

Hydrogen production chain: from water to energy

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Interest toward hydrogen is growing a lot in the last period. It is considered one of the energy vectors which could play an important role in the decarbonization of our society.

In fact, if it is produced through water electrolysis reaction and the electricity used to feed the process comes from renewable sources, it can be considered a renewable gas, called 'green' hydrogen. This means that to be produced it has no impact in terms of direct CO₂ emissions in the environment.

The potentialities and application fields of this energy vector are many and all different each other's, going from automotive sector to industry to power-to power systems for unconventional long-term storage solutions.

In this workshop's introductory presentation, an overview of the whole hydrogen production chain will be analyzed, with a focus on the different existing technologies to produce it in a sustainable way and their different TRLs. Therefore, the challenges that the research field must face to favor the penetration of the hydrogen in the energy scenario will be discussed, with a particular focus on the efforts supported from the HyRes Unit of the Sustainable Energy Center, in Fondazione Bruno Kessler (FBK), Trento.

Hyres Unit is directly involved in supporting many aspects of the hydrogen chain, from production to end-uses, through the participation to many European project and directly giving technical support to companies.