

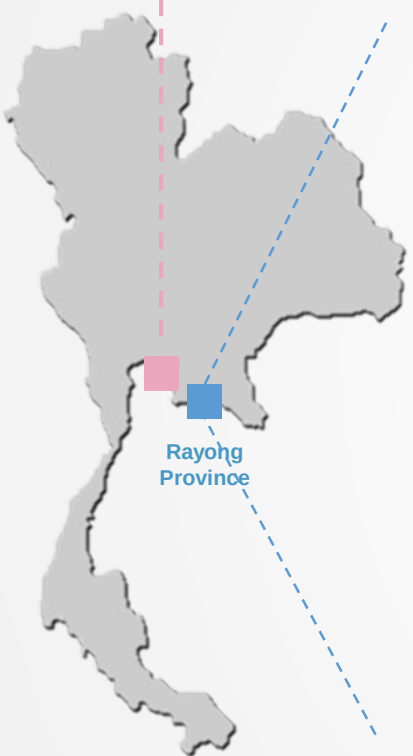
LNG

from **Buyers'**
Perspectives



Thailand's LNG Infrastructure

Thailand will have total LNG import capacity of 16.5 – 19 mtpa by 2022



Existing



Location : Located in Tambon Map Ta Phut, Rayong province

	Phase 1	Phase 2	Extension
Capacity	5 MTPA	5 MTPA	1.5 MTPA
Expected completion	2011	2017	2019

After 2019 : Total capacity will be 11.5 MTPA
 Remark : This site has potential to expand capacity up to 15 MTPA

Future/Potential Expansion



Location : Located in Tambon Nhong Fab, Rayong province

Capacity	5-7.5 MTPA
Expected completion	2022

Remark : This site has potential to expand capacity up to 15 MTPA



Location : Myanmar

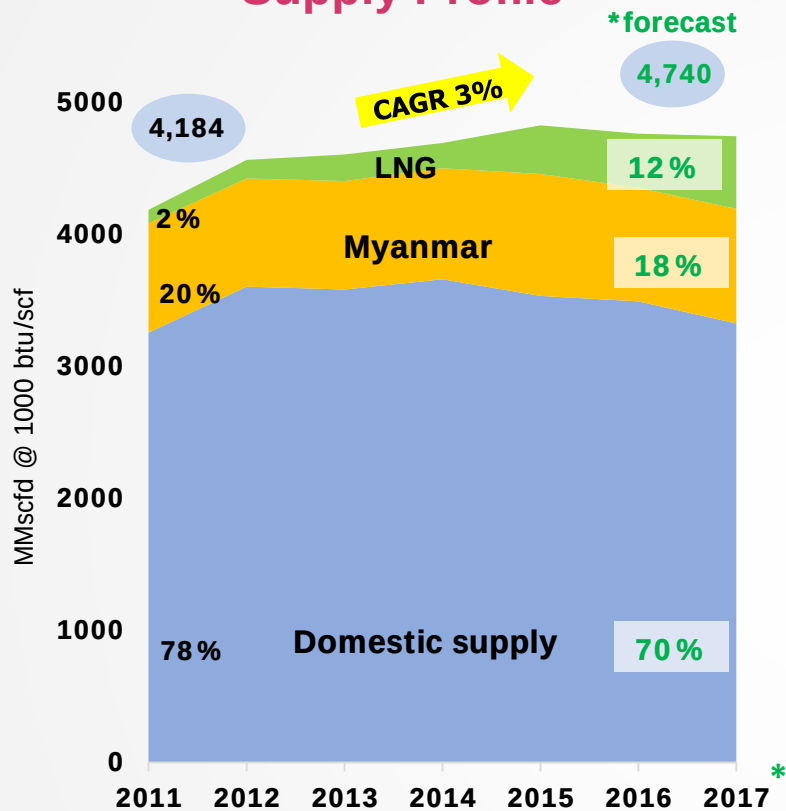
Capacity	3 MTPA
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Remark : PTT's potential FSRU project

	2011	2017	2019	2022	
Capacity (MTPA)	5	5	1.5	5 - 7.5	3
Total Capacity (MTPA)	5	10	11.5	16.5 - 19	19.5 - 22

