

Liquid Wind

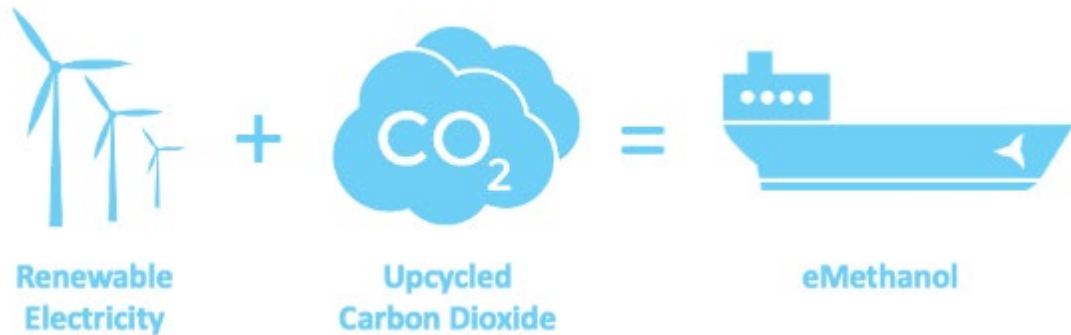
SMM 2022, Hamburg



Concept & Vision

Liquid Wind develops renewable eMethanol “Flag Ship” facilities that will:

- increase supply of carbon neutral fuel,
- Meaningfully reduce CO₂ emissions



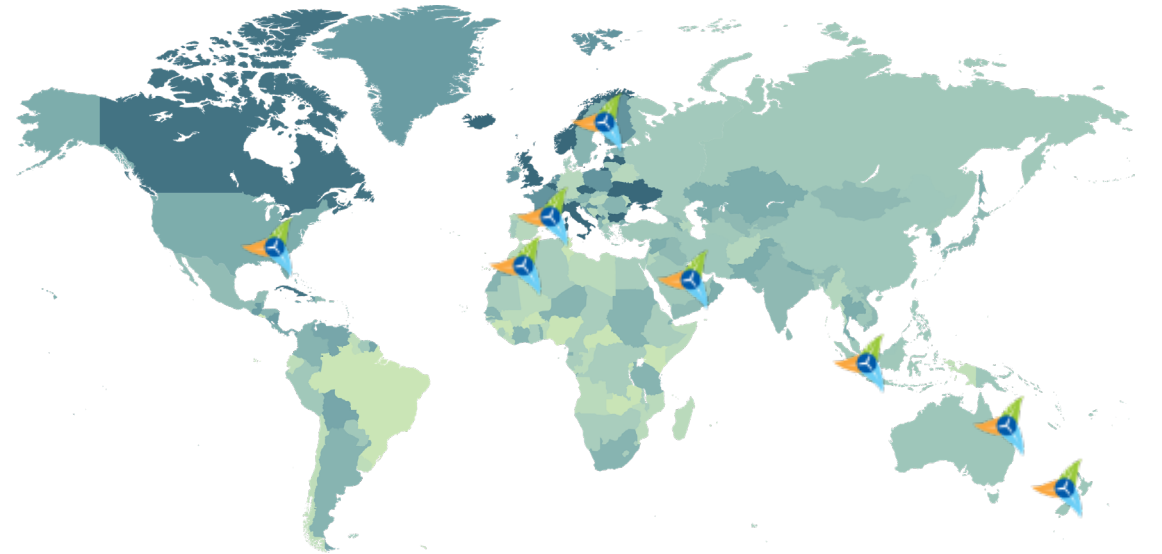
Per year, each Flagship 1 type facility;
Upcycles 70,000mt of CO₂
Generates minimum 50,000mt of eMethanol
Prevents 90,000mt of CO₂ emissions

Commercial offering

Fixed price 10 year offtake agreements

Establishing commercial-scale global facilities

- 2024** First facility in Örnsköldsvik, Sweden
- 2030** 10+ facilities
- 2050** 500 facilities, globally



