Petrovietnam and Gas Business

PETROVIETNAM
Energy for National Development
**Petrovietnam Overview**

**Mission**
Contribute to ensure national energy security and as a leading business group contribute to build & develop Vietnamese economy.

**Strategic Vision through 2025**
Be a leading petroleum group in the region - a pride of Vietnam.
PVN Organization Structure

Petrovietnam restructure:
Re-size from 22 Technical/Functional Divisions to 13 Divisions
Petrovietnam:
28 subsidiaries & affiliates and 3 science research/training institutions.
Business activities focus on 5 lines as follows:

- **Refinery**: Petrochemical and bio-fuel
- **Gas industry**
- **Oil and gas exploration and production**
- **Power generation**
- **High quality Petroleum Technical Services**
Petrovietnam

PVN main business segment

Group revenue (USD bil)

Main business segments

Oil Exploration & Production 29%
Professional & Technical Services 33%
Gas Industry 12%
Refining & Petrochemical 20%
Power Generation 6%
E&P - Core Business

Production 2006 - 2017

2018 Production forecast

Crude oil 13.2 mil ton
Nature gas 9.6 bil m³
### PVN main business Revenue

PVN revenue of main business segment in 2017

<table>
<thead>
<tr>
<th>Business Segment</th>
<th>Revenue (USD bil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E &amp; P revenue:</td>
<td>6.3 bil</td>
</tr>
<tr>
<td>Gas revenue:</td>
<td>2.8 bil</td>
</tr>
<tr>
<td>Refining &amp; Petrochemical:</td>
<td>3.6 bil</td>
</tr>
<tr>
<td>PVPower revenue:</td>
<td>1.4 bil</td>
</tr>
<tr>
<td>Petroleum Technical service revenue:</td>
<td>7 bil</td>
</tr>
</tbody>
</table>
PVN Gas business value chain

- Oil and Gas fields
- Gas Gathering
- Gas Processing Plant (Condensate, LPG, Dry Gas)
- Power Plant
- Fertilizer Plant
- Industrial Customers
- Household consumption low-pressure gas
Gas Industry - Pipeline System

Current Gas pipeline systems:

- **Cuu Long Basin gas pipeline system:** 2 billion m³ of gas/year
- **Nam Con Son gas pipeline system:** 7 billion m³ of gas/year
- **Ca Mau - PM3 gas pipeline system:** 2 billion m³ of gas/year
- **Phu My - Nhon Trach gas pipeline system:** 2 billion m³ of gas/year
- **Phu My - My Xuan - Go Dau low - pressure gas pipeline system:** 1 billion m³ of gas/year

Future key projects:
- Blue Whale (Ca Voi Xanh) gas field & pipeline
- B-Block gas field & pipeline
- Nam Con Son 2 pipeline

PVGas revenue in 2017: USD 2.8 bil
Petrovietnam

PVN Gas business

- Proportion of Gas supply: 83% for power plant, 11% for fertilizer plant, 6% for industrial customers. In the future gas volume for Fertilize and Industrial usage will be increasing.

