THE OXFORD INSTITUTE FOR ENERGY STUDIES

GIIGNL CSG Meeting

US and Global LNG

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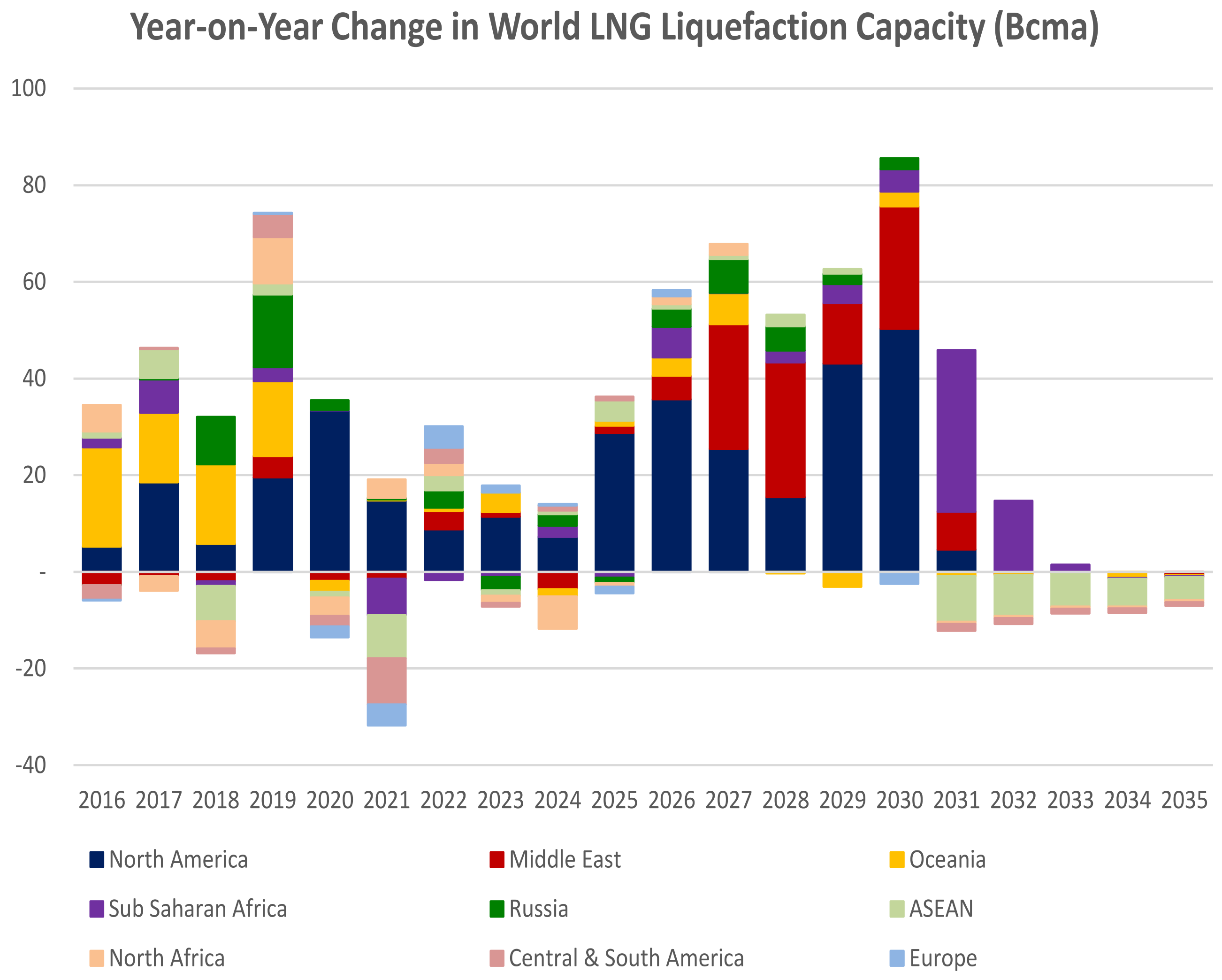
May 6, 2025