Sweden's first eMethanol facility

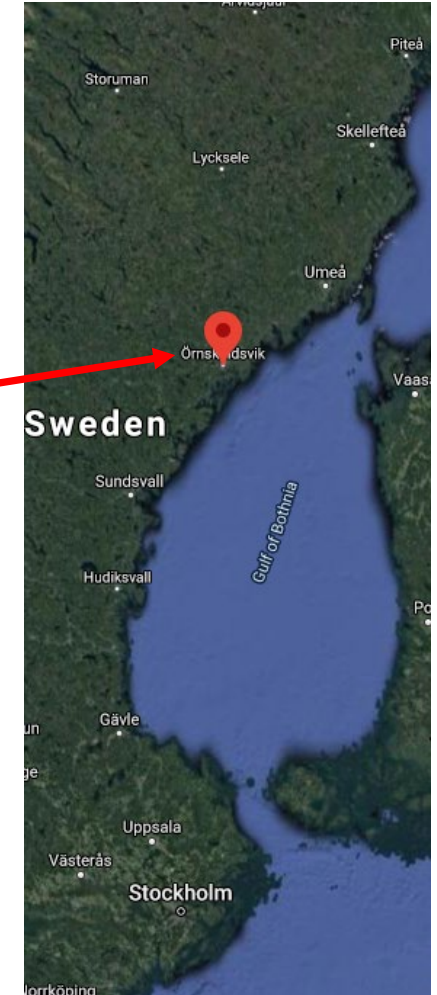
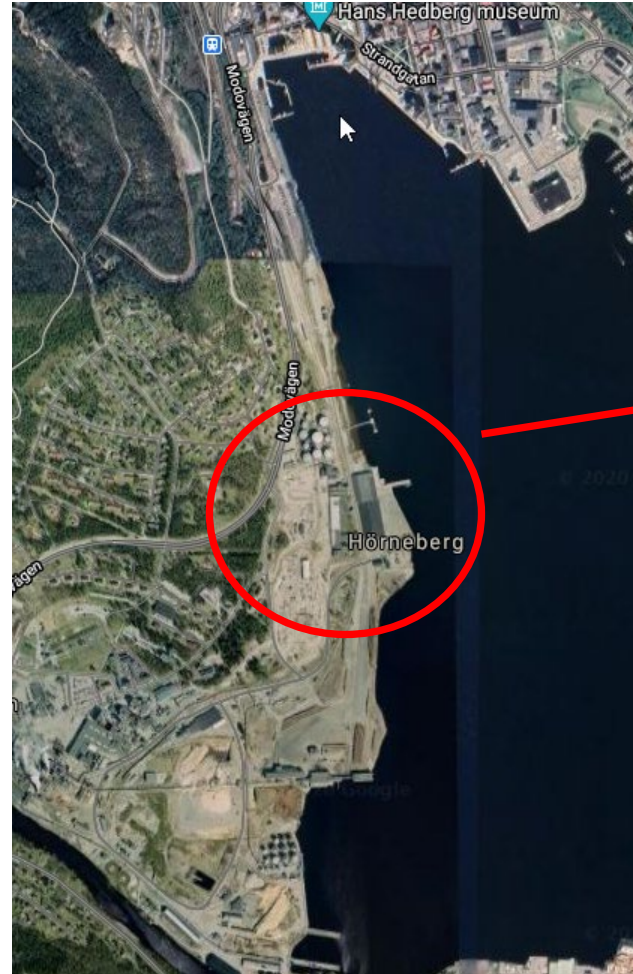
FlagshipONE Host: Övik Energi,
Hörneborgsverket

