3-2. LNG in the Asia-Pacific
Favoring trade and rational market development

Kirsten Smith
Researcher, APERC
Report Highlights
LNG in Asia-Pacific: Favoring trade and rational market development

- Popular pricing mechanisms in the Asia-Pacific disadvantage natural gas and LNG
  - The region has been shocked by high natural gas prices that have fueled energy security concerns
  - Oil-linked pricing has created excessive volatility and has driven market imbalances that distort the normal investment cycle
  - Long-term contracts have been used to reduce investment uncertainty at the expense of market flexibility

Shocks in the oil market are unrelated to natural gas market balances
Report Highlights

LNG in Asia-Pacific: Favoring trade and rational market development

- Major challenges exist in expanding the use of natural gas and LNG
  - An ambiguous role in the transition to a low-carbon economy
  - Declining domestic production in the Asia-Pacific increases energy security concerns for importers
  - Lack of convergence in opposing stakeholders’ expectations without an appropriate pricing mechanism to align interests
LNG in Asia-Pacific: Favoring trade and rational market development

- Current market conditions present an opportunity to direct structural change in order to encourage a more liquid and rational LNG market over future business cycles
  - Global demand will be driven by Asian economies, but domestic supply will fall short
  - Negotiating power has shifted away from one extreme with the emergence of a buyers market

LNG trade balance in APEC

- Planned projects
- Divertable supplies from Europe
- New projects
- Existing projects
- High demand
- Low demand

MT

2010 2015 2020 2025 2030

Supply Demand

MT

0 100 200 300 400 500 600
LNG markets
Natural gas has competed in separate isolated markets

Major worldwide LNG trade flows, 2014

Major LNG trade flows have historically kept the international market divided on a regional basis
Growth in LNG demand has come from Asia

Worldwide LNG imports by region, 2000-2014

- Middle East
- Americas
- Europe
- Asia

APEC has 14 out of 20 import terminals and 27 out of 28 export terminals expected to begin construction before 2019
The Asian Premium has driven energy security concerns

Natural gas import prices and spot LNG prices for northeast Asia, 2001-2015

When global oil prices increased, regional natural gas prices diverged because of differences in pricing mechanisms
Outlook
Natural gas is expected to be the fastest growing fossil fuel

Natural gas demand and supply outlook in APEC, 2013 and 2040 (Bcm)

**Demand**

- 2013:
  - China: 385 Bcm
  - Russia: 699 Bcm
  - United States: 1109 Bcm
  - Other north-east Asia: 4 Bcm
  - Other Americas: 419 Bcm
  - Oceania: 630 Bcm
  - South-East Asia: 1068 Bcm

- 2040:
  - China: 678 Bcm
  - Russia: 492 Bcm
  - United States: 678 Bcm
  - Other north-east Asia: 678 Bcm
  - Other Americas: 492 Bcm
  - Oceania: 492 Bcm
  - South-East Asia: 492 Bcm

**Supply**

- 2013:
  - China: 112 Bcm
  - Russia: 630 Bcm
  - United States: 204 Bcm
  - Other north-east Asia: 112 Bcm
  - Other Americas: 190 Bcm
  - Oceania: 63 Bcm
  - South-East Asia: 63 Bcm

- 2040:
  - China: 385 Bcm
  - Russia: 699 Bcm
  - United States: 1109 Bcm
  - Other north-east Asia: 168 Bcm
  - Other Americas: 125 Bcm
  - Oceania: 125 Bcm
  - South-East Asia: 125 Bcm

**Note:** Oceania (Australia, New Zealand and PNG), Other Americas (Canada, Chile, Mexico and Peru), Other northeast Asia (Hong Kong, Japan, Korea and Chinese Taipei), South-East Asia (Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam)
Asia will continue to rely on natural gas imports

**APEC natural gas net exports by region, 2013 and 2040**

Production in Asia is not expected to meet forecast demand growth, which will mean increasing import dependency.

Note: **Oceania** (Australia, New Zealand and PNG), **Other Americas** (Canada, Chile, Mexico and Peru), **Other northeast Asia** (Hong Kong, Japan, Korea and Chinese Taipei), **South-East Asia** (Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam)
Pricing and contracts
Oil Price Escalation (OPE)

- Price is linked, usually through a base price and an indexation clause, to competing fuels, typically crude oil, gas oil and/or fuel oil.

- Originated in Europe in the 1960s when NAM (a joint venture between ExxonMobil and Shell) and the Dutch government introduced it with the intention of giving natural gas a price advantage to incentivize its use over other oil-based fuels.

Gas-on-Gas Competition (GOG)

- The price is determined by the interplay of supply and demand and is traded over a variety of different periods.

- Trading takes place at physical or virtual hubs and it is likely to occur in developed futures markets.

- Increasingly seen as the competitive market ideal.
Most common market-based mechanisms for price setting

**Worldwide natural gas imports by market price mechanism**

APEC seeks to increase GOG competition to encourage market pricing linked to gas fundamentals rather than oil prices.

Gas on gas competition dominates in North America and has increased in popularity as utilities have been unbundled in Europe.

GOG = Gas-on-gas competition, OPE = oil price escalation
Contract structures are becoming more flexible

LNG spot and short-term deals, 2000-2014

The oversupplied market has led to increased bargaining power for buyers and more flexible contracting arrangements

Old Model
- Long-term (~20 years)
- Destination restrictions
- Take-or-pay
- FOB shipping responsibility

New Model(s)
- Spot, short-term or long-term
- Tolling structures
- Resale flexibility

Typical contract specifications
Policy recommendations
Policy recommendations

- Define the role of natural gas in energy and climate policies

**Transitioning toward a low carbon economy**

- Promote financing alternatives for LNG projects
- Enforce fiscal and investment frameworks that facilitate gas upstream projects

The extensive use of coal in Asia offers remarkable potential to expand the primary demand of natural gas in APEC in the form of LNG.
Policy recommendations

- Acknowledge the critical role of LNG infrastructure for energy security

  Natural gas import sources in APEC

- Explore alternative LNG business models

- Support the development of gas price hubs

- Advance new LNG contract features
Policy recommendations

- Use collective power to encourage more balanced interactions and discussions
- Engage stakeholders in LNG projects
- Foster regional cooperative activities

APEC is an excellent forum to discuss mechanisms that facilitate an accelerated LNG trade that leverages the dialogue and collaboration of producers and buyers across member economies.
Thank you for your kind attention

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