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ABB and HydrogenPro to optimize green hydrogen production for a low-carbon future

* ABB technology to help optimize hydrogen production for the world’s largest single stack high-pressure alkaline electrolyser
* Companies will collaborate on bringing production costs down, with the goal to accellerate wider adoption of hydrogen as energy source
* HydrogenPro will carry out a validation program designed to increase the electrolyser efficiency

ABB has signed an order with HydrogenPro, a hydrogen plant company, to provide electrical equipment for the world’s largest single stack high-pressure alkaline electrolyser - a system that generates hydrogen by using electricity to split water into hydrogen and oxygen. Once deployed, at a specially built test facility in Herøya, Norway in 2022, the system will be capable of producing 1,100 normal cubic metres of green hydrogen per hour (Nm3/h).

Demand for hydrogen has grown more than threefold since 1975 and continues to rise, so scaling up technologies and bringing down the cost of production is vital to enable hydrogen to become widely used. With electricity making up around 70-90 percent of green hydrogen production costs, reaching a high level of efficiency is key to lowering production costs.

ABB’s scope will include an integrated electrical package comprising transformers, rectifiers, DC Chokes and Busbars. Hydrogen is very energy intensive to produce sustainably - everything in the production process, each little component adds a little bit of inefficiency, so this integrated portfolio approach will ensure that every single, possible improvement in efficiency is made.

The validation program will include rigorous testing to see how the performance criteria and efficiency of the electrolyser can be optimized. This will enable HydrogenPro to make further improvements to the electrolyser system before introducing similar technology on a long-term, large scale at similar facilities around the world.

“It was essential for us to work with a trusted, specialist partner to validate our technology and ensure optimum operational performance before we roll-out large-scale, global production, which will be key to future customer adoption,” said Karoline Aafoss, Sales Manager at HydrogenPro. “ABB’s portfolio of integrated electrification solutions will complement our world-class electrolyser technology to create the optimum green production model of the future.”

This collaboration follows a two-year partnership with HydrogenPro and represents ABB’s first green hydrogen order in Norway.

This program into scaling and testing hydrogen technology to enable global decarbonization goals will pave the way for the launch of large green hydrogen plants in the future, which are key to reducing global CO2 emissions.

“In this decade alone, low carbon hydrogen demand will double – and by 2050, it will make up almost a fifth of all global energy demand. Our collective challenge is to produce enough to meet the demand, at a much lower cost,” said Brandon Spencer, President of ABB Energy Industries. “As an industry, we have a responsibility and commitment to explore how we can unleash the full environmental and economic potential of hydrogen, which has huge potential in helping to reach our climate goals. We are especially proud to be partnering with HydrogenPro on this important project.”

The ambition is to have the testing up and running at the beginning of the summer of 2022.

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