Norwegian
Hydrogen Forum

The Norwegian

Hydrogen Guide

2026 | 02

Located in the UNESCO World Heritage Geirangerfjord, Hellesylt Hydrogen Hub, owned and operated by Norwegian Hydrogen, is a production facility and pioneering ecosystem for green hydrogen. It is also the site of the very first Vireon refueling station. The hub supports the transition to zero-emission solutions across several customer segments.

Photo: Norwegian Hydrogen

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The Secretariat of Norwegian Hydrogen Forum. From left: Tor Kristian Haldorsen, Ingebjørg Telnes Wilhelmsen, Lin April Løstegård, Marika Nilsen, Jan Carsten Gjerløw.

Norwegian Hydrogen Forum

Norwegian Hydrogen Forum (NHF) was founded in 1996 as a non-profit member organisation that promotes the advantages of hydrogen and hydrogen-based products such as ammonia and methanol. Our approximately 100 members include Norwegian producers, distributors, industry, universities, research institutes, companies in the transportation sector, consulting firms and other organisations related to hydrogen.

NHF works actively to disseminate key information in Norway on hydrogen research and technology commercialisation, market trends and international policy making. Updates are provided by publishing newsletters and posting news on www.hydrogen.no.

The basis on which NHF was founded is the important role of hydrogen for decarbonisation of hard-to-abate sectors. Building on existing industrial expertise from offshore oil and gas, renewable energy, maritime and process industry, Norway positions itself to maintain its role as an energy and industry nation in the low-emission society.

NHF is convinced that one of the best ways to serve our members is to contribute to the establishment of a substantial market for hydrogen technologies both in Norway and internationally. To fulfil this ambition, NHF actively promotes our members' interests towards public authorities and policy decision makers.

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Norwegian Hydrogen Forum

Hydrogen and politics

Hydrogen is an energy carrier that can be produced from all energy sources, including natural gas and renewable energy, both of which Norway has in abundance. Due to a rapidly increasing share of intermittent energy sources in the energy system, like solar and wind power, there has been a substantial increase in the interest in hydrogen, both to decarbonise and to enhance the flexibility in the energy system. To accommodate and facilitate for the needed growth, the Norwegian government must take an active part. It is NHF ́s ambition to be a constructive partner for the authorities on this matter.

The first National hydrogen strategy was launched in 2005 by the Ministries of Petroleum and Energy, and the Ministry of Transport and Communications. In June 2020, the government presented a new Norwegian Hydrogen Strategy, and in June 2021 they followed up with a roadmap. The roadmap was part of the White Paper "Value creation from Norwegian Energy Recourses". The White Paper states that Norway's position as an energy nation will be further developed through new initiatives such as hydrogen, offshore wind, strengthening of the grid and low emission oil and gas sector.

The Labour government has stated that it will contribute to developing a coherent value chain for hydrogen produced with low or no emissions, where production, distribution and use are developed in parallel.

Norway and the EU have ratified the international Paris Agreement on climate change, and have committed to a target of 90-95 percent reduction of greenhouse gas emissions by 2050 compared to 1990 levels.

The use of hydrogen and hydrogen-based fuels is important to reach the goals, but we must act now. This is why NHF is working hard to facilitate the development of the Norwegian hydrogen industry, together with our members and international partners. Together we must ensure a sustainable development where hydrogen will contribute significally to the reduction of CO_2 emissions.

The County Network

The County Network is a cooperation between counties and municipalities in Norway. The main goal is to develop well-functioning value chains for hydrogen throughout the country. NHF is the secretariat for the network.

Regional authorities play an important role in the work of phasing out fossil fuels and facilitating the deployment of low- and zero-emission solutions. Over the past few years, the authorities and the industry have increased their attention to hydrogen. Several projects and initiatives have been initiated all over the country, presenting both challenges and opportunities to counties and municipalities at a political and administrative level. Local authorities play an important role in facilitating this development, utilizing energy resources, creating green jobs, and reducing greenhouse gas emissions.

The County Network aims to:

1. Increase hydrogen competence in counties and municipalities
2. Provide input to regional and local action plans and strategies
3. Act as a discussion partner in NHF's preparation of input for public consultations
4. Work for improved national framework conditions that are of particular importance to municipalities and counties
5. Facilitate cooperation between the participants by sharing experiences and coordinating activities

Figure: Participants of the County Network

Herøya in Telemark is one of the largest industry areas in Norway, and has established a local hydrogen network.

The city of Trondheim aims to play a vital role in the hydrogen value chain and intends to enhance the establishment of a robust regional infrastructure for renewable and fossil-free fuels including hydrogen. Europe's first hydrogen trucks are operated by ASKO Midt-Norge, located in Trondheim.

→

Finnmark County has adopted a hydrogen strategy and intend to utilise the natural advantages for the production of hydrogen, both from natural gas and wind power.
The EU project Haeoulus operates a new-generation electrolyser integrated within a state-of-the-art wind farm in a remote area with access to a weak power grid, located at Raggovidda in Finnmark.

←

The Vestfjorden Ferries operating the route between Bodø and the Lofoten islands will use hydrogen from 2026. The city of Bodø is the regional capital of Nordland county and a center for logistics and transports. The goal is to realize zero-emission transport systems within the next decades. Hydrogen is expected to play a key role in this ambition.

The Nordic Hydrogen Partnership

Nordic Hydrogen Partnership (NHP) is a collaboration between the Nordic hydrogen associations. The partners are Norsk Hydrogenforum in Norway, Vätgass Sverige in Sweden, Brintbranchen in Denmark, VTT Technical Research Center of Finland and Icelandic New Energy in Iceland. NHP is a communication platform for the Nordic countries and boosts cross-sector implementation of hydrogen and fuel cell technologies in the Nordics, in close cooperation with several industry representatives.

The Nordic Hydrogen Partnership was established in 2006, when the different Nordic hydrogen organisations joined forces to coordinate the market introduction of hydrogen cars and HRSs to the Nordic market. The Nordic Hydrogen Partnership was originally called Scandinavian Hydrogen Highway Partnership (SHHP), but this name was changed by the end of 2020 to accommodate the broadened scope of the organisation.

Next Wave (2019-) is an initiative established through the Nordic Hydrogen Partnership. The goal is to further promote the Nordic technological lead globally by stimulating the very first hydrogen infrastructure roll-out for larger vehicles. In its fourth phase, the project will increase the efforts to enable zero emission tradelines and look further into bunkering and ports. Furthermore, the process of getting heavy-duty hydrogen vehicles rolling on Nordic roads will continue. The other partners in the project, togheter with NHP, are Evig Grønn, GreenH, Vireon and TEKY, as well as the associated partners Blær, Hy2Gen, Port of Hirtshals, Port of Reykjavik, Port of Trelleborg, Samskip, Sintef and Swagelok.


VÄTGAS
SVERIGE

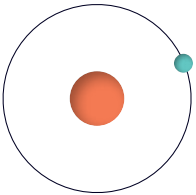

Brintbranchen
HYDROGEN DENMARK


VTT


ÍSLENSK
NÝORKA ehf
ICELANDIC NEW ENERGY Ltd.


Norwegian
Hydrogen Forum

What is hydrogen?



The name hydrogen is derived from the Greek words for water (hydro) and former (genes). Hydrogen (H) has atomic number 1 and is the lightest element of the periodic table. The most common isotope of hydrogen consists of one proton and one electron. Hydrogen is estimated to be the most common element in the universe and, despite its lightness, makes up three quarters of the mass of the universe.

On Earth, the hydrogen atom mostly appears as part of the water molecule, H_2O. Hydrogen is also a part of many other substances, for instance in hydrocarbons, carbohydrates, and ammonia (NH_3).

Hydrogen is an energy carrier and must therefore be produced from energy resources. The most used production methods are electrolysis and reforming of fossil energy e.g., natural gas. When hydrogen is produced from renewable energy, it is categorised as renewable hydrogen, and when generated from gas reforming with Carbon Capture and Storage (CCS) or Carbon Capture Usage and Storage (CCUS), it is known as low carbon hydrogen. Both are categorised as clean energy carriers and when utilised in a Fuel Cell, the only emissions are clean water and heat.

SINTEF is a leading R&D and innovation actor in Europe within hydrogen technologies, with more than 30 years' experience and significant activities.