LNG Export Capacity growth to 2035

Figures in brackets are MTPA
Red means yet to take FID



2025 – Corpus Christi P3T1-4 (6), Plaquemines T1 (13), Tortue (2.5), LNG Canada (14)

2026 – Golden Pass T1-2 (12), Corpus Christi P3T5-9 (9.5), Plaquemines T2 (6.5), Energia Costa Azul (3), Qatar NFE T1-2 (16), Pluto 2 (5), FLNG Congo Brazzaville (2.5), Cap Lopez Gabon (0.7), *Arctic T1-2 (13) ?*

2027 – Qatar NFE T3-4 (16), Golden Pass T3 (6), Woodfibre (2), Sabah ZLNG (2), Kasuri FLNG Indonesia (1.2)

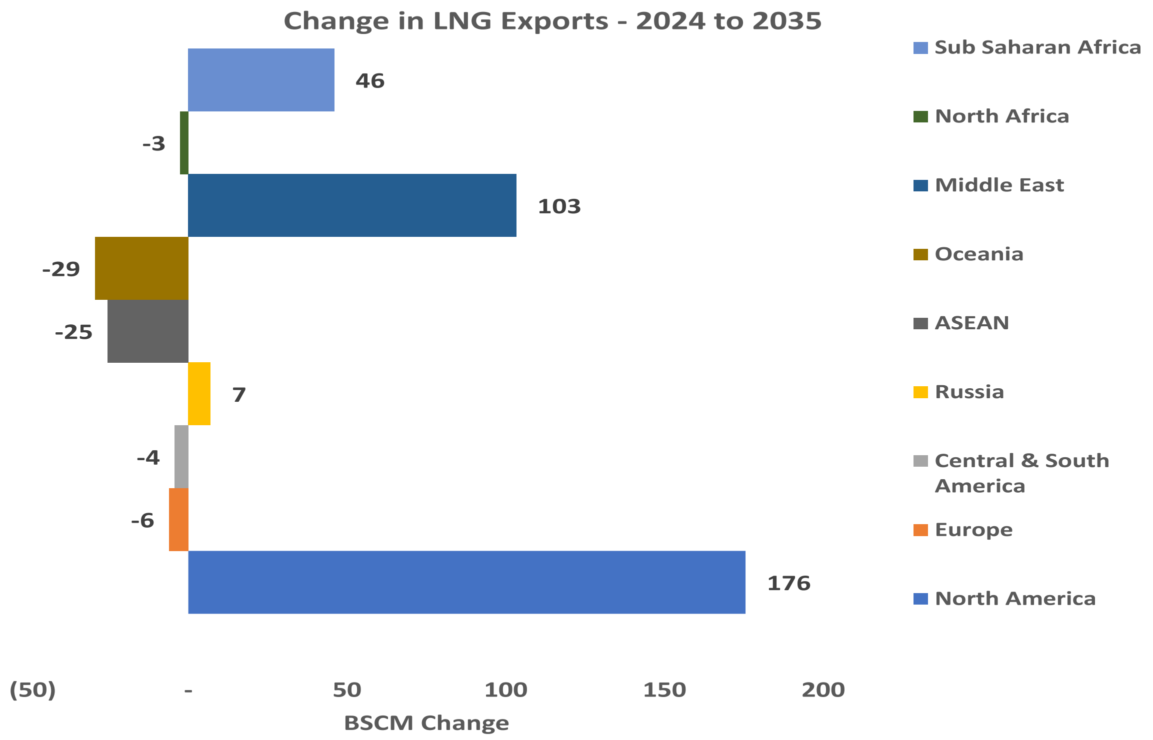
2028 – NLNG T7 (7.5), Port Arthur (13), Qatar NFS T5-6 (16), Cedar FLNG (3.3), Mexico Pacific T1-2 (9.5)

