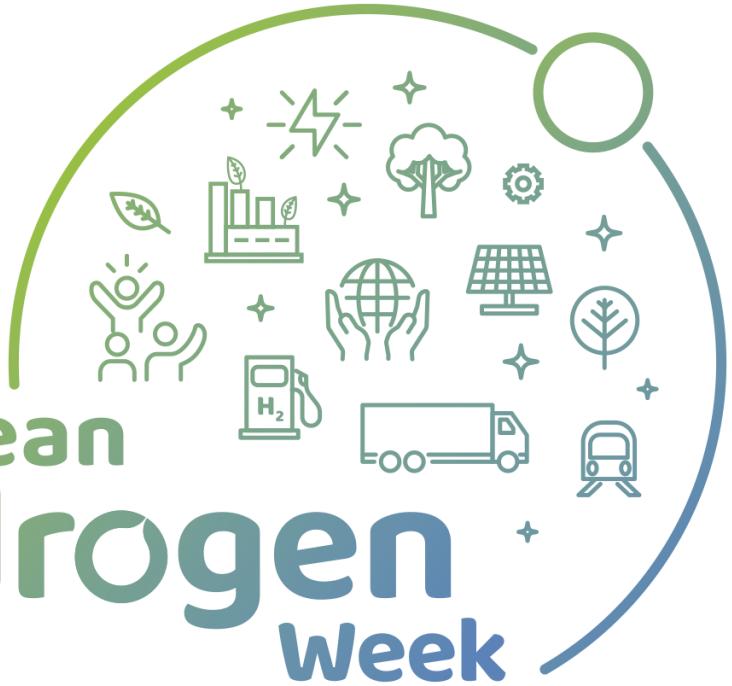
DEMO4GRID

Demonstration for Grid Services



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European Commission

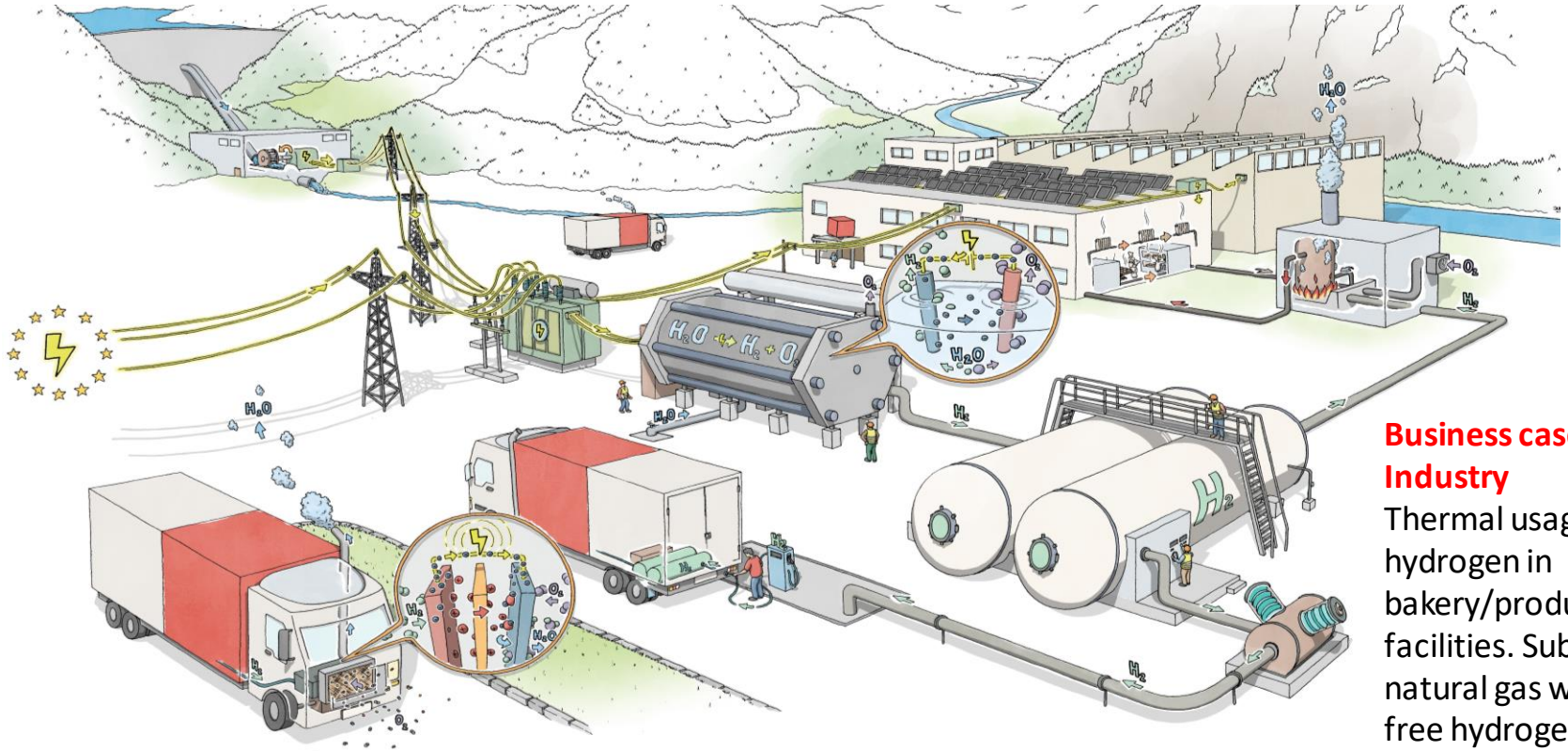
Project Overview

- Call year: 2016
- Call topic: FCH-02-7-2016 Demonstration of large-scale rapid response electrolysis to provide grid balancing services and to supply hydrogen markets
- Project dates: 01.03.2017 – 31.08.2023
- % stage of implementation 02/12/2021: 90%
- Total project budget: 7.736.682 €
- FCH JU max. contribution: 2.932.554 €
- Other financial contribution: 3.360.000 €
- Partners:
  DIADIKASIA BC (GR), FEN SUSTAIN (AT), FHA ARAGON (ES), IHT/SUNFIRE (CH), INYCOM SA (ES), MPREIS GMBH (AT),

Project Summary I

DEMO 4GRID

Partners:



