



SUNFIRE PARTNERS WITH TOTAL ON HIGHLY EFFICIENT HYDROGEN TECHNOLOGY

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Sunfire, a leading global cleantech company, has signed a cooperation agreement with the French major energy company Total SA. Sunfire will provide a megawatt-scale high temperature electrolyser for use in industrial environments as part of the E-CO2MET research and development project. The company will also be responsible for the integration at the site as well as the operation and maintenance of the electrolyser, which will be the first step for the industrial-scale production of synthetic methanol from renewables and industrial concentrated CO₂ from the Total Raffinerie Mitteldeutschland GmbH.

Total has chosen the most efficient technology available on the market - the Sunfire-HyLink 200 system. The production of green methanol and hydrogen from renewable energies offers great opportunities for the global energy and transport transition. "Total is delighted to develop efficient technologies to re-use CO₂ to chemicals, materials and fuels. Carbon capture, utilisation and storage is going to play an essential role in achieving carbon neutrality without curbing economic and social growth," said Marie-Noelle Semeria, Senior Vice President, Group Chief Technology Officer at Total.

The advantage of the high-temperature electrolyser is its ability to directly use economically produced steam or waste heat from industrial and synthesis processes. With this method, the use of valuable green electricity can be reduced. It is the most efficient process on the market for converting electricity into hydrogen. The high efficiency of over 80 % also significantly reduces the overall cost of the integrated process.

The cooperation heralds a new era for the industrial use of renewable hydrogen and methanol in refineries. "The use of our high-temperature electrolyser at one of the largest oil companies in the world confirms our years of hard work driving decarbonisation in large-scale industries. This technology can become the core building block for energy sectors that cannot source electricity directly from renewables. With the transformation into renewable gases and fuels and the use of existing infrastructures, we can make the transport sector and the chemical industry climate-neutral," says Nils Aldag, Managing Director of Sunfire.

During the collaboration with Total, Sunfire's electrolyser will be involved in various research and development projects. Various operative studies will be carried out at its location in Leuna to evaluate the performance of the system, as well as in relation to volatile renewable energy supply. The evaluation of the results will be undertaken by Total according to quality and qualification guidelines for new technologies. Total Carbon Neutrality Ventures, the venture capital arm of Total SA, has been a minority equity shareholder in Sunfire since 2014.



About Total

Total is a major energy player that produces and markets fuels, natural gas and low-carbon electricity. Our 100,000 employees are committed to better energy that is safer, more affordable, cleaner and accessible to as many people as possible. Active in more than 130 countries, our ambition is to become the responsible energy major.

About Sunfire

Sunfire GmbH, founded in 2010, develops and produces high-temperature electrolyzers (SOEC) and high-temperature fuel cells (SOFC). The company employs more than 140 people. The high-temperature electrolysis generates valuable hydrogen from water and is powered by renewable electricity. In the newest and most efficient version, high-temperature electrolysis can reactivate not only water but also CO₂, converting exhaust gas back to a clean raw material that replaces crude oil or natural gas. This will make the entire transport sector and many industrial processes, which today depend on oil, gas or coal, sustainable and CO₂-neutral. Further information at www.sunfire.de