



VTT

E-fuel Veturi Business Finland co-innovation project

07/05/2021 VTT – beyond the obvious

Challenge

Efficient and profitable production of drop-in transportation fuels by Power-to-X

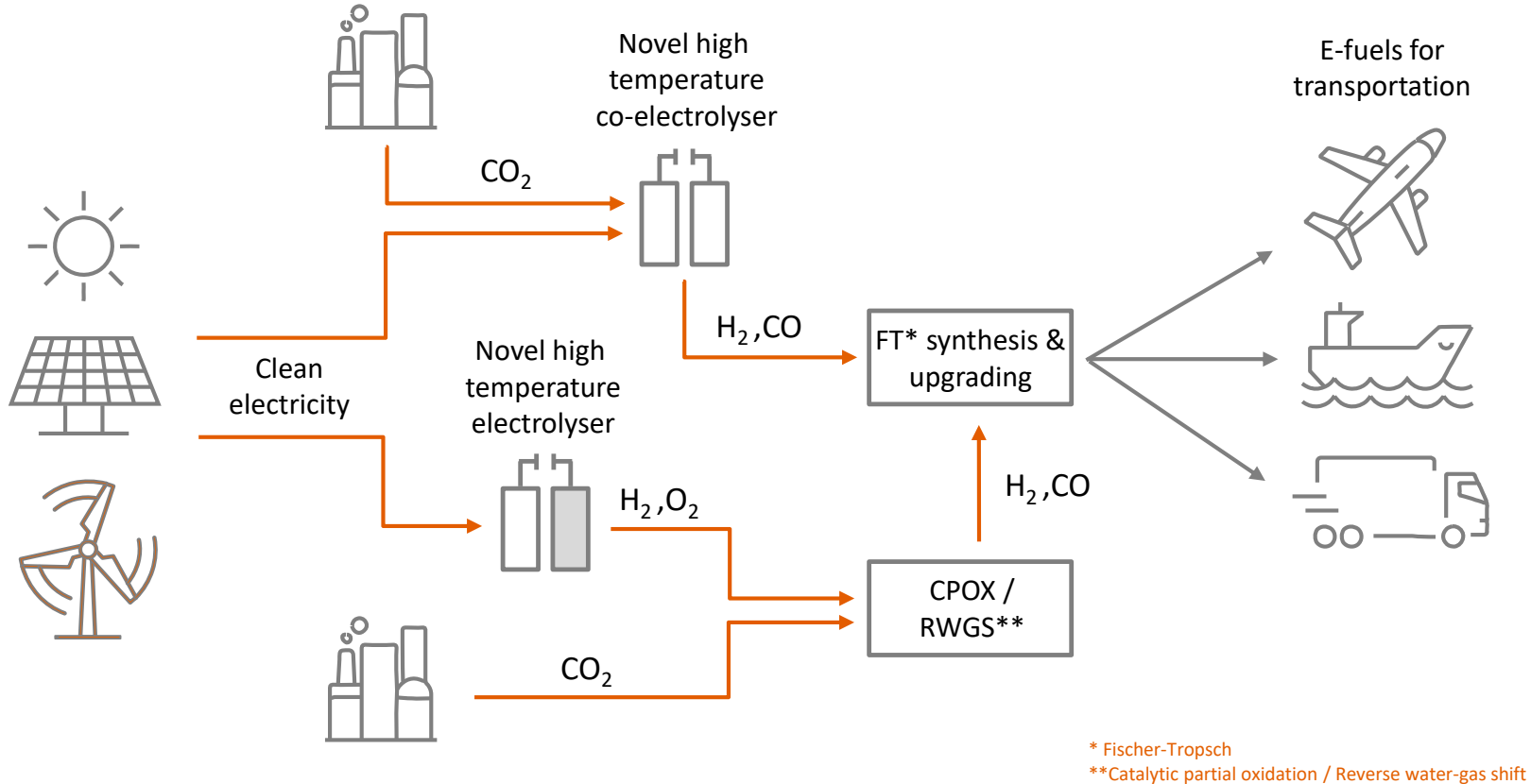
Our proposed solution

Combining of high temperature electrolysis and Fischer-Tropsch synthesis to obtain drop-in paraffinic fuels with high efficiency