Almost a hundred years of large-scale hydrogen production

In Norway, Norsk Hydro has produced and utilised hydrogen in large-scale fertiliser production since 1927. Their electrolysis technology is being further developed and supplied by Nel Hydrogen. Norsk Hydro, Statkraft and Statoil (now Equinor), together with Raufoss Fuel Systems (now Hexagon Purus) and Norwegian research institutions, brought hydrogen from the industrial and research stage to the public refueling arena in the beginning of 2000 when the HyNor-project was established to demonstrate hydrogen as an alternative fuel for passenger cars. Some hydrogen refueling stations were established through public and private investments.

Norwegian companies, research institutes and universities have over the last decades developed strong competence and long experience within hydrogen technologies. New companies along the entire value chain from hydrogen production and distribution to end-use and system integration are being established, developing competence, experience, products and solutions. Today, both new and established companies are heavily engaging in hydrogen, either as a segment of their business or as their core business. New initiatives and projects have increased over the past few years, leading to increased public awareness that is likely to boost a nationwide deployment of hydrogen solutions in the coming years.

With a 98 percent of renewables share in Norwegian power production and an increasing exploitation of small-scale run of river hydropower, as well as solar and wind power, the need for grid balancing and energy buffering is increasing. The growing hydrogen infrastructure could play a crucial role in meeting these challenges and contribute to meeting the ambitious climate targets. Regional authorities and public financial support agencies have for many years supported the development of hydrogen technologies. Lately, large industrial players are investing in scaling up and deploying hydrogen for emission reduction in industry as well as in road and maritime transport.

The Norwegian Hydrogen Forum (NHF) is facilitating further development of these skills and capabilities so that Norwegian stakeholders can maintain their pioneering role and take an adequate share in the growing global market for hydrogen technologies. NHF aims to be a visible actor in the hydrogen community in Norway and abroad and has an important coordinating and facilitating role in fostering this growing industry.

Meråker Smelter, 1957

Members

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Aibel AS

Aibel builds, modifies, and maintains critical infrastructure for the energy industry. As an established service company in the energy sector, we design, engineer, construct and deliver quality projects for the renewable energy transition, with a strong position and key offerings within Offshore Wind and onshore / offshore Hydrogen.

Through concept studies and Front End engineering studies, Aibel reveals opportunities and works closely with customers to find the optimum solution for their hydrogen project, and develops a plan for safe execution and delivery of Hydrogen process plants. We are a system integrator, focused on technical safety, selection of technologies to optimize the process design, construction, installation, and commissioning.

Aibel has a competent and experienced team that has developed Hydrogen projects. Through a technology agnostic approach, we are able to work closely with a range of different technologies for onshore and offshore Hydrogen production, including large volume storage.

Aibel has a track record delivering cost effective projects safely and on time.

aibel.com

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Air Liquide Norway AS

Air Liquide (AL) is the world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with approximately 65,000 employees and serves more than 3.5 million customers and patients. Oxygen, nitrogen and hydrogen are essential small molecules for life, matter and energy. They embody Air Liquide's scientific territory and have been at the core of the company's activities since its creation in 1902.

Regarding hydrogen, the company is present in the entire hydrogen production chain from hydrogen production, storage, transportation and delivery to end users. AL currently produces more than 1 million tons of H_2 per year for steel, glass, chemical, food industries and mainly for refineries. The Group operates a large distribution network, which includes gaseous tube trailers, liquid trailers, cylinders and bundles but also the largest European hydrogen pipeline network. Air Liquide also designs and operates hydrogen fuelling stations in Europe, North America and Asia and has been actively involved in R&D projects aiming to strengthen the safe usage of hydrogen in a hydrogen based economy.

Air Liquide

airliquide.com/hydrogen

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Akershus Energi Infrastruktur AS

Akershus Energi is an energy company for renewable energy and green infrastructure. We are invested in renewable sources such as hydro-power, district heating, solar and wind.

Our ambition in hydrogen is to contribute to the decarbonization of transport sector in our region through industrial scale hydrogen production. We aim for integration of hydrogen production in the energy system for utilization of flexibility and waste heat to increase competitiveness of hydrogen.

Akershus Energi mainly do development and business together with partners. We do our development of industrial project within the hydrogen business through our partnership in Viken Hydrogen AS.

Akershus energi

akershusenergi.no

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Alfa Laval Nordic Oy

Decarbonization is one of the most complex challenges of our time. Alfa Laval has developed a wide range of advanced heat transfer and separation technologies that are already being used to enable the transition to a cleaner energy future. Working in close collaboration with our customers and partners, we are accelerating the transformation of our energy infrastructure to advance sustainable energy solutions from green hydrogen, Power-to-X, fuel cells and energy storage to biofuels, carbon capture utilization and storage, and much more.

Alfa Laval offers the widest range of energy efficient heat exchangers for hydrogen production, distribution, transportation, storage, and use. After 90 years perfecting our proven technologies, Alfa Laval is the partner for all kinds of heating and cooling applications across the hydrogen economy, supporting the industry as it scales up and accelerates the energy transition.

The combination of Alfa Laval's heat transfer expertise and global manufacturing capabilities make us the right partner in everything from energy efficient electrolyzer cooling, balancing-of-plant, and freshwater generation to fuel cell development and dispenser pre-cooling in refueling stations.

alfalaval.com

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Applied Hydrogen AS

Enabling emission free construction sites. We provide conversion kits for excavators to replace diesel engines with Fuel Cell based Hydrogen Power sources.

We also build portable hydrogen filling units for off-grid filling in construction sites.

A cloud-based fleet management system is used to control the hydrogen value chain for production site to delivery to excavators.

appliedhydrogen.no

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ASKO

ASKO is a family-owned company established in 1866. As Norway's largest grocery retailer, our core business is to supply customers all over Norway with food. With our 800 trucks on the road every day, we have a very strong focus on sustainable solutions. Our ambition is to be zero emission in all transport within 2026, and we see hydrogen as an important ingredient to reach that. ASKO already has our own hydrogen production, hydrogen forklifts and heavy-duty hydrogen trucks in operation.

ASKO

asko.no

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AUMA Riester GmbH Co. KG

AUMA develops and produces smart electrical actuator with device diagnostic capabilities to operate all kind of valves in applications for distribution, storage and hydrogen production including all relevant auxiliary processes like for nitrogen purge and cooling systems. The product range covers from 10Nm up to 675.000Nm and runs linear, part-turn and multiturn with the required EX IIC for all critical hydrogen applications. In case of functional safety SIL2 or for harsh environmental C5 corrosion protection, AUMA's portfolio can comply with all customer needs.

Holistic benefits of AUMA's electrical actuator

- Valve positioning with variable speed enables precise process control. With adjustable smooth open/closure velocity a process can run based on each customer needs and the lifetime of valves can extended.
- The electrical actuator does not have any CO_2 footprint in operation process. Therewith AUMA participate with its solution to reduce GHG emission through its lifecycle.
- With an easy-2-use management system, customer obtains a smart tool to ensure predictive maintenance & condition monitoring based on the data gained out of integrated sensors and smart algorithms.
- Low standby power and low energy consumption optimizes variable cost. Furthermore high durability and robust design ensures a reliable solution over lifetime (OPEX optimization)
- Advantages due to broad connectivity capabilities

auma®
Solutions for a world in motion

auma.com

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Bilimportørenes Landsforening

Bilimportørenes Landsforening (BIL) is the Norwegian Association of Car Importers representing the international car industry in Norway.

BIL is a member of NHF (The Norwegian Hydrogen Forum) as we recognize their important role in this growing industry. The process of commercializing the hydrogen technology for vehicles is in progress, and we see huge possibilities in joining forces working for a cleaner global environment.

There are already several vehicles containing this technology on Norwegian roads, and we expect the number to grow for the years to come.

BIL is continuously working towards the authorities. We are glad to see that the Norwegian government now is quite ambitious to provide infrastructure for hydrogen road and sea transportation.

BILIMPORTØRENES LANDSFORENING

bilimportorene.no

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Billington Process Technology (BPT)

Based on unique process domain and advanced simulation expertise gained over decades, BPT is the default partner in any green energy concept or projects. Energy companies, plant designers, equipment vendors and investors typically involve BPT at an early stage during concept design to validate and de-risk the process and energy systems involved. BPT has in-depth knowledge and experience in developing and enhancing the process simulator unit operations, processes and thermodynamic properties.