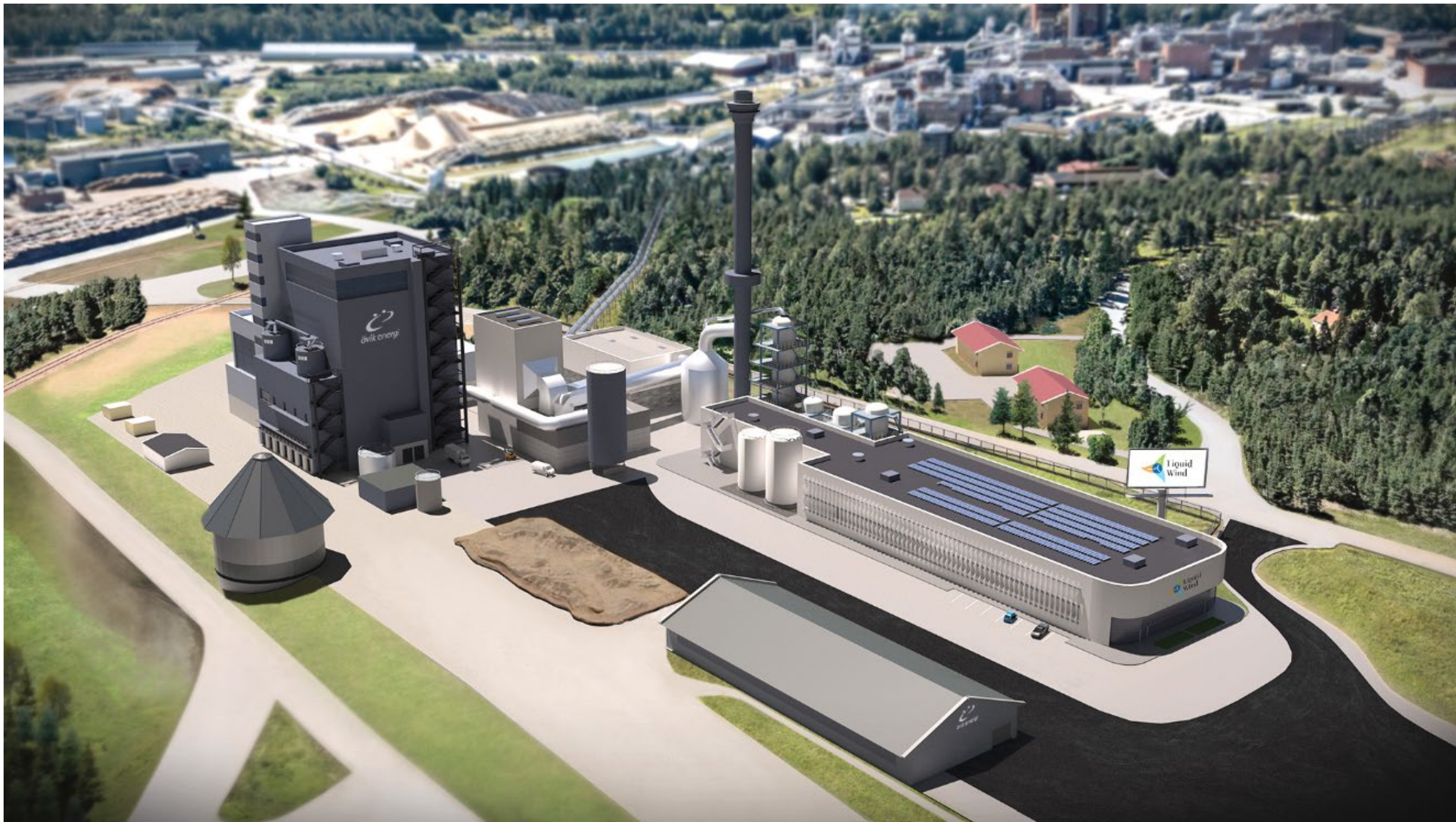
Key contracts:

- CO₂ source: Hörneborgsverket, biogenic CO₂
- Renewable power as per expected RED II requirements; negotiations ongoing
- eMPA (eMethanol Purchase Agreement) negotiations to be concluded 2022

