Press release

Berlin, November 8, 2023

Siemens Energy and Air Liquide pave the way for the ramp-up of the hydrogen economy with new gigawatt factory for electrolyzers

The new gigawatt electrolyzer factory of Siemens Energy and Air Liquide was officially inaugurated today in Berlin. In the presence of German Chancellor Olaf Scholz, Christian Bruch, CEO of Siemens Energy, and Francois Jackow, the CEO of French joint venture partner Air Liquide, pushed the start button for the series production of the hydrogen technology. Among the guests at the event were also German Economics Minister Robert Habeck, French Industry Minister Roland Lescure and other high-ranking representatives of German and French politics.

With the new factory, Siemens Energy is making electrolyzers a mass product, laying the foundation for the ramp-up of the hydrogen economy. For hydrogen to become the game changer for a climate-neutral future, it must be available in large quantities and at competitive prices. This requires serial production of cost-effective and scalable electrolyzers. With an annual production capacity of one gigawatt, Siemens Energy and Air Liquide expect a ramp-up to at least three gigawatts by 2025 with potential for more. In comparison: with installed electrolysis capacity of three gigawatt, an average of 300,000 metric tons of green hydrogen can be produced per year when operated with renewable energies. Using this green hydrogen to replace fossil fuels would avoid the CO_2 emissions of a major German city with around 260,000 inhabitants like Aachen.

Christian Bruch, CEO Siemens Energy: "There is no energy transition without green molecules. With today's opening and the start of gigawatt-scale production of electrolyzers, we are launching the next step for the commercialization of this vital technology. Now we need to agree on a viable business model with a balanced risk and reward profile to turn the smallest molecule into a big success story."

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At the Siemens Energy site in Berlin the complete infrastructure of an existing production facility and its experienced workforce can be used. New production lines for the electrolyzers were set up on 2,000 square meters at a cost of around 30 million euros. The new factory will supply stacks – the heart of electrolyzers – for a wide range of customers, serving the fast-growing market. These stacks are based on proton exchange membrane (PEM) technology that is particularly good at following intermittent renewable energy supply. Compared to other hydrogen technologies, PEM electrolyzers enable gigawatt capacities to be brought to market with lower material, manpower and space requirements, making them the ideal enablers of a fast ramp-up. Once produced, the assembly of the stacks to be implemented in electrolyzer projects will be carried closer to the project sites, contributing further to the cost effectiveness of the solution.

The strategic Franco-German partnership benefits from the expertise of both Groups and from a portfolio of hydrogen projects combining both Air Liquide and Siemens Energy's pipelines. In Europe, a number of low-carbon and renewable large-scale hydrogen projects are already under development: near Port-Jérôme, France, the Air Liquide Normand'Hy 200 MW electrolyzer project is under construction, avoiding the emission of 250,000 tons of CO_2 per year. The Normand'Hy project will be one of the first to be supplied from Siemens Energy's new electrolyzer production facility in the framework of the joint venture between Air Liquide and Siemens Energy.
Siemens Energy is working on several other large-scale electrolyzer projects, such as in Kassø (Denmark) or FlagshipONE (Sweden), which will provide hydrogen for the synthesis of efuels for shipping.

François Jackow, CEO of Air Liquide Group: "The mass production of industrial scale electrolyzers is essential to making competitive renewable hydrogen a reality. Our joint-venture with Siemens Energy brings the best of our respective expertises together and allows us to offer the most-suited products to the market. This state-of-the art technology will soon be operated at the Trailblazer electrolyzer in Oberhausen, with a major scale upcoming for the Normand'Hy electrolyzer project. More than ever, hydrogen is proving to be a key element of the transition to a low-carbon society.

The German Federal Ministry for Research and Development has provided financial support for the research work on the Berlin production facility as part of the SEGIWA project, which is part of the H2Giga flagship project.

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