We are experts in configuring plant-specific simulators for new energy processing facilities used during the whole lifecycle from early design, throughout commissioning and startup as well as in daily operation of the plant. These simulators embed high-fidelity unit operations like electrolysis and reactors being fit-for-purpose for accurate dynamic simulation of various scenarios like startup, shutdown, load changes, abnormal situations, etc.

Some of the green energy facilities we are engaged with:

- Hydrogen
- Ammonia
- E-Fuels
- Methanol
- Biofuels
- Cryogenic Air Separation
- Direct Air Separation
- Concentrated Solar Power
- Carbon Capture, Storage and Utilization

www.bpt.no / www.greentwins.no

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Bürkert Norway AS

MEASURING, CONTROLLING, REGULATING

Hydrogen applications with BÜRKERT

- We are here for you from development to large-scale production- for a rapid time-to-market for your systems
- With our products and customized components, you will optimize the efficiency of your hydrogen application and lay the foundations for low maintenance operation.
- Approved, application-compliant products ensure maximum safety, today and in the future.

bürkert
FLUID CONTROL SYSTEMS

burkert.no

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Ceramic Powder Technology AS

Cerpotech (Ceramic Powder Technology AS) is developing and manufacturing high quality advanced ceramic oxides for a broad range of applications. Application areas are within environmental technologies, energy and electro ceramics. Powder for lead free piezo, membranes for various technology areas, solid oxide fuel or electrolyzes cells and batteries by use of spray pyrolysis. The manufacturing method spray pyrolysis is very flexible and robust and are also very reproducible and easy to scale up as it semi continuous. Cerpotech specializes in the manufacturing of multicomponent oxide powders according to the customers' specifications regarding composition and powder morphology. In addition to commercial sales to industry and R&D-purposes, Cerpotech is partner in national and EU funded R&D projects.

Cerpotech as a spin off from NTNU from 2007 have in 2013 established an industrial size manufacturing line located at Tiller, just outside the city center of Trondheim. The company have customers worldwide within a broad range of market areas from basic R&D to commercial products.

Cerpotech

cerpotech.com

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Corvus Energy

Corvus Energy is the world's leading supplier of safe, innovative and reliable zero-emission solutions for all segments in the maritime industry.

We design and manufacture marine approved fuel cell and energy storage systems. Corvus have a close collaboration with Toyota, a global leader in the production of PEM fuel cells for the land based industry. Leveraging our extensive marine expertise, we seamlessly integrate Toyota's cutting-edge technology to produce the inherently gas-safe marine Corvus Pelican fuel cell system.

Corvus was founded in 2009 and are today the largest supplier of marine energy storage systems worldwide, supporting the decarbonization of the marine industry with fuel savings equivalent to millions of kg of CO_2 every year.

On top of our fuel cell and battery system offerings we deliver advanced digital services to support the ship owners, crew, ship designers and integrators to implement and use the combination of our fuel cell and batteries in the most efficient way.

In 2024 the Corvus Pelican will be receiving marine Type Approval from DNV and the first installation starts its operation onboard the fishing training vessel MS Skulebas.

Corvus Energy

corvusenergy.com

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Delta-p

Delta-p, Pumpe og Kompressor Systemer AS

Delta-p is an engineering company acting as a link between EPCs and upstream suppliers. The company specializes in the design, engineering, and integration of complex process, pump, and compressor systems, including auxiliaries, control systems, and skid-mounted equipment. Delta-p also provides lifecycle support for industrial fluid and gas handling systems.

Within the hydrogen-related sector, Delta-p's core contribution is the delivery of reliable stationary systems for industrial hydrogen applications. The company provides engineering, procurement, assembly, testing, commissioning, and aftermarket services, enabling customers to deploy safe and efficient process systems in demanding environments.

With more than 20 years of experience in the offshore, marine, and industrial energy sectors, Delta-p has a strong foundation for supporting hydrogen infrastructure and related process applications.

delta-p.no

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DNV AS

DNV is a leading, independent advisor and verifier covering “all colors” of hydrogen and full value chains with a global operation. Core industries that DNV serve are maritime, offshore, pipeline, as well as land-based industrial hydrogen (smelters and ammonia production) and hydrogen for land-based transport.

Core services within advisory is safety assessments, HAZID’s, experiments, Joint Industry Projects, and R&D related to hydrogen safety with a world leading large scale explosion test facility at Spadeadam, UK. Analyses also includes new technologies and value chains for renewables and hydrogen carriers, life cycle analysis and GHG footprint including forecasting and advisory regarding long-term hydrogen development.

DNV Maritime Class is pioneering developments with hydrogen and ammonia as fuel for ships and on carriers, including rule developments, handbooks, guidelines and standardization.

DNV

dnv.com

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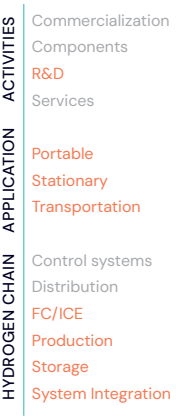
Equinor ASA

Equinor is an international energy company present in more than 30 countries worldwide, including several of the world's most important oil and gas provinces. Founded in 1972 under the name Den Norske Stats Oljeselskap AS – Statoil (the Norwegian State Oil company), we changed our name to Equinor in 2018.

Our headquarters are in Stavanger, Norway, and we have over 21,000 employees committed to providing affordable energy for societies worldwide and taking a leading role in the energy transition. We're on a journey to net zero emissions through optimising our oil and gas portfolio, accelerating growth in renewables and pioneering developments in carbon capture and hydrogen.

equinor

equinor.com



The Norwegian Defence Research Establishment (FFI)

FFI is the prime institution responsible for defence-related research in Norway and is the chief adviser on defence-related science and technology to the Ministry of Defence and the Norwegian Armed Forces' military organization.

Hydrogen and fuel cell activities at FFI have mainly focused on power systems for underwater applications, especially for the autonomous underwater vehicle HUGIN. FFI has developed a sea water battery, an aluminium/hydrogen peroxide semi-fuel cell and a PEM fuel cell system for this purpose. Fuel cells and hydrogen are also a relevant technology for Norway's new submarines, which will be delivered from 2029 and onward. On this basis, FFI is investigating fuel cell systems used for air-independent propulsion on submarines, including hydrogen storage in metal hydride containers. Production and storage of hydrogen is also a relevant technology segment due to this application.

Reforming of liquid fuels to hydrogen is an important field for FFI due to the military community's interest in power generation from military fuel (kerosene/JP-8). FFI has investigated available auxiliary power units based on diesel reforming and fuel cells for use on military vehicles. FFI also tests commercially available fuel cell systems for soldiers.

FFI Forsvarets forskningsinstitutt

ffi.no

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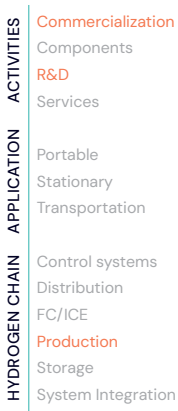
Forbundet Styrke

Forbundet Styrke is a national union under the trade union confederacy LO. We have 80,000 members across the oil, gas, land-based industries, management, and technical sectors. Forbundet Styrke is the largest union in some of the largest Norwegian companies like Equinor, Hydro, Yara, and Ekornes. Forbundet Styrke has organized workers in hydrogen production in Norway since Norsk Hydro started hydrogen production in 1927. We continue to organize the operators working in present-day hydrogen companies. Our policy is that hydrogen and ammonia are critical to making the necessary steps toward a green future, both to transform the petroleum sector and to reach the next milestones in making our other sectors climate-neutral and carbon-negative.

Forbundet Styrke is working actively towards policymakers and the government to ensure that hydrogen gets the necessary framework to be competitive in Norway on a global scale. We do this in the culture for collaboration and teamwork that we call «The Norwegian model», where the government, the representatives of the workers, and the companies work together.

STYRKE

styrke.no



Fortescue Future Industries

Fortescue Future Industries (FFI) is a global green energy company committed to producing green hydrogen, containing zero carbon, from 100 per cent renewable sources. FFI is a subsidiary of the Australian company Fortescue Metals Group (one of the world´s largest iron ore companies). We are decarbonising heavy industry and creating jobs globally. FFI is developing technology solutions for hard-to-decarbonise industries, while building a global portfolio of renewable energy, green hydrogen and green ammonia projects. FFI is also leading the world effort to decarbonise hard-to-abate sectors and is responsible for the proposed decarbonisation of one of the biggest resources companies in the world by 2030 – our parent company Fortescue Metals Group.

