

BothH₂nia – Route so far
Matti Malkamäki

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Aurelia Turbines: We make small gas turbines for industrial applications



We design, build and sell high-efficiency gas turbines

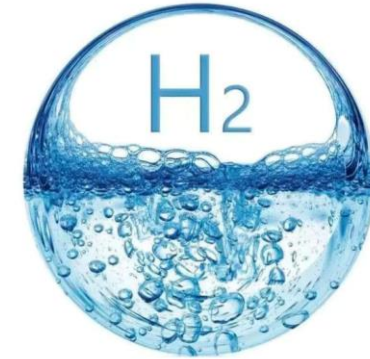
We provide a complete package for heat and generation (CHP)

Our turbines have high levels of efficiency, at a market-leading 40%

Our turbines can utilise a variety of fuels from standard fuels to hydrogen

Our turbines target the SME customer, a large market that lack options CHP solutions

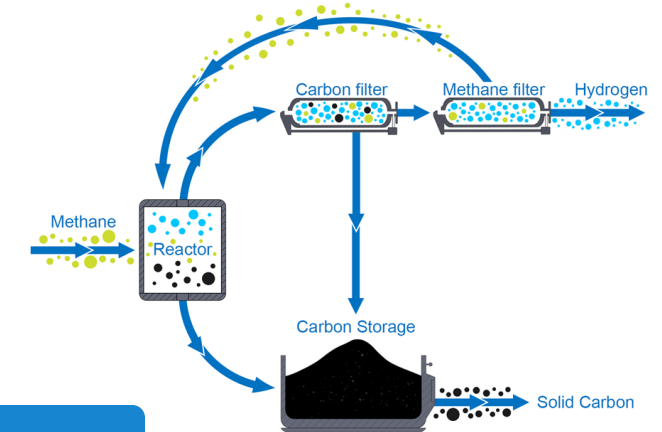
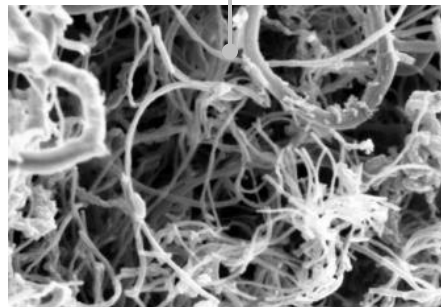
Our know-how can be expanded to new products, such as compressors for heat pumps and hydrogen



Hycamite TCD Technologies Oy – clean hydrogen and solid carbon



- Capturing carbon from methane in solid form:
 - Clean hydrogen
 - Solid, high-value carbon
- Deep-tech startup, intention to start building of the industrial scale demonstration facility