Thailand's Natural Gas Balance

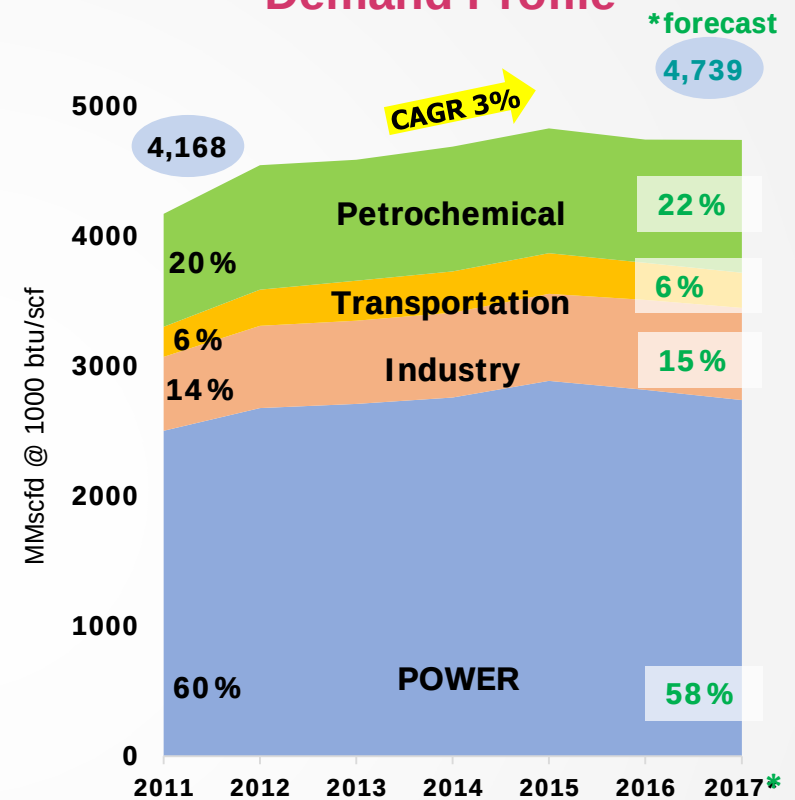
Supply Profile



Gulf of Thailand has been the major source (70-80%) of natural gas supply

Increasing LNG import will replace depleting piped-gas supply

Demand Profile



Power sector remains the biggest (60%) natural gas destination

Other customers : Petrochemical, Industry, and Transportation sectors

LNG value chain opportunities in Thailand

Introducing LNG to Thailand has opened a door to various LNG business opportunities



LNG Truck Loading

PTT has expanded its gas retail business through LNG truck loading



LNG Bunkering

PTT is developing LNG Bunkering business in response to Eastern Economic Corridor (EEC) and IMO's Sulphur emission regulation



LNG Coastal

LNG Coastal will allow PTT to supply natural gas to remote area (outside pipeline network)



Cold Energy Utilization

To utilize cold energy from LNG, PTT is creating value-added business, such as temperate crop plantation; power generation; etc.

Future Development

Challenges to LNG Buyers

Several challenges drive LNG buyers' behaviors

Market Liberalization and Domestic gas depletion

Emerging players in the market leads to **intense competition** and pushes LNG buyers to develop new buying strategies.

Third Party Access implementation also requires **more flexibility**, e.g. shipping; terms & conditions flexibility; etc.

Government Energy Policy

LNG buyers need **flexibility in LNG contracts** to manage their portfolios amid uncertain energy policy.

Overcommitted LNG

Due to demand uncertainty, some buyers are confronting over-committed LNG situation, which **turns traditional buyers into sellers**.

Less competitive legacy LNG contracts

Due to market condition, terms & conditions as well as price of new long-term contracts can be much more competitive compared to legacy contracts. Thus, buyers need to **adopt innovative contract terms**.

*"Facing such challenges, **PTT**, as a major LNG player in Thailand, will still continue its **mission to secure LNG supply for the country**"*

Expectation of LNG buyers in challenging world



FLEXIBILITY

To handle demand uncertainty, buyers are in favor of flexibility in contract terms and conditions, e.g. Free-destination restriction; diversion flexibility; and volume flexibility.



ASIAN LNG HUB

Growing LNG market makes LNG rely more on its fundamentals, rather than oil prices. Thus, establishing regional LNG hubs would be a better price indication.



COMPETITIVE PRICE

As LNG is an alternative fuel and competition in gas market is getting stronger, low LNG price would allow buyers to stay competitive. Also, early price review option is preferred, especially for legacy contracts, to cope with changing market conditions.



CONTRACT LENGTH REDUCTION

Supply/Demand uncertainty and growing LNG liquidity create a trend towards shorter term contract.



REVOCATION CLAUSE RELAXATION

The risk of license revocation may be one of the buyers' concerns to offtake LNG from the US projects. To attract buyers, Revocation Clause should be more relaxed.