FFI has offices in all continents are developing some key regions of focus. Norway is an important location for FFI as we see an attractive potential to develop large scale green hydrogen projects. FFI recently announced the green ammonia project in Holmaneset in Bremanger municipality where we shall production in 2027 based on 300 MW capacity. FFI will continue to develop more projects and opportunities in Norway and look to become and integrated part of the industry.

Fortescue

ffi.com.au

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FUELLA
FUTURE OF FUEL

Fuella AS

Fuella is an independent development company of green ammonia projects in Norway.

At our facilities, we will produce green hydrogen trough electrolysis and immediately convert it to ammonia by means of the Haber-Bosch process. This green ammonia is an excellent hydrogen carrier, as it has favorable storage and safety properties compared to pure hydrogen. Furthermore, Ammonia is already today a globally traded and transported good. The technologies for transportation and storage, as well as the regulations for handling and safety, are available and well proven.

We are committed to significantly reduce production cost of green ammonia and thereby facilitate an increasing decarbonization in different industrial sectors such as shipping, fertilizer and offshore power generation.

Our projects are scheduled to deliver increasing quantities of green ammonia over time. Starting with 100'000 t in 2025 and subsequently expand production by 100'000 t/year in 2026 and 2027 respectively, with further expansion potential at each of our locations.

fuella.no

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

Gen2 Energy

Gen2 Energy is preparing for large-scale production, sale and distribution of green H_2 produced in Norway from hydro power.

Gen2 Energy is planning green hydrogen production at Nesbruket and Holandsvika in Mosjøen and at Monstad in Åfjord.

Both compressed and liquified hydrogen and hydrogen derivates are within the planning scope of Gen2 Energy.

In the first phase the hydrogen will be distributed to off-takers in Western Europa as Germany, the Netherland and UK. The hydrogen will either be filled and stored in compressed containers or liquid containers and transported by rail and/or vessels. Liquid bulk transportation by vessel is also an option.

G2E have 21 employees with offices in Oslo, Horten and Mosjøen. The staff is highly competent within hydrogen relevant areas.

Gen2 Energy

gen2energy.com

ACTIVITIES
Commercialization
Components
R&D
Services

APPLICATION
Portable
Stationary
Transportation

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

Glocal Green

Glocal Green is an emerging producer and distributor of bio-e-methanol and related derivatives. Our production technology is based on gasification of forest residues, plus further boosting with hydrogen to secure maximum carbon efficiency and productivity.

Glocal Green has established a collaboration and technology agreement with Luleå Technical University (LTU), which secures access to and exclusive commercial use of LTU's background knowledge and experience from decades of R&D in gasification of biomass. In accordance with the agreement, LTU´s existing 3MW /1.200 tons per year development plant in Piteå, Sweden, will be used for further conceptual development. Glocal Green has secured all future IPR being developed by the parties.

The forest residues offers an abundant EU RED III compliant resource base in the Nordic countries and other regions. Other organic resources, e.g. fish farming waste, might provide additional cost-efficient resources in the future.

Glocal Green has secured a site and feedstock for the planned first full-scale plant in Øyer, Norway, for 150.000 tons yearly. The start of production is expected in 2029.

We are targeting marine fuel and industrial applications including hydrogen derivatives like Bio-DME, and green methanol to SAF for aviation customers.

GLOCAL GREEN™

glocalgreen.com

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

APPLICATION
Portable
Stationary
Transportation

ACTIVITIES
Commercialization
Components
R&D
Services

Glomfjord Hydrogen AS

In January 2024, the company Glomfjord Hydrogen AS was split into two new companies. Glomfjord Hydrogen AS continues from now on as a development company. The other company, Glomfjord Green Ammonia AS, is planning and preparing to build a green ammonia plant located in Glomfjord.

As a development company, Glomfjord Hydrogen will search for hydrogen-related projects where the company can take positions in new companies and contribute to developing of infrastructure for production and distribution of hydrogen.

Glomfjord Hydrogen

glomfjordhydrogen.no

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

GreenH AS

GreenH AS is a Norwegian company dedicated to the development of infrastructure for production and distribution of green hydrogen. GreenH develops projects and will build, own and operate hydrogen production facilities.

GreenH will establish a network of hydrogen hubs with hydrogen production facilities strategically located in direct proximity of regional end-users. This model secures supply of green hydrogen with no, or minimal, transportation costs and emissions. The company have developed solutions that enables bunkering of hydrogen directly from the facility.

GreenH have planned facilities in Tønsberg (Slagentangen Oslofjord), Rogaland, Kristiansund, Sandnessjøen, Hammerfest and Bodø. The Bodø Facility is under construction and will be operational 2026 to supply the world's largest hydrogen ferries running on compressed hydrogen. GreenH have developed a bunkering method of compressed hydrogen directly from the facility to maritime vessels at high flow rates.

Our customers are the maritime sector, heavy road transport and industrial buyers.

GreenH has owners with rich competencies from renewable projects across Norway and Europe.

greenh.no

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

Greenstat ASA

Greenstat ASA is a company that develops, operates, and owns green hydrogen plants and industrial wind- and solar plants, primarily through its subsidiaries. Furthermore, Greenstat delivers analysis and insights into the green energy markets and develops and operates concepts for energy distribution through energy stations. Greenstat was established by Christian Michelsen Research (now a part of NORCE) in Bergen in 2015 and has since evolved to become independent with more than 1800 unique shareholders (2021).

Greenstat's purpose is to find, develop and operate hydrogen-related projects to create green growth and profitability. At the time, these include Glomfjord Hydrogen AS, Meraker Hydrogen AS, Viken Hydrogen AS, Stord Hydrogen AS and more.

Greenstat has, after working dedicated towards the hydrogen market for several years, seen an increase in inquiries related to hydrogen as an energy carrier in various sectors. Greenstat is currently in dialogue with dozens of different initiatives, all of which can result in commercial projects for green hydrogen production and supply. This applies to projects in the transport, maritime and industrial sectors.

GREENSTAT

greenstat.no

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

APPLICATION
Portable
Stationary
Transportation

ACTIVITIES
Commercialization
Components
R&D
Services

H2 Marketplace AS

H2 Marketplace is a cutting-edge, global platform designed for the seamless sales and procurement of hydrogen and ammonia. By integrating every stage from production to trade and delivery, H2 Marketplace revolutionizes the industry, setting a new benchmark for efficiency. The platform optimizes the entire value chain, connecting producers, buyers, transporters, distributors, and service providers within one unified ecosystem.

What sets H2 Marketplace apart from traditional solutions is its advanced capabilities, including direct integration with production facilities' control systems to optimize output. It also offers comprehensive order, transaction, and transportation management solutions, ensuring a smooth flow of goods and services. The platform provides a real-time overview of storage capacity, linking directly with storage facilities control and measurement systems, while also offering real-time transport availability and integrated capacity information.

With powerful features such as online bulk trading, real-time fuel station updates via a mobile app, and much more, H2 Marketplace is shaping the future of the hydrogen and ammonia sectors by driving unprecedented levels of efficiency and collaboration.

h2marketplace.no

ACTIVITIES
Commercialization
Components
R&D
Services

APPLICATION
Portable
Stationary
Transportation

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

H2Carrier AS

H2Carrier is the designer and owner of a proprietary floating energy production and storage system, the P2XFloater™, an industrial-scale floating green hydrogen and green ammonia facility. The concept is based on proven floating production, storage and off-take technologies from the oil & gas industry. The design has a fully integrated electrolyser and Haber-Bosch system. H2Carrier will build, own/lease and operate a fleet of P2XFloaters™. The company has developed the P2XFloater™ concept in close co-operation with leading maritime and process engineering companies in Norway, thus building on decades of experience and competence from the oil & gas sector, the maritime industry, and the offshore wind installation industry.

h2carrier.com

HYDROGEN CHAIN
- Control systems
- Distribution
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- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

HARTING

HARTING is a family-owned German company and a world leader of manufacturing Industrial connectivity solutions. More than 75 years of experience with a great engineering innovation strength.

We deliver efficient energy saving connectivity solutions for hydrogen market. Standard components as well as custom made cable harnesses for power, signal, and data communication.

