HYGRO

hydrogen as primary energy carrier

Hydrogen Consultancy Services

REDEFINING THE ENERGY FUTURE WITH HYDROGEN AS THE PRIMARY ENERGY CARRIER

Who we are

Redefining the energy future with hydrogen as the primary energy carrier

At HYGRO, we have a distinct perspective on hydrogen—focusing on its strengths as a primary energy carrier to fully realize its potential in sustainable energy systems. Rather than following traditional methods, we capitalize on hydrogen's unique benefits in storage, transportation, and energy balancing to develop resilient and cost-effective solutions. Our consultancy services aim to assist organizations globally in moving toward a climate-neutral future by incorporating green hydrogen into renewable energy systems. This strategy allows clients to effectively manage peak energy demands, optimize storage, and lower costs, pushing beyond the limitations of conventional grids.

When it comes to hydrogen infrastructure, pipelines can often be a more economical option than traditional electricity cables, particularly for long-distance energy transport. This method not only cuts down on infrastructure expenses but also offers built-in storage, improving the economic feasibility of renewable energy sources such as wind and solar. Our consulting team empowers clients to strategically utilize these advantages, implementing hydrogen solutions that align with their energy requirements and sustainability objectives.

With a wealth of experience in leading hydrogen projects, HYGRO plays a pivotal role in initiatives like the DUWAAL project—a comprehensive wind-to-hydrogen demonstration in the Netherlands that serves as a model for future developments. Our projects range from targeted efforts like AgriFieldLab, which investigates the integration of hydrogen and renewable energy in sustainable agriculture, to significant undertakings such as SCZone in Egypt, where scalable models like DUWAAL are adapted for wider applications. These initiatives showcase our proficiency in creating adaptable infrastructure that seamlessly connects hydrogen production, storage, and utilization across various scales and sectors.

Through these efforts, HYGRO is advancing hydrogen technology while facilitating a smooth transition for clients to sustainable energy systems with hydrogen at the core.

Our services

Empowering energy innovation

Energy Studies

We deliver customized solutions for integrating renewable energy into your operations, with a focus on practicality and long-term sustainability. Our services include comprehensive feasibility studies, advanced system designs, and detailed financial modeling, all aimed at optimizing the performance and cost-efficiency of your energy systems. Whether you're exploring hydrogen storage, renewable energy sources, or hybrid solutions, we ensure your energy infrastructure is not only efficient but also adaptable to future innovations.

Hydrogen Infrastructure Consulting

With extensive expertise in hydrogen technology, we offer end-to-end consulting services to help you design, implement, and scale hydrogen production, distribution, and storage systems. From initial concept to full deployment, we provide strategic guidance to ensure your operations remain competitive and aligned with the latest developments in hydrogen energy. Our solutions are tailored to meet the unique demands of your business, keeping you ahead in the rapidly evolving clean energy landscape.

Subsidy Consultation

Navigating the complex subsidy landscape, we provide targeted consultation to help you secure financial support for your renewable energy projects. Our services include identifying relevant funding opportunities, developing compelling subsidy applications, and managing compliance throughout the project's lifecycle. With deep knowledge of national and European programs, we guide you in maximizing funding potential, ensuring that financial resources align with your sustainability goals and project timelines.

Energy studies

— Optimizing renewable integration with feasibility, design, and financial expertise —

We deliver customized solutions for integrating renewable energy into your operations, with a focus on practicality and long-term sustainability. Our services include comprehensive feasibility studies, advanced system designs, and detailed financial modeling, all aimed at optimizing the performance and cost-efficiency of your energy systems. Whether you're exploring hydrogen storage, renewable energy sources, or hybrid solutions, we ensure your energy infrastructure is not only efficient but also adaptable to future innovations.

At HYGRO, we deliver tailored energy solutions designed to seamlessly integrate renewable energy into your operations. Our approach emphasizes practicality and long-term sustainability, ensuring that your energy systems are not only optimized for performance and cost-efficiency but also future-proofed to adapt to technological advancements. Our key offerings include:

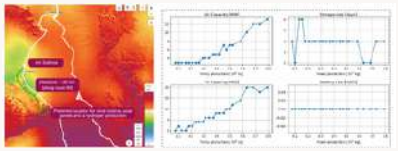
- Feasibility Studies: We assess the viability of integrating renewable energy into your specific operations, identifying the best opportunities for cost savings, emissions reduction, and energy efficiency.
- System Design: We develop advanced system designs tailored to your energy needs, balancing renewable energy sources, hydrogen storage, and other infrastructure to create a seamless, resilient energy system.
- Financial Modeling: We provide detailed financial models that assess the return on investment, long-term savings, and operational costs of implementing renewable energy solutions, ensuring your transition is both economically and environmentally sound.

