

Both₂nia



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Both₂nia goes Kokkola 16.3.2022

This is a presentation given at the event Both₂nia goes Kokkola on 16.3.2022.

Both₂nia is a network of operators interested in hydrogen. The objective of the network is to create a Nordic hydrogen cluster around the Baltic Sea, beginning with the Bothnian Bay. Both₂nia strengthens the position of the north in the European hydrogen industry!

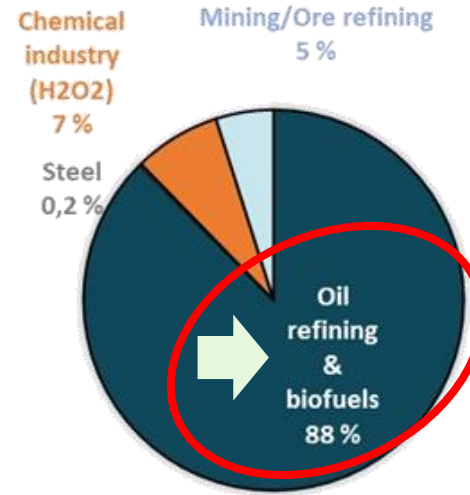
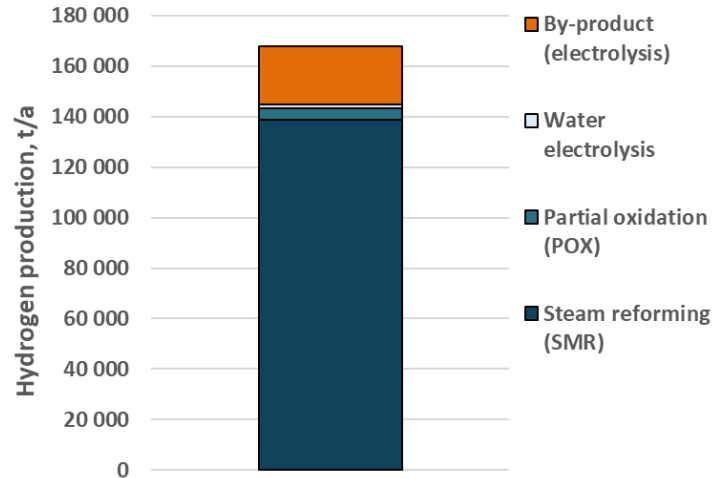
Both₂nia invites all businesses, research institutes, investors, municipalities and cities to roll up their sleeves for a greener future.

Please notice that the presentation has been modified to comply with the Accessibility Directive. In case for need the original material, please contact Minna Näsman (minna.nasman@both2nia.com).

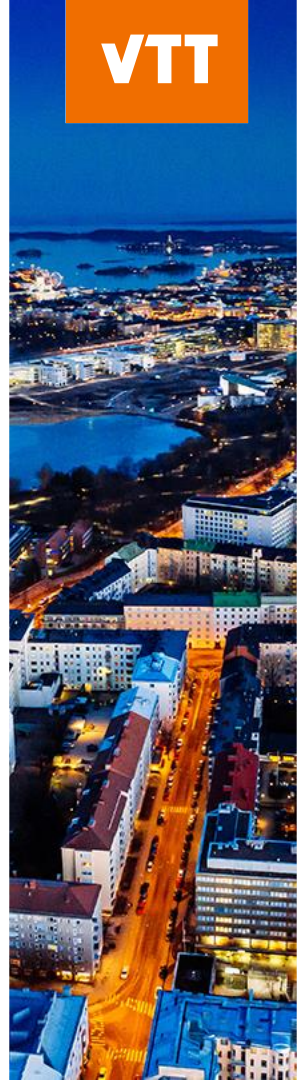
Hydrogen in Finland - Infrastructure and R&D

