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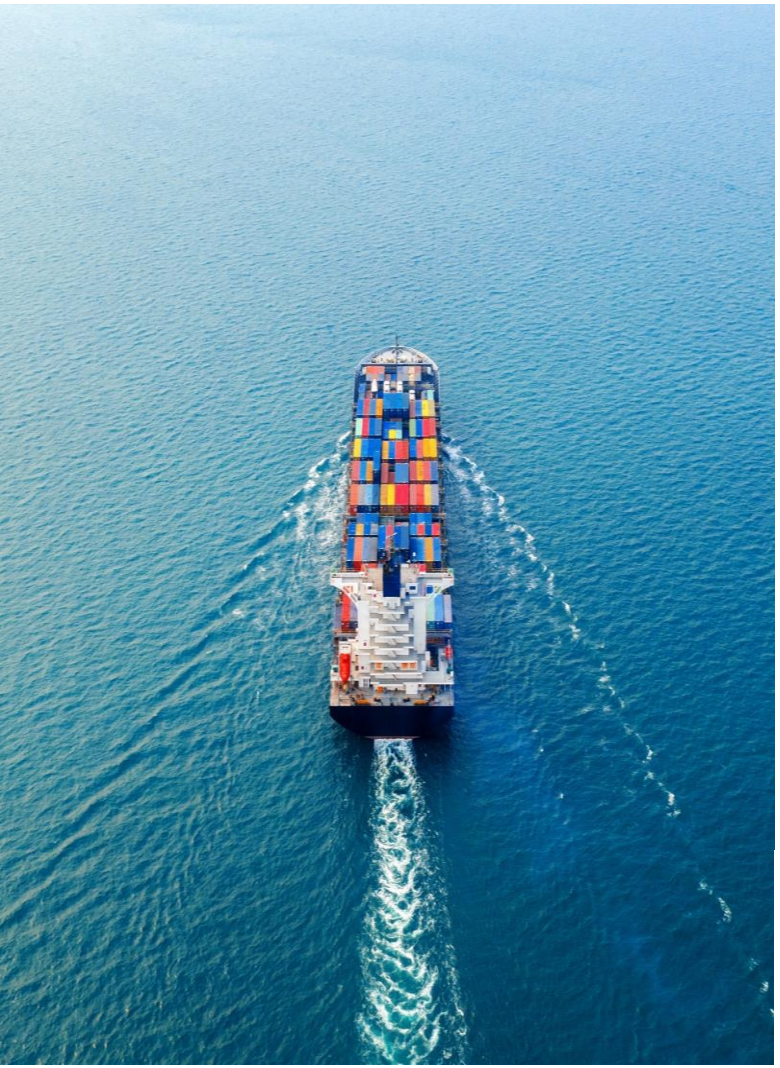


The key role of renewable gases In decarbonizing maritime transport

Thierry Chapuis - Président France Gaz Maritime

bio360 expo where life goes on
le salon bioénergie - bioéconomie

24-25 janvier
Nantes 2024 PARC EXPO

Leading the way in maritime alternative fuels

France Gaz Maritime

French Cluster for Maritime Energy Transition

Strategic Energy Transition:

- Charting effective paths for the maritime industry's energy transition

Advocacy for Low-Carbon Fuels:

- Promoting the adoption of alternative gaseous maritime fuels.

Collaborative Hub & Decision Support:

- Collaborative platform for industry stakeholders (Energy companies, Ports, Shipowners, OEMs)
- providing crucial insights for strategic decision-making

Carbon Neutrality in Shipping by 2050: A Complex and Uncertain Landscape

Ambitious Goal: Achieving Carbon Neutrality in Shipping by 2050
Complex Landscape: Navigating a landscape filled with uncertainties

Regulatory Frameworks: Emerging regulations and standards

- IMO: CII, EEXI, EEDI, and more
- EU: Fuel EU Maritime, EU Emission Trading System (ETS), REDIII
- SECA-NECA zone implications

