

The inauguration of Air Liquide and Siemens Energy Gigawatt electrolyzer factory paves the way to renewable hydrogen development at scale

Air Liquide and Siemens Energy officially inaugurated their joint venture gigawatt electrolyzer factory today in Berlin. The mass production of electrolyzer components will allow the manufacturing of low-carbon hydrogen at industrial scale and competitive cost, and foster an innovative European ecosystem. The state-of-the-art gigawatt factory will ramp-up to an annual production capacity of three gigawatts by 2025. With two global leading companies in their field combining their expertises, this Franco-German partnership plays a pivotal role in the emergence of a sustainable hydrogen economy needed to forge the energy transition.

Located in Berlin, the new manufacturing site inaugurated today spans over 2,000 square meters. It **leverages automation and robotics for the series production** of Proton Exchange Membrane (PEM) electrolyzer modules, the main component of the electrolyzer. The PEM modules offer a high degree of efficiency and are **particularly adapted to an intermittent renewable energy supply**. With one gigawatt currently, Air Liquide and Siemens Energy expect a **ramp-up to annual production capacity of three gigawatts by 2025**. Once produced, the assembly of the modules to be implemented in electrolyzer projects can be carried closer to the project sites, contributing further to the cost effectiveness of the solution.

The strategic partnership benefits from a portfolio of hydrogen projects combining both Air Liquide and Siemens Energy's pipelines, targeting large industrial-scale projects worldwide in collaboration with customers. In Europe, a number of low-carbon and renewable hydrogen projects are already under development. **In Oberhausen, Germany, the Air Liquide's Trailblazer 20 MW large-scale electrolyzer project** is reaching completion and aims to accelerate the decarbonization of the Rhine-Ruhr industrial basin. **Near Port-Jérôme, France, the Air Liquide Normand'Hy 200 MW electrolyzer project** is the largest PEM electrolyzer under construction, avoiding the emission of 250,000 tonnes of CO₂ per year. Both groups are working on several other large-scale electrolyzer projects, such as Siemens Energy's ones in Kassø (Denmark) or FlagshipONE (Sweden), which will provide hydrogen for the synthesis of efuels for shipping.

This partnership will benefit from the **expertise of both Groups, including Siemens Energy state-of-the-art technology and industrial capacity along with Air Liquide's mastery of hydrogen along the whole value-chain and capacity to develop innovative custom-made solutions**. Both Groups will also continue to dedicate R&D capacities to the co-development of the next generations of electrolyzer technologies.

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 up coming 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."

Christian Bruch, President and 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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About Air Liquide

A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 73 countries with approximately 67,100 employees and serves more than 3.9 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the company's activities since its creation in 1902.

Taking action today while preparing the future is at the heart of Air Liquide's strategy. With ADVANCE, its strategic plan for 2025, Air Liquide is targeting a global performance, combining financial and extra-financial dimensions. Positioned on new markets, the Group benefits from major assets such as its business model combining resilience and strength, its ability to innovate and its technological expertise. The Group develops solutions contributing to climate and the energy transition—particularly with hydrogen—and takes action to progress in areas of healthcare, digital and high technologies.

Air Liquide's revenue amounted to more than 29.9 billion euros in 2022. Air Liquide is listed on the Euronext Paris stock exchange (compartment A) and belongs to the CAC 40, CAC 40 ESG, EURO STOXX 50, FTSE4Good and DJSI Europe indexes.