

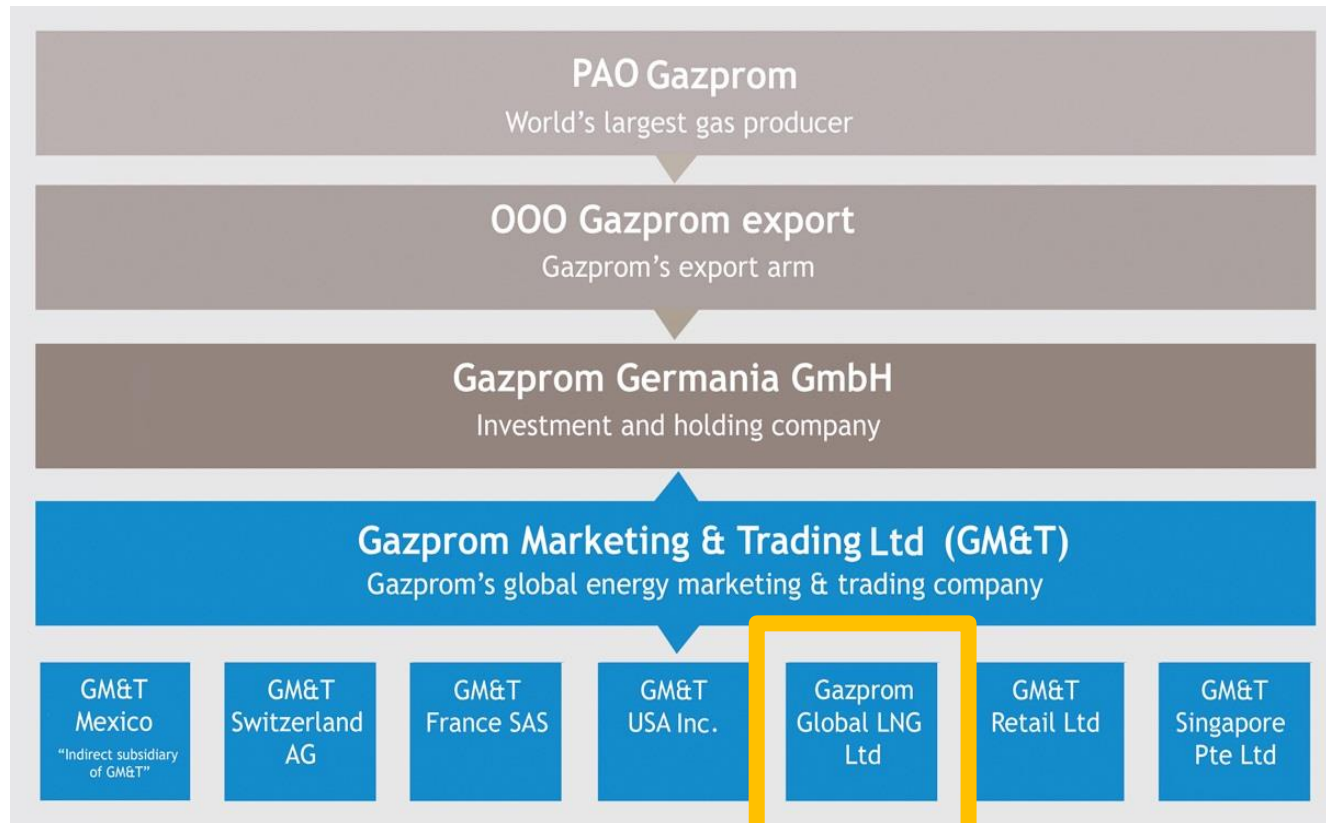
Green LNG: Challenge and Opportunity

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A little bit about Gazprom's LNG business...



Gazprom's Global LNG business is driven from **London** with regional offices in **Singapore, Zug** and **Houston** in collaboration with PAO Gazprom and Gazprom Export in **Moscow** and **St Petersburg**.

The team develops and implements Gazprom's global LNG business strategy and vision.

Portfolio Development

New supply, markets, products and services

LNG Trading & Optimisation

24/7 spot and mid-term

Financial Markets

24/7 oil, gas, FX

Cargo Operations

Logistics for 100+ cargoes a year

Shipping & Operations

Builds, chartering, vetting & ops

Gazprom's 'carbon-neutral' cargo: a first in many ways

What did we do?

