

Thailand Country Presentation

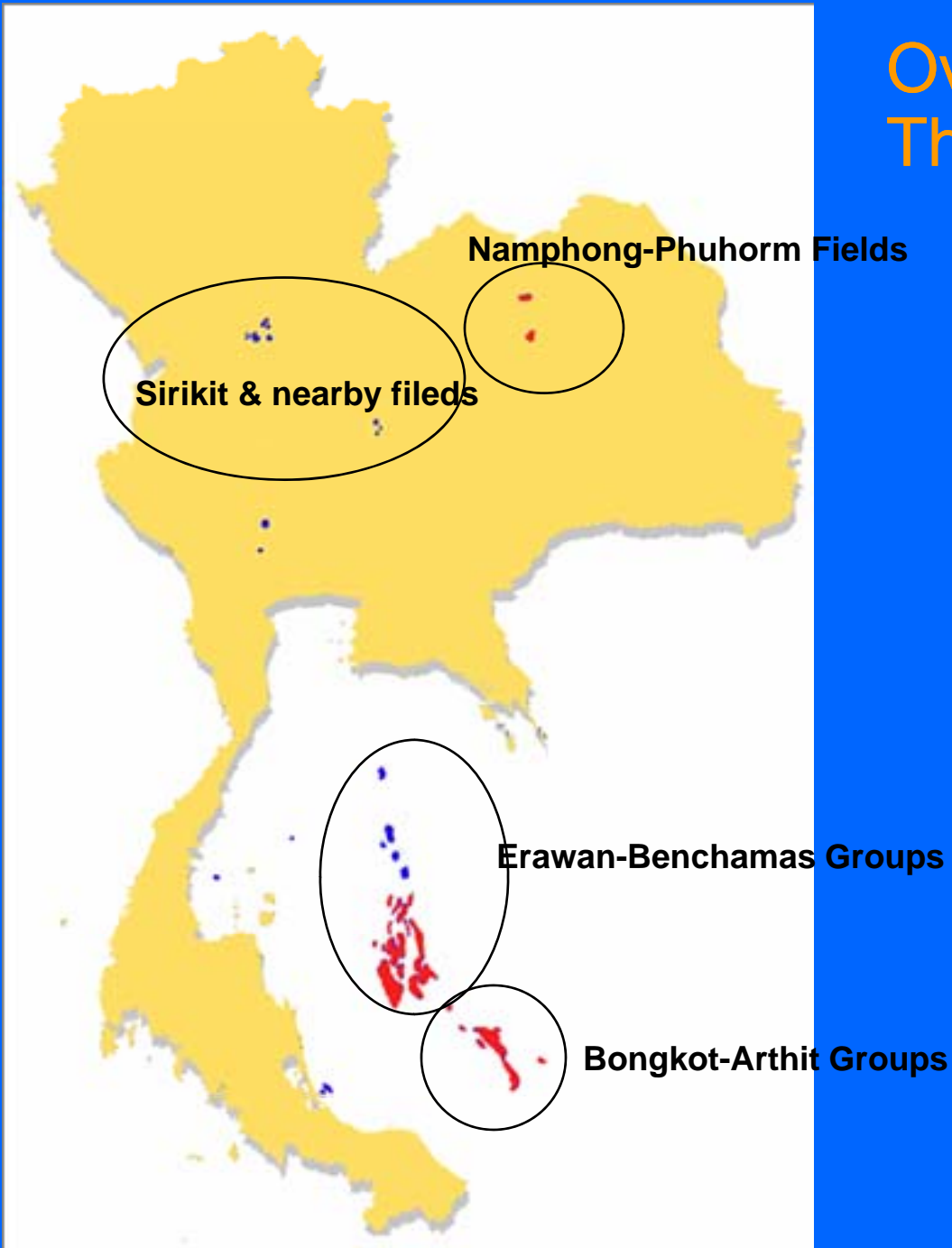
EPPM P2W2: Workshop on Natural Gas Field
with High CO₂ and H₂S

15 – 18 September 2009
Chengdu, China

Content

- Overview of Gas Fields in Thailand
- Gas resources & potential
- Current supply demand scenario
- Natural gas development policy & roadmap
- Current projects / research activities related to natural gas development
- Issues & Challenges

