

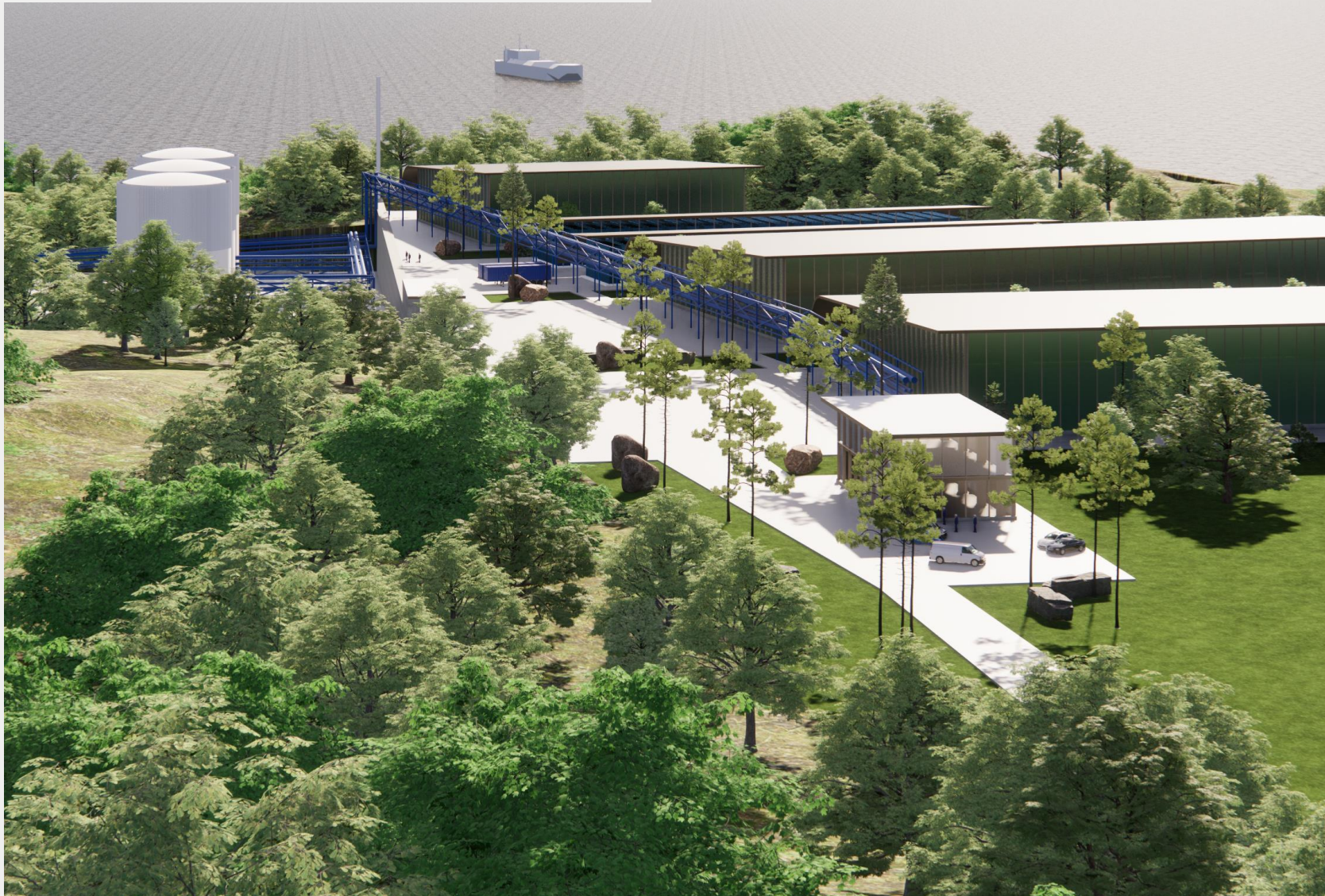
Green
North
Energy



Vihreän ammoniakin tuotantoa ja käyttöä Jussi Ylinen

27.1.2025

**Green
North
Energy**



**Established for green
hydrogen and ammonia
project development.**

2021

As a result of Elomatic's
internal development,
Meridiam has joined to
support the development.

Immediate
incremental commercial
applications with
synthetic products.

Target to scale up
production with the
world-class
engineering capability



Finland is a favorable place for green hydrogen and ammonia production



Ambitious roadmap for cost efficient renewable electricity production



World class water and electricity supply



Industry experience in energy, maritime and chemicals



Stable environment for investments with ambitious carbon neutrality targets



Utilization of the excess heat in the district heating



World class knowledge in engineering, research and digital solutions



Renewable electricity creates a wide range on new industrial potential to Finland

