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Specialised Working Group 5: *LNG Trading Arrangements in the Context of the Energy Transition*

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Introduction

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Introduction to LNGnet

- Three-year project focused on the further evolution of the global LNG market, particularly in the context of the energy transition towards decarbonisation and climate neutrality and to promote conditions for liquid, flexible, transparent and more sustainable global LNG trade. Aiming to enhance international cooperation to mitigate methane emissions along the LNG value chain as well as contribute to international outreach on the perspectives for renewable and decarbonised gas supplies.
- Operating within the framework of the EU's long-term objective of a climate-neutral economy, while reckoning that natural gas will play an important role in the world's energy supplies during the next decades, with LNG representing a growing share of natural gas trade contributing to the diversification of sources and destinations and increasing the overall natural gas trading security.
- The LNGnet Project is implemented by a Consortium of Cecoforma (https://www.cecoforma.com), Baringa Partners (https://www.baringa.com) and the European University Institute – Florence School of Regulation (https://www.eui.eu/en/home).
- You can find out more at https://lngnet.eu

Introduction to SWG 5

Purpose: understand how energy transition requirements impact the contractual framework in LNG trading

A) Purpose

- Establish an understanding of how an evolving LNG market (role of long-term contracts, pricing, market changes, buyer drivers) and the demands of the energy transition may impact the contractual framework in LNG trading

A) Focus questions

- What is the relationship between private energy supply and purchase contracts and the sustainable energy transition in terms of carbon content?
- What are the policies that regulate international trade in products with higher greenhouse gas emissions?
- Which commercial models support the development of a carbon value chain within an LNG business?

A) Objectives

- **Identify current trading practices** around the **carbon value** in **LNG trading**
- **Outline** examples of **regulations in major import markets** that require **emission intensity information** or **restrict the import of LNG**
- **Identify relevant clauses** in current **LNG SPAs** that would need to be **adapted** to appropriately reflect the **risks of energy transition**

A

Framework study

B

Meetings

Agree approach & identify areas for development; discuss options for model clauses

C

Final report

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Current trading practices

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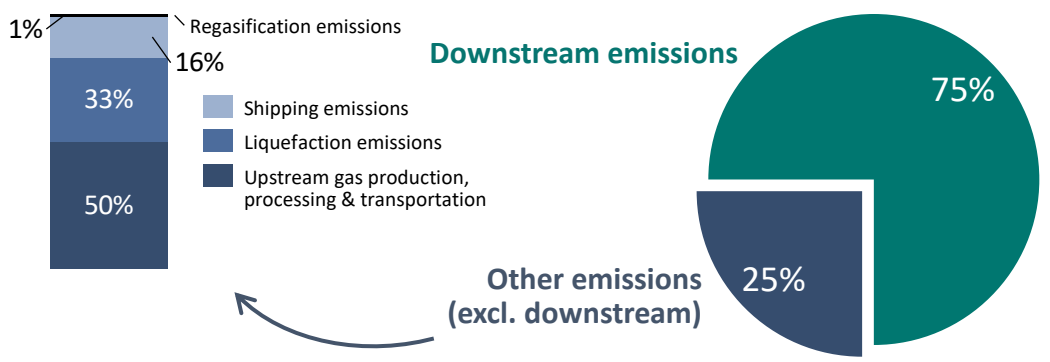
LNG trading & the energy transition

The greenhouse gas intensity of LNG operations has become increasingly under pressure

Carbon footprint

- End-users, driven by decarbonisation policies and stakeholder perceptions, have become increasingly interested in the emissions intensity of LNG cargos.
- The carbon footprint of an individual cargo varies significantly depending on the CO_2 content of the reservoir gas, levels of methane leakages from production, infrastructure and processing, and how liquefaction and regasification are powered.
  - Other factors include the age of facilities and shipping fleets, as well as distance to market.
- Many of these factors are region-specific. This means that Russian and Middle-Eastern projects face different challenges from a carbon-reduction lens than that of the US, where upstream reservoir type and pipeline distance to LNG plants adds to methane intensity.
- Location aside, upstream gas production accounts for the majority of a producer's "non-downstream" emissions, followed by liquefaction, shipping and regasification. Left unabated, these emissions erode the attractiveness of gas as a bridging fuel.
- Decarbonising LNG cargoes enhances the environmental competitiveness of the LNG market and allows producers to sell a differentiated and premium product that is attractive to buyers looking for an LNG cargo with environmental added value.
- In turn, cargo differentiation by carbon footprint is becoming an important value driver for global producers. The impact of emissions on the future delivered cost of LNG projects will depend on how much methane and/or CO_2 is taxed.