High power pcb connectivity and high-speed data transmission solutions for indoor and rugged environments.

We are engaged in various hydrogen projects including projects for ferries and coastal cargo carriers, hydrogen trucks and buses as well for stationary backup power solutions.

HARTING®

Pushing Performance
Since 1945

harting.no

ACTIVITIES
Commercialization
Components
R&D
Services

APPLICATION
Portable
Stationary
Transportation

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

HELINOR Energy AS

Meet: Powerbox, the world's first compact, lightweight, and scalable hydrogen fuel cell module tailored for maritime use.

Designed to scale from 125 kW to multi-megawatt applications, the Powerbox delivers constant reliable power enabling vessels to meet strict emissions regulations without sacrificing performance. Its modular design allows for seamless integration into both new builds and retrofits, providing a zero-emission alternative for auxiliary power and full propulsion.

With over 30 years of fuel cell expertise on our team, we develop high-efficiency, low-maintenance solutions that redefine sustainable maritime energy. Our modular approach ensures flexibility across vessel types, while delivering zero CO_2 emissions and uncompromising reliability, setting a new benchmark for clean maritime power.

HELINOR ENERGY

helinorenergy.com

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

Hexagon Purus ASA

Hexagon Purus is a global leader of zero emission mobility solutions. We produce high-pressure Type 4 composite cylinders, hydrogen fuel systems and hydrogen distribution systems. Our offering also includes the complete vehicle systems and battery packs for fuel cell electric and battery electric vehicles.

Our type 4 composite cylinders' lightweight, corrosion resistance and long lifetime, reduce operational costs and total cost of ownership – and in sum makes them ideal for storing hydrogen.

Hexagon Purus has pioneered hydrogen fuel systems in the automotive industry and our solutions are in operation across a wide range of mobility applications, such as heavy-duty trucks, transit buses, trains, light-duty vehicles and even on a snow groomer. We are now taking our experience from the automotive industry to accelerate and develop hydrogen fuel solutions in the maritime industry. In order to serve this market, we have established an own company – Hexagon Purus Maritime AS – which purpose is to apply already existing technology into maritime use applications, either being as hydrogen fuel storage or sea transport of hydrogen.

HEXAGON PURUS

hexagonpurus.com

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

Hoerbiger Service Nordic AS

HOERBIGER – a global leader in performance defining components for reciprocating compressors. Our products, services and solutions enable our customers and partners from various industries to improve the performance and safety of their products and operations, save energy, and reduce emissions. This is how HOERBIGER enables change. For a better tomorrow.

Together with our partners, HOERBIGER is on a mission to deliver the most cost-efficient and flexible hydrogen compression package available. To allow wide use of hydrogen for mobility applications and trailer filling, equipment must be able to evolve from small demonstration projects into industrialized and efficient solutions, enabling you to meet your total cost of ownership expectations. Reciprocating compressors play a key role in reaching this goal. Together with Ariel, we have the technology to enable the most economic and reliable package for high pressure hydrogen compression.

HOERBIGER – advancing sustainability together.

HOERBIGER

hoerbiger.com

HYDROGEN CHAIN

- System Integration
- Storage
- Production
- FC/ICE
- Distribution
- Control systems

APPLICATION

- Transportation
- Stationary
- Portable

ACTIVITIES

- Services
- R&D
- Components
- Commercialization

Holta & Håland Safety AS

Holta & Håland Safety is a well-established supplier of Fire & Gas Detection. Due to high risks in the hydrogen marked, it is a natural priority for the company. Holta & Håland Safety prefers to be involved early in the process to support with assistance, guidance and the newest available technology.

Unfortunately, there is a gap between the sensor technology used in the oil-industry and the land / hydrogen industry. Holta & Håland Safety is dedicated to narrowing that gap, and for that they are dependent on being involved in the early stages of a project. Their most important single item is probably the MEMS-sensor, finally making it possible to have Fail-Safe gas detection of H_2.

In a dream scenario Holta & Håland Safety provides the complete F&G detection solution:

- Gas & Flame detection Engineering: technology selection, placement and recommended alarm levels in an extensive and complete report
- Fire detection engineering (FG-godkjent / Sentralgodkjenning - necessary to be held responsible for such engineering)
- Fire, Gas and Flame detectors
- Signalling
- Fire & Gas controllers
- Inert extinguishing systems (Inergen)
- Commissioning
- Following yearly service

Holta & Håland
HOLTA & HÅLAND SAFETY AS

hhsafety.no

ACTIVITIES
Commercialization
Components
R&D
Services

APPLICATION
Portable
Stationary
Transportation

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
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System Integration

Honeywell AS

Honeywell provides a comprehensive portfolio for the green hydrogen market, covering process technology, automation, control systems, optimization software, instrumentation, and analyzers. With a strong focus on reducing the levelized cost of hydrogen (LCOH), Honeywell has developed the Honeywell Protonium™ portfolio, addressing key challenges across the hydrogen value chain.

Honeywell Protonium™ Concept Design & Optimization (CDO) enables early-stage optimization of green hydrogen plants by reducing capital expenditure and LCOH from the concept phase. It delivers optimized plant designs, upfront CAPEX optimization, and early assessment of power variability and operational impacts, supporting efficient and sustainable project development.

Honeywell Protonium™ Unified Control and Optimization (UCO) provides plant-wide, integrated control and optimization across the hydrogen production value chain. By dynamically managing power conversion, energy storage, electrolyzers, and balance-of-plant systems, UCO improves operational efficiency, reduces OPEX, extends asset lifetime, and supports carbon intensity tracking and incentive qualification.

Honeywell Protonium™ Hydrogen Electrolyzer Control System (HECS) enhances electrolyzer performance and longevity through standardized controls, advanced diagnostics, seamless system integration, and scalable architectures. HECS enables faster project execution, improved reliability, and efficient integration with power and energy management systems.

Honeywell

honeywell.com

HYDROGEN CHAIN

APPLICATION

- Control systems
- Distribution
- FC/ICE
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- Storage
- System Integration

- Portable
- Stationary
- Transportation

ACTIVITIES

- Commercialization
- Components
- R&D
- Services

HRP

HRP is a leading construction consultancy, offering a comprehensive range of services in real estate, infrastructure, and advisory of early-stage projects. Our team comprises 450 dedicated professionals in 26 branches throughout Norway committed to delivering excellence. Our vision is to ensure the optimal use of resources, executing projects without negative deviations, eliminating waste of time and money, achieving 100% sustainability, and attaining all set targets. We thrive on early engagement in project phases to maximize the impact of our services. Our mission is to fulfill our clients' objectives through extensive teamwork, adaptability, problem-solving, and delivering high-quality returns on investment. At HRP, we strive to be the optimal choice for our clients, helping them in taking the right decisions.

We are eager to expand our expertise in maximizing hydrogen production and utilization, ensuring success in collaboration with our clients and partners. We define hydrogen as part of infrastructure. To utilize, produce and distribute hydrogen and to make it an integrated, substantial part of the green shift, we see hydrogen as infrastructure.

We have in-depth knowledge of Norway, its conditions, and regulations. Our expertise delivers the greatest value when our cross-disciplinary teams are involved from concept to completion!

hrpas.no

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

APPLICATION
- Portable
- Stationary
- Transportation

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

Hy2gen

Hy2gen develops, finances, builds, and operates plants to produce green hydrogen, green ammonia, and hydrogen-based e-fuels worldwide. Currently, the company has activities in France, Germany, Norway and Canada, and the first green hydrogen will be produced later this year.

A $200 mln funding round was completed last year, which was the world's largest private investment in green hydrogen. The investors included both strategic partners and financial investors, setting the company up for further growth and capability to develop large projects. Hy2gen has a team with deep technical knowledge and has strategic access to a global network of leading commodity traders and industries for offtake.

Norway is a key country for Hy2gen, and the company sees a large potential to decarbonize maritime and industrial sectors and export to the European market. The company is currently developing a large-scale green ammonia project in Sauda together with partners CIP and Trafigura and will continue to pursue more opportunities in Norway.

H Y 2 G E N

hy2gen.com

ACTIVITIES
Commercialization
Components
R&D
Services

APPLICATION
Portable
Stationary
Transportation

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

HydePoint AS

HydePoint is providing a solution to optimize the value of offshore wind farms by allowing for large scale hydrogen production from wind power.