Enabler



Onshore wind



Offshore wind



Solar

Industrial platform



Hydrogen

Derivatives

Materials

- Steel
- Plastics
- Food protein



Industrial processes

- Ammonia
- Methanol
- Methane

Fuels

- Ammonia
- Methanol
- Methane
- Hydrogen
- eSaf

Industrial manufacturing



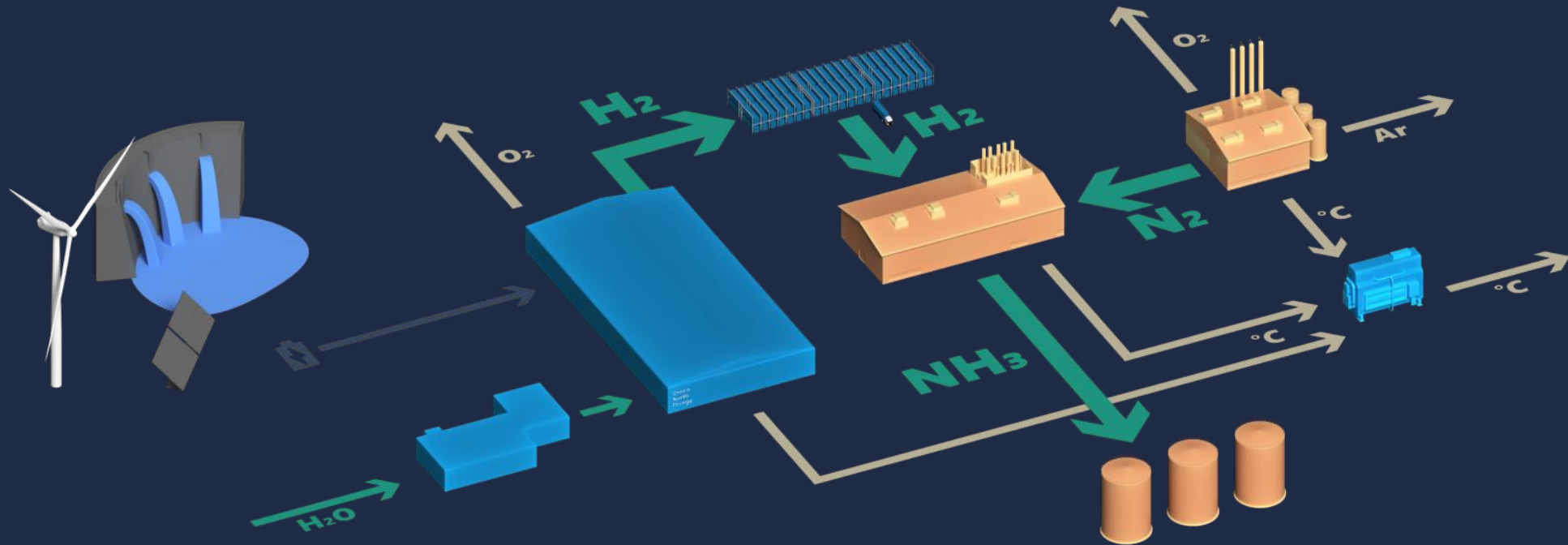
Manufacturing industries

Technology providers

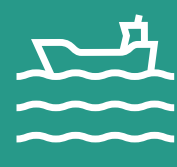
Technical services

Service production

University research



**Availability of renewable energy will
relocate the ammonia production**

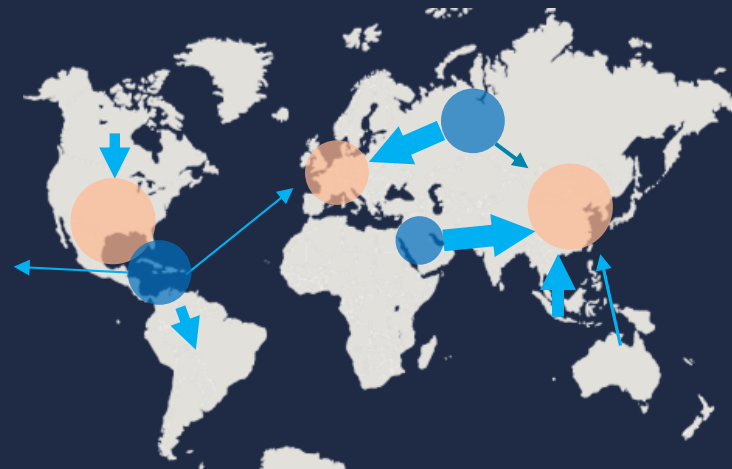


Ammonia is part of global chemical markets – and decarbonization will reform its structure

Share of global
CO₂-emissions



Current gray ammonia
market structure



Estimated green
ammonia markets



Usage Production
Size indicates the market size



Green ammonia replaces fossil-based ammonia and enables new carbon neutral solutions



Fertilizers



Urea
(Adblue,
Melamine)



Industrial use
(battery
manufacturing,
CO₂-capture,
polyurethane)



Synthetic fibers
(nylon)



Maritime
E-fuel



Hydrogen
carrier

Existing markets

Emerging markets

Green North Energy's project portfolio has a significant impact on Finland and Europe



Number of new jobs created (permanent and construction phase)



An anchor enabler for new chemical process investments to Finland



Annual CO₂- emission reduction 1 million tons



Role in self sufficiency in the food production and in the future maritime logistics



**Green
North
Energy**



On the mission to accelerate the green transition with green fuels and chemicals