Our vision

Year 2050, e-fuels will cover 20 - 30 % of final energy demand in transportation in Europe

E-fuel concept



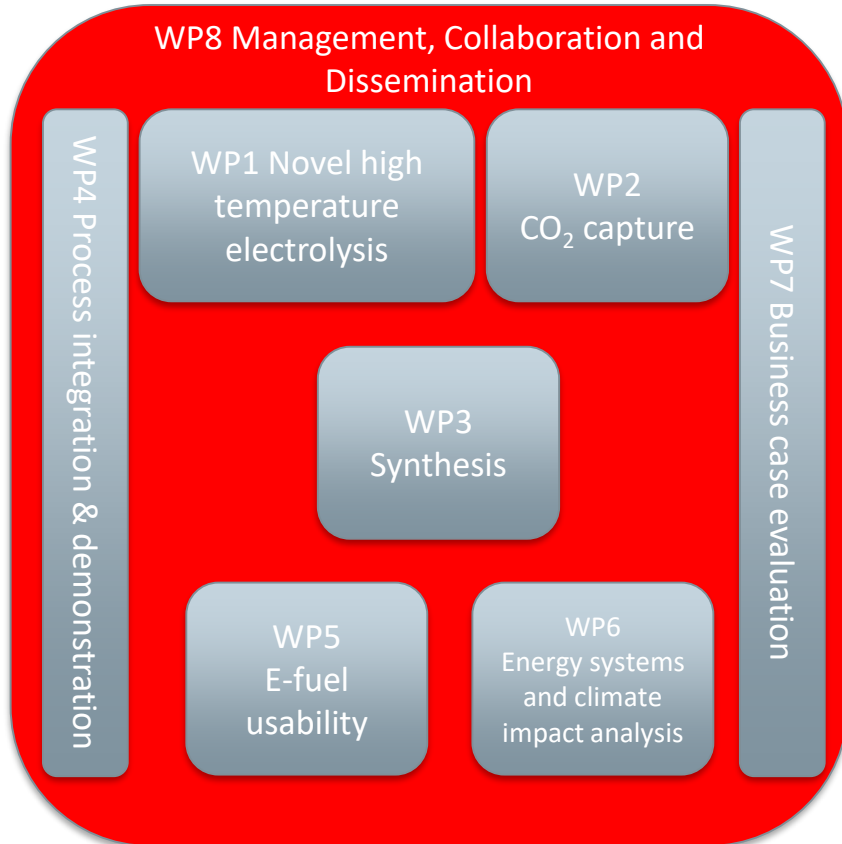
System analysis, TEA, LCA, scenarios, green energy, fuel markets & business development

The main objective

To demonstrate production of drop-in paraffinic e-fuels in bench scale with high efficiency by combining and integrating high temperature electrolysis and Fischer-Tropsch synthesis

We are targeting a readiness to scale up the concept after 2-year project to a production scale of 10 kton/a

E-fuel specific objectives and WP structure



- Development of thermal integration of solid oxide electrolysis cell (SOEC) with downstream processes
- Optimal connection of electrolyser with power grid to maximize profit and minimize carbon emissions
- Development of catalytic partial oxidation (CPOX)/reverse water-gas shift (RWGS) concept integration and verification of long term operation (>1000 hrs)
- Development of integrated concept of CO₂ capture, electrolysis and FT synthesis
- Demonstration of integrated concept in bench scale (>1000 hrs)
- Demonstration of drop-in paraffinic e-fuel production (up to 300 kg) and usability
- Ensuring the environmental and other impacts of e-fuel production and produced paraffinic e-fuel
- Generating e-fuel related technology IPR for exploitation and commercialisation

Project structure and external collaborations

INTERNATIONAL



FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING



ETIP Bioenergy
European Technology and Innovation Platform



CERTH
CENTRE FOR RESEARCH & TECHNOLOGY HELLAS

NATIONAL

Parallel company projects



Companies supporting the public project



Results Support



Guidance Materials



ILMATIETEEN LAITOS



Tampere University

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the obvious

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