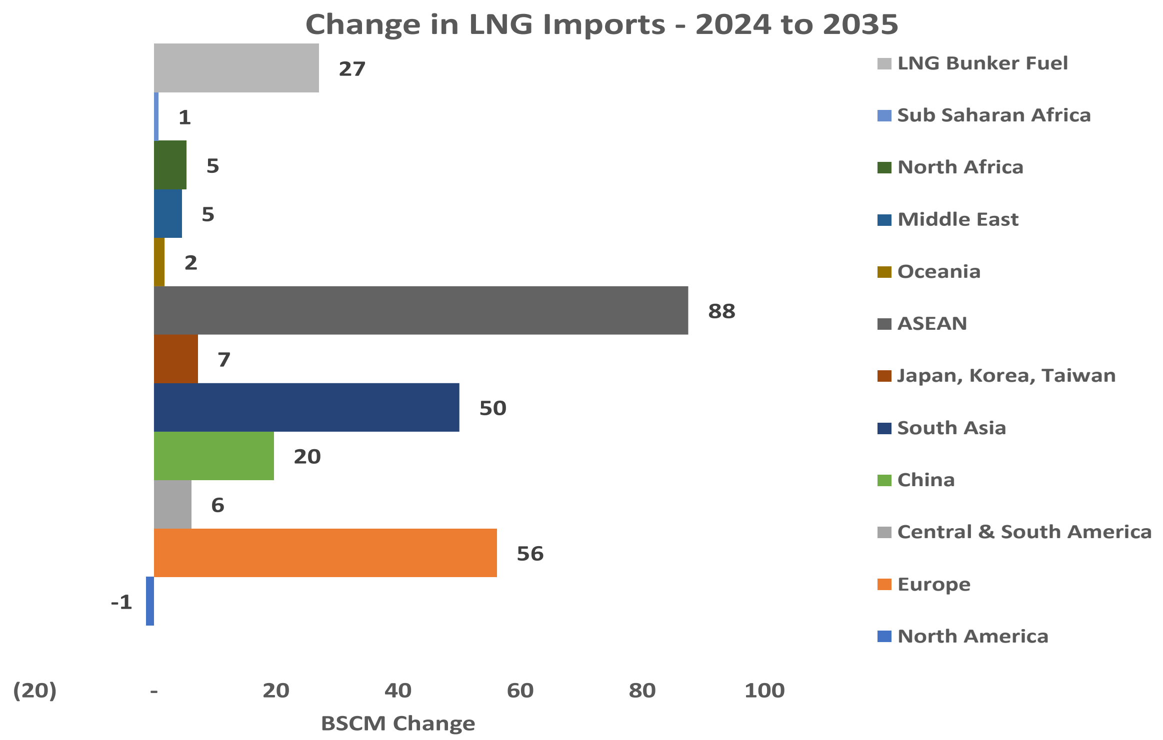
2029 – Rio Grande T1-5 (29), Calcasieu Pass P2 (10), Ruwais UAE (9.5), Oman Sur (4), Louisiana LNG (16.5)

2030 – *Mozambique T1-2 (13) ?*, Delfin (3), Papua LNG (4), Qatar NFW T7-8 (16), Marsa Oman (1)

2031 – Tanzania T1-2 (10), Rovuma T1-2 (18)

