LNG Import Terminals: Challenges and Opportunities

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Galway Group has been actively involved in energy projects across the globe.

- Opportunity Definition
- Concept Framing
- Deal Development
- Financing
- Asset Operations

Project Development Support, Techno-Commercial Advisory and Capital Raising Services
Australia and US liquefaction projects are driving a supply glut that will last into the early years of next decade.

Outages will reduce the forecasted oversupply.

Supply from pre-FID projects required only beginning 2023.

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<tbody>
<tr>
<td>Existing</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
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<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>250</td>
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<tr>
<td>Under Construction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>LNG Demand</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
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The ensuing supply glut will increase penetration of gas in China & India, as well as firm the role of LNG in emerging markets.

Emerging markets defined as countries that commenced LNG imports post 2010 or are likely to commission LNG imports in future.
Regas terminals can be classified into two types: Land based and Floating

<table>
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<tr>
<th>Standard LNG Terminals</th>
<th>Small Scale LNG</th>
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<tbody>
<tr>
<td>Onshore</td>
<td>Onshore or Floating</td>
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<tr>
<td>Floating</td>
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**Standard LNG Terminals**
- Industry “Standard”
- Cost: $0.5 - $1.5+ Billion
- 3-4 years construction
- Most suitable for larger, base load service (economics)
- Require deep water port
- Require sizeable land area

**Floating**
- Rapidly growing option
- Cost: $125-$250+ MM (FSRU) plus $50 - $200+ MM (infrastructure)
- Construction: 12-30 months
- Unit costs can be higher depending on throughput
- Require deep water port
- Flexibility to redeploy

**Small Scale LNG**
- Emerging option
- Cost: $50+ million
- Construction: 2+ years
- Onshore or floating (barges)
- Unit costs highly dependent on throughput
- May not require deep water port if serviced by small scale ships/barges

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**Galway Group**
Advancing Energy Decisions
Understanding the terminal characteristics is key to selecting the type of regas suitable for the market

### Key Characteristics

<table>
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<tr>
<th>Key Characteristics</th>
<th>Land based vs FSRU</th>
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<tr>
<td>Project Lead Time</td>
<td>Significantly shorter for FSRU, in countries where Government permitting process is simple</td>
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<tr>
<td>Capital Cost</td>
<td>Lower unit capex cost for FSRU compared to onshore terminal, but difficult to achieve economies of scale as demand grows</td>
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<td>Opex</td>
<td>Higher for FSRU than onshore regas terminals</td>
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<td>Weather Conditions</td>
<td>Harsh weather conditions will impact the annual terminal availability factor for FSRU</td>
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<td>Returns</td>
<td>Suboptimal utilisation will affect returns for FSRU significantly</td>
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<tr>
<td>Shipping Cost</td>
<td>Shipping costs likely to be higher for FSRU, given limited storage capacity</td>
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</table>

*Site & Market specific feasibility studies required to decide the type of regas, the configuration and the technology*
Most LNG sourcing strategies aim to establish a competitive environment amongst potential suppliers to obtain:
- Competitive price,
- Fair terms and conditions and
- Security of supply

The buyer would want to involve multiple qualified potential suppliers in a process (Request for Proposal or parallel negotiations) to create that competitive environment.

To attract multiple qualified potential suppliers, buyer must establish its credibility with potential suppliers
- Credibility and reliability as a buyer
  - Creditworthiness, Offtake reliability, etc.
- Credibility and reliability of existing gas and LNG infrastructure
  - Credibility and technical viability of gas and LNG infrastructure development plans
Key Takeaways

- The ensuing LNG supply glut will support the development of emerging importers, thereby increasing the opportunities for investment in regas terminals.

- New markets can be categorised into:
  - Large scale
  - Small Scale (< 1 MTPA)

- The decision for land-based vs floating is market & location specific. Regas configuration & technology should be "acceptable" to as many potential suppliers as possible.
Thank You