



Energiateollisuus

**KEMIANTEOLLISUUS**



Metsäteollisuus



Metallinjalostajat



Teknologiateollisuus

**NATIONAL HYDROGEN CLUSTER**

# Hydrogen Economy is strongly on the EU's agenda

- **EU**

- EU strategy on energy system integration
- EU Hydrogen Strategy
- A manifesto on Hydrogen collaboration
- EU industry strategy and the Fit for 55 package
- Green Recovery Package

- **Finland**

- New climate and energy strategy
- Industrial strategy
- Allocation of Recovery Fund money to hydrogen sector!

# EU Hydrogen Targets

**Up to  
10x**

current role in the  
energy system by  
2050

Currently, hydrogen accounts less than 2 % of EU energy mix. Commission considers growing this by seven to ten-fold by 2050

**10 million  
tonnes**

Hydrogen  
demand in EU by  
2030

Hydrogen needs to become an intrinsic part of the integrated energy system, with the production of up to 10 million tonnes of renewable hydrogen in the EU by 2030

**€32bn**

in investments  
proposed;

**€430bn**  
needed

Six European gvts aim to invest heavily in the 2020s, but advocacy Hydrogen Europe envisions that 10x more is needed to "kickstart the hydrogen economy" in the EU

**70 – 100  
MtCO<sub>2</sub>/a**

current GHG  
emissions from  
European  
hydrogen use

Even substituting current hydrogen use by low-carbon alternatives would reduce GHG emissions by up to ~2x Finland's current emissions

# Collaboration is the way to Hydrogen Economy

- Hydrogen is included in **the EU's strategic investment agenda and pan-European collaboration including IPCEI\* projects** is being prepared
- **Innovation Fund**
- **European Clean Hydrogen Alliance Roundtables**
  - Production of Hydrogen
  - Hydrogen Transmission and Distribution
  - Industrial Applications
  - Transport
  - Clean Hydrogen in Energy including Energy Storage
  - Housing

## Scope of work

- Archetypes
- Pain points
- Project database
- Matchmaking
- Building larger project entities
- International collaboration

\* IPCEI = Important projects of common European interest

# National Hydrogen Cluster develops Hydrogen Economy through collaboration

## Meeting with industry representatives and Minister Lintilä 8/2020

- There is a clear need for increasing collaboration among industry players as well as for establishing public-private partnerships to benefit of hydrogen economy opportunities

## National Hydrogen Cluster 2/2021

- **35 companies** representing various sectors
- **Industry associations have supported the cluster and acted as secretariat**
  - Energy Industry
  - Chemical Industry
  - Forest Industry
  - Metal Industry
  - Technology Industry

# Operating Model and Work Groups 2021

**Steering Group– chair Outi Ervasti, Neste**

## **Cluster meetings – 30 companies and industry associations**

- Common interests, 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: EU-networking**  
– chair Matti Malkamäki, Aurelia Turbines

- Clean Hydrogen Roundtables
- Hydrogen IPCEI preparations at EU-level
- both<sub>2</sub>nia - project
- EU-affairs and information sharing

**WG4: Operating environment and regulation –**  
chair Olli Sipilä, Gasgrid

- Combined view of the cluster
- Evaluation on impacts of the coming regulation and taxation

**Secretariat**

# What is going on?

- Companies have submitted their **applications on Hydrogen IPCEI**
- Networking within the EU - **12 companies are represented in the EU Clean Hydrogen Roundtables**
- Information on **Finnish Hydrogen Investments, plans exceed over EUR 1 billion**
- Information from TEM and Business Finland on **funding schemes for hydrogen**
- Ideas and collaborations on **regional hydrogen hubs, e.g. BothH2nia**
- Study on **hydrogen pipelines** in energy transmission
- Meetings with hydrogen stakeholders in **Nordics, Poland, the Netherlands, Germany, UAE...**being arranged
- Synergies in **EU collaboration**
- Cluster view on upcoming **regulation** in preparation
- **Vision workshop, webinars, web pages being planned**

# It is up to us to excel in hydrogen economy

- We have good potential in **renewable electricity** generation
- We are capable of developing and deploying **new technologies**
- We are already perceived as leaders in **sustainable solutions**
- We have excellent skills in **project execution**
- We already now depend on **exports**

## We need to collaborate to

- **create visions** for the future hydrogen economy and our roles in it
- explore various **new possibilities** and **synergies**, both **domestic** and **international**
- **optimise the new value chains**
- **build the needed infrastructure**
- enable breakthrough of new technologies **in pilot and demonstration projects**



## Additional information:

- Chair: Outi Ervasti ([outi.ervasti@neste.com](mailto:outi.ervasti@neste.com)) and other steering group members
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