- **Gazprom Global LNG** delivered the first 'carbon-neutral' cargo into Europe on 8th March 2021
- Russian LNG sourced from Yamal peninsula via **Yamal LNG**, and delivered on the LNG Megrez
- Cargo was bought by Shell and delivered into Dragon terminal, UK
- Full lifecycle ('well to wheel') emissions were offset
- Combination of high quality, VCS/CCB certified afforestation and reforestation offset projects

Challenges we faced

- No existing legal framework for 'carbon-neutral' or carbon offsetting LNG
- No existing standards for quantification of carbon equivalent
- Physical nature of LNG vs financial nature of offsetting
- New commercial and legal risks, requires different business areas to co-educate and co-operate
- Lack of price transparency

Challenges to develop 'carbon-neutral' LNG as a product

- Lack of common standards and methodology
- Lack of verified and transparent data
- PAS 2060 'carbon-neutral' standard
- Portfolio players vs single source suppliers
- Many LNG players now joining the fray, each with their own definitions, tolerances, agendas
- Who pays for offsetting?
- Greenwashing...

Is 'carbon-neutral' enough for Green LNG?

Rapidly cutting carbon emissions is essential to avoid warming beyond 1.5%, but methane matters too

- Growing recognition that methane emissions are
 - IPCC 2018: Methane is the second most potent GHG, contributing 20% of radiative forcing (vs 60% CO₂)
 - MiQ 2021: 25% of total GHG from oil and gas consumption is pure methane
 - CCAC 2021: Technology exists to reduce direct methane emissions by 30% (120 mn T) this decade, at low or no cost
- Methane is a 'short-lived' GHG, but over 20 years it has **84x** the potency of carbon dioxide (IPCC)
- Some of the same challenges exist...but perhaps also advantages
- Suppliers are surely better placed to tackle methane emissions than carbon?
 - 70% of Gazprom's emissions are methane, which is gas that could otherwise be monetised

Should we be aiming for 'methane-neutral' as well?

What is the opportunity for LNG suppliers?

- IEA: In 2050, nearly all **exports** will come from the “lowest cost and lowest emissions producers”¹
- Abatement **technologies** already exist and are proven, many are cost-effective:
 - High efficiency ships
Gazprom will take delivery of 2 MEGIs this year, the Energy Integrity and the Energy Intelligence. They have the least emissions intensity of all LNG carrier types according to ICCT, with potential **reduction in carbon footprint of 46%** compared to conventional TFDE.
 - Methane leak detection and repair, process efficiency, CCUS
 - Electrified liquefaction
- With an increasingly **differentiated product**, and price/demand not just linked to CV, then high quality, reliable suppliers will be able to extract economic advantage in the market
- We can **make a difference now**.
 - Vast sums are being expended on e.g. mega-battery projects, prototypes for ‘green hydrogen’, but their (technical and cost) effectiveness won’t be known or seen for many years. Conversely, gas infrastructure already exists and is well understood.
- Access to new commercial products and **carbon financing**
 - ESG is the fastest growing investment sector
 - Jutta Paulus, MEP: “We must tackle [methane] emissions not only from the energy sector, but also from landfills, agriculture, and abandoned coal mines. Setting aside dedicated funds for these super-emitters will be well-invested money on the path to reach our climate targets in 2030.”
 - **Gazprom M&T** are actively developing **financial structures** for Russian carbon and methane abatement projects e.g. Forestry Conservation and Management, Pipeline Maintenance, Flare Reduction and Upstream Emissions Reductions can all be monetised

Vision for the role of **Green LNG** in the Energy Transition

If we accept that LNG is part of the 'all fuels, all technologies' solution

If we accept that all parties, from supplier to consumer, have their part to play, then our collective opportunity is:

1. To design emissions reporting and management programmes as RPOs that maximise **efficiency** in our businesses and enhance trust in our industry
2. To ensure **transparency** in our methodologies and our data

Gazprom has publicly disclosed emissions data to the Carbon Disclosure Project since 2013 and was awarded a 'B' in 2020, ranking 4th amongst international energy companies and top in Russia
3. To **invest** in those technologies that are already proven and present reasonable payback
4. To ensure emissions can be **offset**, where we cannot avoid or reduce directly, via project-specific information and access to high quality offset markets
5. To **unlock funding** via project financing and tradeable carbon products that improve LNG's footprint **now** whilst longer-term initiatives evolve