

The Future of Hydrogen: From Strategy to Scale

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20/10/2024 VTT – beyond the obvious



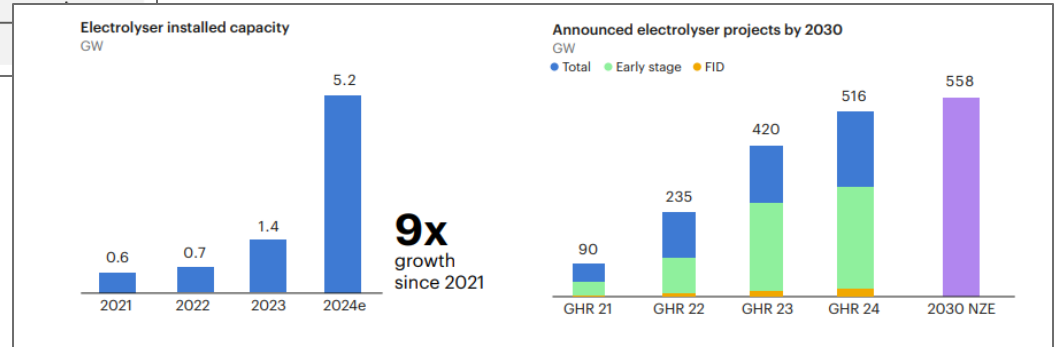
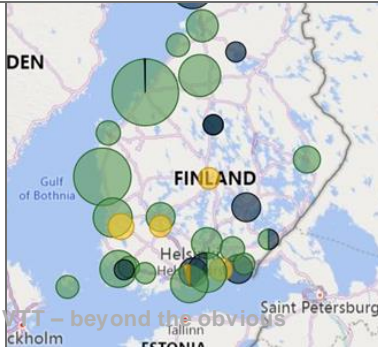
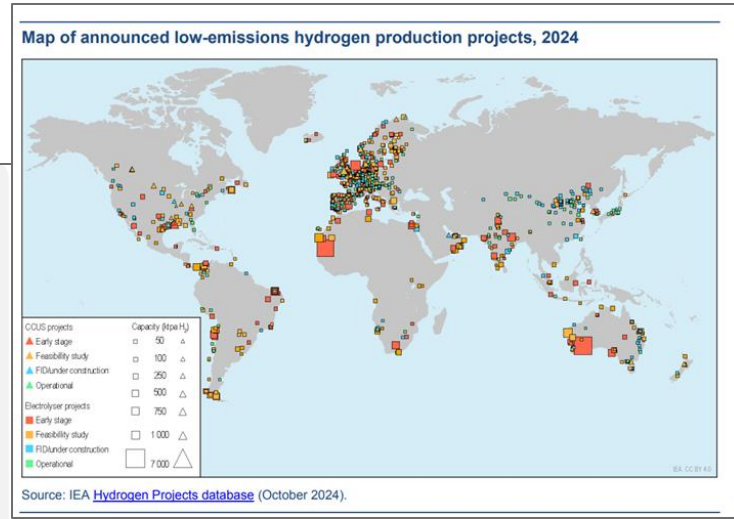
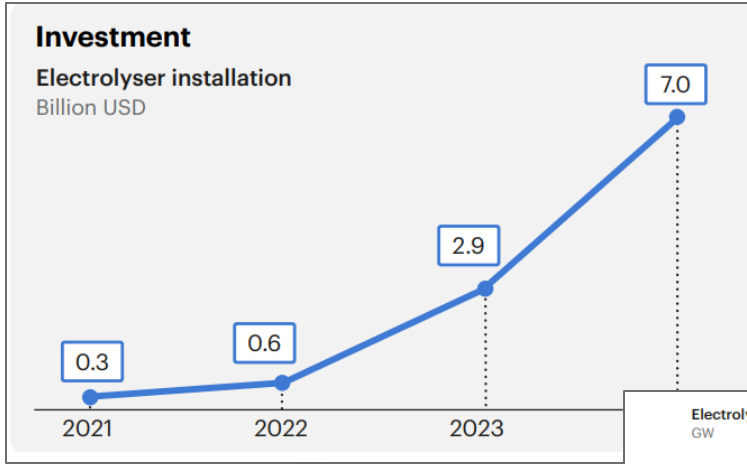
Brüssel, 8.7.2020
COM(2020) 301 final

**KOMISJONI TEATIS EUROOPA PARLAMENDILE, NÕUKOGULE, EUROOPA
MAJANDUS- JA SOTSIAALKOMITEELE NING REGIOONIDE KOMITEELE**

Klimaneutraalse Euroopa vesinikustrateegia



How things look now?





So what's the problem?