LNG Imports and Exports

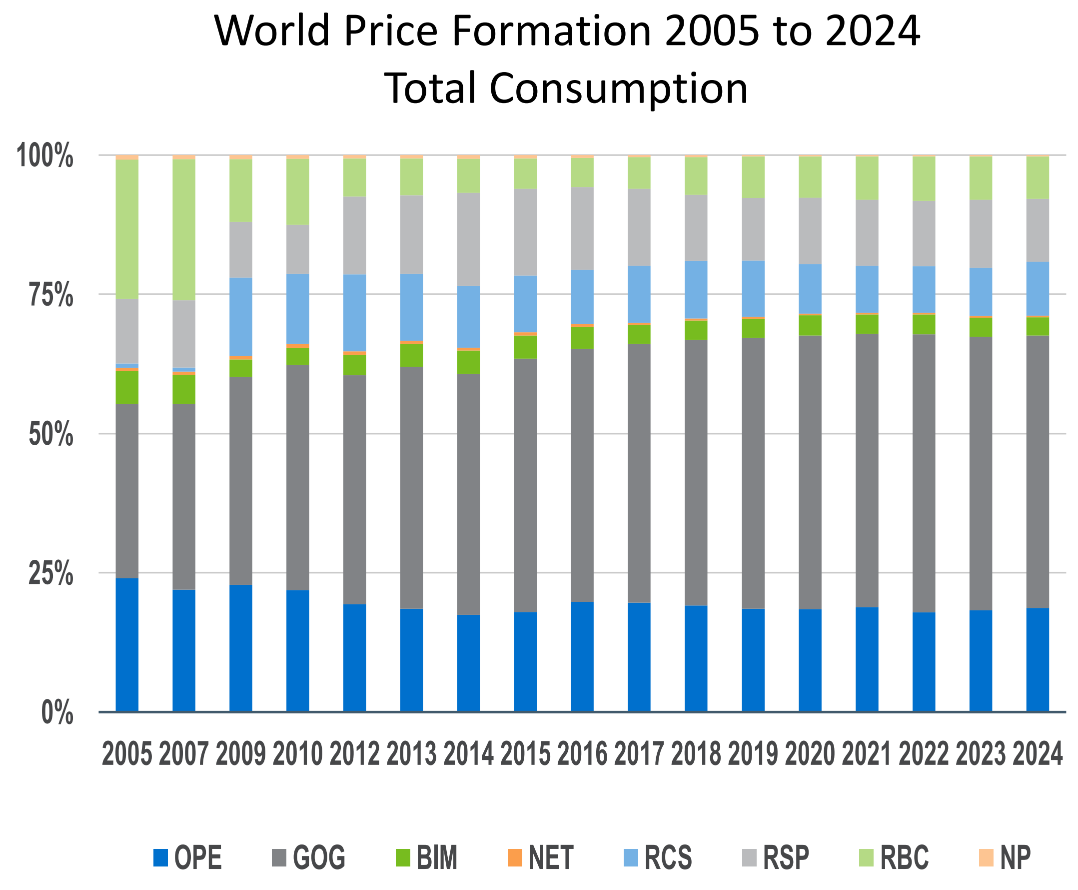


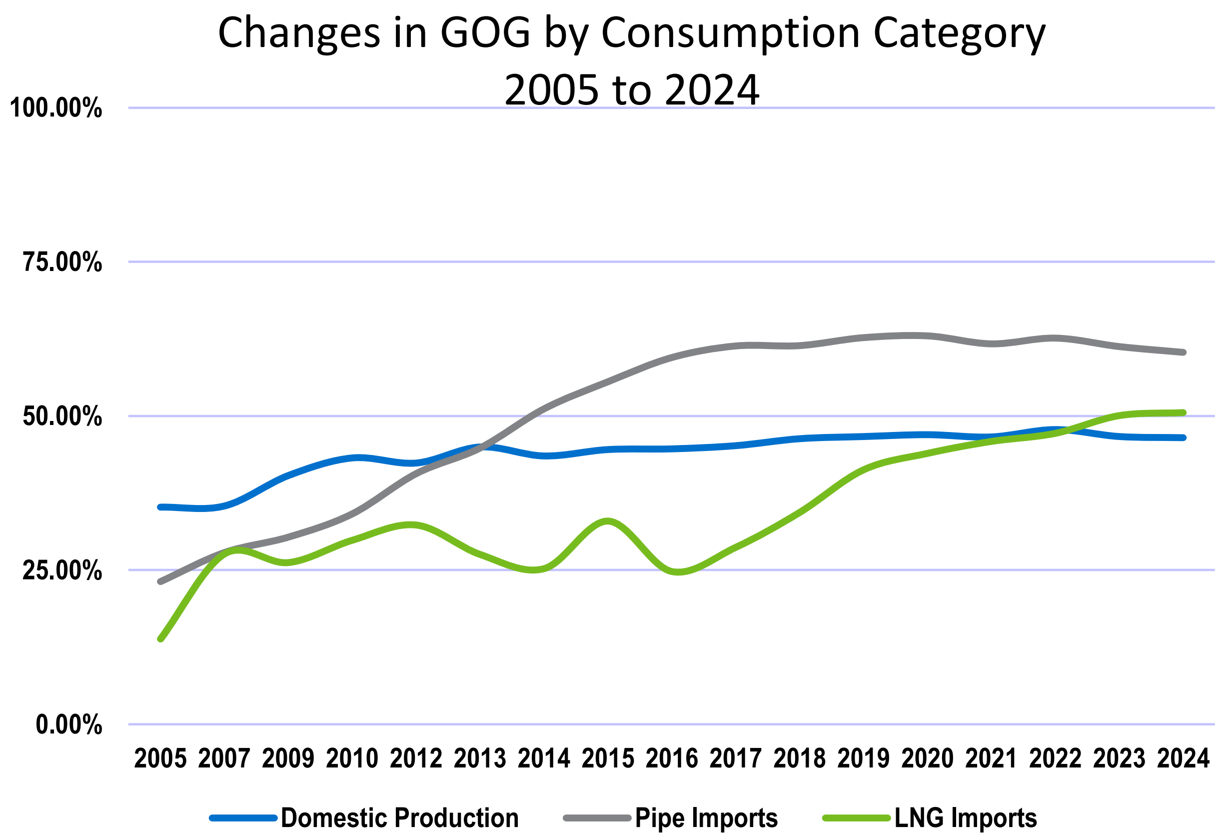


- Total LNG import growth between 2024 and 2035 is some 264 bcm, of which 27 Bcm is growth in LNG as bunker fuel.
- LNG export growth follows the rise in export capacity, so North America tops the list, accounting for over half the rise in LNG exports, followed by the Middle East – Qatari expansions – and Sub-Saharan Africa – largely Mozambique, Nigeria, and Tanzania.
- Regarding imports, ASEAN has the most significant increase (76 bcm) as production declines and demand grows. China's growth peaks around 2030 at 132 bcm, declining to 126 bcm by 2035 (20 bcm growth in 2024-35), partly recovering from the 20 bcm decline in 2022 following the weak economic activity and lockdowns. Europe sees a growth of 56 bcm as production and pipe imports decline. South Asia shows strong growth as prices stimulate demand
- **However, the growth in LNG export capacity is expected to outstrip the rise in LNG imports**

IGU Wholesale Price Survey

Source: IGU Wholesale Gas Price Survey 2025 (Forthcoming)