23/03/2022 VTT – beyond the obvious

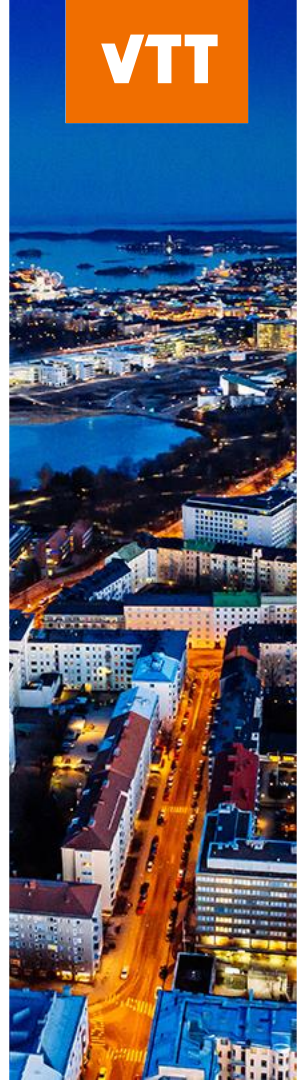
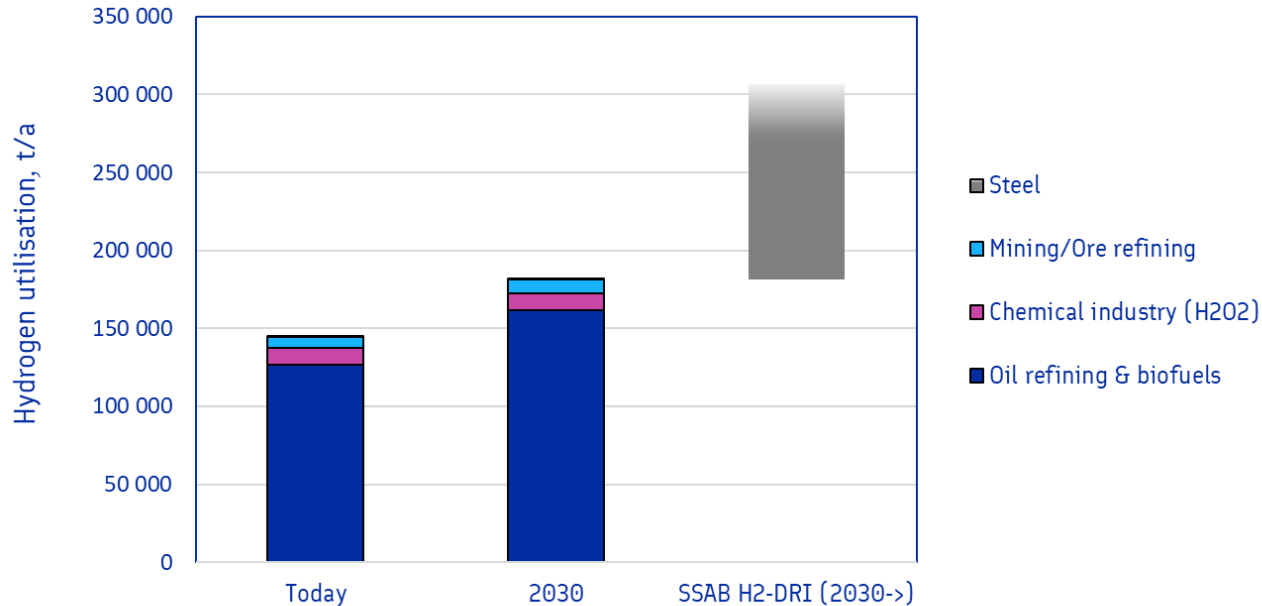
HYDROGEN FINLAND – CURRENT PRODUCTION AND USE



CURRENT PRODUCTION AND USE CA. 150 000 t/a



POTENTIAL NEW USE OF HYDROGEN IN FINLAND



VTT Key Competences – Green Hydrogen and Power-to-X



Cutting-edge professionals

- 50 persons in hydrogen (production, storage and fuel cells)
- 30 persons in e-fuels synthesis & catalysis
- 30 persons in fuel testing and emissions
- 20 persons in TEA



