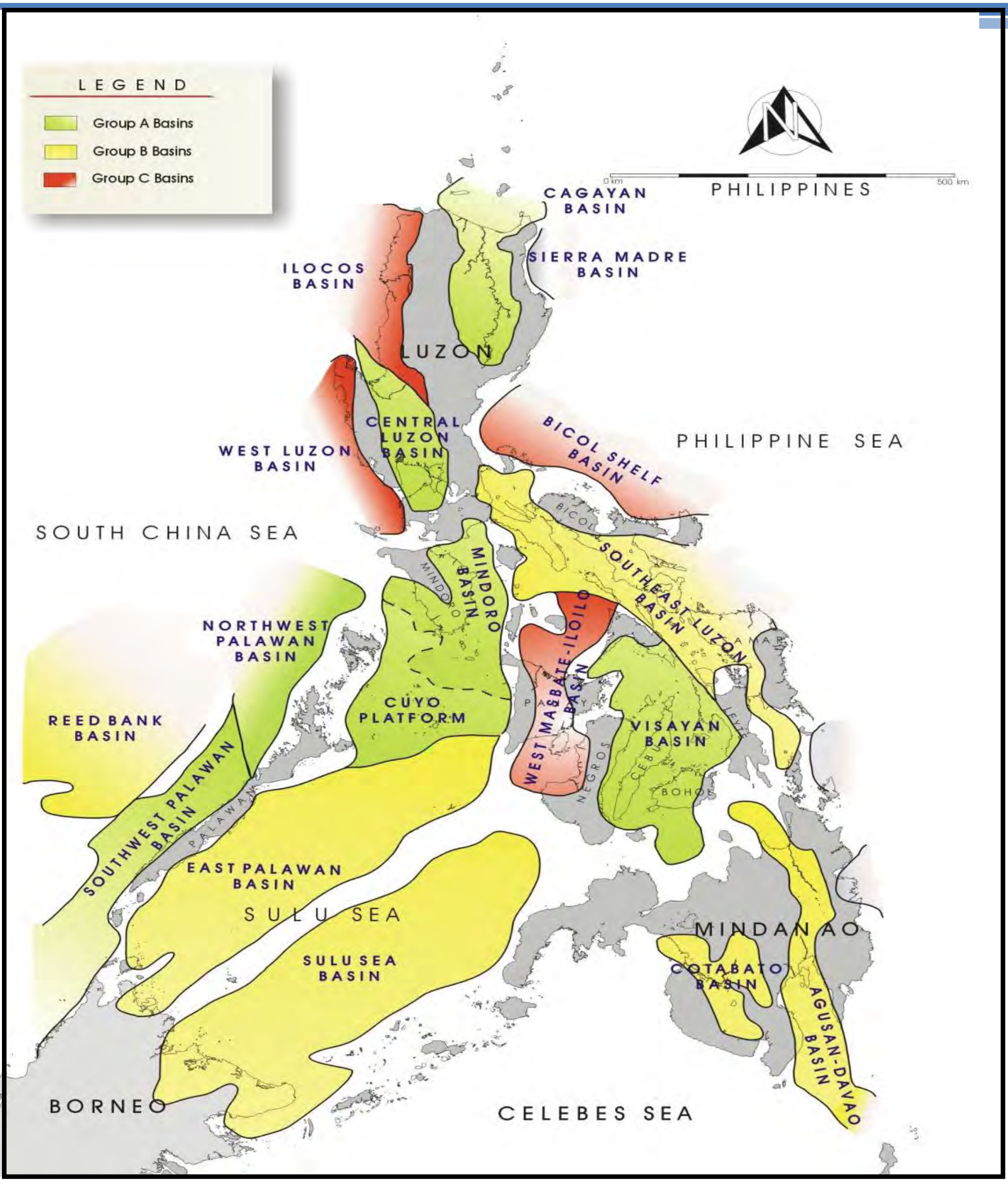
Development Plans and Programs



- Malampaya has six gas sales and purchase agreements
- Inflexible output from Malampaya with an average production of 380 million standard cubic feet (mmscf) per day
- Fuels 2,700 MW of power stations as baseload resources for the most part and additional 500+ MW operating as mid-merit and peaking plants and a refinery
- Given the production level and continuous drop in pressure, Malampaya gas field is expected to deplete in 2022.

