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**Overview**

1. **Natural Gas Industry: Outlook and Potential Investments**
2. The Philippine Downstream Natural Gas Industry Regulatory Framework
3. Incentives and Policies that Facilitate Investments
4. **Primer for Application**
Natural Gas Supply from Malampaya, Palawan
Uses of Natural Gas

- **Power** – fuel for gas turbines or engines that drive generators
- **Industrial** – used in oil refineries; fuel for furnaces, heaters, compressors for refrigeration and air conditioning systems; raw materials to produce chemicals, fertilizers, and hydrogen.
- **Transport** – fuel for public transport or heavy; marine fuel
- **Commercial** – operate cooling equipment; fuel in combined heat power systems; heat water, cook food, outdoor lighting, etc.
- **Residential** – fuel for cooking and heating in households, etc.
95% of all the indigenous gas from Malampaya is used as fuel for the gas-fired power plants in Batangas.

Small scale LNG businesses didn’t have a chance at all due to lack of gas.
**A. Anchor Investments for LNG: Power**

Notice to Proceed Issued to four (4) companies with 1 PCERM Application
1) Tanglawan (expired)
2) First Gen
3) Excelerate
4) Batangas Clean Energy

<table>
<thead>
<tr>
<th>Additional power capacities, 2017-2040 (in MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity Addition in MW</td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Baseload (coal, geothermal, natural gas*, nuclear*, biomass*, &amp; hydro*)</td>
</tr>
<tr>
<td>Mid-merit (natural gas &amp; all others)</td>
</tr>
<tr>
<td>Peaking (oil, wind** and solar PV**)</td>
</tr>
<tr>
<td><strong>Total per grid</strong></td>
</tr>
</tbody>
</table>

Notes: At 70, 20 10: Baseload, Mid-merit and peaking; *Natural gas is currently considered as baseload but belongs to mid-merit category; hydro is baseload only in rainy season; biomass is baseload only during availability of feedstock; **Wind and solar PV subject to availability. Source: DOE 2016
Potential non-power uses of LNG

- Industrial
- Residential
- Commercial
- Transport
- Power
A Functional LNG Value Chain
Potential Non-Power Businesses

1) Small power plants for island provinces and remote areas
2) Inter-island shipping
3) Trucking
4) Industrial and commercial use
5) Residential and other restaurants
6) Land-based public transport
### Ecozone companies: Perception on and Openness to Natural Gas

<table>
<thead>
<tr>
<th></th>
<th>Safety (1)</th>
<th>Cost-competitiveness (2)</th>
<th>Openness to switching (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>57.39</td>
<td>66</td>
<td>65.22</td>
</tr>
<tr>
<td>No</td>
<td>42.61</td>
<td>49</td>
<td>34.78</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>115</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: GPDP Primary Survey on Natural Gas Profiling 2019
Natural Gas Industry Outlook in the Philippines

Top Considerations for Fuel Switching to Natural Gas

Compatibility of machines and equipment
Safety and security
Price
Supply stability and reliability
Environmental concerns
Retrofitting costs of equipment

Source: GPDP Primary Survey on Natural Gas Profiling 2019
# Energy Requirement for Natural Gas in Case of Switching

<table>
<thead>
<tr>
<th>Units: mmscfd</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 20</td>
<td>69.86</td>
<td>51</td>
</tr>
<tr>
<td>21 to 40</td>
<td>10.96</td>
<td>8</td>
</tr>
<tr>
<td>41 to 60</td>
<td>9.59</td>
<td>7</td>
</tr>
<tr>
<td>61 to 80</td>
<td>5.48</td>
<td>4</td>
</tr>
<tr>
<td>81 to 100</td>
<td>4.11</td>
<td>3</td>
</tr>
<tr>
<td>101 and above</td>
<td>0.00</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00</strong></td>
<td><strong>73</strong></td>
</tr>
</tbody>
</table>

Source: GPDP Primary Survey on Natural Gas Profiling 2019
Promising ssLNG Businesses

<table>
<thead>
<tr>
<th>Tons/year (in millions)</th>
<th>LNG power</th>
<th>Marine LNG</th>
<th>LNG trucks</th>
<th>Total demand 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>50</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

Source: Engie; Strategy & research
Factor affecting potential demand for LNG by ssLNG businesses

- Conservative scenario
  - High ($9+): 24% 35% 88%
  - Medium ($5–$8): 30% 75% 98%
  - Low ($3–$4): 50% 95% 100%

- Realistic scenarios
  - Low ($50–$60)
  - Medium ($70–$80)
  - High ($90+)

- Optimistic scenario
# Mechanism to guide investors for LNG facilities

## Table of Contents

1. Natural Gas Industry: Outlook and Potential Investments
2. The Philippine Downstream Natural Gas Industry Regulatory Framework
3. Incentives and Policies that Facilitate Investments
4. Primer for Application
Over-all Permitting Process

