



Technical & Commercial
Conference





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THE IMPORTANCE OF METHANE INTENSITY IN THE DECISION PROCESS FOR GAS SUPPLY DEALS

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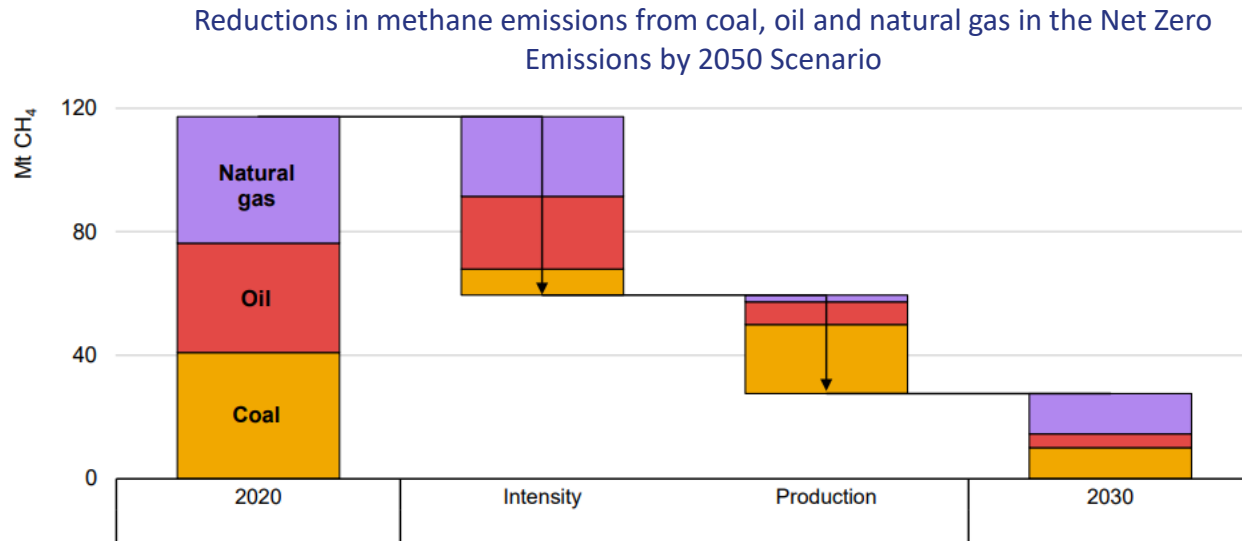


ABOUT MiQ

- **MiQ** is an independent, **not-for-profit** foundation established by RMI & SYSTEMIQ with the aim of rapidly reducing methane emissions in the oil & gas sector through **certified gas**
- We are a team of **international experts** from across the energy industry, traders, engineers, policymakers and researchers
- Started in 2021, MiQ is certifying 15bcf/day in the US, equivalent to **17% of US production** and **4% of world gas supply**. Certified groups include **EQT, Chesapeake, Comstock, North East Energy** and IOCs such as **ExxonMobil, BP** and **REPSOL**
- Issued certificates for over **800bcf** as of August 2022, or **~240 LNG cargos**
- **Methane performance standards developed for full supply chain segments which are independently audited**



METHANE INTENSITY & CLIMATE TARGETS



Source: IEA, [Curtailling Methane Emissions from Fossil Fuel Operations \(windows.net\)](#)

- To reach climate targets we must reduce methane emissions from fossil fuels by 75% from 2020-2030*
- One third from overall reduction of fossil fuels (pre Russian invasion)
- Most reduction from accelerated deployment of mitigation measures and technologies leading to eliminate all technically avoidable methane emissions by 2030
- Estimated 75% of O&G methane emissions can be avoided with solutions available today* - of which over 40% of which at a net zero cost (2017-2021 gas prices)

*“Cutting fossil fuel use will not deliver methane abatement fast enough. To deliver sufficient cuts in emissions, the volume of methane released per unit of oil, gas or coal produced must fall significantly.”**



