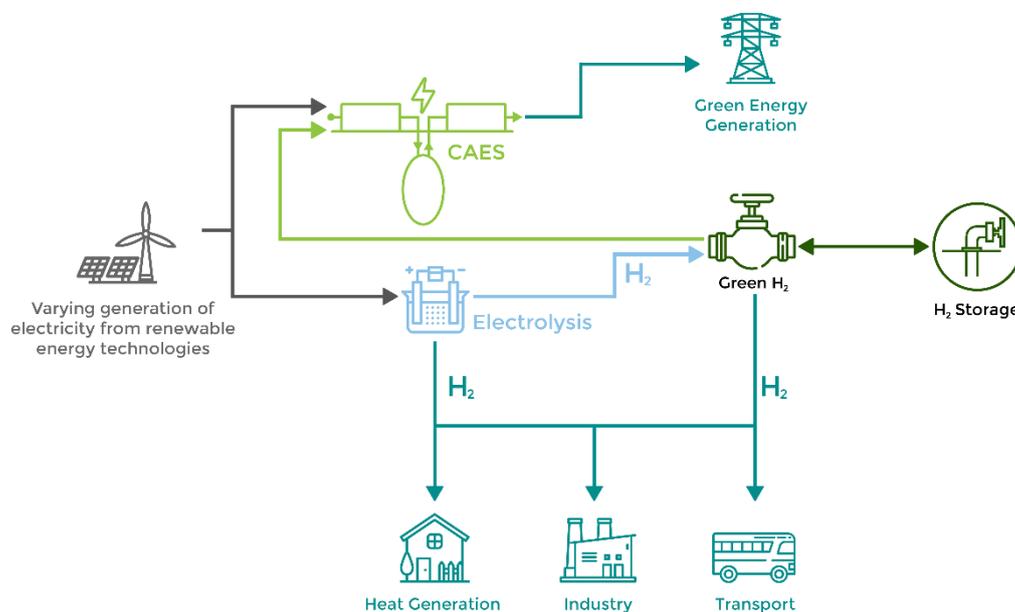




New, large-scale hydrogen hub to support Denmark's green transition

Renewable solar and wind energy can be converted to hydrogen and can thereby be stored and used at times when neither wind or solar power are available, or can be used as a sustainable fuel for industry, heavy goods transport, shipping etc. The project Green Hydrogen Hub Denmark aims to establish one of the World's largest green hydrogen production plants and combine it with an underground hydrogen storage in the area between Hobro and Viborg.

The project has been on the drawing board since 2014 in a collaboration between Eurowind Energy, Dutch headquartered Corre Energy and Danish state-owned Energinet and is named *Green Hydrogen Hub Denmark* (GHH). The ambition is to establish a complete PtX value chain by 2025 comprising of an electrolysis plant, hydrogen storage and a number of industrial hydrogen consumers including a Compressed-Air-Energy-Storage (CAES) facility



The Green Hydrogen Hub Value Chain | © Corre Energy | 2020

The main purpose for GHH is to secure renewable energy irrespective of the weather. Specifically, the project is looking into the possibility of establishing a 350 MW electrolysis plant, 200,000 MWh hydrogen storage and a 320 MW Compressed Air Energy Storage (CAES) facility, which as the final link in the chain can re-convert the green hydrogen to electricity. By combining seasonal hydrogen storage and daily storage in CAES, consumers can be provided with 100% green electricity 24-7 all year. In other words, the project will be able – based on the wind and solar production – to balance an annual electricity consumption compared to that of 280,000 households. On top of that, the green hydrogen can also be provided as a sustainable fuel for industry, heavy goods transport, shipping etc. GHH can contribute to the European green transition by potentially displacing 600,000 ton CO₂ per year, which makes the project ground-breaking. The project is currently in the investigation phase and the partners involved are excited about the possibilities it will bring.

Eurowind Energy will together with the other partners develop the hydrogen facility to create the optimal conditions for storing wind and solar energy. *“The timing for formalizing the value chain that we have been working on for so long is perfect”*, says Jens Rasmussen, CEO of Eurowind Energy, and continues: *“As a local company in Mariagerfjord Municipality, we aim to make a difference for the local society and to set Mariagerfjord on the*

World map. We have been working on this project for many years, and we are happy to have reached the point where we can now go public with the project, and we look forward to the future collaboration. Green Hydrogen Hub Denmark is a pioneering project with an international perspective that can solve a significant part of our challenges by storing renewable energy. PtX is a central part of the green transition, and the hydrogen is the very core in PtX. This is just one of many reasons that Green Hydrogen Hub Denmark is an important step towards our future energy society”.

Dutch headquartered Corre Energy will be lead developer of the hydrogen fuelled CAES facility and coordinate development across the entire project, leading key commercial and funding activities. With over 30 years of collective renewables and storage development experience it is developing a pipeline of hydrogen-based storage projects with electrolysis in Europe. Keith McGrane, CEO, Corre Energy confirms: *“As a pioneer of hydrogen fuelled Compressed Air Energy Storage (CAES) projects in Europe, we see the complementary application of hydrogen-based storage systems and electrolysis as a fundamental enabler to achieving the full decarbonisation of the Danish energy system. The ability to store renewables over long periods can deliver significant value across the energy system, reducing Green House Gases (GHG), reducing electricity costs and replacing traditional fossil-based power plants. The project will be multipurpose by providing both electricity and hydrogen products to a range of customers with innovative business models to further enable the investment cases of large-scale renewables projects. The Green Hydrogen Hub Denmark will be a significant step to realising our pipeline of integrated hydrogen production and storage projects across Europe acting as a pathway towards deep decarbonisation”.*

Gas Storage Denmark (GSD), which is part of Energinet, is already operating Denmark’s two underground gas storages and has more than 30 years’ experience with large-scale underground storing of energy and brings this experience into the project. The hydrogen storage currently being outlined includes a capacity of 200 GWh green energy. This compares to the total battery capacity of 2 million electric vehicles and will subsequently be scalable up to a capacity in the TWh-league. *“Our ambition is to accelerate the green transition and thereby support the development of a climate-neutral energy supply. Denmark needs to develop new solutions to reach the ambitious 2030 goals. Long-term, large-scale storage of renewable electricity in a secure and cost-efficient manner is a vital, social strategic challenge during the next decade. We believe that underground hydrogen storage can be essential in meeting that challenge, which is why this technology is the core of what GSD brings to Green Hydrogen Hub Denmark. We are collaborating with some strong partners who share the same motivation, dreams and vision, in terms of speed, scale, and direction for the green transition in Denmark. Together, we have all the competences needed for making the complex value-chain work”*, says Adam Elbæk, CEO of Gas Storage Denmark. Additionally, he underlines that the vision is to secure equal access for storing hydrogen, and that there will be a special focus on the security of supply, as this is a natural part of public critical infrastructure. Energinet and GSD seeks to contribute to create the foundation for the future energy system, where hydrogen storage is crucial, and participate as and in line with the evolution of the overall strategic framework for the area.

Green Hydrogen Hub Denmark can become the third industry cluster within hydrogen production in the central part of Jutland, Denmark. The first cluster, Hydrogen Valley, is situated in Hobro and has since 2002 gained great knowledge on green hydrogen. The same applies for GreenLab Skive which has primarily worked on the production of hydrogen from renewable energy sources.

The GHH project is still in the investigation phase where the involved parties are focused on developing both the technical and commercial solutions. The current consortium has already applied to the European Innovation Fund 2020 call for funding of the primary development aspects.

If you have any questions, please visit the project’s website: greenhydrogenhub.dk

If you have further questions, please contact one of the below contact persons:

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