Offshore wind resources will become a significant source of renewable energy. However, the current onshore grids are not prepared to receive neither the large amounts of power nor the peaks expected from renewable energy sources. It will require significant and long-term infrastructure investments to allow full utilization of power from new wind resources without curtailment limiting full wind farm production.

HydePoint is an **offshore hydrogen producing substation** which can utilize wind resources efficiently and allow new wind farms to be located where the wind resources are strongest, even though the grid infrastructure is poor or missing. It is an unmanned, modularized, and industrialized platform which can be delivered both to floating or bottom fixed wind farms, and it can convert wind power fully or partly to hydrogen. If a HydePoint is connected to an onshore grid, it can also help balancing the overall power systems, and improve the total energy system utilization.

HydePoint

ACTIVITIES
Commercialization
Components
R&D
Services

APPLICATION
Portable
Stationary
Transportation

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration

HydraServ AS

Supplier of a great range of High-Quality Pressure Regulators, Back Pressures, Relief valves, Ball valves, Solenoid valves, Fittings, tubing and other process and instrumentation parts for Hydrogen, LH2 and Ammonia applications.

Hydraserv together with our partners have a high product knowledge and we are always working to find the best product for your application. We have products for the complete Hydrogen chain if it's for production, distribution, fuel cells or storage.

Pressure range going up to 1500 bar.

HydraServ

hydraserv.no

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

Hydrogen Solutions AS (HYDS)

The aim of reducing emissions and ensuring access to clean green energy, is an essential part of HYDS' business model. HYDS covers all the essential stages in production of green hydrogen, such as research and development, project execution, plant ownership and plant operation.

HYDS designs and develops hydrogen production plants with an emphasis on safety, standardisation, and scalability. The approach primarily involves utilising prefabricated container modules containing sub-components of the production plants. Stord Hydrogen is HYDS' first hydrogen plant in operation, producing compressed green hydrogen to costumers in transport, construction, industry, and the maritime sector.

HYDS has been responsible for development, engineering, procurement, construction, and installation including design and control of the green hydrogen plant at Kaupanes. The plant opened 8 February 2024 and HYDS is managing the day-to-day operations, asset management and customer agreements.

HYDS manages customer experiences and utilises our unique hydrogen plant control system including the nominations module for customers to book and organise hydrogen offtake. HYDS' plants are remotely monitored 24/7 through the operation centre.

HYDS has secured a range of production sites and is actively participating in several tenders and project possibilities within green hydrogen and hydrogen derivatives.

hyds.no

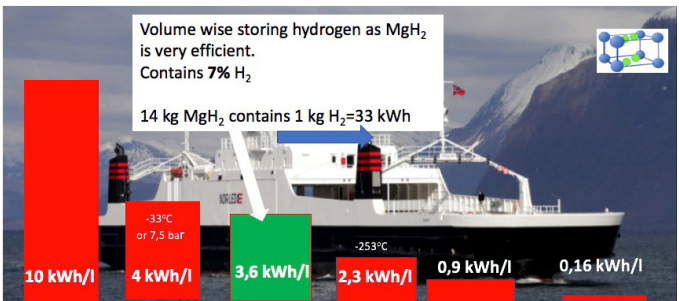
HYDROGEN CHAIN
- Production
- Storage
- System Integration
- Distribution
- FC/ICE
- Control systems

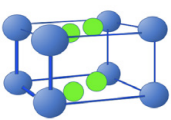
APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

Hydrogen Storage AS

Safe storage and transportation of hydrogen using magnesium hydride.





Hydrogen Storage

hydrogenstorage.no

HYDROGEN CHAIN
Production

APPLICATION
Stationary
Transportation

ACTIVITIES
Commercialization
R&D

Hystar

Hystar makes highly efficient PEM electrolysers for the large-scale production of green hydrogen. Hystar's patented technology has a key role to play in decarbonizing hard-to-abate sectors and Hystar is scaling quickly to meet demand. With its game-changing technology, Hystar is a leader in achieving a greener, more sustainable future.

Located in Høvik, Norway, Hystar has an Innovation Centre, supporting its R&D and manufacturing capabilities. And by 2026, Hystar's first automated GW manufacturing facility will be fully operational at this site. As a spin-off from SINTEF, a leading European research organization, Hystar has 15+ years of research into PEM technology. Hystar's technology has been proven to use significantly less energy than conventional PEM electrolysers, enabling a substantial increase in hydrogen production output.

Hystar is backed by significant global investment bodies, including AP Ventures, a major investor in breakthrough hydrogen technologies, SINTEF Ventures, the investment fund of the SINTEF research institute, Firda, a pioneering early-stage investor in Norway, as well as other notable names including Mitsubishi, Nippon Steel, Finindus, Trustbridge, and Hillhouse.

hystar

hystar.com

HYDROGEN CHAIN

- Control systems
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- System Integration

APPLICATION

- Portable
- Stationary
- Transportation

ACTIVITIES

- Commercialization
- Components
- R&D
- Services

Haakon Ellingsen AS

Haakon Ellingsen AS is an established supplier of products and system solutions for hydrogen applications and hydrogen utility systems. With more than 60 years of experience serving the oil & gas, marine, and process industries, we are transferring our competence into green industrial projects and the rapidly growing hydrogen market.

We provide products and solutions across the hydrogen value chain, from production and compression to storage, transportation, and refuelling infrastructure.

Our Hydrogen Product Areas:

- Demonstration and Training Systems
- Safety Solutions
- Instrumentation
- Valves and Actuation
- Filtration and Separation
- Level Indication Systems

We work closely with leading international manufacturers and position ourselves toward large-scale hydrogen and ammonia projects in collaboration with owners, EPC contractors, and system integrators.

Haakon Ellingsen takes full responsibility for project execution and aims to be a long-term and reliable partner in the development of the future hydrogen industry.

HAAKON ELLINGSEN AS
Sustainable solutions

haakonellingsen.no

HYDROGEN CHAIN
- Control systems
- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
- Portable
- Stationary
- Transportation

ACTIVITIES
- Commercialization
- Components
- R&D
- Services

IFE – Institute for Energy Technology

IFE is an independent research foundation that has been involved in research on hydrogen for more than 70 years. The research at IFE is based on experimental activities and supported by advanced modelling. The main research focus is on hydrogen production by sorption enhanced reforming and water electrolysis (alkaline and PEM), hydrogen storage in metal hydrides, fuel cells (PEM) and hydrogen energy system analysis. IFE also specialize in other areas relevant for hydrogen: Multiphase flow, liquefaction and cooling technology, material integrity, hydrogen embrittlement, instrumentation and level monitoring, man-machine, risk and safety.

IFE also do research related to ammonia production and cracking and large-scale underground storage of hydrogen. As a leading research institutes in Norway on batteries, wind and solar power IFE also has have in depth competence on renewable energy and hydrogen system integration and optimization. IFE work in depth on the material side to increase safety, sustainability, energy efficiency and to reduce investments and operation cost of within the hydrogen value chain. IFE is the host for FME MoZEES, a national research on environment-friendly research with focus on zero emission energy systems for transport using battery and hydrogen technology (mozees.no). Using several relevant national research infrastructures.

ife.no

HYDROGEN CHAIN
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ACTIVITIES
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Jarotech AS

Jarotech AS have more than 40 years' experience in oil and gas combustion engineering. From heavy fuel oil in 1984 to the first hydrogen burner in 2006. In between, and still, we supply burners, combustion chambers, boilers, flares for all type of gas like hydrogen, natural gas, propane, CO, syngas and other. Our experienced engineering team can supply burner for hydrogen and combustion air as well as 100% hydrogen and oxygen. Especially for the melting industry we have supplied oxy-fuel burner system for rotating kilns and ladles. In our control system we use combination of safety PLC and TÜV/PED/CE approved equipment.

We design and supply complete system from piping, airducts, burners, FMS/control system and flame scanner like UV-IR-Ionisation. Furthermore, hydrogen approved gas train with burner shut-off and control valves, SAV/SBV (Safety shut off valve and Safety Blow off valve). We supply components from acknowledge and recognized Europe and US suppliers.

Jarotech as
ENGINEERING ENERGY

jarotech.no

HYDROGEN CHAIN

Control systems
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Production
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ACTIVITIES

Commercialization
Components
R&D
Services

JUMO AS

Your partner for components, systems and solutions "from sensor to cloud".