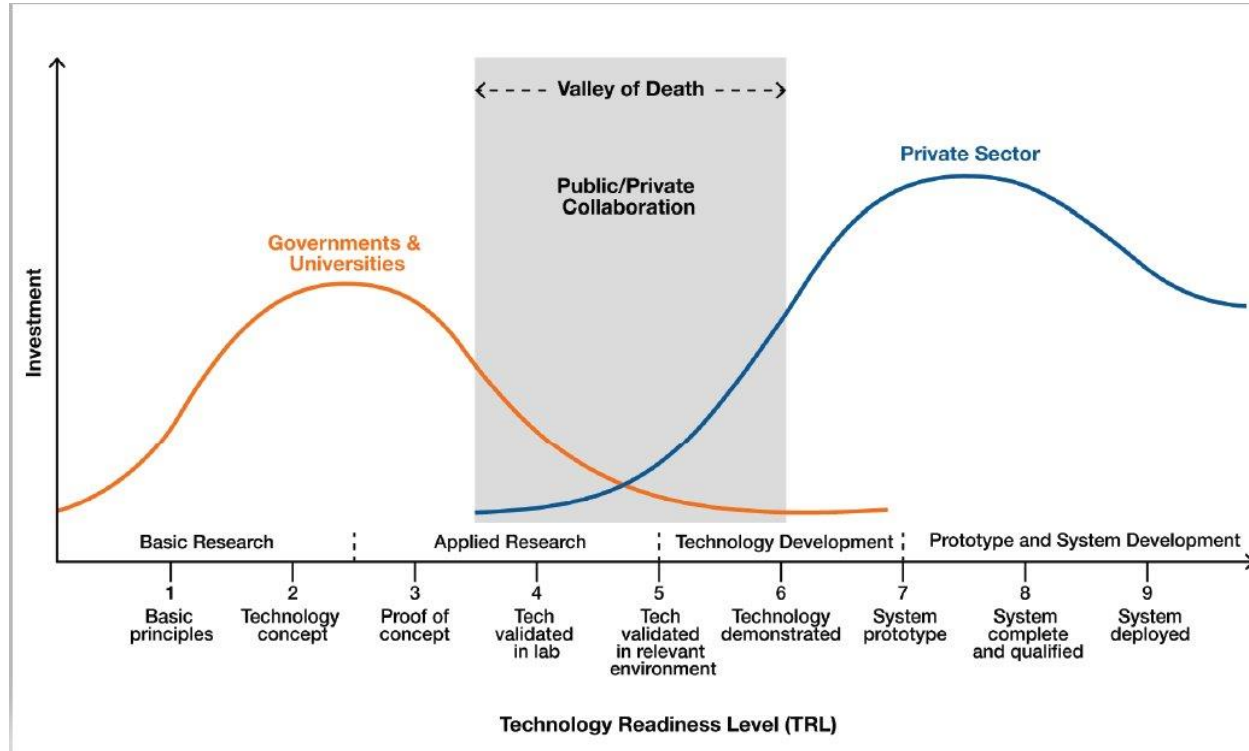
- ➔ Historically, we have not been successful in implementing energy transitions in a sustainable manner.
- ➔ Rather, previous energy systems have further enforced existing inequalities, while also creating new ones.
- ➔ Simply 'greening' or 'cleaning' innovations and industries will not automatically make them fairer, inclusive, or just.



Technology
People
Pace



European competitiveness depends on the ability to capitalize on clean transition by commercializing novel solutions



Just transition

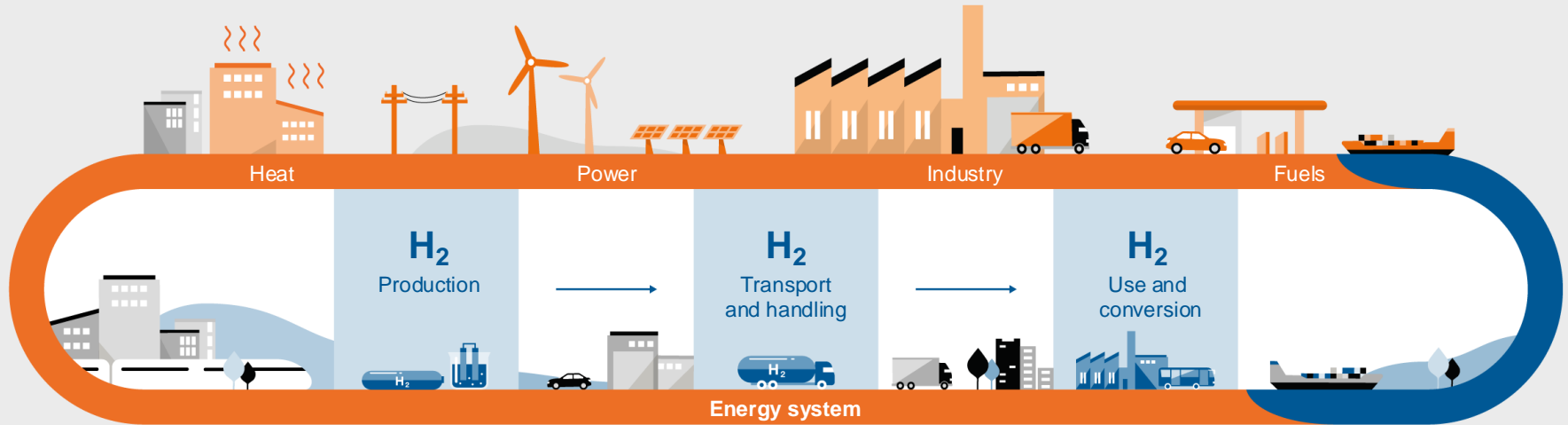
Digital meets analog

What can we do?