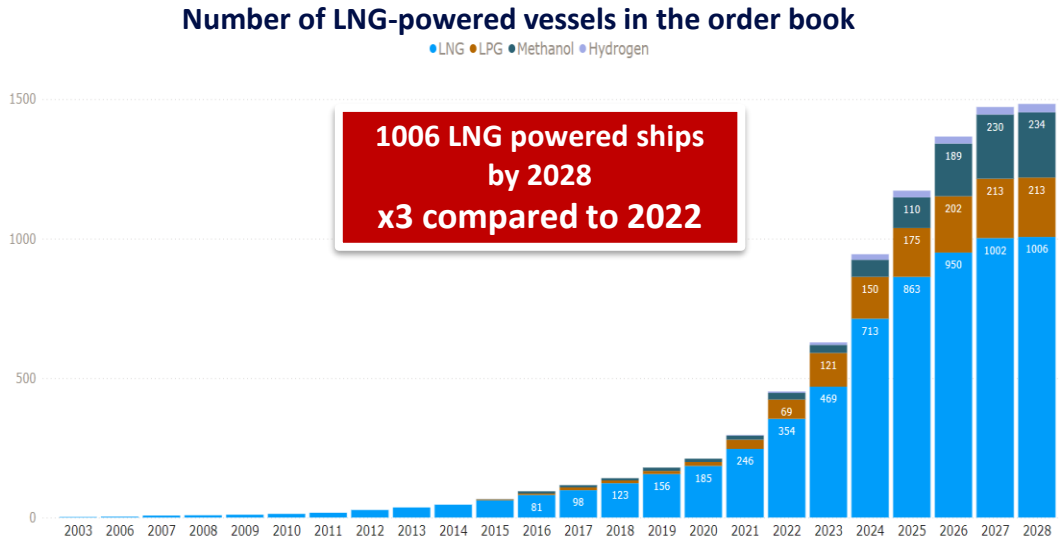
Carbon Neutral fuels uncertainties : Several fuels with different challenges and readiness

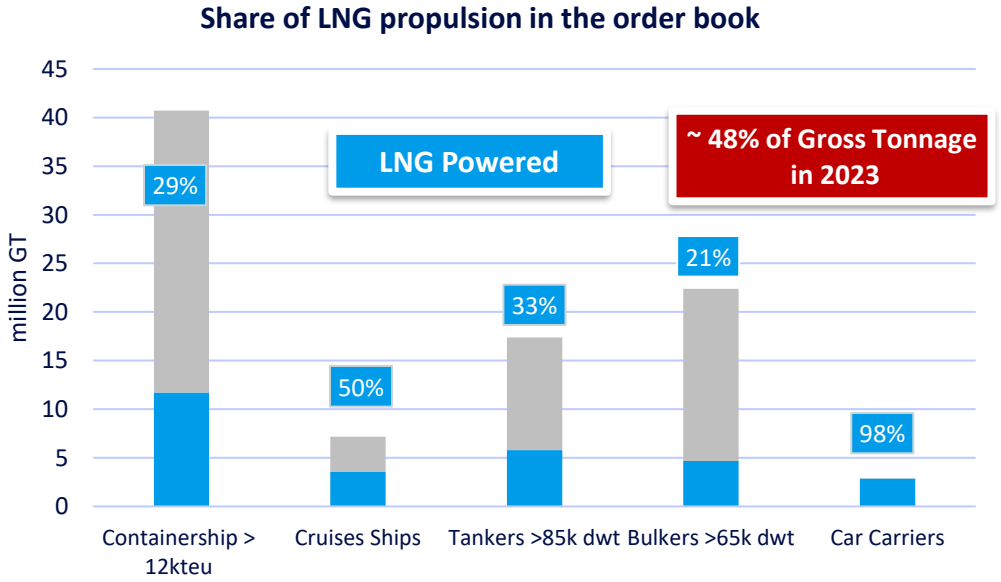
Investment Requirements :

- Large impact on all the value chain
- Large onboard and even greater onshore investments required

Various organizations are exploring multiple pathways.
A pragmatic and collaborative approach is essential for all stakeholders

Global dynamics: LNG propulsion gains momentum in the maritime sector





- **LNG:** Robust adoption rate, especially deep-sea & large-tonnage vessels
- **Methanol:** Significant uptake since late 2023 with 138 orders
- **Ammonia:** limited emergence with 11 orders
- **Hydrogen:** low traction, with just 5 orders recorded

The Maritime Sector Releases Its Decarbonization Roadmap

Key Insights :

Government recognizes the major role of low-carbon fuel supply in French ports for national sovereignty : Heavy dependence on foreign ports, as French traffic arrives in EU ports or French ports without refueling in France

Biofuels Leading the Way: Transition to e-fuels is ensured but limited by biomass resources; notable synergy with e-fuels utilizing by-product CO2 from biomethane plants