- **Recoverable Reserve end of field life is 3.08 to 3.29 TCF**
- **The Malampaya concession expires in 2024 and while it may have enough gas for some further expansion, this is not considered sufficient for more than about 5 years to provide the future natural gas requirements particularly on the plan to expand the application of natural gas in industrial, commercial, residential and transport sectors.**

Development Plans and Programs



PETROLEUM BASIN PROSPECTIVITY MAP

Most Prospective Basins

1. NW Palawan Basin
2. SW Palawan Basin
3. Sulu Sea Basin
4. Cagayan Basin
5. Visayan Basin
6. Central Luzon Basin
7. Mindoro-Cuyo Platform

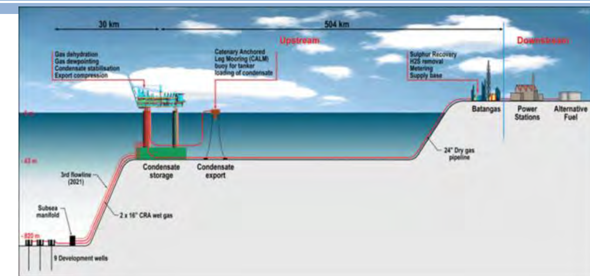
Prospective Basins

1. East Palawan Basin
2. Reed Bank Basin
3. SE Luzon Basin
4. Agusan-Davao Basin
5. Cotabato Basin

Frontier Basins

1. West Luzon Basin
2. West Masbate-Iloilo Basin
3. Ilocos Basin
4. Bicol Shelf Basin

Development Plans and Programs

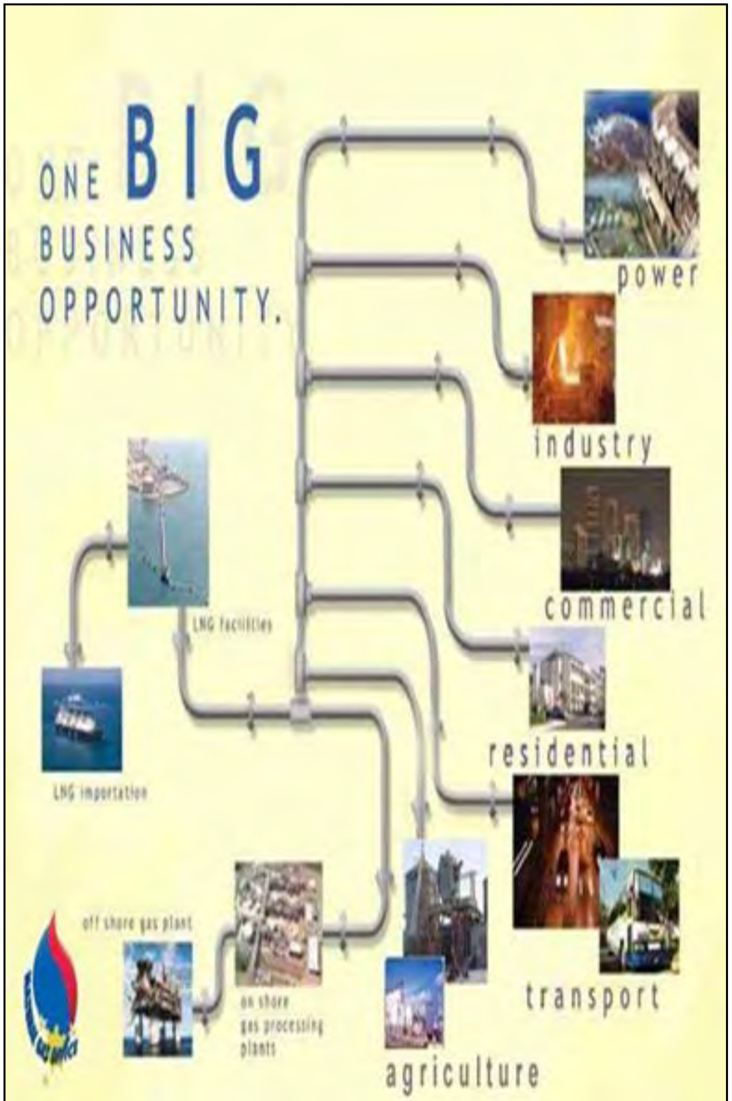


- In the short term, there are not sufficient resources from Malampaya or other potential developments to justify new infrastructure development
- New gas might come from domestic resources, but the volumes and timing are unpredictable
- The only sure source of new gas in the medium term (through 2020) would be imported liquefied natural gas (LNG) to ensure supply security and sustainability of natural gas
- The Philippines today cannot access the LNG market: there are no existing or operational import facilities
- Much cheaper than oil, competitive with coal in the mid-cycle, and once import facilities are built, industrial, commercial, and transportation users can also gain access to gas

