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Unique Simulator for Electro Fuel Plant

Nordic Electrofuel AS (NEF) and Billington Process Technology AS (BPT) have entered into a collaboration to configure steady state and dynamic simulation models of the complete electro fuel pilot plant (E-fuel 1). The plant is currently under design with planned start-up in 2025 producing synthetic fuels.

The simulator will include all process and control units from the feed stream to product lines. The major units are the syngas reactor system, the alkaline electrolysis and the Fischer Tropsch reactor system. The feed stream is a point source emission from the local ferromagnetic industry in Porsgrunn Norway.

The steady state simulator will be used for mass and energy balance calculations for the entire plant. The dynamic simulator will be used for operational scenarios like startup, shutdown, load changes, abnormal situations, system controllability etc.

UniSim Design is used as the basis for both the steady state and dynamic simulation models, with BPT-SimApps extensions seamlessly integrated with UniSim. This includes fit-for-purpose models of the pressurized electrolysis (BPT-ECX) and high-fidelity reactor models of the Fischer Tropsch system (BPT-FRG). The BPT-FRG will work both in steady state and dynamics mode. In addition, BPT-EXT Excel-add-in will be used for automated simulations runs, extraction of data and easy comparison of steady state and dynamic simulation results.

> "We are delighted with the collaboration with BPT adding significant experience and specialist knowledge to our team", express Gunnar Holen, CEO at Nordic Electrofuel. "We have recognized the value of high-fidelity simulators, among other de-risking the complex process design and system engineering, safeguarding flawless commissioning and plant startup as well as maximizing uptime."
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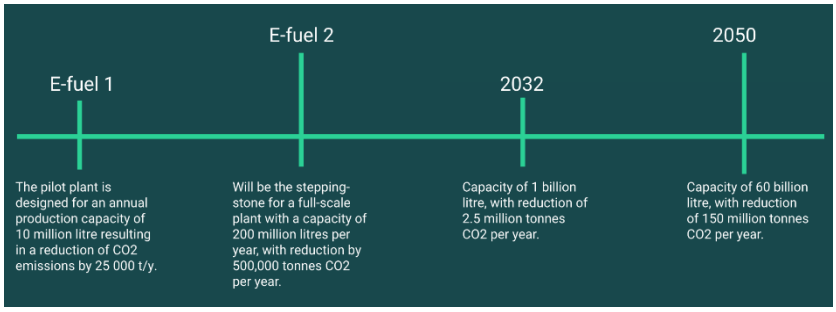
> "Our investments in closing digital technology gaps within key green energy areas are paying off", states a proud Per H. Billington, CEO and Chair at BPT. "Nordic Electrofuel is a perfect partner for BPT, and I am very pleased about the win-win collaboration setup between our teams, as we both share a strong believe in sustainable energy, technology and applied innovation".

The E-fuel 1 plant

NEF's first plant is located at Herøya Industrial Park in Porsgrunn, Norway. The plant is named E-fuel 1 and is designed for a yearly production capacity of 10 million liters of synthetic fuels. This will result in a reduction of the CO2 industrial footprint by 25,000 tons annually. The illustration outline NEF's overall plan for scaling up the production of synthetic fuels.

About Nordic Electrofuel

Nordic Electrofuel (NEF) is a privately held, Norwegian company founded in 2015. NEF's vision is to decarbonize aviation, through a scalable and cost-effective solution. NEF is building a commercial facility for production of high-quality and carbon-neutral synthetic fuels at Herøya in Porsgrunn, Norway. NEF's goal is to decarbonize the hard-to-abate sectors by cutting emissions, making aviation greener and more sustainable.



About Billington Process Technology

Billington Process Technology (BPT) is an independent digital solution, simulator application and service company with Headquarter outside Oslo, Norway. BPT has unique domain knowledge within production and process facilities. BPT are world-class users of process simulators, and among the specialties are compressor design as well as process safety. The BPT-SimApps combine industry-leading process simulators with unique fit-for-purpose unit operations and thermodynamics enabling faster, more detailed, accurate and comprehensive modelling – in all project phases.

BPT's mission is to drive energy companies transforming the existing oil & gas industry to maximized sustainability as well as accelerating the value creation within the wider range of green energy plants and processes. BPT help our partners de-risking investments at an early stage.

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