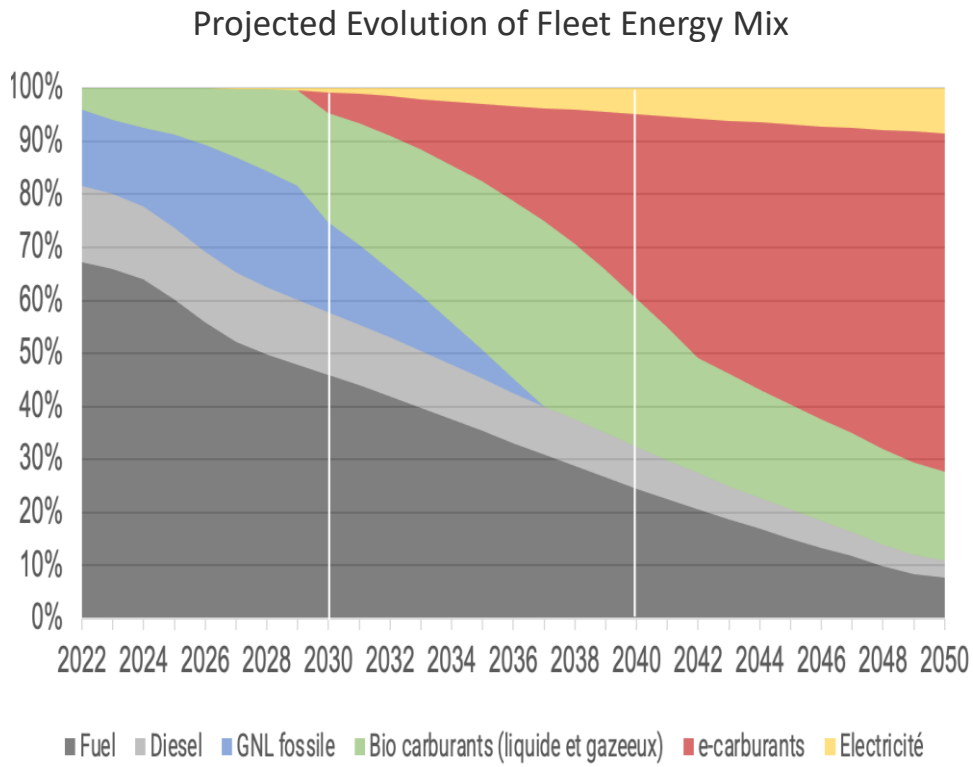
Growing Role of LNG/BIO-LNG: Facilitating a gradual and manageable transition

E-fuels Expected Surge: Anticipated rise between 2030 and 2040, complementing biofuels

Later Development of Methanol: Hindered by insufficient infrastructure and vessels

Electricity & Hydrogen: Suited for short distances and lower power needs in coastal and inter-island transport

Conclusions from Scenarios



Estimated Energy Requirements for Decarbonization :

Biofuels and BioLNG

→ 8 TWh by 2030, peaking at 15 TWh around 2035

E-fuels:

→ 16 TWh by 2040, escalating to 32 TWh by 2050

Low-Carbon Electricity :

→ 5 TWh by 2030 and 89 TWh by 2050

(Equivalent to 7 nuclear reactors or 52 wind farms like Saint-Nazaire project)

Potential of Renewable Gases in French Maritime Decarbonization

Biomethane Production Metrics:

- Current Production: 8.5 TWh/year (0.7 Mtep)
- Projection for 2030: 60 TWh/year (4.8 Mtep)
- National Potential: 320 TWh/year (25 Mtep) including 1G & 2G

Bio-LNG Bunkering (20% Blend sufficient for regulatory compliance)

- 3.3% of France's Green Gas Production
- 2 TWh out of 60 TWh by 2030

Logistical Accessibility:

- Biomethane available without constraints at 4 French LNG terminals
- Imports of e-methane equally accessible at these terminals

Sustainability & Competitiveness of French Ports :

- Biomethane availability in France surpasses maritime requirements
- Bio-/E-LNG Bunkering in France: A strategic asset for securing traffic in French ports
- Essential for various vessels including cruise ships, ferries, and containers

To conclude

Current Trend: A significant global and French shift away from Fuel oil to LNG.

LNG & Renewable Methane:

- Positioned as the primary available fuel in a medium-term.
- Incorporation of biomethane into LNG and, in the longer term, of e-methane as a complement.
- Immediate and substantial benefits for air quality, marking also a pivotal step in reducing GHG emissions.

Waiting for e-fuels (e.g., ammonia) contributes to the status quo :

- freezing investments in progressive decarbonization until e-fuels become available.
- Presents a challenge with exclusive solutions lacking established bunkering logistics.

Fuel Plurality and Complementary Strategies:

- Multiple fuel types will coexist in the future.
- Premature to pinpoint a specific carbon-neutral technology for decarbonizing shipping.
- Further solutions considered : carbon capture on board, hybrid systems, wind assistance, shore connections, speed reduction, etc.

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Thank you !

Questions? Comments?