- Taking 70% LPG market shares in Vietnam (Production – 35%, Import & international trade – 65%)
- Providing gas to produce 40% of total National Electricity Output and 70% of fertilizer national Output;
## PVN Gas Industry Projects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Investment Form</th>
<th>Current Status</th>
<th>Total Investment Capital (million USD)</th>
<th>Owner</th>
<th>Cooperation Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Son My LNG Terminal</td>
<td>Project</td>
<td>Under study - FS</td>
<td>1,350</td>
<td>PV Gas</td>
<td>Build new terminal 3-6 MTPA in Son My – Binh Thuan province; Project Investment: Offer up to 49% of Equity ownership; - Equipment &amp; Finance Supply</td>
</tr>
<tr>
<td>B-Block pipeline system</td>
<td>Project</td>
<td>Under construction</td>
<td>1,118</td>
<td>PVN &amp; PV Gas</td>
<td>Equipment &amp; Finance Supply</td>
</tr>
<tr>
<td>Nam Con Son 2 (phase 2) pipeline</td>
<td>Project</td>
<td>Prepare for construction</td>
<td>946</td>
<td>PV Gas</td>
<td>Equipment &amp; Finance Supply</td>
</tr>
<tr>
<td>Thi Vai LNG Terminal</td>
<td>Project</td>
<td>Under construction</td>
<td>620</td>
<td>PV Gas</td>
<td>Upgrade the existing terminal in Thi Vai to import 1-2 MTPA; Equipment &amp; Finance Supply</td>
</tr>
<tr>
<td>Su Tu Trang pipeline</td>
<td>Project</td>
<td>Prepare for construction</td>
<td>~ 160</td>
<td>PV Gas</td>
<td>Equipment &amp; Finance Supply</td>
</tr>
<tr>
<td>Sao Vang – Dai Nguyet pipeline</td>
<td>Project</td>
<td>Under study</td>
<td>~ 150</td>
<td>PV Gas</td>
<td>Equipment &amp; Finance Supply</td>
</tr>
</tbody>
</table>
PVN’s LNG Value chain/Transportation

Level 1 Terminal
Imported LNG

LNG Small Scale Vessel

Level 2 LNG Terminal

LNG Trucks

Pipeline

Users
Current key issues and challenges in selected subjects

**Current key issues:**
- Gas products mainly are NG and LPG, condensate;
- LNG projects are on-going.

**Challenges:**
- Lacking practical & experiences in managing LNG project:
  - Measure LNG in and out;
  - Anti ice-block;
  - Flare system.
- Lacking practice & experiences in operating LNG facilities:
  - Vacuum condition inside LNG tanks, Testing LNG tanks as function of temp., sensors located…;
  - Safety in vent NG/LNG;
  - LNG leakage;
  - LNG unloading line;
  - Typical hazard in LNG terminal and how to prevent these hazard.
- Designing and building master program for developing HR in operation and maintenance LNG facilities;
  - Training roadmap;
  - Developing key experts (training program, requirements, recognized...).
**Key agenda for cooperation with JCCP through HRD Programs and Technical Cooperation**

**Interested subjects:**

- LNG and NG value chain of Gas Companies in Japan;

- Experiences in managing LNG projects:
  - *The difference in managing LNG projects (compare with NG projects)*;
  - *The difficulties (problems) in managing LNG projects (compare with NG projects)*.

- Experiences in operating LNG facilities:
  - *The difference and difficulties (problems) in operating LNG projects (compare with NG projects)*;
  - *The most difficulties (problems) in LNG business as LNG contracts, imported LNG price and retail LNG price, transportation time …*;

- Experiences in maintaining LNG facilities;

- Experiences in developing staff for operating & maintenance LNG facilities, especial technical staff and experts: Career Road map/Individual Development Plan, master training program, Coaching & Mentoring, OJT…;
Expectations of JCCP Programs & Japanese Petroleum Companies in future

Expectations:

- Provide technical exchange and sharing experiences in managing LNG projects;
- Provide technical exchange and sharing experiences in preparing and developing human resources of key positions in LNG business;
- Provide technical exchange and sharing experiences in operation and maintenance in Gas Processing Plans: corrosion in pipeline & plan, incident/accident control, training programs for developing key technical experts …;
- Focused subjects in technical exchange and HRD program in LNG & NG:
  - Terminal and storage;
  - Distribution system: shipping, pipeline, LNG trucks;
  - Regasified station operation;
  - Operation and maintenance in GPP and LNG facilities.
THANK YOU

Contact Detail:  Administration Office
Address: 18 Lang Ha Street, Ba Dinh, Hanoi, Vietnam
Tel: (84-24) 38252526  |  Fax: (84-24) 38265942
Website:  http://pvn.vn
2018年7月25日プレゼンの様子@JCCP