LNG Funding – The Next Chapter

Andy Brogan
Global Oil & Gas Transaction Advisory Services Leader
EY
Strong LNG demand growth will entail significant capex for liquefaction capacity additions globally

- LNG trade estimated to grow at a CAGR of about 4% during 2018-40 to 757 billion cubic meters (bcm)
- LNG bunkering projected to increase at a CAGR of 11% during 2025-40 to reach 49 bcm
- Share of LNG in global gas trade expected to increase to almost 60% by 2040 (42% in 2017)
- An estimated US$35 billion average per year required between 2018-40 to develop adequate LNG infrastructure

Debt has been the mainstay of capital investment in LNG liquefaction projects during 2008-18

Total capital investment = ~US$196 billion (2008-18)*

- **Debt**: 61%
- **Equity**: 39%

The US alone accounts for over a quarter of this capex.

Russia, Australia and Canada account for a further ~55%.

Source: EY analysis of IJGlobal transaction data

*Refers to the total debt and equity financing received for pre-FID, post-FID and onstream LNG export projects; does not include LNG shipping and regasification infrastructure
Ratio of debt funding for LNG projects has seen an overall reduction over the last decade

Share of debt has declined overall over 2008-18 and has continuously declined annually since 2015.

The share of debt has fallen below the overall average of 61% in 2008-18.

Recent LNG liquefaction Final Investment Decisions (FID) have relied on equity.

Source: EY analysis of IJGlobal transaction data
*Refers to the total debt and equity financing received for pre-FID, post-FID and onstream LNG export projects; does not include LNG shipping and regasification infrastructure
Commercial banks lead in LNG project finance debt during 2008-18

Total bank debt = ~US$120.2 billion

- Commercial banks: 61%
- Export credit agencies: 30%
- Others: 9%

Debt sources:
- Multilaterals (development banks)
- Bonds
- Sovereign wealth funds
- Letter of credit
- Working capital facility
- Sponsor co-loans

Source: EY analysis of IJGlobal transaction data

*Refers to the total debt and equity financing received for pre-FID, post-FID and onstream LNG export projects; does not include LNG shipping and regasification infrastructure
Global funding patterns for LNG liquefaction projects highlight preferences for debt over equity

LNG export projects with high equity funding – Canada, Yemen and Mozambique – are majority owned by Integrated Oil Companies (IOC).

Peru LNG with a 46% equity share of financing has 20% IOC ownership.

LNG projects in Asia-Pacific demonstrate a significantly high preference for debt.

Large Australian LNG export projects, though IOC-owned, are debt-funded.

Source: EY analysis of IJGlobal transaction data
*Refers to the total debt and equity financing received for pre-FID, post-FID and onstream LNG export projects; does not include LNG shipping and regasification infrastructure
Substantial equity investment from developers is required to secure pre-FID project financing.

Corporate lending is often inadequate to fund LNG export projects.

Project financing protects the lender and the developer from market reversals.

Project financing allows debt servicing across long horizons – up to 14 years in some cases.

Long-term offtake contracts

Creditworthy LNG purchasers

Take-or-pay clauses

Source: Haynes and Boone, EY analysis of publicly available data
Asian and other markets are increasingly viewing LNG as a commodity market amid a transition.

**Buyers**
Buyers seek to benefit from spot markets through smaller contracts, flexible contracts and hub-linked pricing.

**Sellers**
Producers want to secure cash flows and attract financing from long-term contracts, take-or-pay clauses.

**Financiers**
Financiers seek to manage risk exposure and prefer LNG projects with long-term offtake agreements, creditworthy buyers.

Changing contract structures are leading to greater need for LNG export project developers to price and absorb increased market risk.

- Reducing contract length
- Decreasing contract volumes
- Increasing spot buying
- Removal of destination clauses
- Shift from take-or-pay contracts

Buyers’ demand for flexibility is not currently supported by a global trading mechanism, putting financiers in a tight spot.

Source: Shell LNG Outlook 2018, Shell; EY analysis
Financiers will seek to share more of the risk with developers (implying a greater share of equity funding).

Increased market risk

Constrained debt funding

Need and opportunity for equity funding to bridge the capital requirement gap

Equity sources:
- Owner’s equity
- Equity investment by offtakers
- Private equity
- Venture capital
- Infrastructure funds
- Pension funds (public/private)
- Infrastructure funds

Source: Equity Set to Play Bigger Role in LNG Financing, 27th World Gas Conference, June 2018; EY analysis
Risk and reward considerations determine the scale and tenure of equity investors

<table>
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<th>Category</th>
<th>Responsibilities</th>
<th>Objectives</th>
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<tr>
<td>Owners, offtakers and private equity</td>
<td>Undertake development, construction, operational and markets risks</td>
<td>Seek high return on investments</td>
</tr>
<tr>
<td>Venture capital</td>
<td>Undertake construction risk and some operational risks</td>
<td>Seek high return on investments</td>
</tr>
<tr>
<td>Pension and infrastructure funds</td>
<td>Undertake some operational risk</td>
<td>Seek steady returns on investments</td>
</tr>
</tbody>
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Source: US Liquefaction Sponsors Continue To Enlist Private Equity Investment, Poten & Partners, October 2017; Infrastructure Investments for Insurers, 2015, EY analysis
LNG project developers with large balance sheets – oil and gas majors and national oil companies – are best placed to assume project lifecycle risks

- Access to low-cost capital
- Low equity hurdle rates
- Capacity to allocate adequate capital
- Increasing stake of oil and gas majors in LNG export projects
- Investments and LNG export project FIDS largely driven by majors
- Acquisitions of LNG specialists and LNG assets by majors

Due to the complexity and capital intensity involved in production and supply, oil majors have a key role to play in LNG capacity generation.

Source: End Market Series: Sizing the LNG opportunity for US Industrial companies, UBS, September 2018; Global LNG: The glut abates, the crunch awaits, HSBC, March 2018; EY analysis
Oil and gas majors have added the most liquefaction capacity

Majors’* share of natural gas production fell marginally during 2000-17

*Majors = Integrated oil companies and large independents

18% in 2000 to 16% in 2017

Their share of liquefaction capacity has almost doubled during the period

*Majors = Integrated oil companies and large independents

19% in 2000 to 35% in 2017

The share of Asian National Oil Companies (NOC), African NOCs, Asian utilities declined in that period; Middle East NOCs held their share at 17%
How EY’s Global Oil & Gas Sector can help your business

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ED None

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