The Finnish Hydrogen Value Network

New technology, business potential and climate impact in every segment

Olli Sipilä, Hydrogen Cluster Finland

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Finnish Hydrogen Cluster

- Established in early 2021 by companies with support of Ministry of Economic Affairs and Employment of Finland and industry associations
- +45 members across all steps of hydrogen value chain and five industry associations

Operating Model and Working Groups 2021

Steering Group– Chair Outi Ervasti, Neste

Cluster meetings – +45 companies and 5 industry associations

- Common insterests, focus areas, working groups, financials
- Stakeholder group – and collaboration meetings

WG1: How will Finland differentiate– Chair Simo Säynevirta, ABB

- System level energy efficiency optimisation
- Competitive solutions and capabilities
- Value networks, collaborations, IPCEI

WG2: Innovation and investment projects – Chair Sakari Kallo, SSAB

- Summary of Hydrogen projects in Finland
- Linkage to EU Hydrogen IPCEI projects
- R&D and investment financing
- Recovery Package

WG3: Networking – Chair Matti Malkamäki, Aurelia Turbines

- Clean Hydrogen Roundtables
- Hydrogen IPCEI preparations at EU-level
- BothH_2nia - project
- EU-affairs and information sharing

WG4: Operating environment and regulation – Chair Olli Sipilä, Gasgrid

- Combined view from the cluster company
- Evaluation on impacts of the coming regulation and taxation
- Cluster statements

Secretariat

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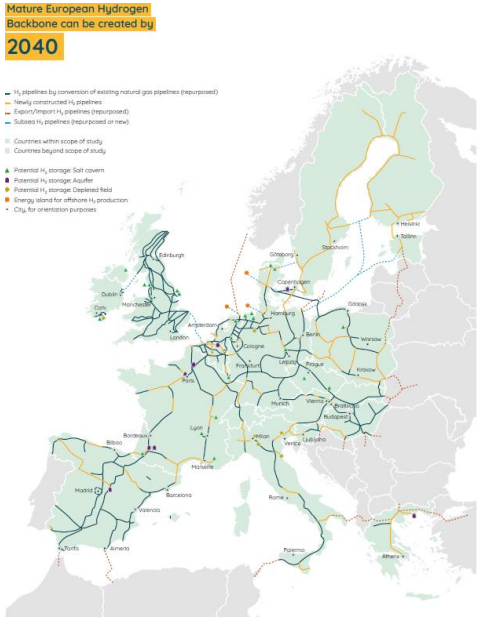
H2 cluster FINLAND

Wind power and hydrogen as a basis for a major new export industry for Nordics

Source: https://tuulivoimayhdistys.fi/tuulivoima-suomessa/kartta

- Excess clean power, mostly onshore wind
  - Case Finland: > 200 TWh
- Compatible industries for e.g. H2 derivates
- Land area, water, heat demand…
- Relatively close to future demand centers in Europe
- Advanced energy markets
- High personal, governmental and company ambitions to tackle climate change
- Good investment environment for capex intensive industries



H2cluster FINLAND

Projects towards a competitive value network create business benefits for the Finnish export industries

- Value chain integration a prerequisite of a self-reinforcing ecosystem
- Scaling, efficiency and utilization rates key foci for research and development
- Safety, competences and digitalization important enablers of integration across the value chain
- Predictability and reliability of access to hydrogen an important ecosystem feature

Overview: Projects today

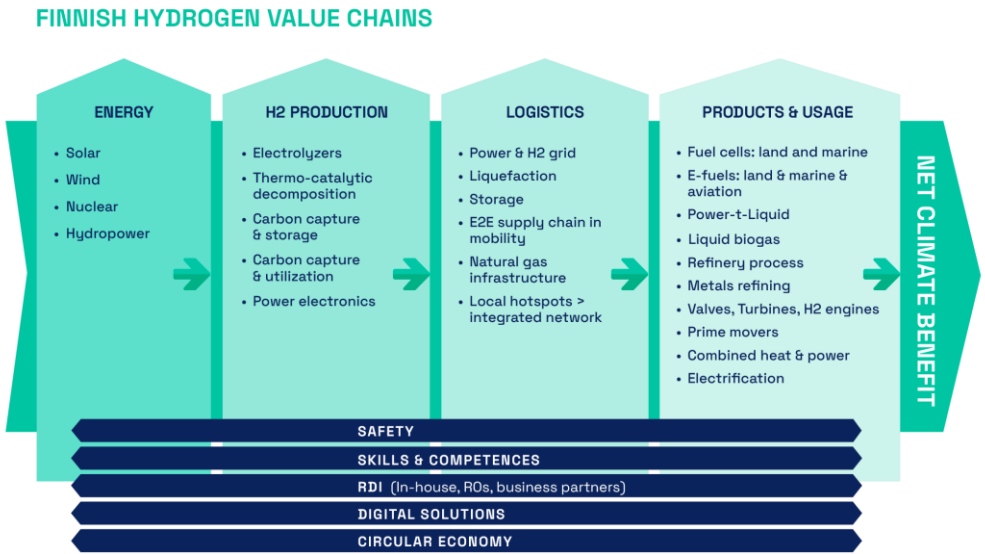
- The initiatives fully support the Finnish national carbon neutrality target 2035 and the EU commission climate neutrality target 2050
- Pre-study, engineering, demonstration, pilot, scaling and final commissioning of the initiatives are planned for 2021-2026, and the larger industrial conversions for 2030-2035
- Estimated CO2 emission reduction potential is 4-6 million t CO2/a and estimated investment expenditure 1000+ MEUR
- Remarkable employment impact foreseen for RDI, construction, implementation and new business throughout the entire value chain

Target state for Finnish Hydrogen Economy in 2030

Finnish hydrogen industry building carbon neutral society globally

- Clean electricity is abundantly available, with the most competitive price in Europe
- Systemic value add maximized through extensive sector integration
- Finnish hydrogen know-how and solutions on the world leading level
- Finland attracting most investments (per GDP) in hydrogen economy in Europe
- Carbon handprint of Finnish Hydrogen cluster exceeding many times the Finnish net emissions (baseline 2018 level)

Turvallisuus-näkökulman kehitys vetytaloudessa



- Yrityksillä on jo suunnitteilla merkittäviä vedyn tuotannon, siirron ja käytön hankkeita
- Voidaanko Suomelle saada kilpailuetua turvallisuus-näkökulmasta?
- Keskeisiä näkökulmia:
  - Koko arvoketjun kattavuus
  - Lait ja säädökset tarvitaan
  - Paljon soveltuu vanhaa, vanhan pohjalta, täysin uutta?
- Vetyklusteri on käynnistänyt alatyöryhmän koulutustarpeiden ja verkostoitumisen kartoittamiseksi – olisiko turvallisuus hyvä teema?


All members and more information
www.h2cluster.fi

THANK YOU!