JUMO is a leading system and solution provider in industrial sensor and automation technology. Components for the measuring ranges temperature, liquid analysis, pressure, level, flow, and humidity, as well as products for registration, monitoring, control, and automation, are used to create complete systems for a wide range of industries.

jumo.no

HYDROGEN CHAIN
Control systems
Distribution
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APPLICATION
Portable
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ACTIVITIES
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Components
R&D
Services

Justervesenet – Norwegian Metrology Service

Justervesenet is the National Metrology Institute of Norway, ensuring global acceptance of Norwegian measurements, providing metrology services and R&D. Justervesenet is also the national regulator for metrology and a notified body for MID and NAWI directives in Norway. Justervesenet works to ensure sufficient traceability and accuracy of hydrogen measurements in the Norwegian industry and society. This traceability is ensured by new metrological solutions, including a newly developed gravimetric primary standard for verifying light-duty hydrogen refueling stations.

Justervesenet continues to be an active participant in two ongoing and one approved research projects aiming to increase the Norwegian measurement capabilities within hydrogen. The projects are financed through EURAMET – the European Association of National Metrology Institutes and their associated research programs, including the current European Partnership on Metrology. The projects are aimed at specific hydrogen applications (light and heavy-duty hydrogen vehicles), new technologies for hydrogen measurements (sonic nozzle technology) and in ensuring traceability for the entire European hydrogen value chain.

Justervesenet is a leading expert in hydrogen measurement in Northern Europe, and is an independent source of metrological expertise available to all interested parties in both Norway and elsewhere.

Justervesenet

justervesenet.no

HYDROGEN CHAIN
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Kunnskapsbyen Centre of Innovation

Kunnskapsbyen Centre of Innovation connects cutting edge research from local research institutions, visionary energy companies and progressive local environmental policies, and facilitates public-private projects – which are locally beneficial, but also an integral part of both national and international hydrogen projects.

Kunnskapsbyen Centre of Innovation is co-located with the secretariat of The Norwegian Hydrogen Forum. We are also a partner with the Nordic national hydrogens associations in the Next Wave project on Hydrogen infrastructure for trucks and busses, financed by the Nordic Council of Ministers through Nordic Innovation. Kunnskapsbyen Centre of Innovation is the Norwegian lead partner of the Interreg project Cleancon – Clean Construction Machinery.

KUNNSKAPSBYEN LILLESTRØM

kunnskapsbyen.no

HYDROGEN CHAIN
Control systems
Distribution
FC/ICE
Production
Storage
System Integration
End user

APPLICATION
Portable
Stationary
Transportation

ACTIVITIES
Commercialization
Components
R&D
Services

LH2 Shipping AS

LH2 Shipping AS is a Norwegian developer of zero-emission vessels and maritime infrastructure based on liquid hydrogen (LH_2).

LH2 Shipping AS is a maritime technology company accelerating the industrial adoption of liquid hydrogen (LH_2) as a zero-emission marine fuel. The company develops scalable vessel concepts and hydrogen bunkering solutions to enable deep decarbonisation of short- and medium-sea shipping.

Founded to move hydrogen propulsion from demonstration to deployment, LH2 Shipping builds on first-mover experience from the-end-to-end development and implementation of the world's first liquid-hydrogen -fuelled ferry, MF Hydra. This real-world experience provides the company with unique insight into the technical, operational and regulatory requirements for deploying LH_2 at commercial scale, including the development of class-approved onboard fuel systems and the establishing of maritime authorities' regulatory frameworks.

Operating at the intersection of ship design, cryogenic fuel systems, maritime regulations and hydrogen value chains, LH2 Shipping works to align vessel development with the parallel build-out of bunkering and fuel supply infrastructure. Through technology development, project development and industry engagement, the company aims to enable the transition to zero-emission maritime transport in Northern Europe and beyond.

LH2 SHIPPING

lh2shipping.com

HYDROGEN CHAIN
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- Distribution
- FC/ICE
- Production
- Storage
- System Integration

APPLICATION
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- Stationary
- Transportation

ACTIVITIES
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- Services

Linde Gas AS

At Linde, we have been harnessing the power of hydrogen for over 100 years, and clean hydrogen is a cornerstone of our clean energy strategy. Hydrogen has been one of our fastest growing molecules for the past 10 years, and today we generate around USD 3 billion per year of global revenue through our hydrogen activities.

Linde offers technology and expertise throughout the whole hydrogen value chain; Electrolysis for green hydrogen production, cutting-edge fueling technologies for the mobility and marine sector, carbon capture technology for use and storage, hydrogen liquefaction technology for storage and transport, hydrogen pipeline services and storage of hydrogen in underground salt caverns as examples.

To continue our growth, we will use our integrated asset network, execute locally driven and focused strategies, and continue to advance and grow our technology leadership across the value chain. In addition, we are actively identifying and developing collaborations to accelerate opportunities.

Making our world more productive

linde.com

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Litra AS

Established in 1917, and with over 100 years experience, Litra group still reach for the best of quality and security in the transport market.

We operate primarily in the Scandinavian market, and offer the market transport of food / thermo goods , energy and industrial gases, and dry/wet bulk products, and we are specialized in dangerous goods.

In the Litra Group there are several high recognized daughter companies, and our strength is high quality, high safety level, large volumes, specially adapted solutions, and finding sustainable solutions.

We currently have over 320 heavy trucks with a total weight of 50-60 tonnes, of which 40 of these trucks use biogas as fuel.

Our activity generate over 38 mill km every year, and our goal is to strongly reduce our emissions, and we are absolutely certain that hydrogen will be an important part of achieving this goal.

LITRA

litra.no

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Meraker Hydrogen

Meraker Hydrogen is a private company based in Kopperå, Norway. The core business is the production of green hydrogen from available local hydropower. The hydrogen production will be produced, on the formerly known microsilica plant Elkem Meraker, which has a history back to 1898. The planned hydrogen plant is located close to the Swedish border and 1hr east by car of Trondheim. The plant's location can utilize the largely available hydropower and reduce the transmission losses related to the power lines to end-market.

Meraker Hydrogen is owned by large industrial owners such as NTE, Greenstat, Gen2 Energy, Aker Clean Hydrogen, and local investors. All owners are active players in hydrogen projects and bring valuable expertise to Meraker Hydrogen.

The main market for Meraker Hydrogen is the regional market in both Norway and Sweden in market segments such as transport, industry, railway, and maritime. In addition, Meraker Hydrogen is active in helping businesses accelerate their zero-emission initiatives and taking an active role in the region in facilitating the green shift.

Meraker Hydrogen

merakerhydrogen.no

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Milestone Zero AS

Milestone Zero drives offshore decarbonized gas-to-ammonia projects by engaging with ammonia buyers, oil companies and regulators to initiate field development projects for world-scale ammonia production combined with CCS.

We work closely with our long-term strategic partner TGS ASA, the world's leading energy data company, to unlock stranded and surplus gas value and realizing large scale decarbonized energy solutions.

Together with TGS, and other selected partners, we offer integrated decision support in all phases of the gas-to-ammonia value chain, all the way from identifying the natural gas feedstock and CO_2 reservoirs to safe project execution and delivery of ammonia to the market for fertilizer production, future shipping and aviation fuel or simply as a decarbonized energy carrier.

Our expertise includes e.g. early-stage project planning & feasibility studies, mapping and de-risking of natural gas and C reservoirs, concept development & evaluation for hydrogen & ammonia production and carbon capture, utilization and storage (CCUS) strategies.

We Realize Our Net Zero Future by enabling one-stop-shop offshore ammonia production field developments.

Milestone Zero

milestonezero.no

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NAPOP

NAPOP AS

We are Not A Part Of the Problem - rather a part of the solution – being your roadmap to fossil freedom!

NAPOP provide technologies for producing grid independent electricity by means of the fuel-cell based Energy Station (ES) as well as heat, using NAPOP's catalytic combustion technology (CTC) – targeting mobile and temporary requirements, e.g. the building and construction sector. Ours catalytic combustion technology (CTC) is also available for serving larger heat/ thermal requirements in industries in general.

All by the use of Hydrogen – the wonderful future energy carrier.

Through our daughter company, VIRIDIH2 AS – we will supply green Hydrogen and establish Hydrogen infrastructures catering for Hydrogen requirements and associated services in our focused markets; production, intermediate storage, transportation, supply (pressure/ volume management) and conformity.