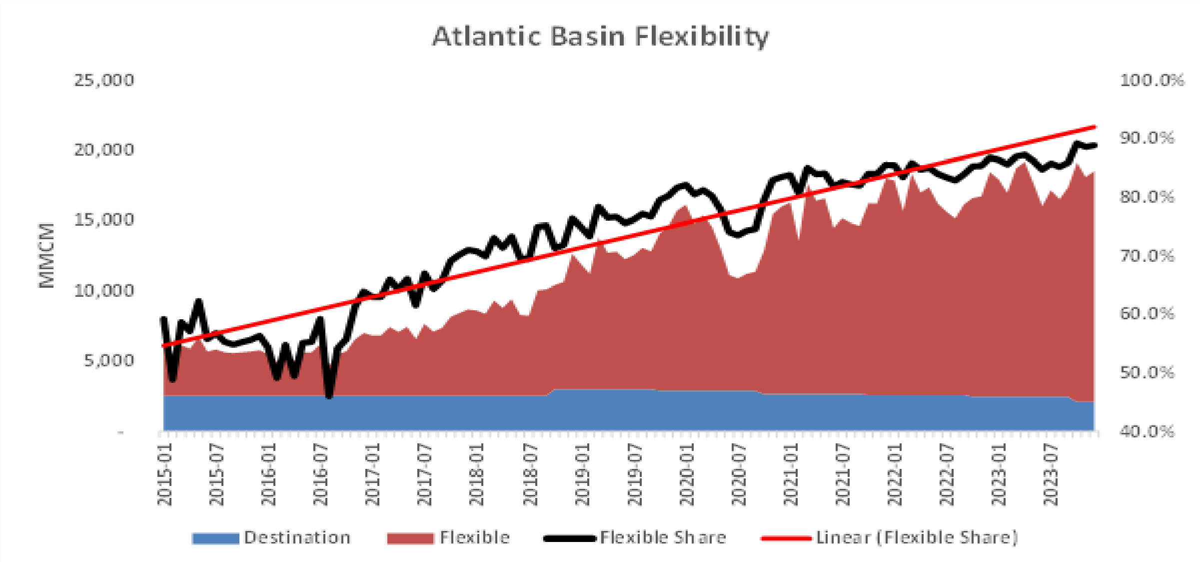


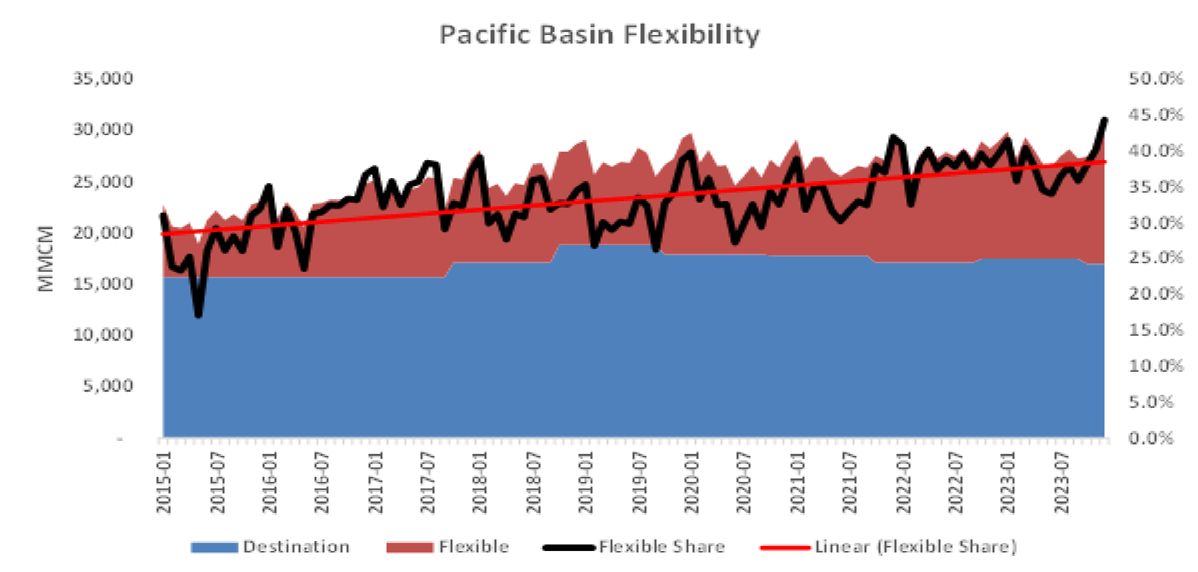


- Rise in GOG over time at expense of OPE and regulated pricing, driven by changes in pipeline imports in Europe through 2016 and changes in LNG imports from 2016 on