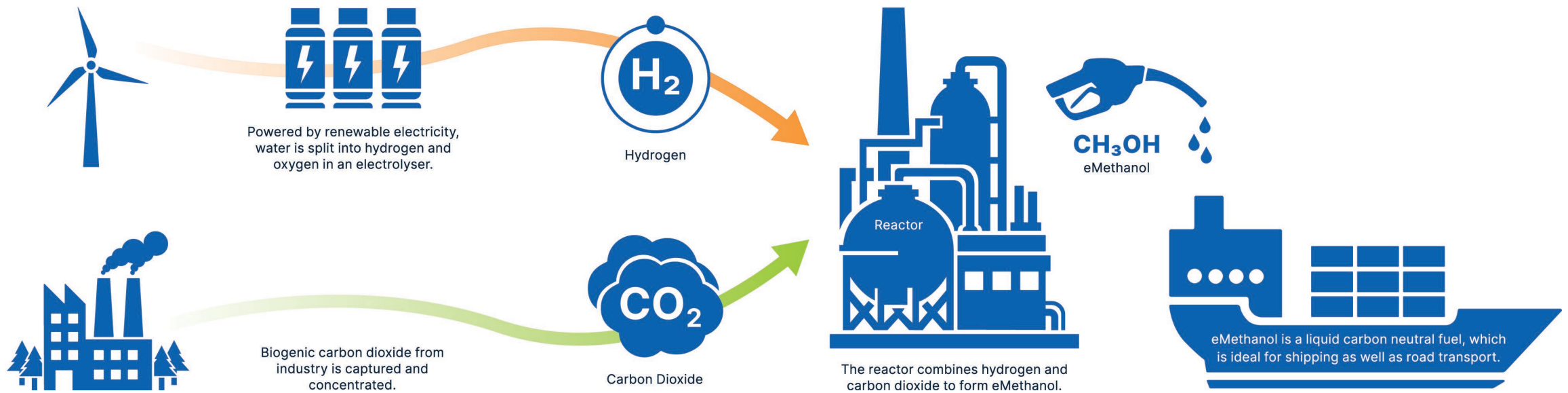
Milestones:

- Basic Engineering started February 16 2021
- Construction and environmental permit submission completed September 30 2021
- Financial Close: 2022
- Commercial Operations Date: January 2025

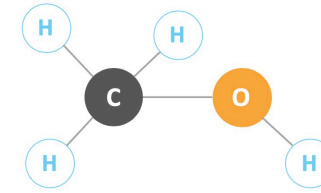




Converting biogenic CO2 into a valuable resource



What is Methanol (CH₃OH)?



The Simplest Alcohol and One of the Most Traded Chemicals Globally



Liquid Hydrogen Carrier



Water Soluble & Biodegradable



Currently produced by Natural Gas, Coal and a low share from Renewables and Biomass



Applied in Everyday Products like Paint, Plastic Production, Medical Equipment and Fuel

eMethanol can scale to meet growing demand

- ✓ Carbon neutral fuel
- ✓ Liquid hydrogen-derivative
- ✓ 94% reduction in CO₂ emissions
- ✓ Easy to store, transport and use
- ✓ Compatible with existing infrastructure
- ✓ Scalable to replace large volumes of fossil fuels