Indicative GHG intensity of LNG value chain



Value chain stage	Description	Emissions (kg CO_2e / tLNG)
Upstream/pipelines	Emissions from E&P and transport to liquefaction plants	100-500
Liquefaction	~10% of feedgas is generally used to generate electricity to run the liquefaction process	200-400
Shipping	Emissions can vary by boil off rate and fuel source, route and speed	50-250
Regasification	Emissions relating to the running of the regasification process	10-30
Downstream	Emissions from the combustion of the gas	3000-3500

Source: GIIGNL, LNG carbon offsetting (2020)

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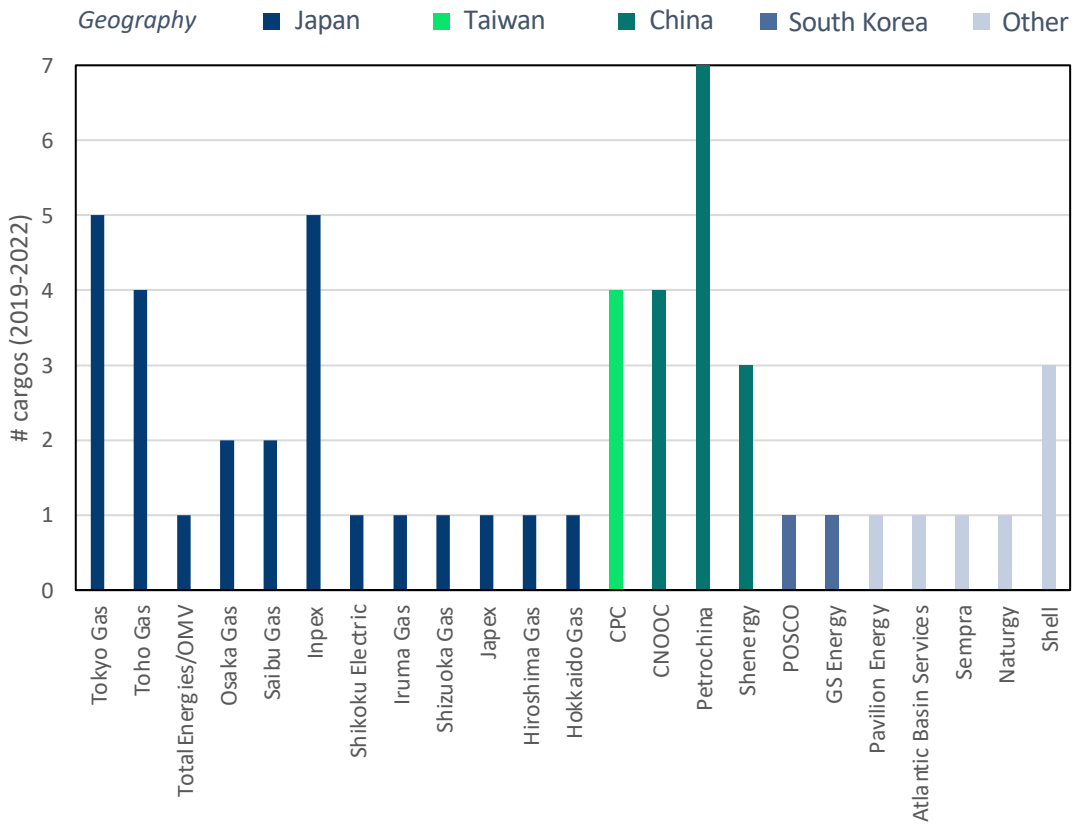
Emergence of carbon-neutral LNG

Carbon-neutral LNG demand has emerged as an answer to addressing the emissions footprint of LNG cargos, with growth driven by NE Asian buyers motivated by regional net-zero targets

Regional drivers of growth

- The trade of carbon-neutral LNG involves the accounting of GHG emissions from supply and/or consumption, which are then offset by procuring and retiring carbon credits generated through GHG abatement projects, such as afforestation, farm/soil management, and methane collection.
- Up to July 2022, around 50 carbon-neutral LNG cargos had been announced publicly. North-east Asian buyers have been the primary customers, as public utilities in these gas-reliant regions explore options to meet legislated national climate targets. LNG producers and suppliers are also focusing on emissions transparency and reduction as a differentiator in marketing their product.
- Less appetite for carbon-neutral LNG exists within European markets, likely because carbon emissions from direct fuel consumption in Europe's power and industrial sectors are already covered by a carbon price under the EU ETS, reducing incentives for consumers to engage in additional voluntary carbon pricing or offsetting schemes.
- Since 2022, the number of carbon-neutral cargos began to decline substantially, likely because of:
  A) The reluctance of buyers to pay an additional premium for LNG cargos which had risen to historically high prices
  B) A lack of accurate definition and transparency
- That being said, Europe's renewed focus on LNG imports to offset lost volumes of Russian gas, new European and US regulations on GHG emissions measurement and reporting, and a return of prices to pre-crisis levels presents a major opportunity for further development of the measurement, reporting and valuation of emissions. This may provide a basis to support a resurgence in carbon-neutral LNG deals into the future.

Carbon-neutral LNG cargo buyers (2019-2022)



Source: OIES

Regulatory landscape and Industry response

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Regulatory landscape

climate regulations continue to evolve globally, with methane emissions in focus

Regulations in scope

- GHG emissions regulations continue to evolve globally, and governments are increasingly implementing legislation which will impact the global LNG trade.
- Net-zero targets and established carbon markets aside, there are several key pieces of legislation which have been introduced recently or are currently being drafted which will have varying degrees of influence on the evolution of responsibilities and liabilities for GHG emissions.
- Recent legislation targeting methane emissions will have an outsized impact on the LNG market relative to many other sectors and industries which feature lower levels of methane-intensity. Such legalisation will require a more robust measurement, reporting and verification processes for the GHG emissions of LNG.

