

Liquefied natural gas (LNG)

Risk management considerations and
solutions for LNG operators and investors



The liquefied natural gas (LNG) sector plays a crucial role in meeting the growing global energy demand. It acts as a bridge towards decarbonization and facilitates global trade. LNG facilities, both onshore and offshore, serve as important hubs for liquefaction, receiving, storing, and regasifying LNG before distributing it to end-users such as power plants, industries, and residential consumers.

Recent years have seen significant technological advancements and innovations in the sector. This includes the development of floating LNG (FLNG) facilities, small-scale LNG catering to niche markets and remote locations, the use of renewable energy in LNG production and transportation, as well as the development of carbon capture and storage technologies.

The LNG sector involves a complex network of stakeholders, including natural gas producers, liquefaction plants, shipping companies, regasification terminals, and end-users. It requires substantial investments in infrastructure, technology, and expertise to ensure the safe and efficient operation of the entire LNG value chain.

As the world transitions to a more sustainable energy future, the LNG sector continues to evolve, offering a cleaner and more flexible energy solution.





OUR GLOBAL EXPERTISE

Marsh's global LNG team has extensive experience in providing risk management, engineering, delay in start-up, business interruption, and insurance advice for LNG projects. We specialize in onshore LNG liquefaction facilities, FLNG vessels, floating storage regasification units (FSRU), and conventional LNG terminals.

120

LNG specialists across
seven regions



Access to global
insurance markets



Proprietary data, modeling tools,
and benchmarking studies



Customized LNG risk and
insurance solutions



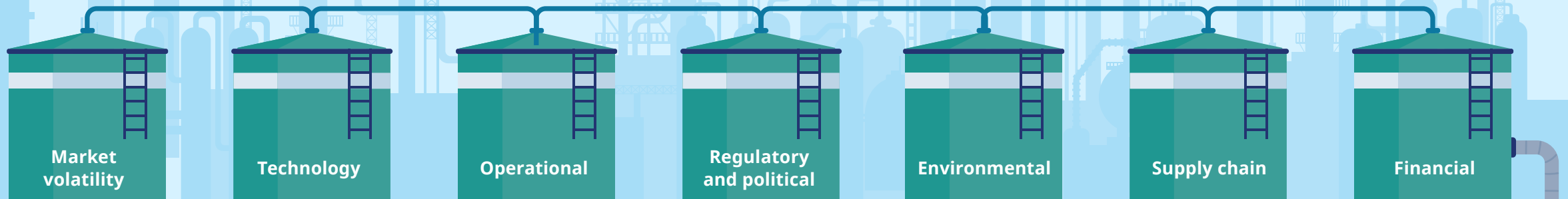
Experienced claims managers
and advocates



Exceptional service
and partnership

Understanding your risks enables effective risk management and transfer

It's important to note that the specific risk considerations may vary depending on the location, scale, and nature of the LNG project. Thorough risk assessments are recommended to address the unique risks associated with each project. Some common risk considerations include:



Fluctuations in global energy markets, including supply and demand changes, geopolitical factors, and price volatility, can impact the profitability and viability of LNG projects.

Understanding of how the scale and advancement of technology may affect both onshore and offshore project features such as facility layout and modular applications.

LNG facilities involve complex and capital-intensive operations across the liquefaction, transportation, and regasification processes. Operational risks include equipment failures, accidents, natural disasters, and security threats.

The energy industry is subject to various national and international regulatory frameworks and policies. Changes in regulations, permits, taxes, or trade policies can impact project development, operations, and profitability. Additionally, political instability, trade disputes, and sanctions can introduce uncertainties and risks.

Operators must ensure sustainable practices and compliance with environmental regulators to address risks related to emissions, water usage, and potential impacts on ecosystems.

The LNG supply chain involves multiple stakeholders, including gas producers, liquefaction companies, shipping companies, and regasification terminals. Risks such as supply disruptions, transportation bottlenecks, and infrastructure development delays may have financial impacts.

LNG projects require significant upfront investments, and financing risks can arise from cost overruns, project execution delays, or changes in market conditions. Effective financial planning, risk assessment, and project management are crucial to mitigate these risks.