1. Applicant to submit request letter for pre-application conference to DNG-REC
2. DNG-REC to send reply letter with schedule of conference to Applicant
3. Applicant to present general project concept and inquire clarification during presentation
4. Applicant to submit application and documentary requirements
5. DNG-REC to evaluate, resolve, and inform Applicant if submission is complete
6. If submission is complete, DNG-REC to conduct legal, technical, and financial evaluation and recommend for approval the issuance/non-issuance of NTP of DOE Secretary
7. DOE Secretary to review and decide on recommendation for approval/non-approval of NTP
   DOE Secretary may require further explanation, clarification, or re-evaluation of recommendation
8. Issuance of NTP
9. Applicant to secure permits or clearances from other Government Agencies and Financial Closing within validity of NTP
10. Applicant to submit compliance to NTP conditions for validation of DNG-REC
11. Once validated, DNG-REC to recommend for approval of DOE Secretary the issuance of PCERM
12. DOE Secretary to review and decide for approval/non-approval of PCERM
   DOE Secretary may require further explanation, clarification, or re-evaluation of recommendation
13. Issuance of PCERM
14. Start of construction
15. Completion of construction
   Applicant to submit application for POM
16. DNG-REC and PIA-HSSE IMT to verify completion of construction and compliance
17. Upon verification, DNG-REC to recommend approval to DOE Secretary the issuance of POM
18. DOE Secretary to review and decide for approval/non-approval of POM
   DOE Secretary may require further explanation, clarification, or re-evaluation of recommendation
19. Issuance of POM
20. Commercial operation
NTP Application Process

1. Request Letter for pre-application conference
2. Reply Letter with Schedule of Conference
3. Pre-application Conference: Presentation of General Project Concept
4. Submission of Application and Documentary Requirements
5. Within 3 working days
   Evaluate, resolve, inform the applicant if submission is complete
6. Within 15 working days
   Legal, technical, financial evaluation and recommendation for approval the issuance/non-issuance of the NTP
7. Within 5 working days
   DOE Secretary to review and decide on the recommendation for approval/non-approval of NTP

Issuance of NTP
Valid for 6 months (extendable up to 6 months maximum)

Monitoring for NTP holders monthly progress report, and conduct of operational meeting

Applicant
DOE DNG-REC

COMPLETE
INCOMPLETE
will be rejected but can re-apply
PCERM Application Process

1. Issuance of NTP
   - Submission of compliance to the NTP conditions for validation of DNG-REC
   - Valid for 6 months (extendable up to 6 months maximum)
   - Within 5 working days from end of NTP period

2. Once validated, DNG-REC shall recommend for approval of the DOE Sec., the issuance/non-issuance of the PCERM
   - Within 15 working days

3. DOE Secretary to review and decide for approval/non-approval of the PCERM
   - Within 5 working days

4. Monitoring for PCERM Holders
   - 1. Monthly Progress Report
   - 2. Lost-Time Incident Report
   - Within 5 working days

5. Completion of Construction
   - Completion of Construction should be within the approved construction timeline

Monitoring for PCERM holders monthly progress report, and conduct of operational meeting

Applicant

DOE DNG-REC
POM Application Process

1. Submit application for POM within 30 working days from construction completion

2. DNG-REC and PIA-HSSE IMT to verify completion of construction and compliance. Upon verification, DNG-REC shall recommend approval to DOE Secretary the issuance of POM within 15 working days

3. DOE Secretary to review and decide for approval/non-approval of the POM within 15 working days from receipt of recommendation

4. Commercial Operation
   - Monitoring for POM Holders
     - Registry
     - Reportorial Requirements
       - Monthly Operation Report
       - Lost-Time Incident Report
   - Commercial Operation for an initial period of 25 years renewable up to 25 years subject to some conditions
PRE-CONSTRUCTION

Notice to Proceed (DOE)

Environmental Compliance Certificate or Certificate of Non-Coverage (DENR)

NWRB
- Certificate of Water Availability
- Water Permit

PCG
- Certificate of Aids to Navigation (ATON)
- Special Permit to Dump/Discharge Waste and/or Other Matters (for vessels or land-based)

PPA
- Clearance to Develop Private Port Facility
- Permit to Construct Private Port Facility

CAAP
- Height Clearance Permit (if constructed near a runway)