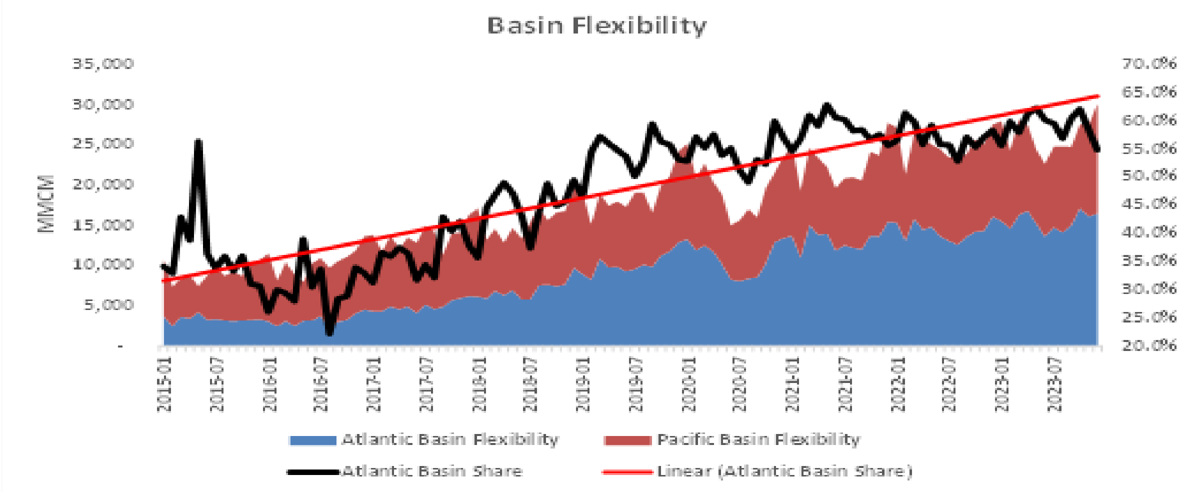
LNG Flexibility

Source: Kpler. NexantECA World Gas Model





- Flexible LNG defined as spot cargoes and FOB contracted LNG
- Sharp rise in Atlantic Basin flexibility as US LNG came on outpacing Pacific Basin flexibility
- By end of 2023 some 57% of total LNG exports could be defined as flexible



Globalization of Gas Markets

- Seen greater connectivity of European and Asian prices in last 10 years, apart from 2022 following Russian invasion of Ukraine
- The increasing flexibility of LNG, since 2016, has significantly enhanced the volume of tradable gas in Asia
- This has resulted in the rise of GOG pricing in the region, creating opportunities for more trading
- Asia does not have a liquid trading market but the increasing flexibility and the pricing changes suggest that it is a competitive market for international traded gas, at least for enough LNG to suggest that the global gas market is well connected and globalized
- The globalized market in 2022 saved Europe from blackouts and gas supply cut offs, with LNG switching away from Asia to Europe. The counterfactual scenario of the European gas market of 15 years ago would likely have led to extensive curtailment of gas supply with little gas and LNG flexibility
- However, is the increasingly globalized gas market under threat from a variety of factors

Globalization Threats: Trump Tariffs and Recession

- Tariffs directly on energy, including gas and LNG, are not widespread. Tariffs imposed on imports of gas from Canada, but impact been negligible – simply an additional cost but not affected hub prices

- China has imposed retaliatory tariffs on US LNG with result that no US LNG is going to China, as cargoes are being diverted, but if tariffs are prolonged, then China has signed up to more US LNG, which can be diverted but the volume of diversions could become problematic

- US proposed tariffs on Chinese ships and requirement for increasing number of ships to be US built and flagged. In consultation currently and LNG ships appear to be exempt from charges on use of Chinese tankers (account for 7% of the global fleet) and the requirement to use US built and flagged ships delayed until 2028 with the percentage increasing over a 20-year period. Potentially serious implications for existing US LNG facilities and for future FIDs

- If tariffs are prolonged then serious risk of a global recession with implications for gas demand and future contracting and FIDs. Impact could be similar to the global financial recession of 2008/09