Case Studies

Case Study 1: DUWAAL Project – Hydrogen Integration from Wind to Truck

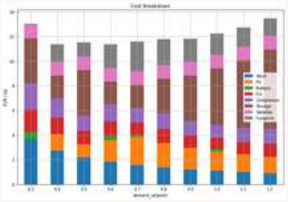
The DUWAAL project demonstrates HYGRO's expertise in designing an integrated hydrogen supply chain. We conducted a detailed energy study to assess the potential of using wind-generated hydrogen to fuel heavy-duty trucks. Our team performed feasibility studies, designed the infrastructure, and developed financial models that confirmed the project's profitability. The result was a highly efficient system that connects a 5 MW wind turbine to an electrolyser, producing hydrogen stored in high-pressure iBundles, and distributed to refueling stations for trucks.

With DUWAAL as a blueprint for efficient, scalable hydrogen infrastructure, we are expanding this model to the SCZone in Egypt, contributing advanced hydrogen solutions to international markets and accelerating the global shift to clean energy.



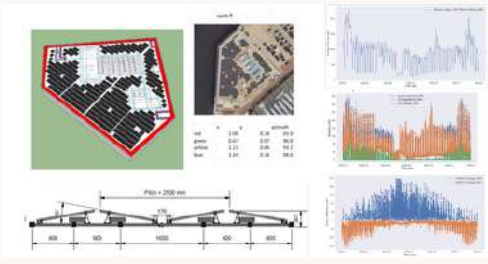
Case Study 2: Renewable Energy Optimization at AgriFieldLab

In partnership with the AgriFieldLab project, we helped transform agricultural operations into sustainable energy hubs by integrating renewable energy systems, including solar and hydrogen. Our energy studies focused on maximizing energy generation while minimizing costs. By implementing hydrogen storage solutions, we enabled the farm to store excess energy and convert it into hydrogen for machinery use. The project demonstrated how hydrogen can be an effective alternative to traditional diesel in agricultural settings, significantly reducing operational costs and emissions.



Case Study 3: Hydrogen-Powered Office – A Self-Sustaining Energy Model

Our own headquarters serves as a showcase of our capabilities. Through a comprehensive energy study, we designed a fully self-sustaining office powered entirely by hydrogen and renewable energy sources. This project included the integration of a solar power system with hydrogen storage, which provides 24/7 energy independence. The study confirmed the financial and environmental benefits of self-sufficiency, serving as a model for businesses looking to reduce their carbon footprint and energy costs.



Hydrogen infrastructure

Designing scalable systems for production, distribution, and storage

At HYGRO, we are leaders in hydrogen technology, providing comprehensive consulting services to design, implement, and scale hydrogen infrastructure tailored to your business needs. Whether you're looking to integrate hydrogen into existing operations or build a robust hydrogen supply chain from scratch, our team of experts offers strategic, end-to-end support. Our focus is to ensure that your hydrogen production, distribution, and storage systems are optimized for efficiency, scalability, and sustainability.

Our key offerings Include:

- Hydrogen production design: We help you develop efficient hydrogen production systems, whether through electrolysis or renewable energy integration, ensuring your system is both scalable and future-proof.
- Distribution networks: We design innovative distribution systems, including pipelines and high-pressure storage solutions, to transport hydrogen safely and cost-effectively to end-users.
- Storage solutions: We offer expertise in hydrogen storage technologies, such as high-pressure systems and modular iBundles, to ensure your hydrogen supply remains flexible and reliable.

Case Studies

Case Study 1: DUWAAL Project – Integrated hydrogen Infrastructure from production to mobility

The DUWAAL project exemplifies HYGRO's capabilities in building large-scale hydrogen infrastructure. We designed and implemented an end-to-end hydrogen system that includes a 5 MW electrolyser powered by wind energy, high-pressure hydrogen storage using iBundles, and a distribution network that serves multiple refueling stations for heavy-duty vehicles. Our consulting services covered everything from the technical design of the infrastructure to securing government grants and subsidies, positioning the project for long-term success. The system showcases how hydrogen can be a cost-competitive alternative to diesel for transportation.

Case Study 2: Hydrogen pipeline integration at DUWAAL hub project

Through the DUWAAL project, supported by a subsidy from Provincie Noord-Holland, HYGRO integrates hydrogen infrastructure with renewable wind energy to advance clean mobility. This initiative features a 5 km pipeline connecting the Wieringermeer wind farm to a central hub along the A7, where high-pressure iBundles are filled for efficient hydrogen distribution to satellite refueling stations. This pipeline infrastructure exemplifies HYGRO’s commitment to sustainable, scalable hydrogen solutions that reduce diesel dependence and foster a regionally integrated renewable energy network.

Case Study 3: Building demand through Hydrogen-Powered infrastructure – H2-Powergen

At HYGRO, our approach to infrastructure consulting includes not only advancing the hydrogen supply chain but also driving demand by developing practical hydrogen applications. With support from the SSEB subsidy, we are creating the H2-Powergen, a mobile hydrogen-powered generator tailored for off-grid construction sites. Designed to work with our flexible iBundle storage and distribution system, this infrastructure provides a scalable, clean alternative to diesel generators. Through these innovations, we consult on comprehensive hydrogen infrastructure solutions that address both supply and demand, fostering a sustainable and balanced hydrogen economy.

