

RENEWABLES Everywhere

COMPANY OVERVIEW

OUR VISION

A WORLD WITHOUT FOSSIL FUELS

OUR CONVICTION

HYDROGEN IS THE NEW OIL



150 years ago, the development of petroleum technologies led to a breakthrough of fossil fuels. It initiated a new energy age that has been driving industrialization and economic growth at an unprecedented scale ever since. From power and heating to mobility and industries, fossil fuels are the central element of our energy system today, satisfying the energy thirst around the globe.

The heavy use of fossil fuels, however, is accompanied by rising CO₂ emissions causing substantial global warming. To reverse current climate developments, fossil fuels quickly need a zero-emission successor.

In this context, the ramp-up and use of renewable electricity has thrown the first decent punch at existing fossil energy structures. Wind farms and solar parks now shape European landscapes while electric vehicles and heating solutions increasingly find their way into businesses and homes. Yet, electrification alone cannot solve the climate challenge. It needs a companion. Renewable hydrogen produced through water electrolysis technology is the solution. It enables the transition to a fully renewable energy system in which fossil fuels are no longer needed. In such as system, hydrogen will be the platform molecule for thousands of products such as jet fuel, chemicals and ammonia. And it will be a climateneutral feedstock transforming major CO_2 -emitting industries like the steel and petrochemical industry.

> Renewable hydrogen will fully replace fossil fuels.

OUR MISSION ZERO EMISSION

We turn renewable electricity into renewable hydrogen and e-Fuel.

SUNFIRE HYDROGEN

Our HyLink electrolyzer reduces water to hydrogen, which serves as renewable feedstock for energy-intensive processes in the steel industry and in refineries.

HyLink

We decarbonize industries and transportation by making renewable hydrogen and e-Fuel available to the world.



Renewable

electricity

H,O

Steam

SUNFIRE E-FUEL

Our SynLink electrolyzer converts water and CO₂ into synthesis gas which we then further process synthetic fuel, also called e-Fuel. e-Fuel is the climate-neutral alternative to kerosene, petrol, and diesel used in airplanes, vessels and vehicles. I

Steel

Refineries

Hydrogen



We achieve 85% efficiency. That is up to 35% more than legacy technologies.



OUR TECHNOLOGY

THE WORLD'S MOST EFFICIENT ELECTROLYZER

We have developed the leading high temperature electrolysis technology based on solid oxide cells (SOEC). While we are not the only ones developing electrolysis technology, our SOEC has two key advantages compared to PEM and Alkaline electrolyzers:

CONVERSION EFFICIENCY

We focus on the biggest cost driver in hydrogen and e-Fuel production: efficiency. By reusing off-heat, we achieve 85 % efficiency promising significantly better conversion-economics than state-ofthe-art approaches. This means that up to 35 % more output can be gained for the same electricity input while keeping the cost of ownership for our customers substantially lower.

CO-ELECTROLYSIS

We can achieve two outcomes with one system: hydrogen and syngas – the platform molecule for all (petro-) chemical products such as jet fuel, gasoline and diesel. Our technology is the only one able to process water, electricity, and CO₂ to syngas in one single processing step, which significantly increases conversion efficiency.

Our technology and the production process of e-Fuel (so-called »Power-to-Liquids«) is protected by a broad and global patent portfolio comprising 57 patent families with an average remaining lifetime of 10 years.

OUR PROJECTS

DELIVERING ON THE PROMISE

We are putting our technology and project development know-how to work: first in large demonstration projects, then at industrial scale. Currently, we are involved in several demonstration projects with Salzgitter, Neste, Total and OMV producing hydrogen and syngas in industrial environments.

Building on our proven technology and experience, we are realizing two first-of-itskind industrial-sized projects. Together with our partners, we take our business to the next stage:

NORSK E-FUEL (2023)

We will turn Norway's extensive resources of renewable electricity into jet fuel for European airlines. Our goal is to create a 200 MW blueprint plant design that we can bring to areas with abundant renewable electricity around the world. We will go all the way from Norsk e-Fuel to World e-Fuel. The resources are unlimited.

GREEN STEEL (2025)

With the 400 MW Green Steel project, we will shift a major CO_2 -emitting industry towards carbon-neutrality. Our electrolyzers supply high quantities of renewable hydrogen to a direct iron reduction plant to produce renewable briquetted iron. The impact: cutting the carbon footprint of steel by roughly 90 %, thus saving around 1.75 billion tons of CO_2 per year.







We are realizing the world's first industrial e-Fuel and green steel project.

sunfire

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