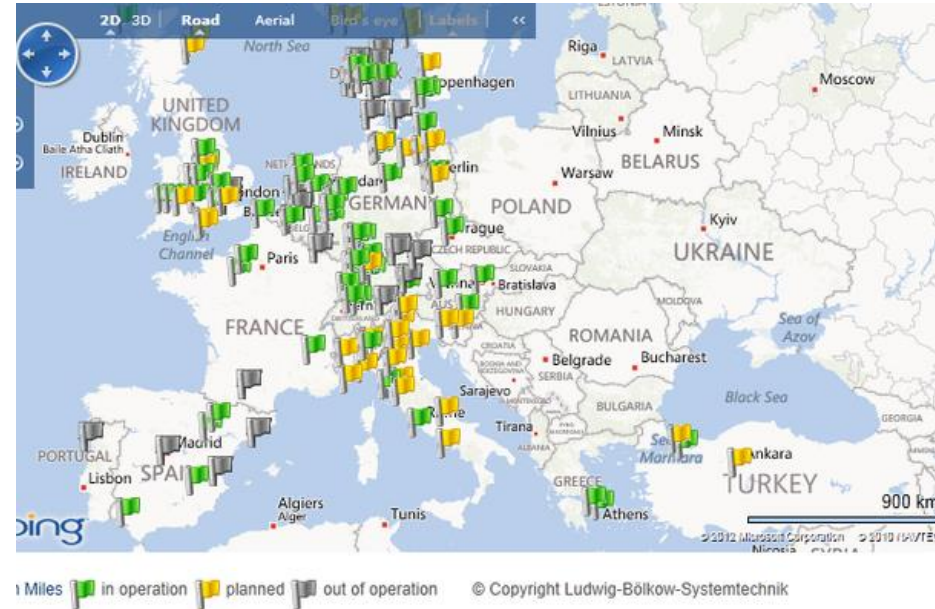
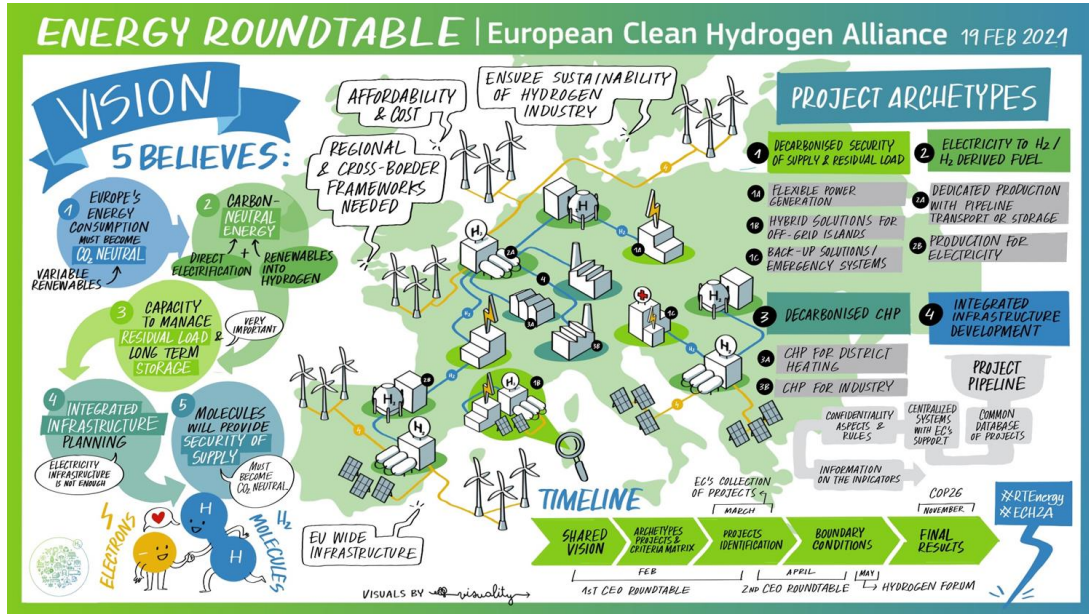




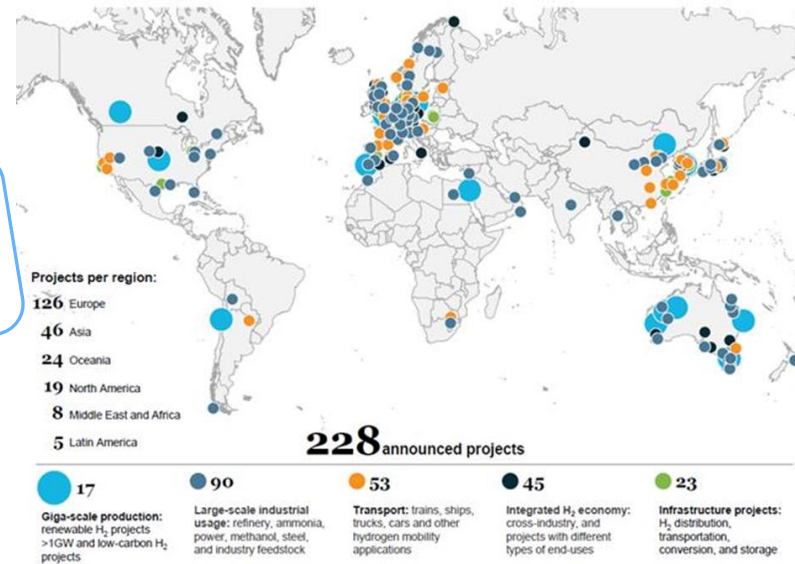
BothH₂nia

Hydrogen Bay of the North

Some European H₂ maps



Worth noting: Finland and Sweden barely exist on these maps!



