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Haldor Topsoe and Aquamarine enter into a Memorandum of Understanding with the purpose of building a green ammonia facility based on SOEC electrolysis

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- Haldor Topsoe and AQM Capital LLC (Aquamarine) have entered into a Memorandum of Understanding (MoU) with the purpose of building a green ammonia facility.
- The facility is planned to include a 100 megawatt SOEC electrolysis unit to produce green hydrogen to be converted into green ammonia.
- The plant is expected to be operational by 2024.



The ammonia produced at the facility can be used as green marine fuel.

Photo: Haldor Topsoe.

Aquamarine is developing a large-scale green ammonia facility to be constructed in multiple stages. In the first stage of the project, the proposed facility will use Topsoe's proprietary solid oxide electrolyzer cells (SOEC) to produce green hydrogen from 100 megawatt of renewable electricity. The hydrogen will be further processed into 300 ton/day of green ammonia, also using Topsoe technology. The produced ammonia can be used as a green marine fuel or as fertilizer.

"We look forward to our partnership with Aquamarine on our SOEC and ammonia technology. Driven by our vision to be recognized as the global leader in carbon reduction emission technologies by 2024, we are excited by our low-carbon solutions and attractiveness for our customers. This project is innovative in both its use of cutting-edge technology and its scale and will lead the way," says Amy Hebert, Chief Commercial Officer, Topsoe.

Topsoe is already engaged in several projects to produce green hydrogen, green ammonia, eMethanol, and green fuels. An example is the Helios project in NEOM, Saudi Arabia, announced in July 2020, which includes the world's largest ammonia loop (1.2 million tons per year) delivered by Topsoe. With the SOEC technology and decades of experience as a world-leading technology provider within ammonia, methanol, gasoline, jet-fuel, diesel, and hydrogen, Topsoe is one of the very few companies that can deliver insights, technology and catalysts along the entire value chain for next-generation fuels and chemicals.

Aquamarine will develop the project and seek relevant permits for the project, which will be located in northern Germany close to existing offshore wind farms, where the product can be sold to the marine shipping industry.

"We are delighted to be working with Haldor Topsoe toward the commercial application on its cutting edge SOEC technology to bring green products to market as part of the global move toward decarbonization. We expect to be soon announcing other partners who will be joining the effort, as we move forward to build HydrGEN into a global green hydrogen products leader," says Joel H. Moser, Founder and CEO at Aquamarine.

Facts about the facility

- The facility's electrolysis unit will have a 100 megawatt capacity.
- The product will be green hydrogen to be fully converted to green ammonia – 300 ton per day.
- The technology will be Topsoe's proprietary high-temperature electrolysis SOEC technology offering up to 30% larger green hydrogen output compared to standard technology such as PEM and alkaline electrolysis.
- Subject to a final investment decision, the facility is expected to be commissioned in 2024.

About AQM Capital LLC (Aquamarine)

Aquamarine Investment Partners is a global institutional investor and manager of private capital creating meaningful partnerships and value for investors in energy transition assets. The company is built upon decades of experience across many industries including energy transactions, infrastructure finance, and banking. Through its company HydrGEN, Aquamarine will establish a series of production facilities covering green hydrogen, green ammonia, jet fuels, diesel and other products using hydrogen produced from the electrolysis of water from renewable power with zero carbon emissions.

[Read more about Topsoe's green hydrogen business.](#)

More information

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About Haldor Topsoe

Haldor Topsoe is a global leader in supply of catalysts, technology, and services to the chemical and refining industries. Topsoe aims to be the global leader within carbon emission reduction technologies by 2024. By perfecting chemistry for a better world, we enable our customers to succeed in the transition towards renewable energy. Topsoe is headquartered in Denmark and serves customers around the globe. In 2020, our revenue was approximately DKK 6.2 billion, and we employ around 2,100 employees.

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