How Short-Term LNG Market Evolution Will Influence the Market Dynamics

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Short-term trade accounts for 28~30% of global trade

- Drivers for spot/short-term are:
  - Demand and supply volatility.
  - Uncommitted LNG volumes.
  - Uncommitted shipping capacity.
  - Uncommitted regasification capacity.

- Poten predicts the spot/short term stays around 25% to 30% of total trade
  - Foundation of LNG market will continue to be long-term transactions, but spot opportunities will be important.

LNG short-term market has grown from 2% of the global trade in 2000 to 28% in 2017

Source: Poten & Partners
LNG spot market is complicated, involving various pricing mechanisms in different regions

- Flexible LNG sources have different pricing mechanisms and will compete for spot sales to higher value regional markets

### Major flexible LNG supply in world market

<table>
<thead>
<tr>
<th>Flexible supply</th>
<th>Preferred indexation</th>
<th>LNG destination</th>
<th>Preferred indexation</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>HH</td>
<td>USA</td>
<td>HH</td>
</tr>
<tr>
<td>Trinidad / Peru</td>
<td>HH / oil</td>
<td>South America</td>
<td>HH / NBP / oil</td>
</tr>
<tr>
<td>Europe</td>
<td>NBP/oil</td>
<td>Europe</td>
<td>NBP/oil</td>
</tr>
<tr>
<td>Africa</td>
<td>NBP/oil</td>
<td>Middle East</td>
<td>NBP/oil</td>
</tr>
<tr>
<td>Qatar / Yemen</td>
<td>NBP/oil</td>
<td>Asia</td>
<td>Oil</td>
</tr>
<tr>
<td>Asia</td>
<td>Oil</td>
<td>South Asia</td>
<td>NBP/oil</td>
</tr>
</tbody>
</table>

Source: Poten & Partners
Actual spot/short-term LNG trades in Asia Pacific vary widely around JKM

- JKM is not a deep market but a proxy for many bi-lateral deals
- Actual spot deals are also influenced by many other factors, e.g. shipping distance, ship size, delivery window, market environment etc.

Source: Poten & Partners
Constrained Pareto-optimal allocation of available LNG supply to demand regions

Drivers for short-term LNG trade – price & margin

- Buyer's alternative fuel
- Buyer's premium/discount
- Seller's premium/discount
- Seller's netback on delivery in Europe
- Discount to hub in Europe
- LNG shipping cost

Trading margin

LNG DAP price

FOB netbacks

Buyer’s profit share

Short-term LNG trade

- Supply by region
- Demand by region
- Max % of LNG flow

Ranking by trading margin

Legend:
- Inputs
- Calculation
- Outputs

Source: Poten & Partners
Increased ST LNG enhances market flexibility in 2022
US will become a major ST supplier to NE Asia

Short-term/spot LNG supply to Northeast Asia by regions

Source: Poten & Partners
**Full and robust scenarios are required to test sensitivities**

<table>
<thead>
<tr>
<th>Driver</th>
<th>Influence</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Oil price increases</td>
<td>HH-linked LNG more competitive in Asia</td>
<td>More US LNG attracted to Asia</td>
</tr>
<tr>
<td>2. US LNG supply produces above nameplate</td>
<td>US LNG forced into Europe, creating downward pressure on price</td>
<td>If prices falls below marginal cost of supply, it will discourage US LNG to Europe – potential for US capacity shut-in</td>
</tr>
<tr>
<td>3. Asia LNG demand increases</td>
<td>More LNG required from other regions</td>
<td>Primary shift to cover market likely from Middle East, but some US supply will be attracted to Asia Pacific</td>
</tr>
</tbody>
</table>
Spot and ST helps buyers manage demand uncertainty

- LNG ST now comprise 25%~30% of total LNG trade giving buyers more options to manage uncertainties in demand

- ST trade will continue to be a major part of the LNG market and become increasingly dynamic with flexible supplies from Qatar and US competing for sales into high-value buyers

- Buyers’ portfolio optimization is crucial in order to mitigate cross commodity price risk

- The mix of spot, ST, flexible and firm volumes within buyers’ total portfolio is critical