

Hydrogen and electric power for the supply of the future

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The CH2P European project coordinated by Trento-based FBK

Developing a new high-efficiency with lower impact on carbon emissions compared to conventional technologies, capable of generating hydrogen and electrical power for the near future Hydrogen Refuelling Stations (HRS) in order to address the zero emission transport market in Europe.

This is the goal of the CH2P (Cogeneration of Hydrogen, Heat and Power using solid oxide based system fed by methane rich gases) project coordinated at European level by Fondazione Bruno Kessler (FBK) in Trento.

The coordinator of the project, officially launched in February in Brussels, is Luigi Crema who leads the FBK ARES Unit, which is engaged in applied research on energy systems. “Fondazione Bruno Kessler in Trento,” Luigi Crema points out, “will lead the CH2P project consortium in the development of an innovative technology that will have an extended collaboration all over Europe. In particular, we will develop the prototype for a system that will produce 100 kg of hydrogen per day, sufficient to support a pilot project connected to clean mobility. The technology could be scaled up for deployment at larger retail sites, moving the hydrogen production from the demo activities to commercial refuelling stations in short time. This can pave the way to feed extensive fleets of Fuel Cell Electric Vehicles (FCEV’s) such as cars, buses and trains. All this with a view to accelerating the transition to technologies based on hydrogen and alternative fuels, with new solutions for the market, starting from the road transportation sector that generates more than 40% of carbon dioxide emissions in Europe.”

The CH2P project will end in 2020 and will receive an EU funding of almost 4 million euros. The research and development activities intend to help increasing the energy efficiency of hydrogen production – generated from methane – considerably reducing current production costs and carbon footprint. This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No 735692. This Joint Undertaking receives support from the European Union’s Horizon 2020 research and innovation program, from Hydrogen Europe and N.ERGHY.

The other partners next to the Trento based Fondazione Bruno Kessler in the CH2P Consortium include: SOLIDpower SpA (Italy), HTceramix SA (Switzerland), Ecole Polytechnique Fédérale de Lausanne (Switzerland), German Aerospace Center DLR (Germany), HYGEAR TECHNOLOGY AND SERVICES BV (The Netherlands), Shell Global Solutions International BV (The Netherlands) and Vertech GROUP (France).

“Within this context”, Luigi Crema points out, “Fondazione Bruno Kessler has acted as scientific partner by drafting the Italian Strategic Plan for Hydrogen based Mobility, approved by MIUR and published in the Gazzetta Ufficiale (the official journal of record of the Italian government) on January 13, 2017”.

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