Data Management of The Vietnam Oil and Gas Industry
Content

• Overview of Oil and Gas Activities in Vietnam
  – Petroleum legislation
  – Upstream activities
  – Downstream activities

• Data Management of Petrovietnam
  – Data Management Policy
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  – Databases
  – Challenges to data management system
  – Future plans
Petroleum legislation


  Article 2 (Chapter II- Petroleum Operations)

  “All the samples, cores, data and information acquired during the conduct of Petroleum Operation are the property of the State of Vietnam. The handling and utilization of such samples, cores, data and information shall comply with Vietnamese Laws”
From 1988 to 2008

- 64 contracts executed
- 41 contracts in force
- Over 8 billion USD invested
E&P activities:

- over 200 exploration wells
- 70 Hydrocarbon discoveries, 20 oil & gas fields (10 producing)
- Oil production: 400,000 barrels/day from 7 fields and 1 field developing
- Gas production: 700 million cf/day from 4 fields and 3 fields developing
UPSTREAM: OVERSEAS E & P

Junin 2, Venezuela, 49%
31, 32, 42, 43
Cuba 100%

Block 433a&416b, Algeria, 40%

Amara Oil Field
Iraq 100%

3 Blocks in Tamtsag, Mongolia, 5%/block

16, 17, 18
Cuba 100%

Majunga, Madagasca, 10%

Block PM304
Malaysia, 15%

Block SK305,
Malaysia, 30%

Block NEM 1
Indonesia, 20%

Block NEM 2
Indonesia, 20%

Block NEM 2
Indonesia, 20%

Exploration (05 projects)

Development (02 projects)
## ESTIMATED EXPLORATION EXPENDITURES

### DOMESTIC

<table>
<thead>
<tr>
<th>Period</th>
<th>Range</th>
<th>Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006-2010</td>
<td>2,730 – 3,310</td>
<td>MM US$</td>
</tr>
<tr>
<td>2011-2015</td>
<td>2,310 – 2,920</td>
<td>MM US$</td>
</tr>
<tr>
<td>2016-2025</td>
<td>4,050 – 4,800</td>
<td>MM US$</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>9,090 – 11,030</strong></td>
<td><strong>MM US$</strong></td>
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</table>

### OVERSEAS

<table>
<thead>
<tr>
<th>Period</th>
<th>Range</th>
<th>Currency</th>
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</thead>
<tbody>
<tr>
<td>2006-2010</td>
<td>470 – 600</td>
<td>MM US$</td>
</tr>
<tr>
<td>2011-2015</td>
<td>900 – 1,300</td>
<td>MM US$</td>
</tr>
<tr>
<td>2016-2025</td>
<td>1,700 – 2,100</td>
<td>MM US$</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>3,070 – 4,000</strong></td>
<td><strong>MM US$</strong></td>
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Downstream Activities Map

- Dungquat Refinery (2009)
- Phu my Fertilizer Project (2004)
- Camau Power-Fertilizer Complex (2010)
• **Refinery No. 1 - Dung Quat:**
  - **Capacity:** 6.5 million tons/year
  - **Feedstock:** Bach ho/Dubai Crude Oil
  - **Products:** Propylene, LPG, Unlead Gas, Jet A1, Diesel, FO, Kerosene
  - **Capital:** 1.5 billion $US
  - **Operation:** in the end of 2009

  *Other Projects in Dung Quat complex:*
  - PP projects 150,000 tons/year
  - 172 million $US
Refinery No. 2 - Nghi Son:

Capacity: 5 to 7 million tons/year
Feedstock: Sweet/Sour Crude Oil
Products: LPG, Unlead Gas (Octan Index > 90), Kerosene, Diesel, FO, Bitum, Para-xylene (for Polyester)
Capital: 1.8 to 2 billion $US (Open for foreign party JV, BCC, BOT...)
Pre-FS approved by Government

Refinery No. 3 - Long Son:

Capacity: 10 million tons/year
Feedstock: Heavy crude oil
Products: LPG, Unlead Gas (Octan Index > 90), Kerosene, Diesel, FO, Bitum, Para-xylene (for Polyester)
Capital: 3 billion $US (JV PVN- PDVSA)
Phu My Fertilizer Plant

Location: Phú Mỹ, Vũng Tàu

Capacity: urea 740,000 T/y

Comes in operation: 2004
Gas projects

Bach Ho

Nam Con Son

South West Gas
CURRENT GAS PRODUCTS

- Dry gas used to produce up to 40% of total Vietnam power generation output.
- 40% of total LPG consumption.
- 35% of total fertilizer consumption.
CURRENT GAS END
USER PROPORTION

- Power: 85%
- Fertilizer: 10%
- Other Industries: 5%
DEVELOPMENT PLAN FOR GAS in SOUTH VIETNAM

Existing pipeline

Pipeline under construction (FS made)

Pipeline under FS

Power plant under operation (FS made)

Power plant FS being studied

Fertilizer plant under construction (FS made)

Block B, 52/97, 71 BCM
2-3.7 BCM/year 2005-2006
opt 1 from 3 lines

Max 1440 MW

Phó mü area
2005: 4215 MW

500 KV transmission line available

capacity 2 bcm/year

Max 1440 MW

power Max 2160 MW

Opt 1 from 3 lines

Fertilizer. 800,000 t/year

capacity 6-7 bcm/year

block 46, 50, 51 10-15 bcm
0.8-1.5 bcm/year after 2010

PM3 CAA 60 BCM
2.5 BCM/year 2005

L.Tcóy, L.®á 58 bcm
2.1-2.7 bcm/year 2002

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Oil companies are requested to transfer to Petrovietnam all the data generated from their operations.

Information from other companies are reported to Petrovietnam.

Centralized Data Management by Petrovietnam: Petrovietnam Archive Center is authorized to manage all geophysical data, technical reports, microfilms, well data and samples etc.
Organizations

- **Petroleum Archive Center (PAC):** geophysical and geological data
- **Vietnam Petroleum Institute (VPI):** value-added information; results of scientific researches, technical studies, FS
- **Petrovietnam Information Technology, Communication and Automation Company (PVTech):** provides information infrastructure and service
PAC: eSearch; LogDB; Finder, ProSource Seismic (Schlumberger/Geoquest)

VPI: OpenWorks, OpenJournal (LandMark Graphics); GIS; WellCAD (CoreLab)

PVTech: provides Information and Telecommunication Infrastructure; connects information systems of Petrovietnam group members; provides web-based information service to these companies/organizations
E&P Data flow

Operating Oil companies

VPI

New Coming Oil companies

PVN

PAC

PVN Members

Raw data

Reports/studies

Value-added information
Some have been developed by VPI:

- G&G: exploration database, basemaps, well logs, biostratigraphic data, petrographic data etc.
- Other databases: Human resources; equipments; prices of petroleum products, library etc.

In PAC: database of seismic data
What technologies/solutions to handle such huge amount of petroleum data collected during more than 30 years of development?

How to unify the existing information systems/databases with different technologies used in members of PVN?

Security vs broad use of accumulated knowledge and information
Future plans

- Integrated databases for all members of Petrovietnam group:
  - office works management; finance management; human resources management; procurement management

- Data center in PAC;

- Value-added Information and Knowledge pool in VPI (databases, digital library, petroleum knowledge portal etc.)
Thank you