Business case #2 – FCEV-truck mobility
Hydrogen as fuel for logistic fleet operation. Substitution of diesel with green hydrogen, sector-coupling electricity-mobility.
Maximum decarbonization effect: 5.900 t CO2/year

Business case #1 - Industry
Thermal usage of hydrogen in bakery/production facilities. Substituting natural gas with carbon free hydrogen, realizes sector-coupling electricity-thermal.
Maximum decarbonization effect: 2.400 t CO2/year

Project Summary II

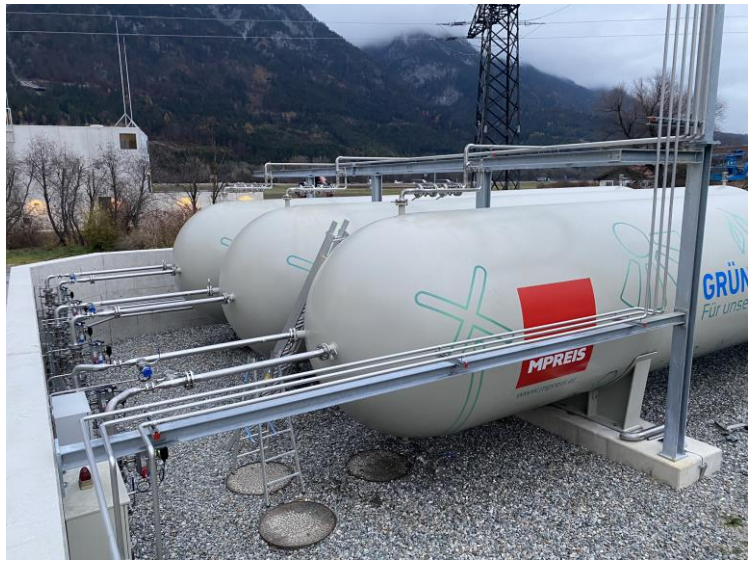
Objectives:

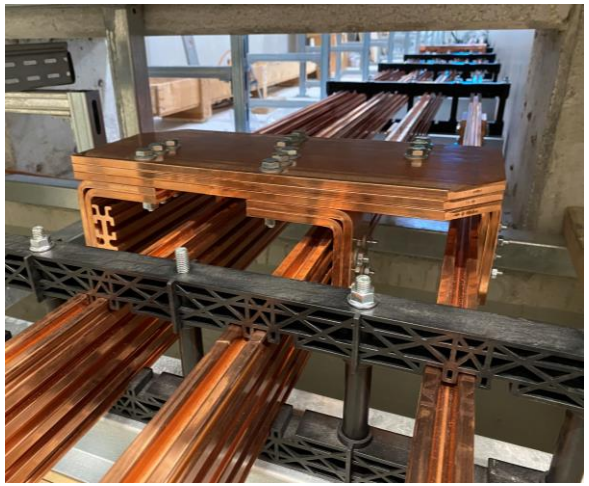
- Industrial scale availability (> 99%)
- Rapid-response pressurized alkaline electrolysis
- Grid balancing service provision
- Large scale (3,2 MW, single stack)
- Production of Green Hydrogen
- Integrated Plant Efficiency > 90%