Globalization Threats: EU Methane Emissions Regulations

- By August 2028 importers and producers have to report the methane intensity of imported fossil fuels, including LNG. Big issues with how this is actually measured
- By August 2030 importers and producers shall demonstrate to the competent authorities..that the methane intensity..is below the maximum methane intensity values established..
- The Commission has made it clear that: “To preserve security of supply, failure to meet the requirements of the Regulation will not lead to an import ban, instead a system of penalties will be put in place”. Penalties appear to be on any methane intensity above the maximum intensity value
- Penalties to be set by Member States – not at the EU level like a tariff would be – and cause for concern since they can involve `up to 20% of annual turnover in the previous business year’. Member states are required to publish details of the penalties and the operators/importers on which they have been imposed
- There are general references to contracts throughout the proposed regulations but the vast majority of LNG coming to the EU is not under a long-term contract but is effectively spot LNG, with an individual contract for each cargo. How might that work?
- Effectively the penalties are a tariff and could get caught up in any tariff negotiations between the US and the EU

Globalization Threats: EU Corporate Sustainability Due Diligence Directive

- The aim of the EU Corporate Sustainability Due Diligence Directive (CSDDD) is to ensure that EU and non-EU companies active in the EU: “contribute to sustainable development and the sustainability transition of economies and societies through the identification, and where necessary, prioritisation, prevention and mitigation, bringing to an end, minimisation and remediation of actual or potential adverse human rights and environmental impacts connected with companies' own operations, operations of their subsidiaries and of their business partners in the chains of activities of the companies, and ensuring that those affected by a failure to respect this duty have access to justice and legal remedies“
- The CSDDD will apply to:
  - EU companies (i.e., companies established under the laws of a Member State) that had above 1,000 employees and above EUR 450 million 'net worldwide turnover' in the last financial year; and
  - Non-EU companies (i.e., companies established outside of the EU) that generated a 'net turnover in the Union' of more than EUR 450 million in the financial year preceding the last financial year.
- The CSDDD must be transposed by Member States into national law by 26 July 2026. These new rules will become applicable to companies according to a staggered timeline – large non-EU companies by July 2027, smaller ones by July 2029.
- In-scope companies must take various steps to manage actual and potential adverse impacts of their activities on human rights and environmental matters, arising from (i) their own operations, (ii) the operations of their subsidiaries, and (iii) the operations of their business partners in its chain of activities
- Non compliance could lead to penalties with the maximum penalty to be at least 5% of the relevant company's net worldwide turnover in the previous financial year – this could amount to billions of dollars
- Qatar has already threatened to stop shipping LNG to EU if member states enforce this directive

Globalization Threats: IMO GHG Emissions Regulations

- IMO Mid-term GHG Reduction measures come into force on 1 March 2027
- Two levels of compliance:
  - Tier 1 applies to a GHG fuel intensity less than the base target but above the Direct Compliance Target then a charge of $100 per tonne of CO2eq is levied
  - Tier 2 applies to a GHG fuel intensity which is above the base target then an additional charge of $380 per tonne of CO2eq is levied
- The base target is meant to decline over time putting more ships at risk of paying Tier 2 charges
- If Tier 2 charges are incurred then the additional costs per trip could be in the millions of dollars
- Effectively this becomes another tax or tariff on shipping costs

Conclusions

- Increasing globalization and flexibility in the global gas market, with pricing changes and rise of US LNG
- The globalized market "saved" Europe in 2022, with flexible LNG and a demand response to price. This globalized market is facing a number of threats
- The Trump tariffs, if sustained, are likely to disrupt global trade and bring on a global recession, impacting gas demand and LNG, as the marginal molecule in many markets
- Significant additional cost could arise from the EU Methane Emissions Regulation and the IMO GHG Emissions Regulations, even if the accurate measurement of emissions could be resolved
- The EU CSDDD and the Trump attack on Chinese shipping, if fully implemented and interpreted literally could pose an existential threat to US LNG from the export side and the EU gas market from the import side

Thank You!

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