Targets of the initiative

- 1. To create a brand everyone in the area can refer to**
 - 2. To market this brand to European counterparties,
and raise awareness of the area as hydrogen bay**
 - 3. To provide a platform for collaboration**
 - 4. To facilitate communication between projects in the area**
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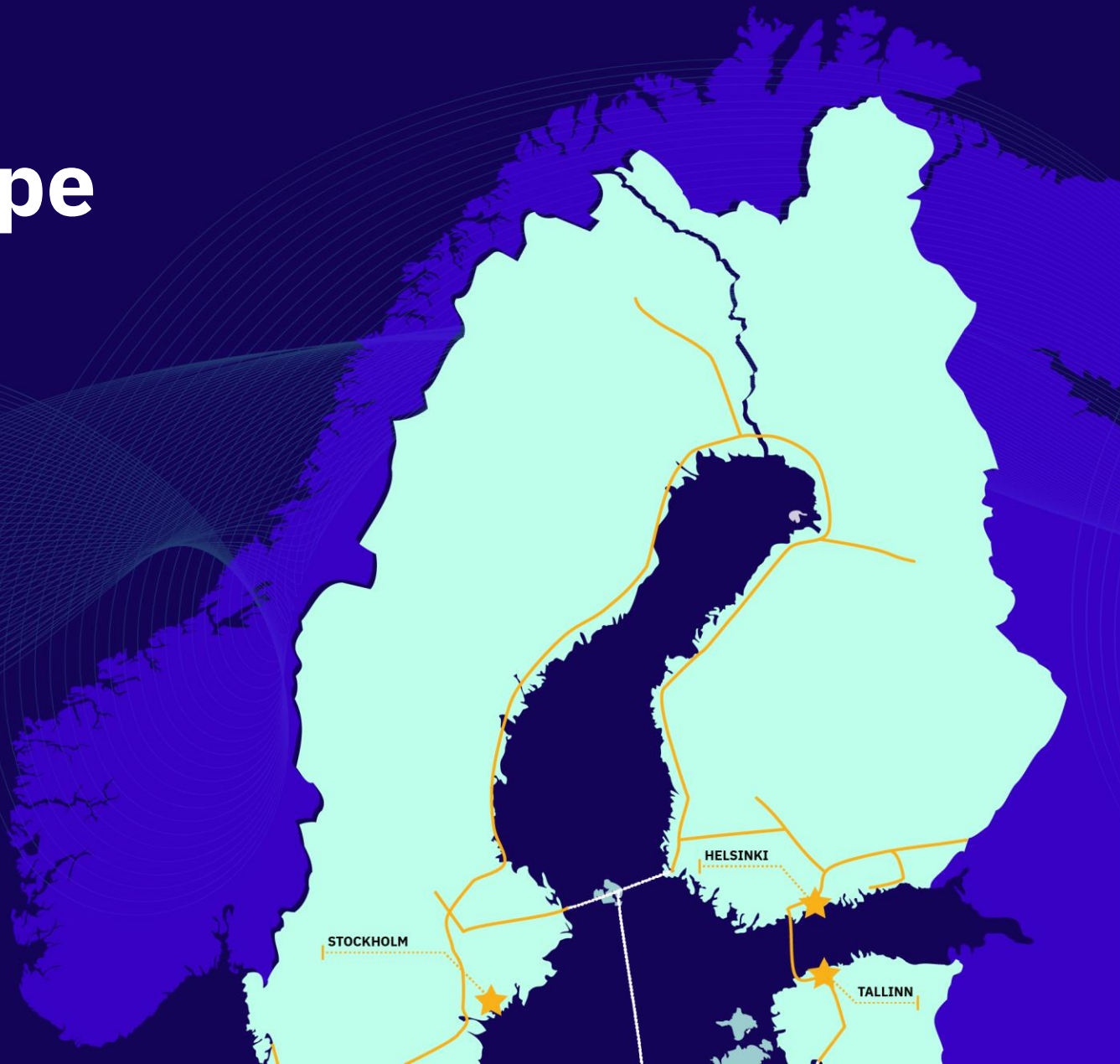
Both₂nia

BothH₂nia highlights the North in H₂-Europe

BothH₂nia is an open network for the cooperation of industrial investment and research projects around the Gulf of Bothnia and later even the whole Baltic Sea.

The aim is to ease financing possibilities for industry and enable cooperation on education, research, infrastructure, etc.

International approach – led by both Finnish & Swedish stakeholders



Current scope

- **Swedish Hydrogen Development Center**
- **Regional hydrogen projects**
- **LKAB, SSAB, Vattenfall**
- **Invest in Norrbotten**
- **Municipalities**
- **Regional areas**
- **Vätgas Sverige**
- **Large companies**
- **Start-ups**

- **Finnish H₂ Cluster**
- **National H₂ network**
- **CLC P2X**
- **Fin H₂ Hub**
- **Regional hydrogen projects**
- **Municipalities**
- **Regional areas**
- **Large companies**
- **Start-ups**