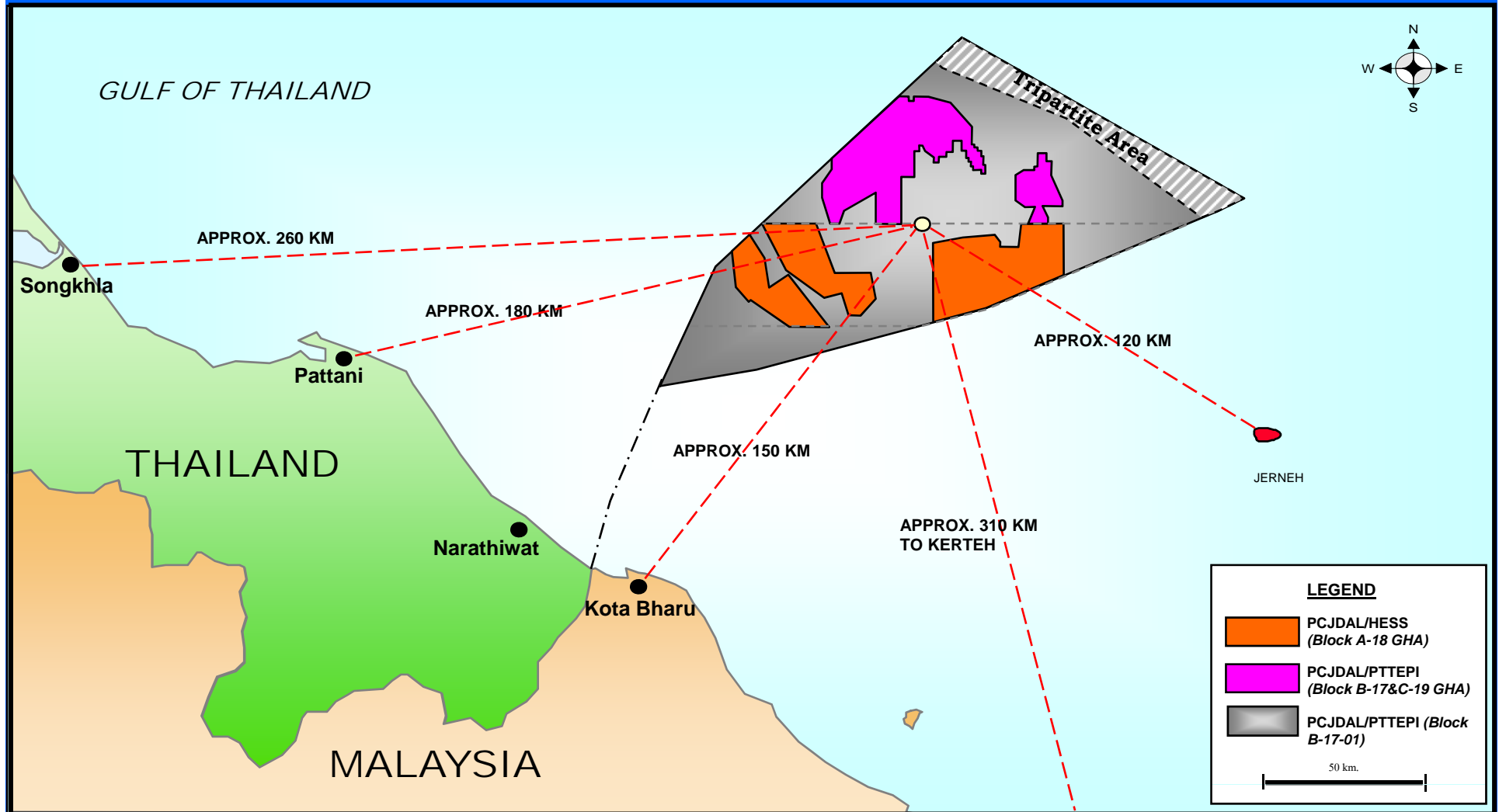
Overview of Gas Fields in Thailand



Total Gas Reserves
24 TCF

Malaysia-Thailand Joint Development Area