Regulation	Description	Impact on global LNG trade
National net-zero pledges	Net-zero pledges in key producer and consumer markets, such as Australia, the US, NE Asia and Europe have a strong influence over the direction of national climate policy. At present, countries in each of these markets (excl. China) have set targets for carbon-neutrality by 2050.	Net-zero pledges impact overarching climate policy, including the direction of emissions baselines, carbon prices and project approvals, among many others.
US methane regulation	**The US Inflation Reduction Act of August 2022 introduced a methane fee for oil and gas companies. From 2024, the fee will be $900/tonne rising to $1500/tonne in 2026. There are a significant number of exemptions depending on the production level and whether there is already compliance under EPA rules. The Act directly raises the question of how emissions will be measured and reported, and whether they will require independent verification.**	**The provisions relating to methane in the Act will impose greater methane measurement and leak prevention responsibilities on US LNG producers, likely leading to a higher cost burden on producers.**
EU methane regulation	**In November 2023, the EU reached a provisional agreement on methane legislation which aims to reduce emissions from domestically produced and imported oil, natural gas, and coal. The regulation seeks to establish "methane performance profiles" of supplier countries and producers, the demand for better emissions data will ramp up quickly, including from liquefied natural gas (LNG) exporters.**	**The legislation introduces new reporting requirements for EU operators and those importing LNG into the Europe. It also establishes methane intensity rules which will be levied on importers. Penalties for non-compliance are to be set by Member States.**
EU shipping ETS inclusion	On 1st Jan 2024, shipping activities within the European Union came under the EU-ETS carbon scheme. This means vessels operating within Europe will bear the cost of purchasing EUA carbon certificates, increasing variable shipping costs for vessels which utilise LNG as a marine fuel.	On a cargo level, the impact is relatively low, however at the margin, the increase in cost of shipping LNG to Europe should increase European LNG prices vs other destinations (e.g. Asia).
European Carbon Border Adjustment Mechanism	From 2030, the EU will levy a carbon tax on imports at the EU-ETS market rate for carbon. The CBAM will apply to all sectors covered by EU-ETS. These will include crude oil and refined petroleum products, but not pipeline natural gas or liquefied natural gas (LNG), except LNG used as marine fuel.	Low impact on demand and supply of LNG given it does not impose any additional taxation or emissions purchasing obligations. **Note: in** the event the CBAM was applied to LNG, there would be a major impact on the global LNG trade.

Degree impact on global LNG trade (relative) ■ High ■ Medium ■ Low

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Industry response: GHG emissions reporting in LNG SPAs

Terms and conditions must encapsulate several key elements, with role for regulators in clear and early rule setting.

Application in SPAs

- For LNG to play a role in the decarbonisation of the global energy system, SPA terms and structures will need to be revised to suit the changing priorities and interests of both producers and customers.
- GHG intensity information of a cargo is required by import/production regulations in Europe and the US; will most likely spread to other jurisdictions.
- Calculation of emission intensity is a complex task, especially if the exporter is not the gas producer and feed gas is transported through an interconnected pipeline network. There is a risk of incorrect information, and there is a need for a fair allocation of its financial consequences
- Information on the GHG footprint of an LNG cargo can be embedded within contracts using emissions accounting and reporting frameworks. There are no formally established requirements regarding how GHG emissions can be included within an SPA yet.
- Definitions would likely be based on agreements around the MRV processes and standards, including quantification methodologies and the use of market-based accounting mechanisms to overcome the hub-sourced gas issue; liability and remedy regimes can complement those.

GHG emissions reporting – considerationns for SPAs

Terms	Description
GHG calculation/accounting methodology	Includes the quantification and accounting standards employed to calculate the GHG emissions which can be attributed to an LNG cargo. Several standards already exist, which require site- or source-specific data to be collected for the processes where the reporting organisation has financial or operational control. Next to quantification methodologies, the approach to mass-balancing requirements or book&claim approaches will be particularly important.
Scope and boundaries of application	A defined time boundary must be established for data collection and calculation of the GHG footprint in each step of the value chain (upstream-transport-liquefaction-regas-transport). For shipping, it is expected that this will be on an actual voyage basis. For other stages, 12 consecutive months is considered reasonable as this may be synchronised with annual reporting cycles and will smooth the impact of seasonal variation and abnormal events (e.g. shutdowns, process instability).
Responsibilities for data provision for feed-gas	If seller operates an integrated facility, he will be required to bear responsibility for the provision of (upstream) emission intensity data; in distributed scenarios with hub-sourced gas and/or tolling arrangements (e.g. the US) responsibility depends on 1/ GHG accounting rules (see above) and 2/ contractual roles and responsibilities.
Liability and Remedy Regime	Unlike “soft” emission intensity clauses, “hard” clauses would include both the MRV provision and some consequence for wrong or inaccurate data, or no data at all.

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