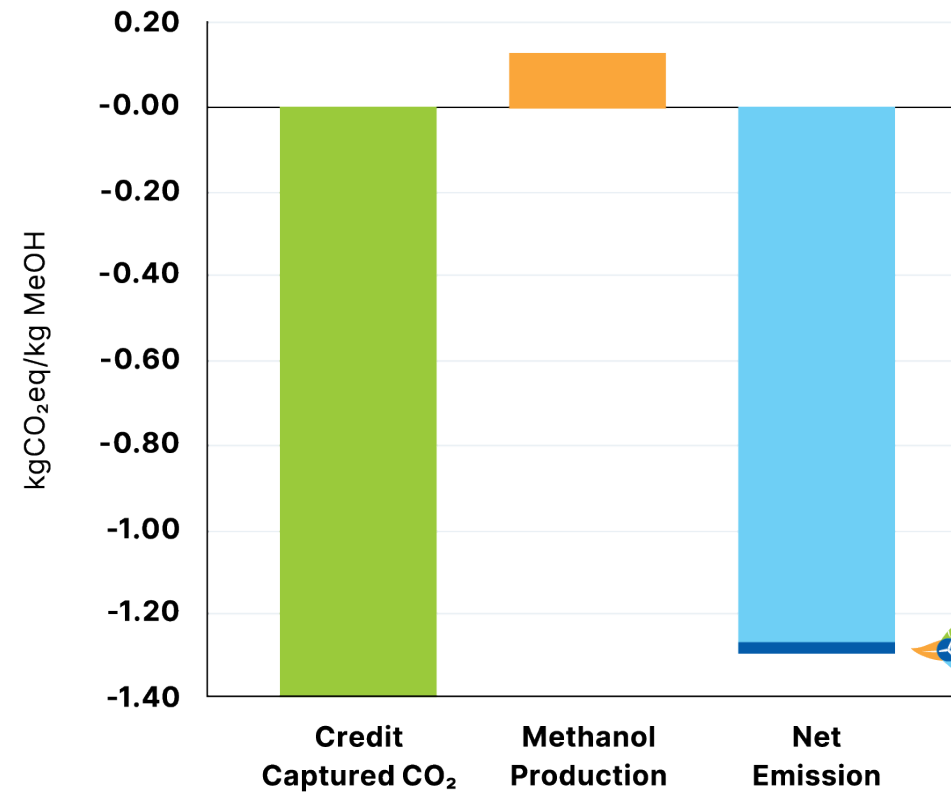


E-Methanol is a Carbon Sink Well-to-Tank



eMethanol Product:
kgCO₂eq/kg methanol

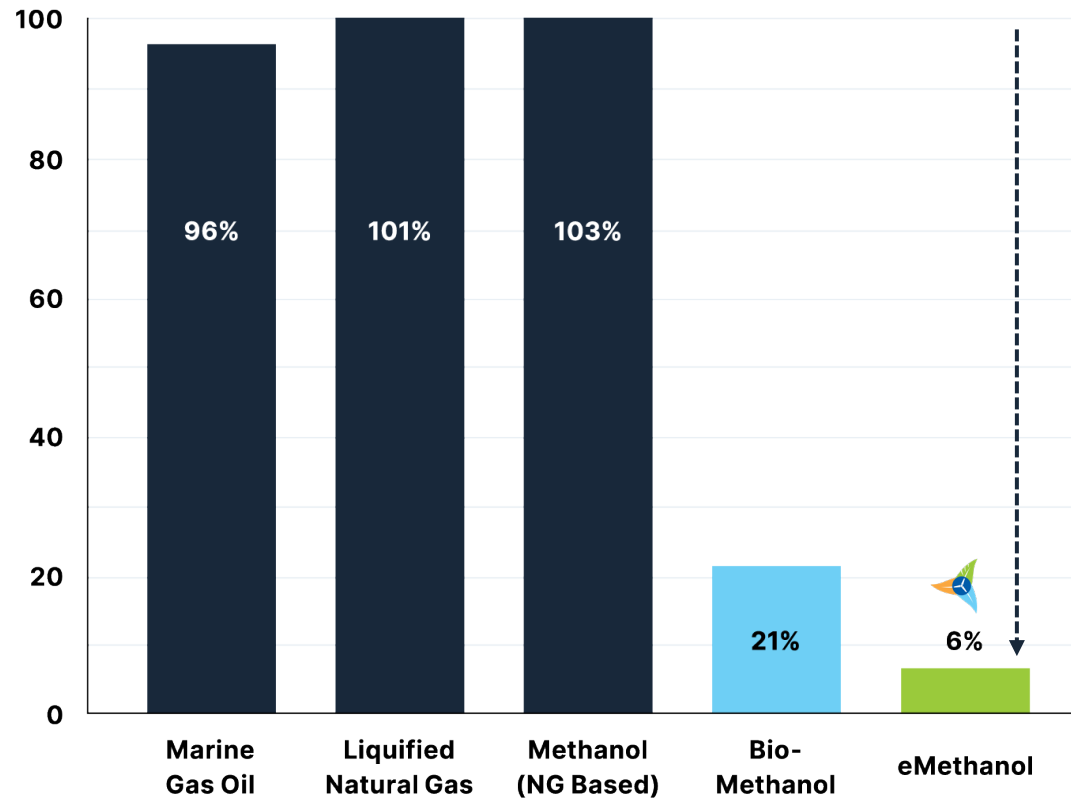
Net Emission per kg Methanol Product



FlagshipONE eMethanol Reduces Emissions by 94%

Greenhouse Gas Emission Compared to Low Sulphur Fuel Oil

Reference 100%: Low Sulphur Fuel Oil

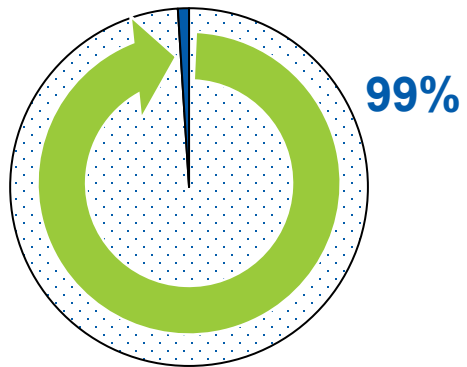


Other Fuels based on: Bryonolf 2014 - Environmental assessment of marine fuels

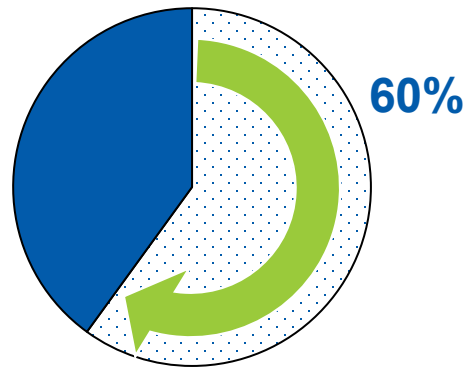
Combustion of Methanol

Methanol is a low emission fuel – Meets Tier III requirements without after- treatment