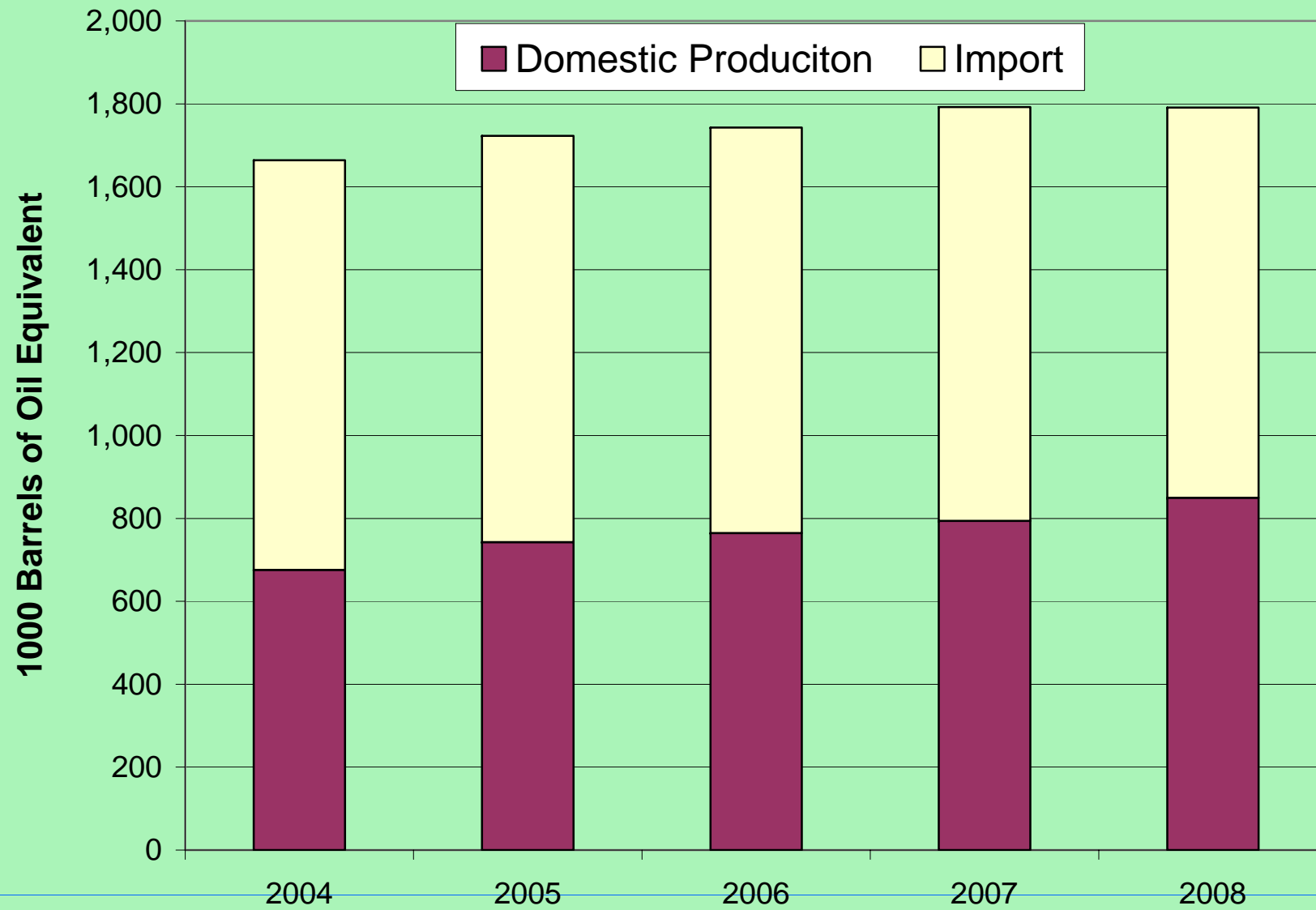
Gas Proved Reserves 3 TCF



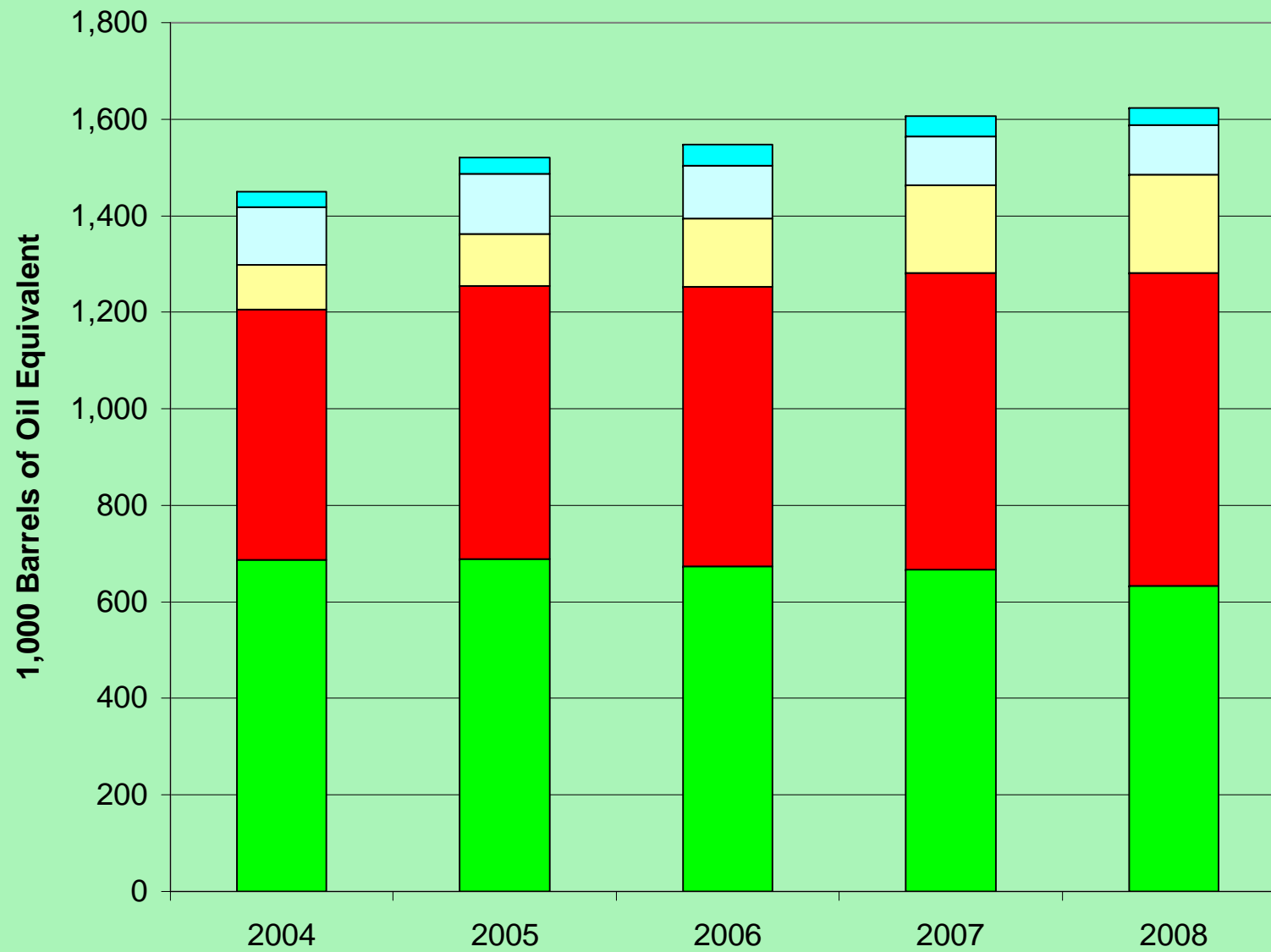
2008 Natural Gas Reserves at

	Gas Reserves 2008		
	Proved (BCF)	Probable (BCF)	Possible (BCF)
GULF OF THAILAND	8,242	10,120	3,357
MTJDA	3,194	2,225	2,702
KHORAT PLATEAU	435	121	1,556
CENTRAL PLAIN	132	17	15
	12,003	12,483	7,631