*Source: IEA, [Curtailling Methane Emissions from Fossil Fuel Operations \(windows.net\)](#)

METHANE INTENSITY TARGETS

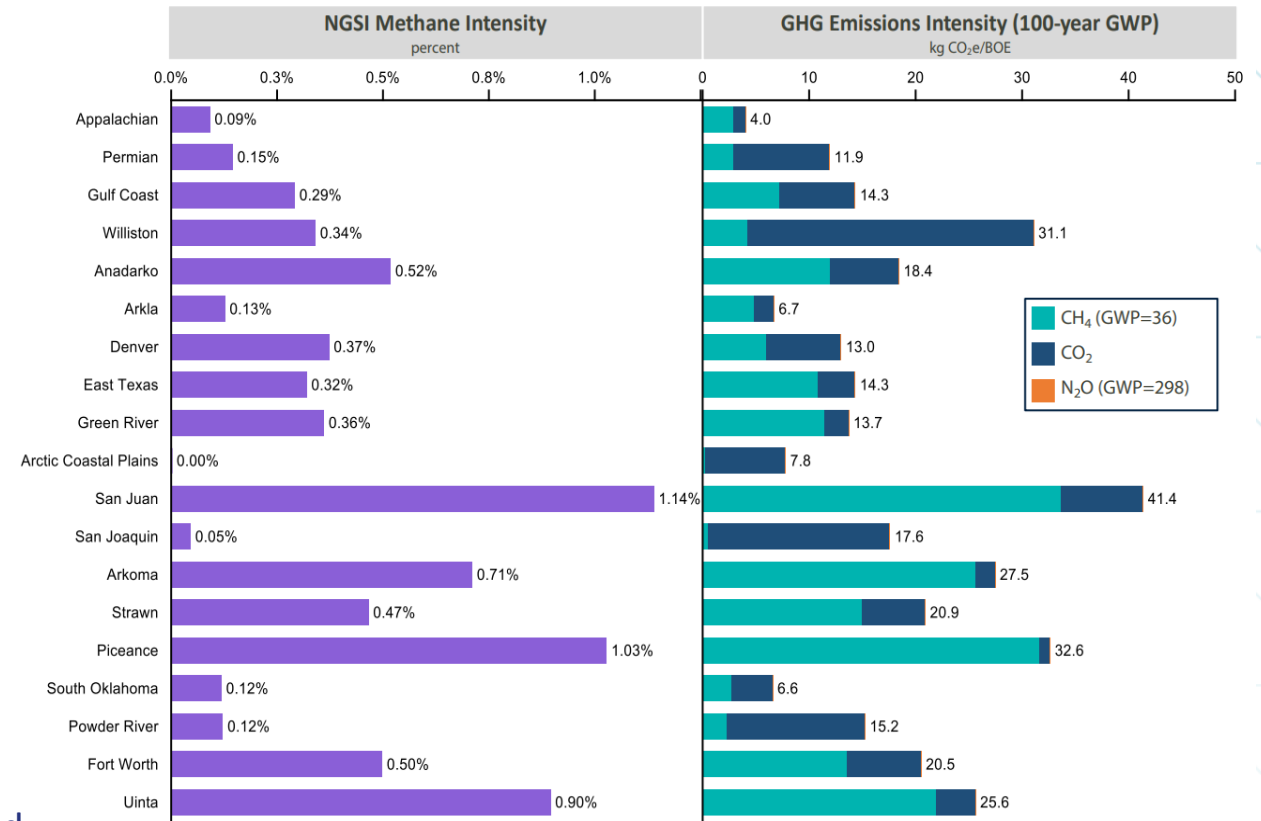
- US Inflation Reduction Act - Methane Emissions charge
 - Production: over 0.2% MI
 - Gathering & boosting: over 0.05%
 - Transmission: over 0.11%
- Future EU regulation expected post 2024
- Voluntary initiatives with MI targets exist:
 - OGCI – International, industry led
 - One Future – US coalition, MI targets per segment