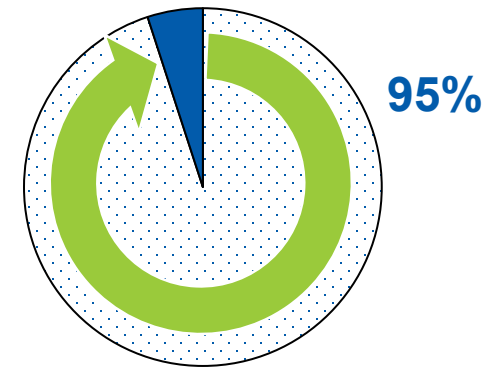
Sulphur Emission Reduction (SOx)*



Nitrogen Emission Reduction (NOx)*



Particulate Matter Emission Reduction (PM)*



Stena Line: Emission reductions when compared to alternative fuels currently available (fuel oil)

How to make it happen – the Liquid Wind team

- Vision
- Technologies (ready or possible to develop)
- Clients/Users (current or future)
- Collaboration with partners
- Financing
- Team

...and a lot of dedicated work!



Together we are designing a cooler world

SIEMENS
ENERGY

Ørsted

HALDOR TOPSØE 



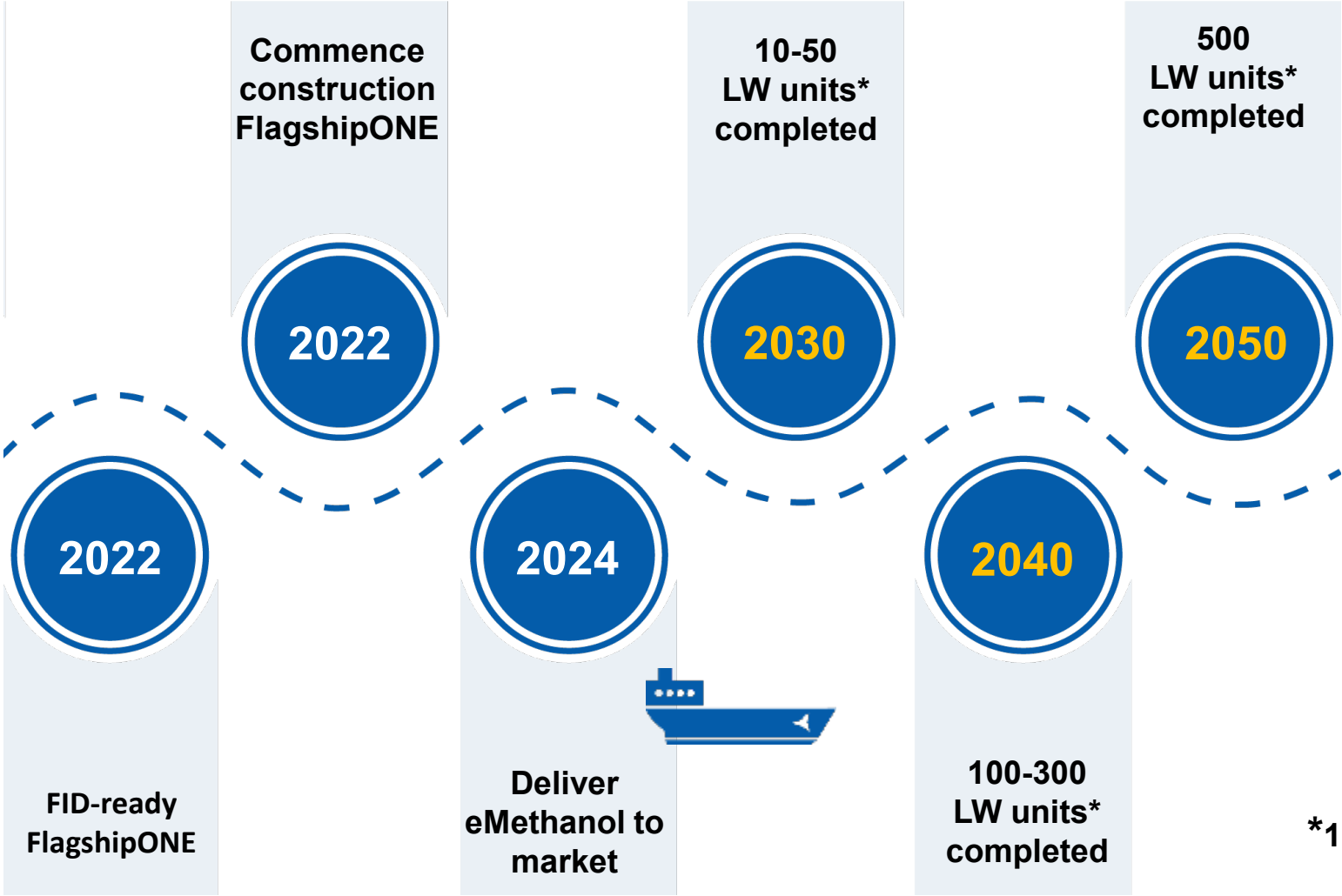
carbon clean
TECHNOLOGY TO ACHIEVE 'NET ZERO'