Thailand Energy Production and Import



Thailand Primary Energy Consumption



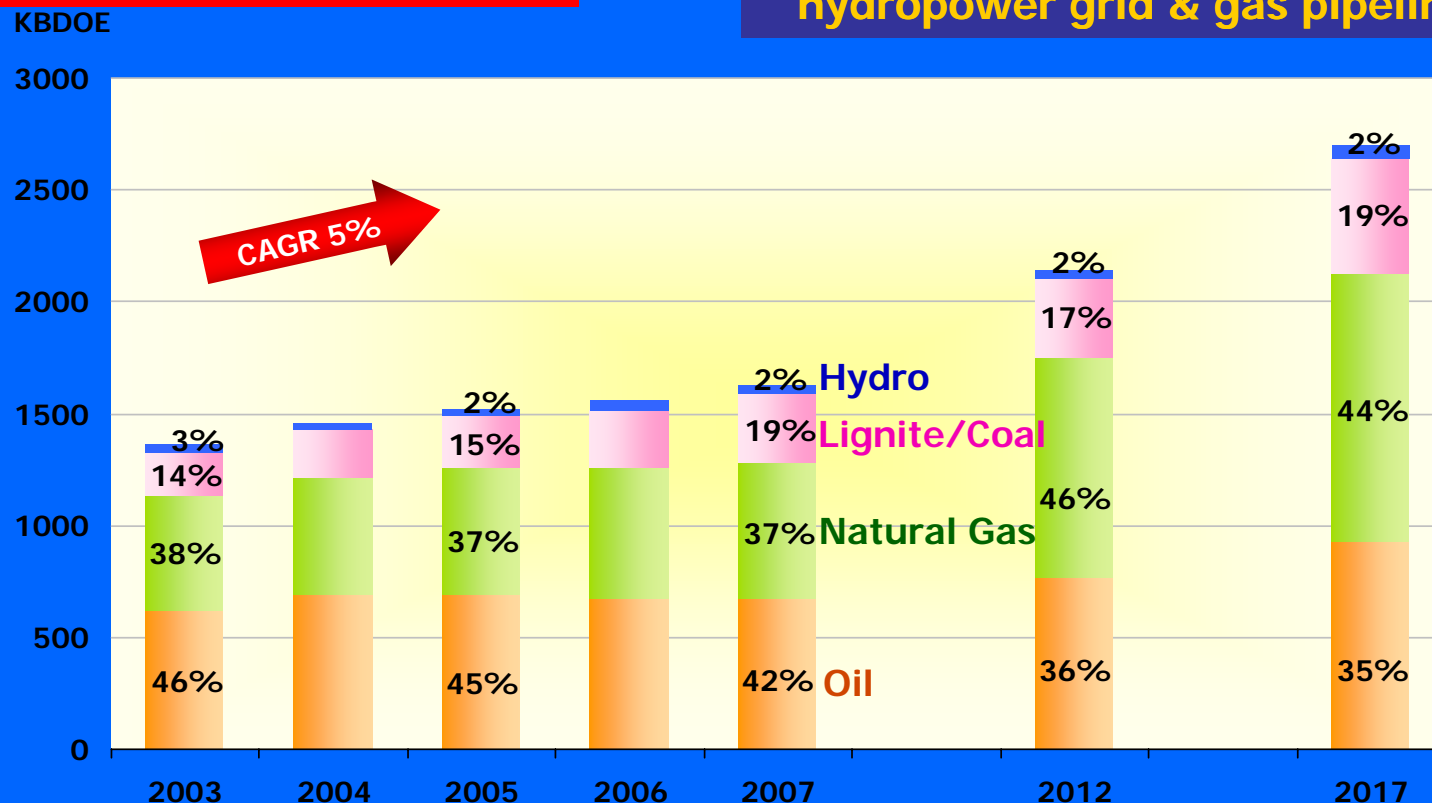
Energy Consumption Outlook

Targets

- Reduce oil import
- Diversify fuels consumption
