



BalticSeaH2 – Building a cross border Hydrogen Valley in Europe

The BalticSeaH2 project will establish the first significant, cross-border Hydrogen Valley in Europe. The goal is to create an integrated hydrogen economy around the Baltic Sea to enable self-sufficiency of energy and minimize carbon emissions from different industries.

By combining local areas into a broader valley, it will support the creation of an integrated, inter-regional hydrogen economy, which has not been done previously on this scale in Europe.

The main valley will be located between southern Finland and Estonia, as this area presents an optimal location for a cross-border hydrogen market.

Finland ambitiously targets carbon neutrality by 2035 which is, among other initiatives, driven by the significant wind potential. In addition, the necessary infrastructure – natural gas pipelines, electricity grids and active marine traffic – already exist in the Gulf of Finland.

The project will develop, scale and demonstrate hydrogen use in production, storage and distribution in different sectors from industry, mobility and energy.

The production potential for hydrogen will reach 100,000 tonnes of hydrogen annually by the end of the project.

The learnings from the cross-border build-up of a hydrogen economy will be shared with specifically identified Connected Valleys and replicated across borders between them, but furthermore, shared to boost replication and initiate new Hydrogen Valleys across Europe.

The project was kicked off in June 2023 and will last for five years.

Project partners

The project consortium includes 40 partners from nine Baltic Sea region countries: Finland, Estonia, Latvia, Lithuania, Poland, Germany, Denmark, Norway and Sweden.

The project and consortium were prepared by Finnish CLIC Innovation, who is also the project coordinator. Gasgrid Finland is a co-coordinator for the collaboration in the project.

Project Steps:

June 2023 – Project start

December 2024 – Design and build of container solution

March 2025 – Delivery of FCwave™ modules

May 2025 – System build & Commissioning

August 2025 – Training and support

June 2028 – Project finalized

Ballard's role in the project

The BalticSeaH2 project enables 25 demonstration and investment cases to showcase the different sectors of hydrogen economy. For one of the cases, Ballard has teamed up with ABB, a technology leader in electrification and automation. Ballard will support ABB to design, integrate and install a containerized 600kW stationary fuel cell system.

ABB will develop the fuel cell power plant concepts and novel converter technologies that are scalable to multi-MW scale. The aim is to make the container solution usable both onboard a ship and as a stationary application, thus showing the scalability and flexibility of a fuel cell system. Delivering a complete "plug-and-play" solution will show an enormous benefit for system integrators and showcase how zero emission technologies can be integrated in real life operation.

The system will be optimized and prepared for sector coupling and will initially be demonstrated as a 600kW port side application.

The fuel cell module build for the marine industry

Three of Ballard's 200kW FCwave™ fuel cell modules, certified by DNV and Lloyds Register, will be installed in the container solution. FCwave™ is built for the marine industry and is modular and scalable from 200kW to MW level. It is therefore a future-proof technology that can adapt to current and future operating requirements.



The BalticSeaH2 project has received €25,998,830 in funding from the EU. The Clean Hydrogen Partnership supports European Hydrogen Valley projects with RepowerEU funding from the commission.



About Ballard Power Systems

Ballard is a world leader in the development, manufacture, sale, and servicing of PEM hydrogen fuel cells. With more than 44 years of experience, Ballard represent decades of innovation and engineering leadership in clean energy solutions. Our fuel cell technology powers buses, trucks, trains and ships, as well as stationary power systems.

To learn more about Ballard, please visit: www.ballard.com

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