Power-to-Gas technology for electricity storage and CO_2 valorization for small

Thermoelectric Power Generation

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The energy market changed quite radically during the last years. The introduction of new commercial schemes, as the day-ahead market, the spread of the renewable energy production, which is intrinsically intermittent, the adoption of new taxes on Greenhouse Gases (in particular on carbon dioxide - CO_2) emissions, are influencing the energy production-consumption system and the industrial sector.

ProGeo tackles some major challenges in the energy and industrial sectors, also addressed by H2020, paying specific attention on two key points:

- Develope a cost-competitive and efficient solutions for energy storage
- Develope an innovative solution for CO_2 valorization.

The project develops an innovative industrial electrical storage system, based on the conversion of electricity into methane by a highly efficient process run by an electrolyser and a methanizer.

The target market of the scaled up system will be owners and managers of small thermoelectric plants (s-TEG, < 50 MWth), who will have a chance to store the energy:

- avoiding the sale of low-priced electricity during low peak requirements (electricity market price < 20-30 €/MWh)
- reducing the CO2 emissions and therefore minimizing the related carbon tax amount (5 ÷ 20 €/ton of CO2), producing an additional revenue source from the synthetic-CH4 generation.

The proposal is fully in compliance with the topic “SIE-01-2014-1: Stimulating the innovation potential of SMEs for a low carbon energy system”. PROGEO strongly contribute to address the energy production/distribution system challenges outlined by H2020, developing and commercializing an innovative electricity storage technology based on the highly efficient conversion into methane, thus increasing the energy production efficiency and reducing the fossil fuel consumption and GHGs/pollutants emissions.

PROGEO: FROM RESEARCH TO A PROOF OF CONCEPT AND AN INDUSTRIAL PROJECT
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