

Hydrogen valleys: concepts, application in the Alpine Region and the role of novel technologies

FBK is developing multiple key technologies for a sustainable energy, playing a critical role in developing and implementing energy hubs: (i) battery technologies (flow and next generation) for energy storage; (ii) innovative solutions for the production of green hydrogen; (iii) initiatives related to energy grids: micro grids, distribution grids and transmission grids. Within this framework, a relevant role will be played by hydrogen, with its application in an energy hub called hydrogen valley. Hydrogen Valleys has been part of the Mission Innovation programme, inside the Innovation Challenge 8: Hydrogen technologies and systems. It will be represented the concept of an hydrogen valley, which technologies could constitute the hydrogen hub at the light of the EC objectives and the development of novel technologies and solutions. A specific example will be dedicated to the hydrogen valley concepts in the Alpine Region, with an overview of the main specific technologies that could constitute the different districts and the role of research and development on novel materials to enable some missing links to efficient and sustainable future technologies. At Fondazione Bruno Kessler, in the Center for Sustainable Energy, we are developing several enabling solutions from the hydrogen production, the hydrogen logistics, to the end uses in transport and industrial sector.