- Promote indigenous resources

Energy Security

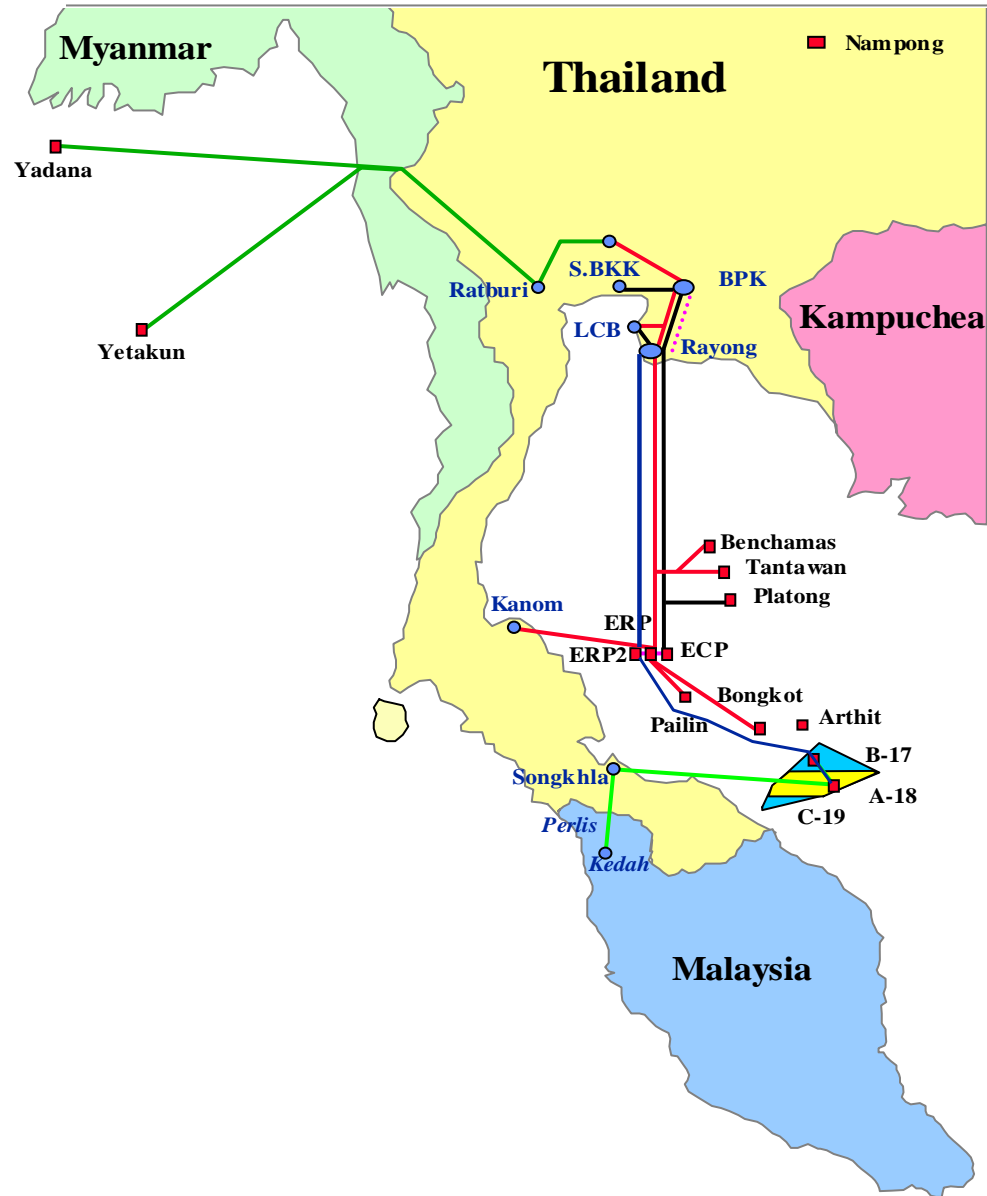
- Promote indigenous petroleum E&P
- Interconnection with Neighboring Countries and Beyond Border (ASEAN hydropower grid & gas pipeline)



