



Q&A: Signing Ceremony Event – Finland

Plug Power Inc. and Business Finland, along with clean technology and financial partners, will be holding a ceremony to announce commitments being made in Finland for the production of renewable hydrogen. The investment is expected to create new jobs in the Country and boost the local economy. It will also contribute to Finland's efforts to become carbon neutral by 2035, a goal set by the Finnish government in its Climate and Energy Strategy. This is an important sign of commitment by Plug, the leading US hydrogen company, to cooperate with our European partners.

What is this investment all about in a nutshell?

Plug is fully committed to a green hydrogen future.

Plug is planning to build at least three green hydrogen production plants in Finland. Using Plug's PEM electrolyzer and liquefaction technology, Plug's green hydrogen plants will take advantage of the Finland's abundant decarbonized and clean energy sources, such as nuclear, wind and hydro power.

These projects will support the development of green electricity and green hydrogen around the European backbone pipeline near the Bothnian Bay and, more generally, Finland. These projects will enable Finland to become the European leader in the green hydrogen economy and will accelerate the regional transition to a more sustainable future.

The investment is expected to result in the production of 1,200 tons per day of green hydrogen, or 2.2 GW electrolyzer interconnection by the end of the decade. This level of production makes it one of the largest US investments in both Finland and Europe in recent years, and is a strategically important move for the company, as well as for European energy policy.



What do the investments mean in practice for the locations?

- **Kokkola, Finland:** This site is expected to generate 85 TPD of liquid green hydrogen, and up to 700 kt of green ammonia per year, using 1 GW of electrolyzers. The liquid green hydrogen will be produced for local use and for export to western Europe from the Port of Kokkola. Green ammonia will also be exported through the same port.
- **Kristinestad, Finland:** The 1 GW electrolyzer plant located close to a former coal plant will export green hydrogen for green steel production (2.0 mt/y of DRI/HBI produced) from the port of Kristinestad.
- **Porvoo, Finland:** This site will produce 20 TPD of gaseous green hydrogen by 2027 ramping to 100 TPD by 2030. The hydrogen will be used locally, for mobility and pipeline injection.

Why Finland?

Finland possesses abundant clean resources that provide a strong foundation for the development of green, decarbonized hydrogen. With its highly competitive green electricity resources, including wind and hydro power, Finland has the potential to leverage its strong local wind resources, substantial hydro and nuclear capacities, and wide-ranging capabilities.

Moreover, Finland's geographical location allows it to access some of the lowest European hourly market prices and benefit from a low carbon content. This advantage is further enhanced by the presence of market zones in Europe, which enable Finland to regularly access electrons at prices below 30 €/MWh. By tapping into these markets, Finland can not only secure affordable electricity but also contribute to reducing carbon emissions, aligning with its commitment to a sustainable and environmentally friendly energy future.



What do the investments mean in terms of jobs? What kind of experts are needed?

The three planned green hydrogen production sites are expected to create around 1,000 direct jobs and 3,000 indirect jobs, significantly boosting the local economy. Meaningful jobs will include positions in construction, engineering, logistics, operations and others.

What significance do investments have for industry?

These green hydrogen plants impact the decarbonization of European industry, avoiding up to 6mt/y of CO₂ emissions.

Using Plug's PEM electrolyzer and liquefaction technology, the green hydrogen produced at these sites will support the production of e-fuels, ammonia and green steel (DRI), reduce dependence on fossil fuels, and materially support the decarbonization of Europe.

What is a PEM Electrolyzer?

Electrolyzers are integral to Plug's green hydrogen ecosystem. Plug's PEM stacks enable electrolysis of water using renewable electricity to split water into green hydrogen and oxygen. Plug offers an easy-to-deploy containerized electrolyzer solution, with short lead times to enable decarbonization across multiple applications including hard to abate industries.

An electrolyzer is a product that uses electricity to split water into hydrogen and oxygen — a process called electrolysis.



Are there green hydrogen plants today?

Plug expects to commission 200+ TPD by 4Q23 / 1Q24 and 500TPD by year-end 2025. The company is building plants in the US (Georgia, New York, Texas, Louisiana), and in Europe (Port of Antwerp-Bruges, Spain). Plug's Georgia liquid green hydrogen plant will complete commissioning and continue to ramp to liquid production throughout Q2. The plant has been brought online in less than a year since issuing the full EPC contract (engineering, procurement and construction contract), marking a new industry standard for the construction timeline of a liquid hydrogen plant. Gaseous hydrogen production has continued at the Georgia plant, with fills of our fleet of high-pressure tube trailers and customer trailers.

Check out the Georgia plant here: https://www.youtube.com/watch?v=yMg_UpgF7kk.

About Plug

Plug is building an end-to-end green hydrogen ecosystem, from production, storage and delivery to energy generation, to help its customers meet their business goals and decarbonize the economy. In creating the first commercially viable market for hydrogen fuel cell technology, the company has deployed more than 60,000 fuel cell systems and over 180 fueling stations, more than anyone else in the world, and is the largest buyer of liquid hydrogen. With plans to build and operate a green hydrogen highway across North America and Europe, Plug is building a state-of-the-art Gigafactory to produce electrolyzers and fuel cells and multiple green hydrogen production plants that will yield 500 tons of liquid green hydrogen daily by 2025. Plug will deliver its green hydrogen solutions directly to its customers and through joint venture partners into multiple environments, including material handling, e-mobility, power generation, and industrial applications. For more information, visit www.plugpower.com.

Plug has been working in hydrogen energy for more than 25 years.

- Plug built the first market for hydrogen – turnkey hydrogen solutions to support the material-handling operations of customers, such as Amazon, Carrefour, BMW, Walmart and Home Depot, with more than 60,000 fuel cells deployed.
- Today Plug is the largest buyer of liquid hydrogen in the world.
- Plug touched 25% of the food supply chain during the COVID-19 pandemic.