ASIA-PACIFIC: A KEY GROWTH DRIVER OF THE WORLD LNG MARKET

Jean-Marie Dauger
Co-Chair, World Energy Council and President, GIIGNL
01

Natural Gas in the future energy landscape
AS GLOBAL POPULATION RISES TO 9BN BY 2040, THE WORLD NEEDS MORE AND CLEANER ENERGY

Developing economies in Asia-Pacific represent around 2/3 of energy demand growth 2016-2040

Additional Energy Demand 2016-2040 (Mtoe)

Source: IEA WEO 2017, NPS
NATURAL GAS IS THE FASTEST GROWING FUEL
Gas will outpace growth of other hydrocarbons and has a growing share of Primary Energy in 2040

Historic energy mix change
2010-2016 (IEA)

New Policies Scenario
2016-2040 (IEA)

Sustainable Development Scenario
2016-2040 (IEA)

Source: IEA WEO 2017
02
Natural Gas Demand in Asia
A MASSIVE SHIFT OF GAS DEMAND TO ASIA

Asia: From 20% of gas demand today to 28% by 2040

Additional Gas Demand 2016-2040 (Bcm)

World average CAGR 2016-2040: (+1.6%)

Source: IEA WEO2017, NPS
GAS DEMAND IN ASIAN COUNTRIES

Growth will be concentrated in developing countries but potential in existing gas markets remains high

Asian Gas Demand (2017-2030)

Source: Woodmacenzie
Implications for the LNG market
2017 LNG IMPORTS
North East Asian importers accounted for almost 2/3 of global LNG demand in 2017

Source: GIIGNL 2018 Annual Report
**LNG IS THE FASTEST GROWING GAS SUPPLY SOURCE**

*Energy growth 1%, Gas growth 2%, Asia gas growth 3%, LNG growth 4%*

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**Global gas supply by source**

<table>
<thead>
<tr>
<th>Source</th>
<th>2017</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic production</td>
<td>62%</td>
<td>7%</td>
</tr>
<tr>
<td>Pipeline imports</td>
<td>7%</td>
<td>31%</td>
</tr>
<tr>
<td>LNG imports</td>
<td></td>
<td>31%</td>
</tr>
</tbody>
</table>

**LNG demand: 4% CAGR**

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**LNG imports by region**

<table>
<thead>
<tr>
<th>Region</th>
<th>2017</th>
<th>2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>55%</td>
<td>16%</td>
</tr>
<tr>
<td>Europe</td>
<td>16%</td>
<td>15%</td>
</tr>
<tr>
<td>Americas</td>
<td>55%</td>
<td>13%</td>
</tr>
<tr>
<td>Middle East &amp; Africa</td>
<td>16%</td>
<td>15%</td>
</tr>
</tbody>
</table>

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*CAGR - Compound Annual Growth Rate

Source: Shell LNG Outlook 2018

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**8TH ST PETERSBURG INTERNATIONAL GAS FORUM**
ASIAN ENERGY DEMAND GROWTH WILL BE FUELED BY LNG

Outside China, new pipeline trade routes find it hard to advance in a market with readily and flexibly available LNG.

LNG will increase its share from 39% of global long-distance trade to 60% by 2040 (IEA).

In 2030, LNG will represent 38% of Asia’s gas demand vs 32% in 2017.

KEY NEW LNG SUPPLIES FOR ASIA

- **Source Market Distance**
  - E.Africa China 10200 nm
  - US Gulf Coast China 6400 nm
  - Yamal (via NSR) China 5800 nm
  - W.Canada China 5100 nm
  - Australia NWS China 3400 nm
  - Sakhalin China 1400 nm

*Source: Kpler*
# LNG: THE KEY TO ENERGY SECURITY ASIA

*Flexibility and competitiveness against alternative fuels will be key*

## OPPORTUNITIES

- Declining domestic production
- Cleaner alternative to coal-fired generation and back-up for renewables
- Flexible / Readily available alternative to laying pipelines
- Diversification of gas supply sources via LNG
- Displacing more polluting fuels in industry and transport

## UNCERTAINTIES

- Gas supply and demand uncertainty
- « Asian premium » / Risk of coal+renewables paradigm
- Limited TPA to pipelines and LNG terminals despite the liberalisation process at work in several Asian countries
- Destination clauses in certain Asian contracts
- Absence of a liquid and transparent pricing reference point
Conclusions
CONCLUSIONS

- Asia-Pacific will remain a significant driver for the demand of natural gas and LNG in the long-term.
- China currently in the limelight but LNG demand growth is also about existing markets and South and SE Asia.
- Flexible and competitive LNG supply projects will be required.
- Russia could play a role in supplying natural gas and LNG to Asia.
THANK YOU

central-office@giignl.org
GIIGNL 2018 ANNUAL REPORT
Unique insight on the state of the LNG industry

Downloadable free of charge from www.giignl.org

• Key Figures
• Contracts
• Shipping
• Liquefaction / Regasification
• LNG Exports and Imports / Re-exports
• Spot & Short-Term volumes
• Retail LNG
APPENDIX
GIIGNL MEMBERSHIP
78 Members in 25 countries – LNG Importers and Terminal Owners/Operators

47% of Members in Asia
PROMOTING COOPERATION BETWEEN LNG IMPORTERS

Improving efficiency, safety and sustainability of LNG import activities

- Unrivalled networking opportunities
- Platform for exchange of information and best practices
- Voice for the midstream and downstream side of the LNG industry
BY 2040, ASIAN GAS DEMAND WILL ACCOUNT FOR 28% OF GLOBAL GAS DEMAND VS 20% TODAY

China driving growth in the near term, South and South East Asia driving long-term growth

Source: IEA WEO2017
GAS GROWTH IN ASIAN DEVELOPING COUNTRIES

China driving growth in the near term, South and South East Asia driving long-term growth

Asian Gas Demand (2016-2040)

Source: IEA WEO 2017 NPS
2017 KEY FIGURES

- +9.9% growth (highest rate since 2010)
- 40 importing countries – 1 new importer: Malta
- 19 exporting countries
- 850 MTPA of regasification capacity
- 365 MTPA of liquefaction capacity
- 4,724 cargoes delivered
- 1 FID (Coral FLNG - Mozambique)

Source: GIIGNL 2018 Annual Report
2017 LNG SUPPLY

LNG supplies from the Atlantic Basin on the rise

Atlantic Basin: +15.7 MT (+30.5%)

Middle East: -2.3 MT (-2.4%)

Pacific Basin: +12.8 MT (+10.8%)

Source: GIIGNL 2018 Annual Report
2017 IMPORTS VS 2016

China and South Korea accounted for 15.2 MTPA of additional LNG imports

Source: GIIGNL 2018 Annual Report