Diverse research infrastructure

- E-fuels pilot (Mobile Synthesis Unit)
- Catalyst laboratories
- Engine lab for fuel and engine test
- Fuel cells and electrolyzers
- 5G pilot networks in order



Established networks

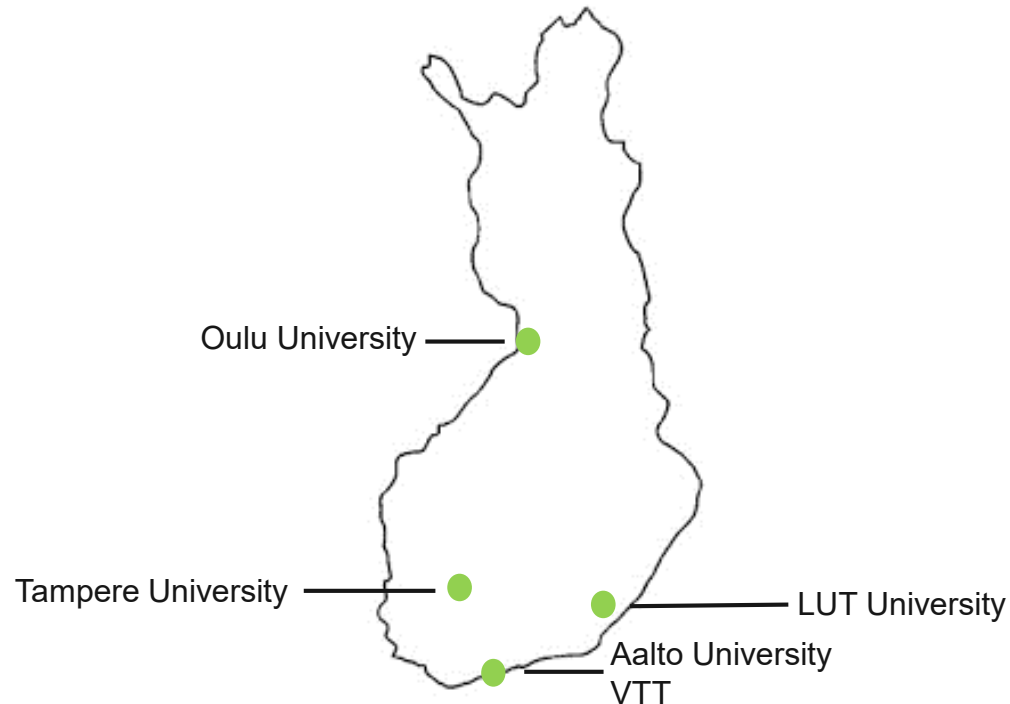
- Business Finland, ministries and EU as public sector networks
- Leading industry companies and NGOs as private sector partners
- Universities and research organizations as R&D partners



Broad IPR portfolio

- Hydrogen
 - 8 patents on electrolysis and fuel cells
- Synthesis
 - 15 patents on gas cleaning, catalysts, C1 reactions and CCU

Public hydrogen research in Finland – Some main actors



Fin-Swe cooperation opportunities in hydrogen

■ Many similarities

- Current hydrogen usage
- Similarities in process industry (hydrogen use etc.)
- Transport structure

■ R&D Infra completing each other

- RISE, VTT, universities (e.g. LTU, LUT, OU)

■ Baltic Sea connects

- Gulf of Bothnia area
 - E.g. wind power potential
- Hydrogen in marine transport

Hydrogen study - Objectives

- Support Swedish pre-study: "Hydrogen, energy system and infrastructure in Northern Scandinavia and Finland"
 - Current situation and of the projects planned in the Bothnia Bay region
 - Identification and analysis of the stakeholders and interest groups involved
 - A preliminary techno-economic analysis of a complementary hydrogen gas grid for Bothnia Bay region
- Collect the existing studies and information on hydrogen in Finland
- Refining of scenarios and roadmaps for the production, distribution and usage of hydrogen for selected areas in Finland
- A definition of further investigations and research necessary to move forward.

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