VTT



H2 is sector coupling at it's best



SOEC technology development

Electrolyser and fuel cell systems design, manufacturing and operation

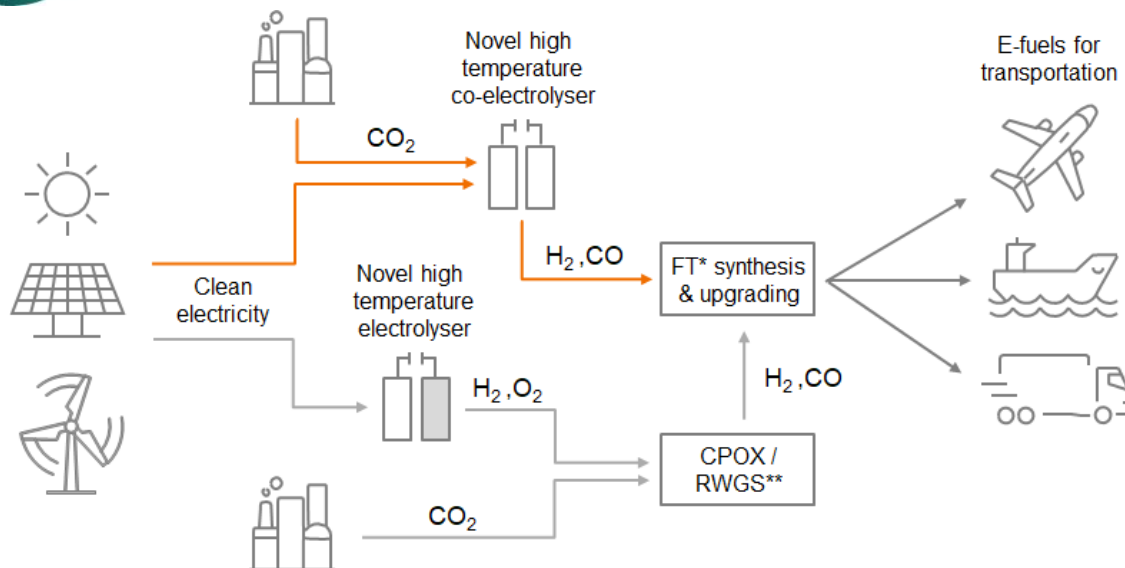
Hydrogen quality and safety

Hydrogen and power to x systems

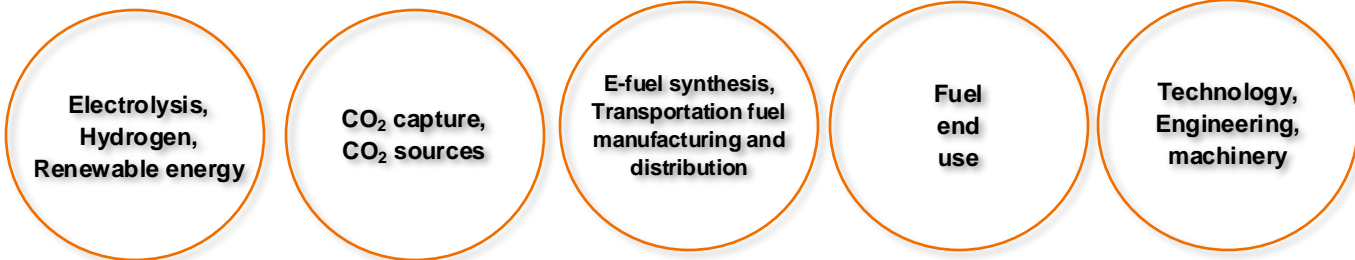
Hydrogen fuelling stations and heavy duty vehicles

Value chain for fossil-free electrofuels

VTT's budget: 3.3 MEUR
 Schedule: Jan/2021 – Dec/2022



* Fischer-Tropsch
 **Catalytic partial oxidation / Reverse water-gas shift



VTT Bioruukki – world-class experimental innovation platforms for energy and circular economy

1



THERMOCHEMICAL CONVERSION PLATFORM

Gasification and pyrolysis processes for biobased fuels and chemicals. Recycling concepts. Carbon re-use and energy storage.

Started in Bioruukki
2015

2



BIOMASS PROCESSING and TEXTILE FIBRE PLATFORM

Innovative biomass processing and fractionation. Lignin technologies. Cellulose based and recycled textile fibres.

Started in Bioruukki
2018

3



PROCESS CHEMISTRY PLATFORM

Sustainable chemistry for tailored chemicals, polymers and materials. New processes and recycling concepts. Catalytic conversions.

Started in Bioruukki
2020

4



CARBON NEUTRAL INNOVATION PLATFORM

Electrification, Hydrogen and Fuel Cells, Sustainable Fuels and Emissions. Industrial energy and transport segments.

Bioruukki extension
2026

**Perfect is the enemy of good...
...focus on implementation**



bey⁰nd

the obvious