Source: <https://www.ogci.com/action-and-engagement/reducing-methane-emissions/>

METHANE INTENSITY VARIATION

- High variation in MI globally & regionally
- 2022 has seen an increase in long term LNG supply from US projects with ~26 MTPA signed already, more expected
- Over 9000 independent oil and gas producers in the US, all with different operating practises using different methane mitigation
- Need for credible & transparent way to assess methane emissions performance
- Although liquefaction operators report relatively lower methane emissions, what kind of gas are they creating increased demand for?
- Gas buyers all along the chain also have a responsibility. A transparent choice of A-F graded operators will drive demand for higher grades & incentivise others to improve their grade

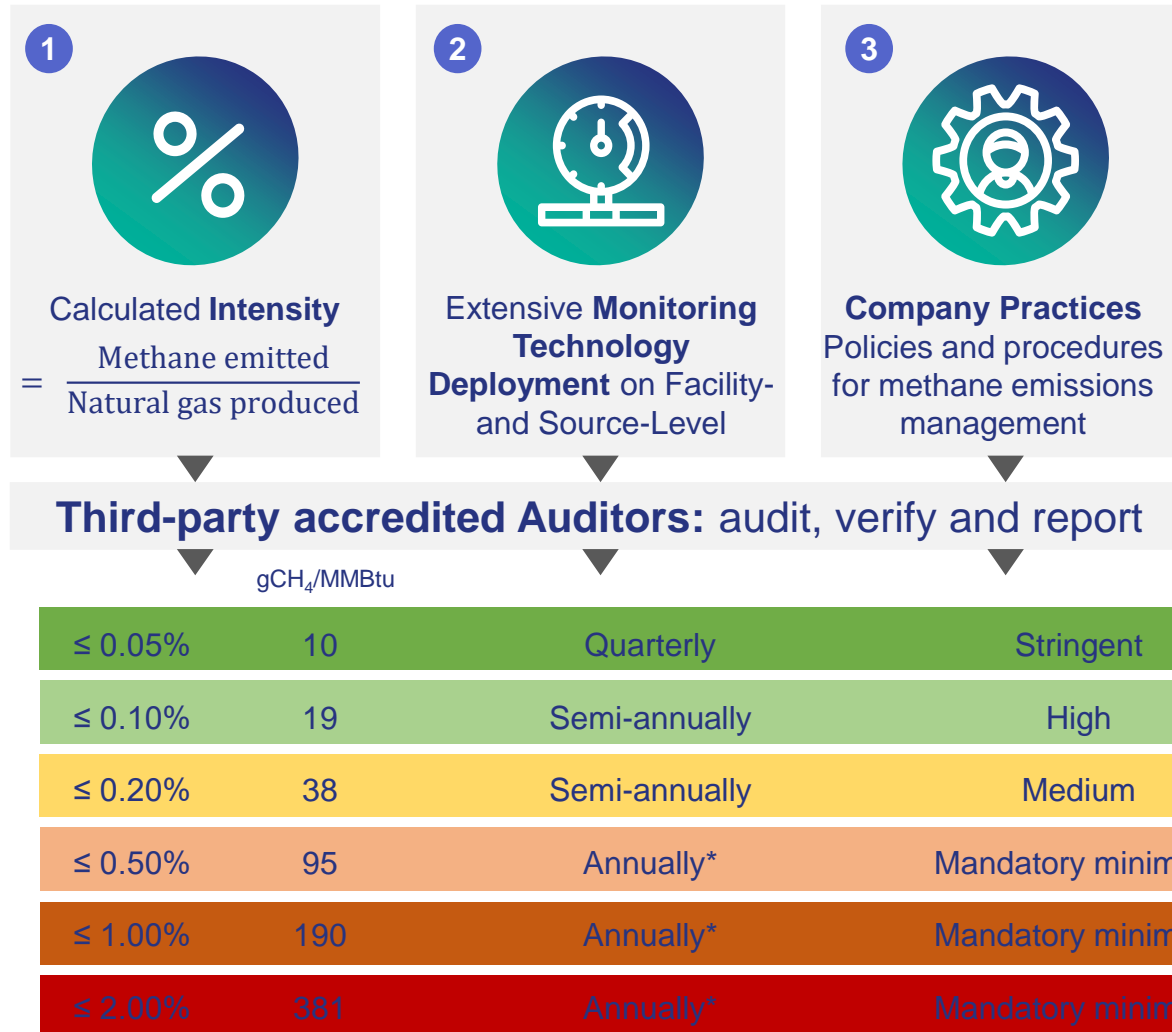


Note: Basins are ranked in descending order of hydrocarbon production (BOE)

Source: MJ Bradley [OilandGas_BenchmarkingReport_2021 \(mjbradley.com\)](https://www.mjbradley.com)



MiQ – the most comprehensive methane quantification standard involving methane tech



1. MiQ Standard is public and transparent, open for scrutiny. **No black box**
2. MiQ certifies at Facility, **not** Well – to avoid cherry picking accusations
3. MiQ Standard will evolve dynamically as methane **tech** improves. **Continuous monitoring** norms integrated
4. Central trusted authority: certificates held in **MiQ Digital Registry**



* Source-level only

EACH MiQ STANDARD CURATED FOR SEGMENT

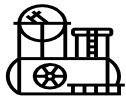


Production

Enhanced monitoring, LDAR training & reporting, elimination of flaring/venting, no bleed pneumatics, tank controls, enhanced quantification

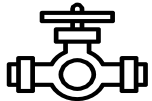


Gathering & Boosting



Processing

Compressor & combustion performance, blowdowns, maintenance, mandatory top-down surveys, attention to pipelines

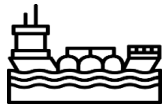


Pipeline

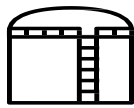
Compressor & combustion performance, elimination of venting, maintenance, mandatory top-down surveys, per mile intensity calculations