Worley
energy | chemicals | resources

 *övik energi*

Bringing eMethanol to market at scale



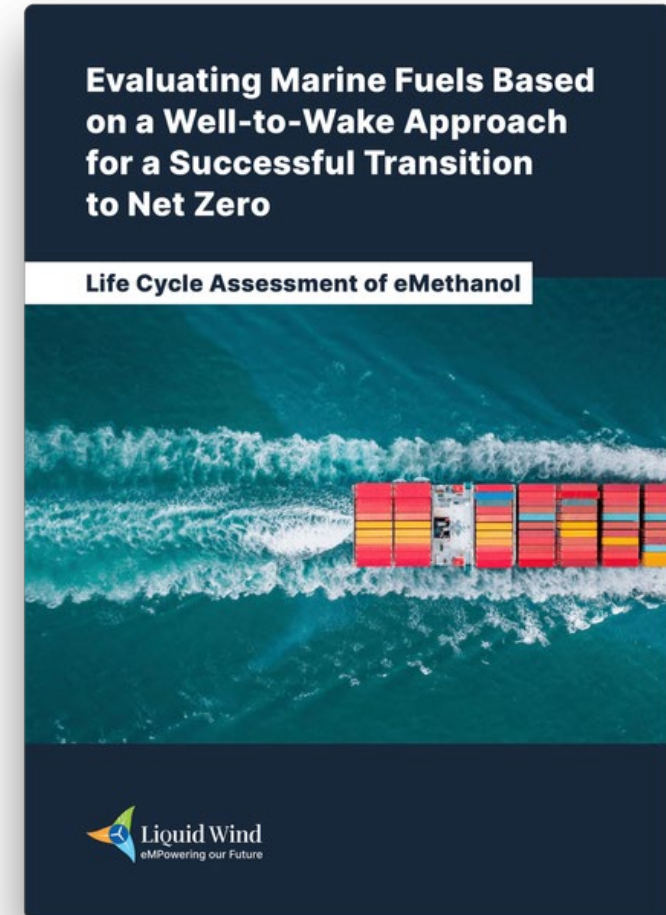
2050 Goal
50 million ton reduction in carbon emissions, every year

*1 Liquid Wind (LW) unit = 50 000 ton eMethanol/y

White Paper on evaluating marine fuels

Download your copy here:

[White paper — Liquid Wind - eMPowering our Future.](#)



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