Why choose HYGRO for hydrogen infrastructure?

- Innovation & adaptability: We are at the forefront of hydrogen technology, continuously innovating to provide the most efficient and scalable solutions for hydrogen production, distribution, and storage.
- Comprehensive expertise: From concept to completion, our team guides you through every phase of your hydrogen infrastructure development, ensuring seamless integration and long-term viability.
- Proven success: Our track record with large-scale projects like DUWAAL highlights our ability to deliver hydrogen infrastructure that is both environmentally sustainable and economically viable.

Subsidy consultation

Simplifying access to funding for renewable energy projects

Navigating the complex landscape of government subsidies and grants can be challenging, especially in the rapidly evolving renewable energy and hydrogen sectors. At HYGRO, we provide specialized subsidy consultation services to help you identify, secure, and manage funding opportunities that align with your project goals. With a deep understanding of national and European subsidy programs, we support your projects from initial planning through successful execution, ensuring financial support for innovative and sustainable energy solutions.

Our subsidy consultation services include:

Funding Identification: We analyze your project requirements and identify the most relevant subsidies, grants, and financial incentives that maximize your budget potential.
Application Development: Our team has extensive experience in drafting and refining applications for subsidy programs, ensuring they meet all requirements and clearly demonstrate your project's value.
Project Management & Compliance: We provide end-to-end support in managing awarded subsidies, including reporting, budgeting, and compliance, ensuring you meet all regulatory and financial obligations.

Case studies

Case study 1: DUWAAL Project – DEI+ Subsidy for hydrogen infrastructure

For the DUWAAL project, HYGRO secured substantial funding through the DEI+ (Demonstratie Energie- en Klimaatinnovatie) program. We managed the application process from start to finish, showcasing the project's potential to contribute to CO_2 reduction and energy innovation in mobility. The awarded subsidy enabled the implementation of the hydrogen production, storage, and distribution system. Our ongoing management of the DEI+ funding ensures compliance, financial oversight, and transparency, enabling a successful roll-out and long-term sustainability.

Case Study 2: North-Holland pipeline project – Regional support and innovation funding

To support a 5 km hydrogen pipeline connecting a wind farm to a hydrogen refueling hub, HYGRO successfully obtained funding from regional and innovation-focused subsidies. Our subsidy consultation services included preparing feasibility analyses, cost projections, and demonstrating the project's economic and environmental benefits to secure both government and regional funds. This funding was instrumental in expanding hydrogen infrastructure in North-Holland and positioned the project as a model for regional collaboration on renewable energy.

Case Study 3: H2-Powergen and iBundle System – SSEB Subsidy for clean construction energy

HYGRO is developing the H2-powergen in synergy with our iBundle high-pressure storage system, creating a mobile, hydrogen-powered generator solution for off-grid and construction sites. By securing the SSEB (Subsidie Schoon en Emissieloos Bouwen) subsidy, we enabled the deployment of this clean, scalable power source as a sustainable alternative to diesel generators. Our subsidy consultation team managed the application and demonstrated the environmental impact of hydrogen, making this solution feasible and affordable for construction projects.

Why choose HYGRO for subsidy consultation?

- Extensive knowledge of funding programs: Our deep understanding of both national and European subsidy landscapes allows us to pinpoint the best funding opportunities for your projects.
- Successful track record: We have consistently secured high-impact subsidies, from DEI+ grants to regional support, ensuring our projects are well-funded and compliant with regulatory standards.
- Seamless end-to-end support: Our team manages every aspect of the subsidy process, from application development to ongoing compliance, allowing you to focus on innovation and growth.

Why choose HYGRO?

Delivering expertise and innovation in hydrogen solutions

Expertise in hydrogen solutions

HYGRO stands at the forefront of hydrogen innovation, with extensive hands-on experience in pioneering projects like the DUWAAL initiative, which integrates hydrogen from wind turbines to transport. Our work spans the entire hydrogen value chain—from production to end-use—allowing us to provide actionable insights and strategies that accelerate your energy transition. We've also driven projects that transform industries, such as agricultural farms, into hydrogen-powered, sustainable operations.

Comprehensive, end-to-end approach

We offer more than just technical solutions; we provide holistic, start-to-finish support tailored to your needs. From conducting feasibility studies and designing cutting-edge hydrogen infrastructure to maximizing subsidy opportunities, we ensure that every stage of your project is meticulously planned and executed for optimal impact.

Proven success and reliability

Our track record speaks for itself. With large-scale hydrogen ventures like the DUWAAL project and the creation of our self-sufficient, hydrogen-powered office, we have consistently delivered results that are both environmentally sustainable and financially viable. Choosing HYGRO ensures that your transition to clean energy will be smooth, efficient, and profitable.

Let’s drive the future of energy together

Interested in discovering how HYGRO can support your energy transition? Contact us today to discuss how our consultancy services can help you succeed in implementing sustainable and hydrogen-based energy solutions.

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