DOE
- Monthly Progress Report and Operational Meeting

Permit to Construct, Expand, Rehabilitate, and Modify (DOE)
<table>
<thead>
<tr>
<th>Department of Energy, DOE</th>
<th>Bureau of Fire Protection, BFP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department of Agrarian Reform, DAR</td>
<td>National Water Resource Board, NWRB</td>
</tr>
<tr>
<td>Department of Labor and Employment, DOLE</td>
<td>Philippine Coast Guard, PCG</td>
</tr>
<tr>
<td>Department of Interior and Local Government, DILG</td>
<td>Philippine Ports Authority, PPA</td>
</tr>
<tr>
<td>Department of Environment and Natural Resources-Environmental Management Bureau (DENR)</td>
<td>Civil Aviation Administration of the Philippines, CAAP</td>
</tr>
<tr>
<td></td>
<td>National Commission of Indigenous Peoples, NCIP</td>
</tr>
<tr>
<td></td>
<td>Philippine Reclamation Authority, PRA</td>
</tr>
</tbody>
</table>
OPERATION

DOLE
- Registration of Establishment
- Company Occupational Safety and Health Program
- Permit/s to Operate (PTOs) for Mechanical Equipment
- Company Occupational Safety and Health (OSH) Administrative Reports
- Certificate of Electrical Inspection (or Renewal of Certificate of Electrical Inspection)

BFP
1 - FSIC for Certificate of Occupancy and other clearance for the conduct of Welding, Cutting, and Other Hotworks

LGU
- Occupancy Permit

1 - Conveyance Clearance
2 - Storage Clearance
3 - FSIC for Business Permit (New/Renewal)

(no particular order)
- Business Permit (LGU)
- City/Municipal Sanitary Permit (LGU)
Facilities covered by the PDNGR

**LNG Terminal**
- Jetty and unloading/loading arms
- Cryogenic pipelines
- Storage tanks
- Send out system
- Low and high pressure pumps
- Boil-off gas compressors and re-condensers
- Vaporizers
- Metering; and
- Other relevant components

**Pipelines**
- Transmission
- Distribution including spur lines
- Other relevant components

**Transmission and distribution related facilities**
- Processing plants
- Facilities for pipeline interconnections and metering
- Natural Gas Refilling Stations;
- Other relevant components

**Indigenous Natural Gas Facility**
- Pipelines and their related facilities used to transport natural gas after the point of sale to the last connection point to the customers
ACCREDITATION AND IMPORTATION

**DOE**
- **1**
  - LNG Importer Accreditation Certificate
- **2**
  - Acknowledgement to Import LNG

**BIR**
- **1**(no particular order)
  - Acknowledgement to Supply and Transport Natural Gas (AST-NG)
  - Natural Gas Supplier Accreditation Certificate
- **2**
  - Importer’s Tax Identification Number

**MARINA**
- **1**(no particular order)
  - Accreditation of Domestic Shipowners/Operators/Companies and Maritime Enterprises/Entities
- **2**
  - Acquisition of Ships for Domestic Utilization
  - Permit for Permanent Conversion of Ships
  - Trading Status from Overseas to Domestic Trade
  - Special Permit for Temporary Utilization of Overseas Ships in Domestic Trade
  - Transfer of Ownership Through Local Sale

**PCG**
- **1**(no particular order)
  - Accreditation for International vessels
- **2**
  - Certification and Official Receipt of Payment
  - Registration and Accreditation as Importer

**BOC**
- **1**(no particular order)
  - Entry Inspection and Clearance (Boarding Formalities) (BOC, BOQ, BOI, PCG)
- **2**
  - Exit Clearance (BOC, BOQ, BOI)
Continuing what has been started: Focus and possible support for GPDP 2

- Delineating agency functions for LNG project monitoring and permit applications
- Policy recommendations supporting above & natural gas bill
- Continuous technical capacity development for staff and executives
- Technologies, associated hazards and figuring out what are needed for the permitting system
- Customized list of standards per agency
GPDP launched on **8 Dec 2018**

DOE and UP Statistical Center Research Foundation Inc. signed a MOA to implement the 18-month project.
Project accomplishments (18 months)
PHILIPPINE DOWNSTREAM NATURAL GAS INDUSTRY INVESTORS' GUIDE

Click this link for the electronic copy of the document or visit our Facebook Gas Policy Development Project: https://www.facebook.com/gaspolicydevproj/

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The U.S. Department of State, Bureau of Energy Resources, leads efforts to forge international energy policy, strengthen U.S. and global energy security, and respond to energy challenges from around the world that affect U.S. economic policy and energy security.

The Asia EDGE initiative is a U.S. whole-of-government effort to grow sustainable and secure energy markets throughout the Indo-Pacific. Asia EDGE seeks to strengthen energy security, increase energy diversification and trade, and expand energy access across the region.

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The Department of Energy is mandated by RA 7638 (Department of Energy Act of 1992) to prepare, integrate, coordinate, supervise, and control all plans, programs, projects, and activities of the Government related to energy exploration, development, utilization, distribution, and conservation.

GPDP

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