

CH2P

Project ID: 735692

Funded under:

H2020-EU.3.3.8.2. - Increase the energy efficiency of production of hydrogen mainly from water electrolysis and renewable sources while reducing operating and capital costs, so that the combined system of the hydrogen production and the conversion using the fuel cell system can compete with the alternatives for electricity production available on the market

Cogeneration of Hydrogen and Power using solid oxide based system fed by methane rich gas

From 2017-02-01 **to** 2020-07-31, ongoing project

Project details

Total cost: EUR 6 868 158,75	Topic(s): FCH-02-4-2016 - Co-generation of hydrogen and electricity with high-temperature fuel cells
EU contribution: EUR 3 999 896	Call for proposal: H2020-JTI-FCH-2016-1 See other projects for this call
Coordinated in: Italy	Funding scheme: FCH2-RIA - Research and Innovation action

Objective

To achieve European ambitions to reduce global emissions of greenhouse gases by 80% before 2050, emissions of the transport and the energy sectors will need to decrease drastically. The Hydrogen Economy offers ready solutions to decarbonize the transport sector. Fuel cell electric vehicles (FCEVs) close to be deployed in the market in increasing numbers. For FCEVs to be introduced to the market in volumes, a network of hydrogen refuelling stations (HRS) first has to exist. Green hydrogen is figured, in the medium - long term, as the target technology to decarbonize the transport sector. Indeed, this will not be commercially attractive in the first years. Similarly, new-built hydrogen supply capacity will not be viable in the first years with low demand.

CH2P aims at building a transition technology for early infrastructure deployment. It uses widely available carbon-lean natural gas (NG) or bio-methane to produce hydrogen and power with Solid Oxide Fuel Cell (SOFC) technology. Similar to a combined heat and power system, the high quality heat from the fuel cell is used to generate hydrogen. CH2P therefore generates hydrogen and electricity with high efficiencies (up to 90%) and a reduced environmental impact compared to conventional technologies. The system will have high dynamic (more than 50% of energy will be in form of hydrogen), purity level of hydrogen at 99.999%, a CO-level lower than 200 ppb. The target cost for the hydrogen generated will be below 4,5 €/kg. The overall technology concept will be based on modularity to enable a staged deployment of such infrastructure.

CH2P will realize two systems, one with hydrogen generation capacity of 20 kg/day, for components validation, and another at 100 kg/day for infield testing.

A dissemination campaign will use the project results to demonstrate the technical readiness of CH2P technology, while industrial partners are committed to enter the market after the project end.

Coordinator

FONDAZIONE BRUNO KESSLER
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EU contribution: EUR 461 000

Activity type: Research Organisations

Participants

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EU contribution: EUR 1 483 000

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

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EU contribution: EUR 0

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

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EU contribution: EUR 0

Activity type: Higher or Secondary Education Establishments

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EU contribution: EUR 549 916

Activity type: Research Organisations

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EU contribution: EUR 915 730

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

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EU contribution: EUR 370 000

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

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EU contribution: EUR 220 250

Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

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