Liquefaction, Storage & Loading



Shipping

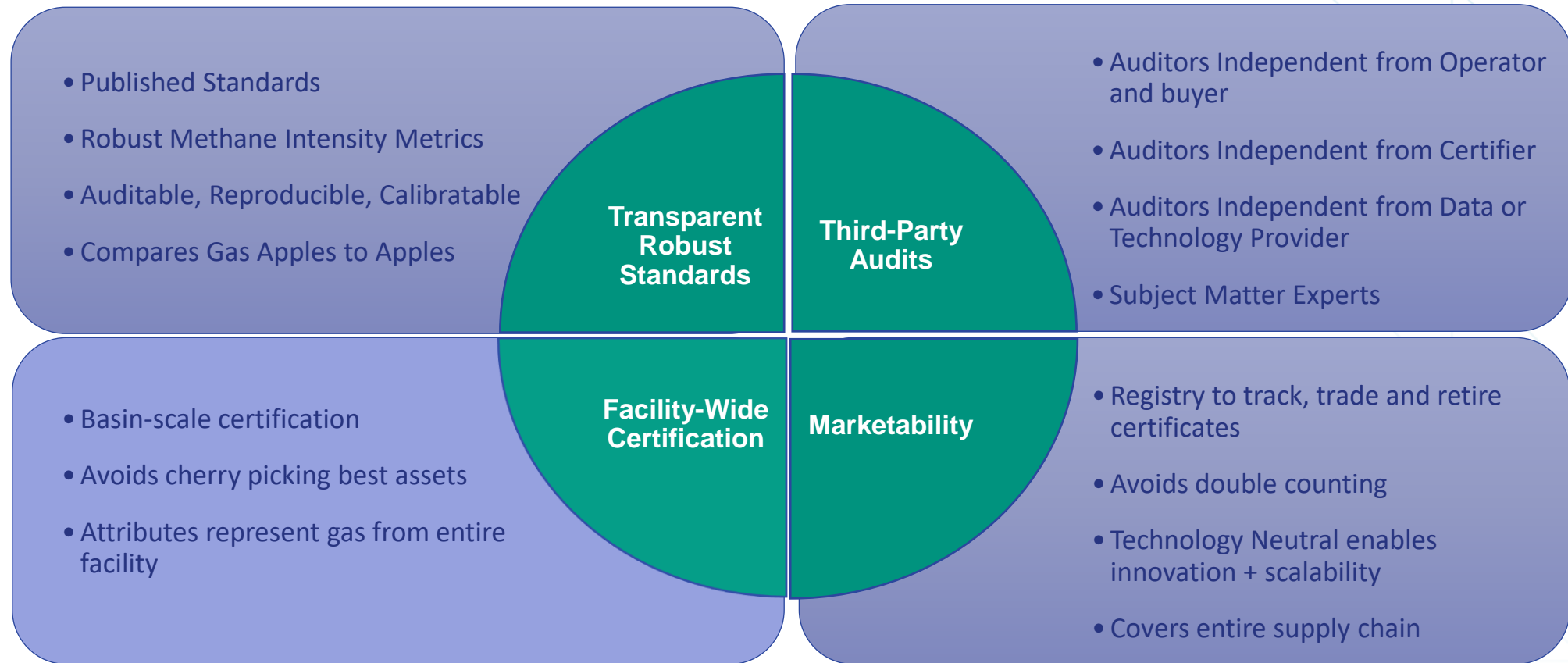


Unloading, Storage & Regasification

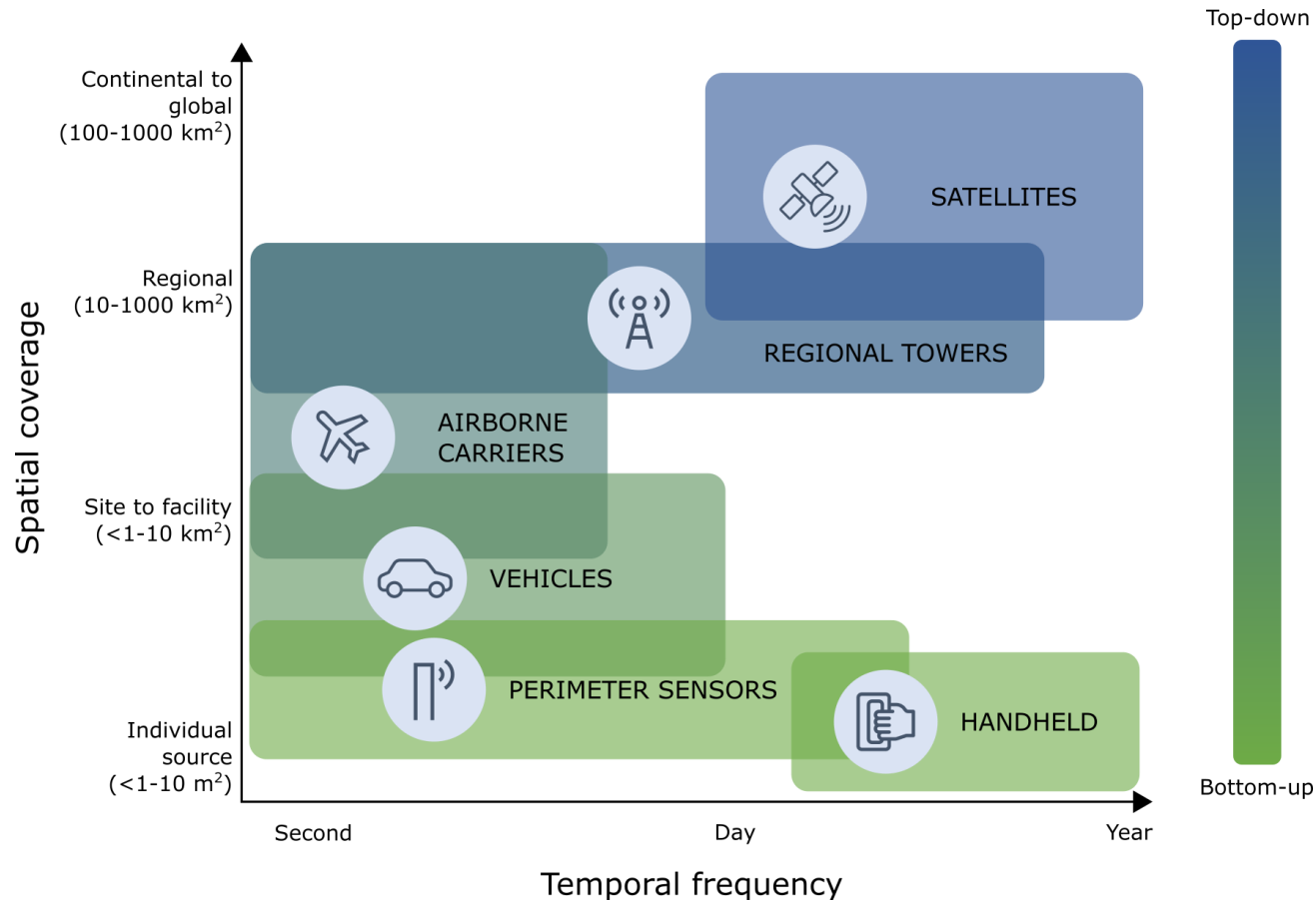
Elimination of venting from loading/unloading, blowdowns, weather resistance, thermal insulation, flare efficiency, compressor performance