NORDIC
HYDROGEN
ROUTE

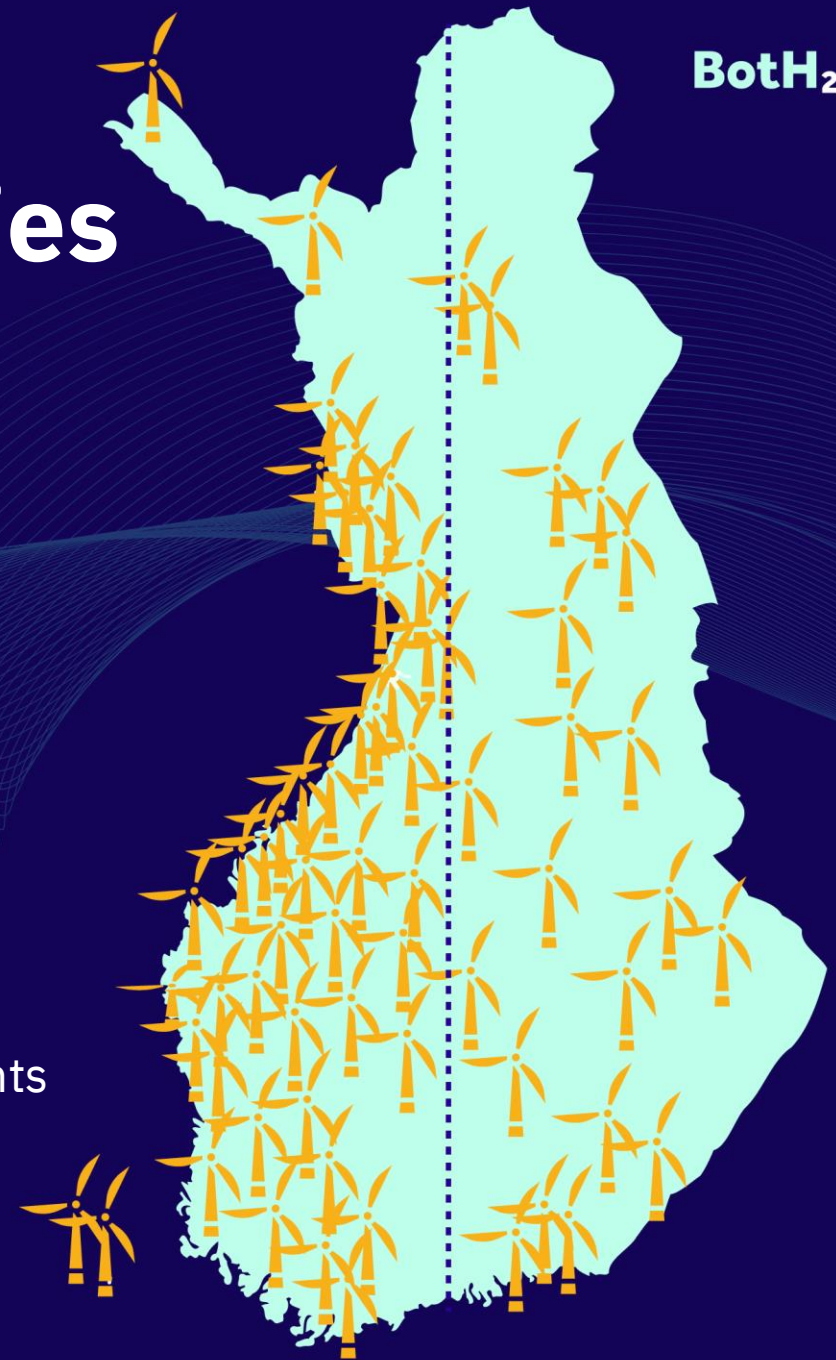
BOTHNIAN BAY

BothH₂nia Network

Åbo Akademi									
	The BotH ₂ nia network aims to build a robust hydrogen industry around the Gulf of Bothnia and combine our resources to pursue this common goal.								

Finland – crossing boundaries to build hydrogen

- Fingrid has received ~ **180 GW of grid connection inquiries!**
 - Mostly onshore wind, also solar and offshore wind
 - No subsidies – the market is working!
 - At least 300 TWh of new, clean and competitive electricity
 - On-shore wind costs ~ 20 € / MWh
 - Strong power grid north-south
- Large industrial **hydrogen consumers** in the area:
 - SSAB, Kemira, Kokkola Industrial Park...
- **Bio-based CO₂** is being generated in multiple bio-product plants
- Successful examples of **cross-border projects** and public-private cooperation





BothH₂nia



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24 – 25 January 2023 – see you in Luleå!

Thank you!

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