Supporting your LNG liquefaction and terminal facilities

Our team of risk engineers and advisors uses a structured risk management framework to identify and manage risks throughout a project's lifecycle. Through meetings, workshops and detailed planning, we work with you to:



Improve the risk profile of your company and projects.



Secure appropriate and cost-effective insurance coverage for your operations.



Optimize your total cost of risk.

OUR APPROACH

Project risk profiling

We identify project risks and contractual mitigations to create a project risk register and action plans.

Project risk reviews

We assess the design safety features of an LNG project, onshore and offshore, and advise on best practice risk improvements prior to project execution.

Layout and estimated maximum loss (EML) studies

These studies help to optimize plant layouts to minimize physical damage exposures and to customize insurance program structures and limits based on realistic and credible EML scenarios.

Contract risk reviews

Analysis of insurance and indemnity clauses enabling appropriate risk allocation and insurance arrangements across stakeholder contracts.

Construction risk assessments

This enables us to negotiate optimal insurance pricing and conditions for large, complex LNG projects involving new technologies or novel use of existing technologies, particularly for FLNG and platform developments.

Site or yard construction audits

These audits ensure best construction practice and quality assurance activity is being executed.

Pre start-up loss control and handover risk reviews

This ensures sound management systems are in place for risk mitigation to reduce the cost of operational insurance.

Business interruption reviews

We develop sum insured and EML models and optionality for both delay in start-up and BI insurances and secure the best coverages and policy wordings.

Operational risk assessments

This ensures you meet the needs of the international insurance and reinsurance markets and aids to secure the most cost effective operational insurance terms.

Benchmarking studies

To provide an objective platform for continuous improvement in risk management practices.

Comprehensive risk management solutions

Our global team delivers strategies and solutions for onshore and offshore construction projects as well as for established operational LNG facilities.

We work with our clients to achieve their objectives of transferring risk to the commercial markets with comprehensive coverage and cost effective pricing.

Onshore projects

Our team is highly experienced in solving complex challenges. For example, we have designed risk and insurance programs for the largest ever LNG trains, complex modular builds, and hybrid onshore/offshore projects. Our project risk management approach includes contractual reviews, risk engineering services, detailed estimated loss studies, and alignment with lender requirements.

Near shore and offshore floating projects

Marsh represents a large proportion of these projects to the WELCAR construction markets, and our team includes broking specialists in both FLNG and FSRU gas import terminals. Our deep knowledge of the sector enables us to customize a wide range of solutions to risks embedded in both Charter Party and Terminal Use agreements. To meet the unique needs of FLNG projects, we use a proprietary underwriting reporting model to demonstrate risk differentiation and secure insurance market capacity.



Identifying the unique needs of each project

To select the appropriate insurance products and providers, we evaluate the key criteria and characteristics of each project, including:



Project value
non-recurring costs.



Natural catastrophe
(NatCat) estimated
maximum loss profile
and mitigation strategies.



Project cargo and
modular risk assessment.



Vapor cloud explosion
(VCE) risk minimization
including layout and
inventory reviews.



Modular yard quality.



Compression technology
insurability.



Delay in start-up risk
analysis and options for
managing project debt
service risks.



Options for third party
liability coverages.

The core suite of insurances that may be required includes:



Construction phase

- Construction all risks/erection all risks.
- Third party and marine terminal liability
- Damage to existing property.
- Delay in start-up.
- Contractors' plant and equipment.
- Project cargo and associated delay in start-up.
- Terrorism.



Operational phase

- Environmental coverages.
- Property damage.
- Business interruption.
- Third party liability.
- Marine cargo.
- Terrorism.
- Political risk.

LNG shipping



Contract reviews

Marsh has LNG shipping specialists that provide contractual review support for shipping and contracts, whether building, financing, chartering, technical and/or crew management, commercial management, or port conditions, bunkering terms. This review shows the operations, risks and their allocation, indemnities and limitations – with particular emphasis on insurance obligations, their practicality and propriety.

Hull & machinery

Our clients' shipping fleets represent a large share of the world's total LNG shipping tonnage. This broad portfolio of clients enables us to build deep knowledge and innovate in a number of areas. For example, Marsh has partnered with a leading data and analytics company to develop a platform that provides behavioral analytics of fleets. The platform has aided negotiations with insurers as they become more discerning about the type of risk they insure and the coverages they offer.