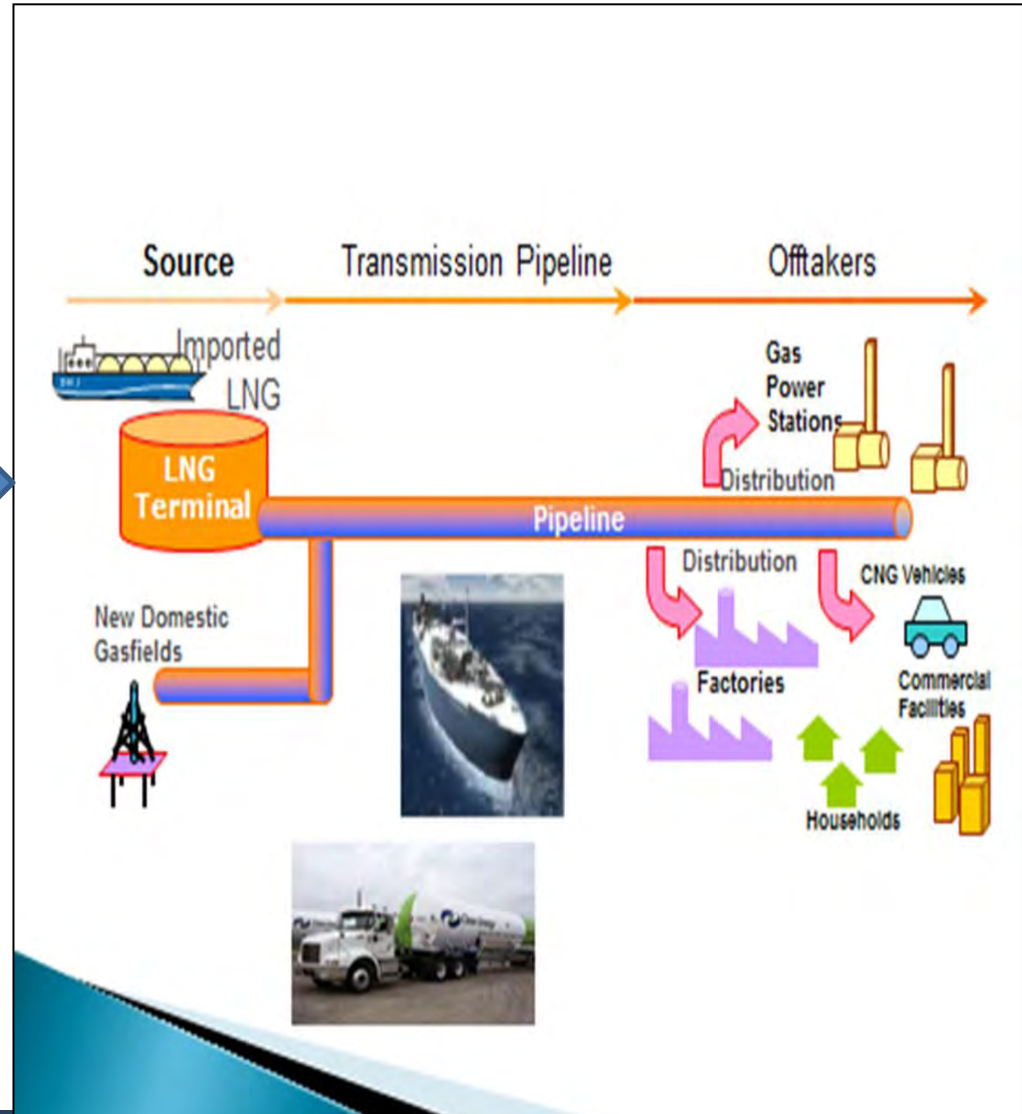
The commercialization challenge : develop a market for LNG that can justify the investment in the LNG importation facilities

Development Plans and Programs

Potential Market for Natural Gas



Strategic Infrastructure in Luzon



Development Plans and Programs

Integrated LNG Terminal

- Safeguard against the anticipated depletion of the Malampaya gas facility in 2024.
- Initial 200-MW power plant, storage facilities, liquefaction and regasification units.
- Output will serve PEZA areas.

Project Cost: **PHP 100 billion**
Targeted Completion: **2020**

Development Initiatives

- Natural Gas Quality Standard
- Creation of Inter-Agency Health, Safety, Security Environment (HSSE) Inspection Team
- Organized the Natural Gas Coalition Group
- Ongoing drafting of the LNG Department Circular

Challenges in the Development Plans

- Limited supply of Natural Gas
- Power generation sector remains to be the main driver to natural gas industry development
- Lack of Available Natural Gas Infrastructure Network
- Absence of Natural Gas Law
- Lack of Gas Related Policy and Legislative framework
- Shortcomings of current Regulatory framework
- Lack of Locally Industry Standards
- Capacity build-up for the DOE and the natural gas industry

Thank You !

(+632) 840-0774

laura.saguin@doe.gov.ph

www.doe.gov.ph

//doe.gov.ph

@doe_ph