Applications:

- Industrial process heat 60°C;300°C
- Commercial road transport
- Captive distribution fleets

Project progress: site erection





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Project Progress:
Site implementation and commissioning

Site implementation

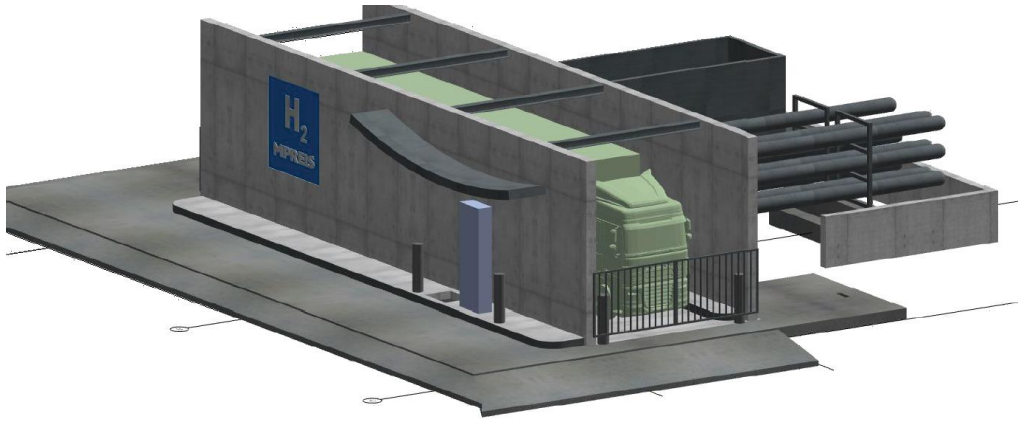
95%

25% 50% 75%

Comissioning

10%

25% 50% 75%



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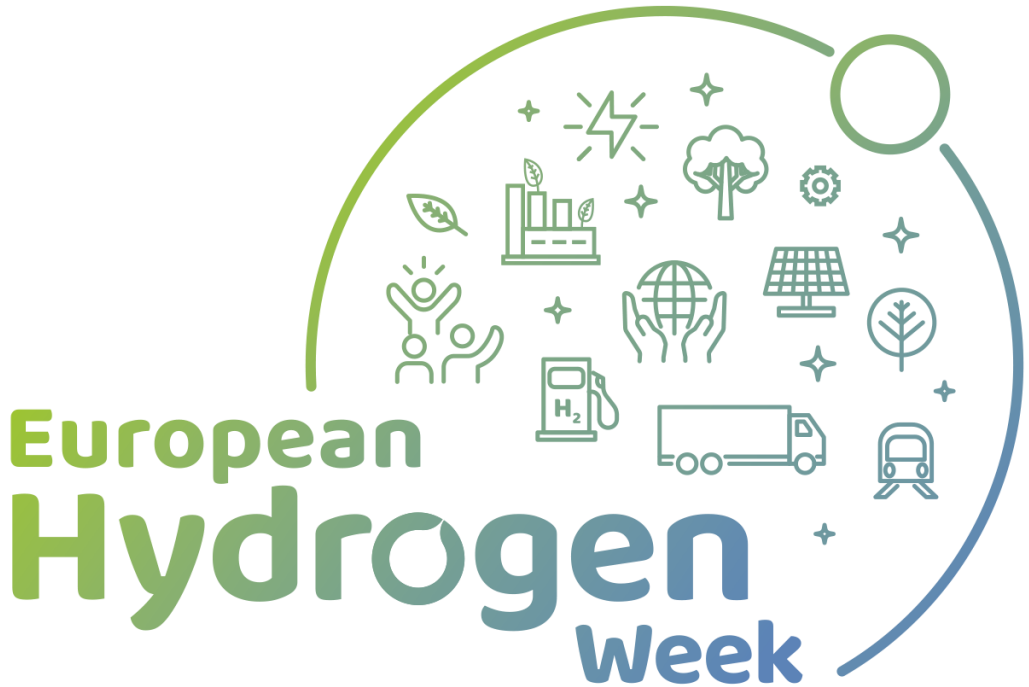
Risks, Challenges and Lessons Learned

- Covid_19: Austrian lockdowns exerted maximum stress on consortium partnership
  - expected to be a non-recurring event (??)

- Integration of D4G-innovation into existing facilities is a tremendous effort
  - Decoupling of downstream food production from D4G-availability in ramp-up phase
  - Upstream (electricity) AND downstream (hydrogen) dependencies

- Different TRL´s along the hydrogen value chain
  - ELY, Boiler, FCEV-trucks, HRS
  - Lack of standards (350bar FCEV refueling protocol, hydrogen bulk transport..)



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