Protection and indemnity (P&I)

Marsh manages the P&I for a number of large LNG shipping fleets. We work across all P&I clubs and have a comprehensive understanding of the differences in their approach to handling LNG and FSRU fleets. P&I coverage can protect shipowners for contractual liabilities, for example, in connection with the Port Conditions of Use which shipowners may be obliged to accept.

Frustrated legal liability for LNG operators

A frustrated legal liability may arise when a legitimate liability claim is brought against a vessel owner which is recoverable from the vessel's P&I club. However, because of the application of statutory limitation of liability recovery, up to the amount of the limitation, it may be insufficient to discharge the claim in full as set out under the Convention on Limitation of Liability for Maritime Claims 1976 or equivalent statutory law. Marsh has insurance facilities and access to all major global markets providing this highly specialized class of insurance coverage.

Cargo

Over the years, and in consultation with our markets and clients, Marsh has designed specific clauses that cater for the various shipping methods. A particular feature of the coverage is the absence of a set deductible amount; instead deductibles are expressed to cater for "normal and recognized boil off" for the voyage. Marsh's clauses recognize the precautions that are required to be taken by those involved in the transportation, shipping, and movement of LNG. These precautions and measures have generally resulted in very good safety records and this is usually reflected in competitive premium rates.



Solutions for credit related risks

Continued global demand for LNG has created a need to develop specific solutions to mitigate performance and payment risk in relation to LNG infrastructure, and supply and trade contracts.



Manage risk concentrations.



Secure supply.



Mitigate mark to market (MtM) risk.

Working across global credit markets, Marsh can help you to:

- Meet take or pay obligations under Master Sale and Purchase Agreements (MSPAs) including non-payment or contract frustration policy coverage.
- Mitigating MtM exposure resulting from different price hubs, for example, US priced gas sold into Europe.
- Mitigate supplier non-performance following contract termination.
- Optimize premium spend with coverage on a portfolio or single counterparty basis.
- Secure political risk coverage for LNG investments in emerging markets.

CASE STUDY

Challenge

The supply and trading operation of a US energy company was engaged in the international marketing of LNG in excess of product sold under long-term sales contracts.

As a result of increased LNG pricing globally, our client faced material concentrations across key partners. In particular, volumes being traded with seven counterparties were becoming constrained due to the aggregate exposure.

Solution

Marsh structured a non-payment insurance (NPI) solution that covered the seven counterparties, representing a trade exposure of nearly US\$1 billion.

The policy was aligned to the underlying contracts, with the insured Master Sale and Purchase Agreements (MSPA) and associated take-or-pay conditions, which would not ordinarily be included in standard NPI policies.

By structuring coverage on a portfolio basis, Marsh helped the client to achieve optimal premiums, with some insurers pricing risk on a 'named-buyer' basis at up to 60% less than on a single counterparty basis.

Impact

The NPI policy enabled the client to continue trading LNG in a volatile price environment, and increase their trading volumes.



Our global team of LNG specialists

Marsh is committed to delivering risk management advice, engineering services, insurance broking and placement solutions, and claims management to help our clients achieve their ambitions.

With unparalleled breadth, our global team partners with clients around the world.

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Our global team includes experts in:

- Construction risk engineering
- Business interruption and delay in start-up solutions
- Floating storage regasification units
- Floating LNG
- Credit risk and solutions
- Marine liability
- Terrorism coverages



About Marsh

Marsh is the world's leading insurance broker and risk advisor. With more than 45,000 colleagues advising clients in over 130 countries, Marsh serves commercial and individual clients with data-driven risk solutions and advisory services. Marsh is a business of [Marsh McLennan](#) (NYSE: MMC), the world's leading professional services firm in the areas of risk, strategy and people. With annual revenue of \$23 billion, Marsh McLennan helps clients navigate an increasingly dynamic and complex environment through four market-leading businesses: [Marsh](#), [Guy Carpenter](#), [Mercer](#) and [Oliver Wyman](#). For more information, visit [marsh.com](#), and follow us on [LinkedIn](#) and [X](#).

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