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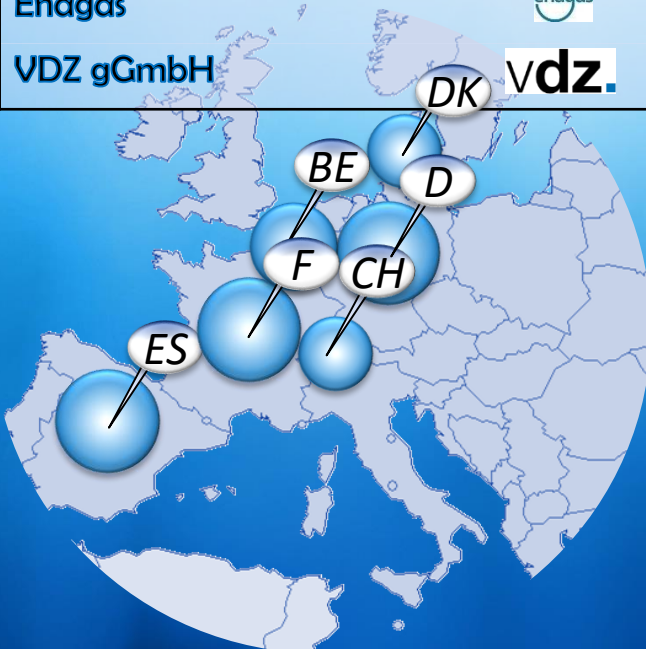
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FUEL CELLS AND HYDROGEN  
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## Efficient Co-Electrolyser for Efficient Renewable Energy Storage – Eco

**A Project sponsored by the European Commission**



**HORIZON 2020**

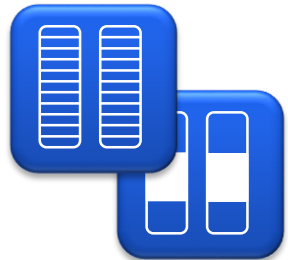
# The Project Concept



Electricity from renewable sources such as wind and solar



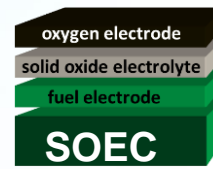
Steam and CO<sub>2</sub> from industrial sources or biomass



Co-electrolysis SOEC coupled with external or internal methanation



Storage and distribution of methane in the existing infrastructure



- Throughout Europe, more and more electricity production from renewable sources is established. However, the production from sources such as wind or solar does not fit the consumer needs and excess is produced at certain times. Efficient concepts are needed to store this excess electricity and to make it available at other times, at different locations or in other technologies
- Methane (or synthetic natural gas) is an attractive storage medium for large scale. Europe has already an existing, extended natural gas network and storage tanks for natural gas.

- Solid oxide electrolysis (SOEC) is a promising technology that can make the link between excess electricity production and options for storage in the natural gas network
- SOEC split water and CO<sub>2</sub> using electricity with efficiencies close to 100 %. The formed gas, called synthesis gas (H<sub>2</sub>+CO) can be converted into synthetic natural gas or other hydrocarbons through catalytic processes

The project looks at

- Improving the SOEC that split water and CO<sub>2</sub> regarding performance and lifetime.
- How the SOEC can work together with the electricity input produced from renewable sources and the CO<sub>2</sub> that can be obtained from cement industry or biogas.
- How the gas produced in the SOEC can be converted to a storage medium and stored in the existing infrastructure.