



TRACTEBEL

ENGIE

Green Hydrogen

Carbon-neutral solution



We are scaling up...

For us, green molecules are key enablers to decarbonize industry, transport and massive energy carriers to trade renewable energy.

We have been providing for several years green hydrogen solutions to industries, utilities and project developers to help them in the execution of their carbon-neutral projects: from renewable energy through green hydrogen to the final use of green molecules. Whether it be as green hydrogen for energy storage, mobility, industry, gaseous or liquefied transport, whether it be as an e-molecule as ammonia, e-methane, or e-methanol, e-kerosene or LOHC.

We have already commissioned small-scale industrial green hydrogen solutions and we now actively work on large utility projects.

Our approach

Optimization of energy solutions in function of regional renewables resources, electrical grid characteristics, energy / molecule demand profile on client side and best available technologies (batteries, gas storage, heat storage, hydrogen, ...).

Full engineering support from project inception, feasibility, tendering to realization based on multi-disciplinary teams with specific green H₂ and e-molecule expertise.

Client benefits

- Optimum leveled cost of hydrogen / e-molecule
- Independent assessment with experience with main electrolyser manufacturers and process licensors
- Support from experts with first-hand experience on all project phases and blocks up to Gigawatt scale

Our added value

- In-depth knowledge in H₂ and energy in general
- Holistic approach in close collaboration with client
- State-of-the-art software for optimizing energy vectors, zero carbon solutions and creating digital twins
- Proven experience with projects reaching FID and commercial operation
- Recognized high voltage expertise ensuring stability of GW-scale grids
- Special focus on H&S in design



Combining best available emerging technologies with proven energy solutions

We valorize our worldwide experience in renewable, gas, power&heat, water and infrastructure to reduce the risks in emerging industrial green hydrogen projects.

Our experts solve problems actively and contribute to boost game-changing green molecule project development.

Digital tools to support H₂ projects development

Hy-Invest

Prosumer

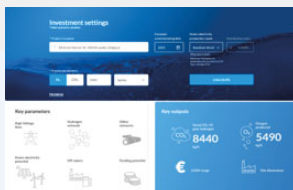
Modelica & PSCAD

Inception

Pre-FEED

FEED

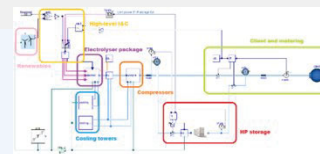
Identify the most promising H₂ projects



Strategic modeling for value chain optimization



Digital twin for dynamic plant modelization



SOME REFERENCES

INDUSTRY

The Netherlands - HyNetherlands, owner's engineer for the development and realization of a green H₂ production

Germany - Owner's Design Engineer for a green H₂ production on a former coal power plant site

INFRASTRUCTURE

Belgium - Engineering and permitting support for development of European backbone for hydrogen and CO₂ transport

France - Feasibility studies and FEED for a demonstrator for hydrogen storage in saline caverns

CHEMICALS

Australia - Yuri Green Ammonia, owner's engineer for ongoing construction of a continuous green H₂ supply via on-site electrolysis

France - Masshylvia Green H₂ site for biorefinery, technical advisor for continuous green H₂ supply via on-site electrolysis

GREEN AMMONIA

Egypt - Technical advisor for green NH₃ and Methanol demo project before upscaling to 4 GW

Chile - Technical advisor for fully integrated 2 GW green NH₃ export project

OFFSHORE

United Kingdom - ERM Dolphyn Floating Offshore Hydrogen, integrator engineer for the demonstrator of a large scale decentralized offshore floating H₂ production

World - Fixed Offshore Hydrogen, R&D for sizeable large scale centralized offshore fixed H₂ production with offshore underground storage

CARBON CAPTURE AND UTILIZATION

France - KerEAUzen, owner' engineer for e-kerosene for aviation based on green H₂ and captured CO₂ from industrial plant

Belgium - Columbus, Basic Engineering and Smart FEED for carbon neutral methane based on green H₂ and captured CO₂ from lime production