January to June 2009, the average natural gas supply is as followed

- Domestic Production and JDA 2,657 mmscfd
- Imported from Myanmar 843 mmscfd (ca. 24 %)

PTT Gas Pipeline Networks



Natural gas development policy & roadmap

- **Accelerate petroleum procurement from either domestic and oversea sources**
- **Promote Domestic and JDA E&P**
- **Establish proactive international cooperation**
- **Administer petroleum concession**
- **Reduce flare gas**
- **Promote CDM projects**
- **Control water discharge volume and quality**
- **Facilitate NGV policy**

Energy Procurement



Current projects / research activities

Completed Projects

- On-site SPP from flare gas
 - Small Onshore Fields in the Central Plain
- Vapor Recovery Unit
 - Bongkot 3 MMscfd = 56,000 Ton CO₂ Equivalent

Environmental Support Plan : Flare Gas Utilization

Since 2006



Mini LNG Plant



Gas for Community



Electricity for Small Generator

Current projects / research activities

On-Going Projects

- Benchamas 2.6 MMscfd = 49,000

Ton CO₂

- Benchamas Wellhead Vent Gas

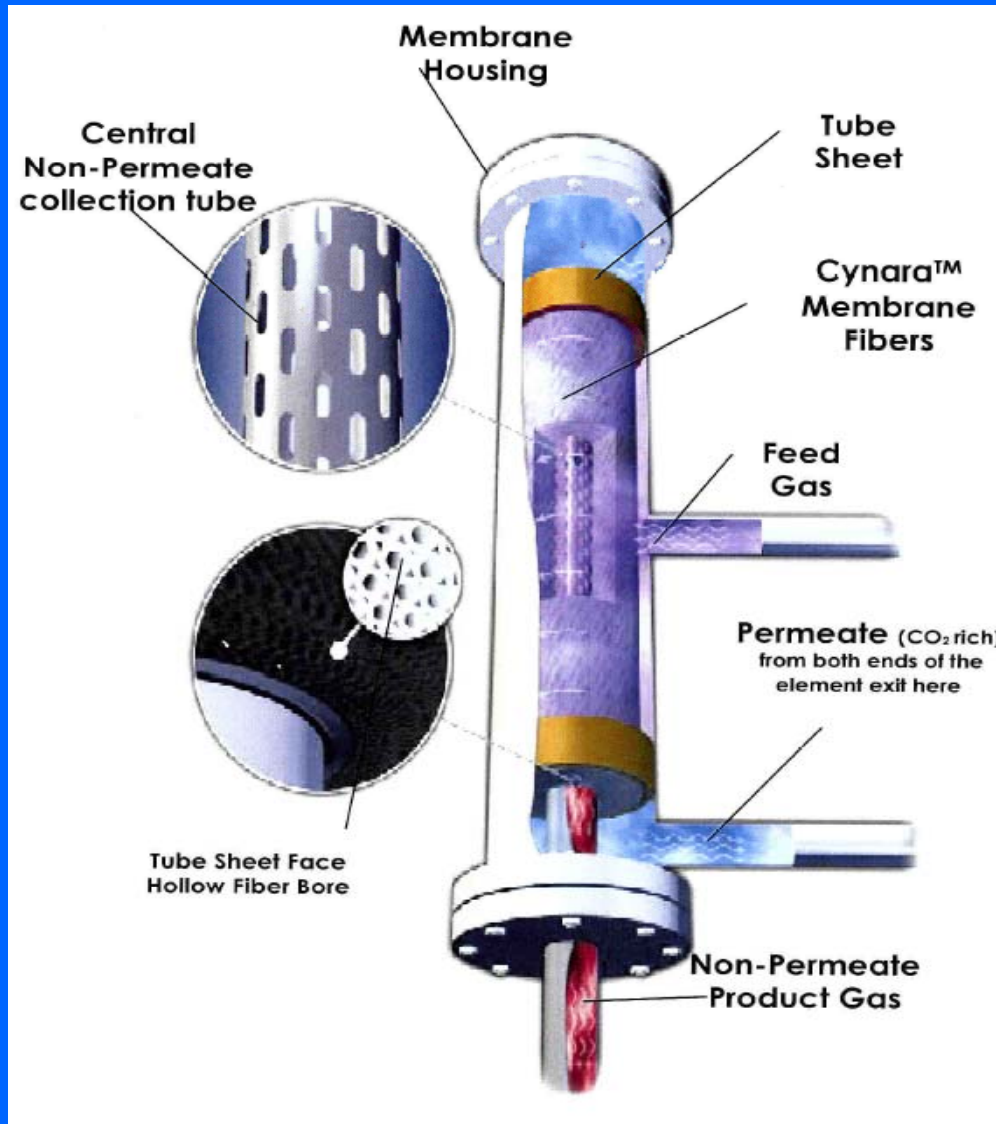
Recovery

Potential Future Project

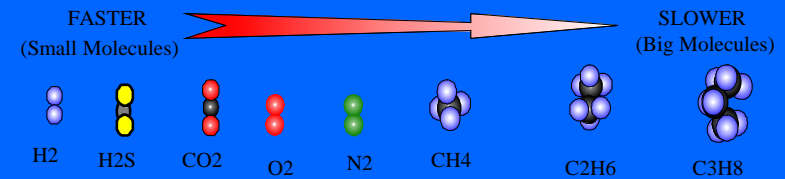
9 MMscfd = 160,000 Ton CO₂

- CO₂ Re-Injection in the Malay Basin
Equivalent

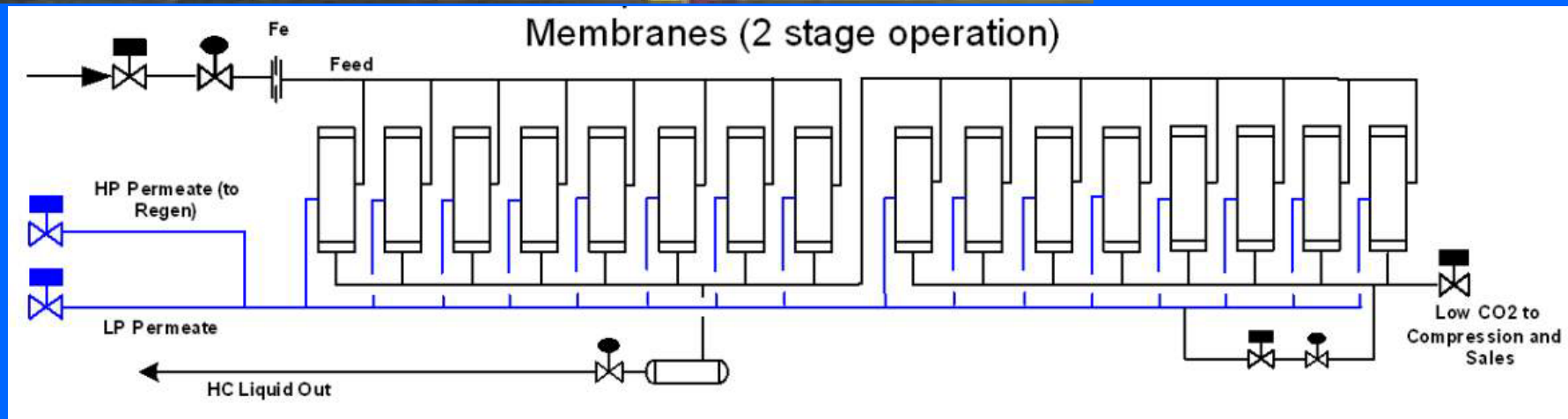
Offshore CO₂ Removal Units



Cellulose Acetate
0.01 – 0.001 micron



Solubility Coefficient
Diffusion Coefficient



Issues & Challenges

- Diminishing Gas Resources
- High Dependence on Imported Gas (24 / 36 %)
- Stranded Gas Resources Onshore
 - Fractured Carbonate
 - Tight Sandstone
- More Challenging Resources to be Tapped
 - HPHT : 9,500 psia (63 MPa) & 405 F (207 C)
- Yet-to-be the First E&P CDM Projects in the Country
 - VRU & SPP Projects
- Large Scale CO₂ Injection in the Malay Basin