CERTIFICATION FUNDAMENTALS



There is no silver bullet for methane monitoring ...



BRIDGER
PHOTONICS

EARTHVIEW

KUVA

SeekOps

LONGPATH
TECHNOLOGIES

Schlumberger

Baker
Hughes

WESTGEN
TECHNOLOGIES

ecotec

Arolytics

GHGSAT

HIGHWOOD
EMISSIONS MANAGEMENT

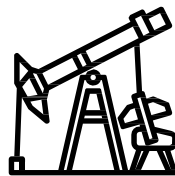
RADICLE

VALIDERE



Certified supply chain "CSC" LNG worked example

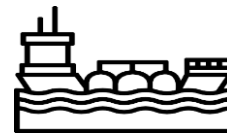
	North America	Waterbourne	Europe	
US Production - MiQ Cert	B (0.06)			
US LNG Liquefaction - MIQ Cert	A (0.02)			
"CSC" FOB LNG US	B (0.08)			<-- Buyer FOB LNG
LNG Ship Atlantic Basin (model)		+ Methane Intensity (0.03)		
"CSC" DES LNG Europe			C (0.11)	<-- Buyer DES LNG
Regas Europe - MiQ Cert			A (0.02)	
"CSC" Gas Into Grid			C (0.13)	<-- Buyer at the Hub



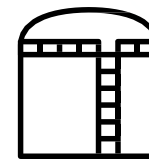
Production



Liquefaction,
Storage &
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Shipping



Unloading,
Storage &
Regasification



Example contract clauses for methane mitigation

Seller is committed to take measures to decrease the Methane Emissions Intensity below xx in 202x and xx in 202x, which will be certified by an independent organisation such as MiQ or any other comparable independent certification scheme by 202x;

GHG Conditions: Delivered cargo must be MiQ Certified grade C (0.2% MI) or better

Potential ship conditions:

LNG vessel shall not be loaded for more than 60 days before delivery window

Main engines of LNG vessel to be two-stroke

Thank You!

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