Multimegawatt high-temperature electrolyser to generate green hydrogen for production of high-quality biofuels

World's largest high-temperature electrolysis module deliveries started

Sunfire is installing the world's first multi-megawatt high-temperature electrolyser (2.6 MW) in the scope of the EU-funded demonstration project MultiPLHY to produce green hydrogen at Neste's renewable products refinery in Rotterdam (Netherlands). The company has delivered the first two electrolysis modules – setting new technology standards in the market.

To reach their ambitious sustainability targets, energy-intensive industries are implementing innovative cleantech solutions. Against this background, electrolysis for the production of green hydrogen is one of the most promising solutions to replace fossil fuels and reduce CO_2 emissions.

Innovative SOEC electrolysis technology

Made to produce green hydrogen from renewable energy and water, the electrolyser is setting new technology standards. Sunfire, one of the leading electrolysis manufacturers, has delivered the first two modules as core component of its electrolysis system to Neste. In total, the company will install twelve electrolysis modules on site, adding up to the world's largest high-temperature electrolyser. It is based on Sunfire's innovative SOEC (solid oxide electrolysis cell) technology and operates at temperatures of 850 °C.

Highly efficient hydrogen production

By using industrial off-heat, the SOEC electrolyser processes water steam to hydrogen at highest conversion efficiencies of 84 $\%_{el,LHV}$. As the steam reduces electricity demand, Sunfire's SOEC technology is the most efficient electrolysis solution on the market.

Picture: Sunfire high-temperature (SOEC) electrolyser

The high-temperature electrolyser will be directly integrated into Neste's refinery processes and will become part of the renewable products production. After its commissioning, which is expected in early 2023, the electrolyser will produce more than 60 kg of green hydrogen per hour.

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Pictures: Sunfire delivers two high-temperature electrolysis modules to Neste's renewable products refinery in Rotterdam.

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