NAPOP is involved in several Hydrogen projects aiming to demonstrate the matureness of Hydrogen technologies, breaking down any barriers obstructing its wider use with particular emphasis on Hydrogen safety.

napop.no

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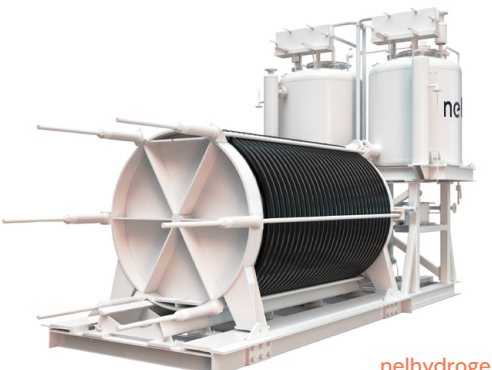
Nel Hydrogen

Nel has a history tracing back to 1927 and is today a leading pure play hydrogen technology company with a global presence. The company specialises in electrolyser technology for production of renewable hydrogen, and hydrogen fueling equipment for road-going vehicles. Nel's product offerings are key enablers for a green hydrogen economy, making it possible to decarbonise various industries such as transportation, refining, steel, and ammonia.



nelhydrogen.com

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NORCE Norwegian Research Centre AS

NORCE is one of Norway's leading research institutes. We are present along the entire Norwegian coast, and conduct interdisciplinary research for both public and private sectors. Our researchers focus on how to enable and speed up the green energy transition with hydrogen as one of the key components. We help stakeholders with the insight, modelling and monitoring needed to understand, validate and make informed decisions on viable developments and investments within hydrogen.

NORCE hosts a centre for hydrogen value chain research called HyValue. The centre is a collaboration between more than 50 partners from research, industry and public sector. HyValue are looking at hydrogen production, distribution, use, regulations, safety, and commercialization. We aim for safer, greener and more efficient hydrogen production that both industry and society can trust. NORCE core hydrogen business is applied research in the following topical areas:

- Microbial hydrogen production
- Geological storage of hydrogen
- Distribution and metering of hydrogen
- Hydrogen for maritime transport
- Industrial use of hydrogen
- Hydrogen in the energy system
- Microbial use of hydrogen and fermentation
- Public acceptance and social embeddedness of hydrogen technologies

NORCE

norceresearch.no

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North Ammonia AS

North Ammonia was established by Grieg Maritime Group and Arendals Fossekompani in 2021 as a 50/50 joint venture. The company is now owned by Vergia Green Fuels (fully owned by Swiss Life Asset Managers) and Grieg New Energy (fully owned by Grieg New Energy, part of Grieg Maritime Group), leveraging a strong ownership backing with a strong industrial track record.

North Ammonia's strategy is to develop, build, own and operate green ammonia production facilities.

The company aims at becoming one of Europe's leading green ammonia suppliers based on production facilities along the Norwegian coastline with grid connection and RFNBO compliant production.

The project portfolio consists of mid-scale projects at existing industrial harbors with direct access to key markets enabling uptake of green ammonia in the maritime and hard-to-abate industry sectors.

north ammonia

northammonia.com

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Norwegian Hydrogen AS

Norwegian Hydrogen AS is a Nordic green hydrogen company and a developer, owner and operator of upstream green hydrogen activities offering a zero-emission energy alternative to a wide range of sectors.

The company has produced green hydrogen at their Hellesylt site in Norway and at Grøn Brint in Denmark since 2024, delivering green hydrogen to many industrial customers across the entire Nordic region. By leveraging its extensive experience and strong partnerships, Norwegian Hydrogen AS is positioned as a key player in the green energy transition, with a mature and scalable portfolio under development.

Norwegian Hydrogen's head office is in Ålesund, Norway, and they also have offices in Oslo, Stockholm and Hirtshals.

Norwegian Hydrogen

norwegianhydrogen.com

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NTE Hydrogen AS

NTE Hydrogen, a subsidiary of Nord Trøndelag Elektrisitetsverk (NTE), stands as Norway's first green hydrogen provider for the maritime industry. Strategically located at industrial locations along the Norwegian coastline, our development locations holds the potential of 250MW production capacity.

As a participant in the EU Hydrogen Valley Mid Norway initiative, we are committed to building comprehensive value chains for green hydrogen in Norway. Our partnerships ensure product sales, distribution, transformation of hydrogen into derivates like ammonia, and peak HSEQ in every link of our value chain.

nte.no

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NTNU – Team Hydrogen

NTNU Team Hydrogen, founded by Professor Bruno G. Pollet and now led by Professor Nicola Paltrinieri, is a team of world experts on Hydrogen energy. The team consists of professors and researchers from different disciplines, departments and faculties across NTNU that works within the Hydrogen R&D value chain, from the development of materials and systems (mobility and stationary), to hydrogen health & safety, life cycle analysis and technico-economic assessments. NTNU has excellent state-of-the-art hydrogen, fuel cell and electrochemical laboratories as well as cleanrooms for micro- and nanofabrication and ex-situ physical characterization techniques.

We are also educating and training research leaders, innovating, providing solutions and stimulating the industry. NTNU Team Hydrogen works in line with NTNU's vision: Knowledge for a better world, the Norwegian and European Hydrogen Strategies and the United Nation´s 17 Sustainable Development Goals.

NTNU ENERGY
Team Hydrogen

ntnu.edu/energy/hydrogen

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Norwegian Maritime Authority

The Norwegian Maritime Authority (NMA) is the administrative and supervisory authority in matters related to safety of life, health, material values and the environment on vessels flying the Norwegian flag and foreign ships in Norwegian waters. The NMA is subordinate to the Ministry of Trade, Industry and Fisheries and the Ministry of Climate and Environment. Our activities are governed by national and international legislation, agreements and political decisions.

Hydrogen could play an important role in the green shift. It is important for the NMA to be involved when new technology is developed, in order to ensure that the technology is safe, reliable and ready for marine use. Hydrogen challenges existing prescriptive regulations, and vessels fuelled by hydrogen will therefore need approval through a risk based design approval process.

The NMA is a visible and recognised participant in the international maritime regulatory work. The NMA will, together with the industry, contribute to making Norwegian innovation and solutions the standard in the international maritime regulatory work.

Sjøfartsdirektoratet
Norwegian Maritime Authority

sjofartsdir.no

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Norwegian Small Hydropower Association

The Norwegian Small Hydropower Association is the national organization for companies who build and operate small hydropower stations. Since year 2000 there has been built 750 such plants scattered all over the country where you will also find good potential for H_2-consumption and customers. Each of these new plants have an installed effect beneath 10 MW and all together they represent a yearly production of 5 TWh.

The small hydro industry consists mainly of entrepeneurs who are searching for new business opportunities. That's probably why our association is the first player among Norwegian organizations for electricity producers who has started to work systematically with exploring H_2 production as a new business area for its members. Among other projects we also have a R&D-project running over three years with the The Norwegian Water Resources and Energy Directorate.

Our main focus is how hydrogen can play a role in improving the Norwegian power system. We are looking into how the grids problems with peaks in consumption, capacity constraints and production can be reduced and thereby also downsize the need for grid investments. From the electricity producers point of view hydrogen production can generate added values in periods with low prices and high production.

småkraftforeninga.no

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OTECHOS AS

OTECHOS is an experienced company with roots back in industrial engineering and commercialization of new products within the energy sectors. We follow our innovative and environmentally friendly products from the early stage of idea to their specific markets. The company draws benefits from long experience and from being a small and flexible environment for creativity and knowhow.

OTECHOS CR-Technology is especially well suited for H2 compression as the compressor is oil-free, no contact of surfaces in compressor chamber, no inlet valves and no discharge valves. The main features of our H2 compressor are listed below:

Efficient
- Water sealing fluid provides sufficient cooling for nearly isothermal compression process
- Extended precision boundary zone with water sealing minimizes reverse flow even with small molecule gases
- Low internal friction due to non-contact compression chamber sealing
- High output per revolution
- 8 compression cycles per revolution

Reliable / low-maintenance
- No contact of surfaces in compression chamber
- No inlet valves and no discharge valves
- Low temperatures maintained for all components (isothermal compression)

Clean
- Process is not contaminated by oil or particulates

Liquid tolerant
- The compressor tolerates several volume percent liquid in the gas

Allows for system simplification
- The special features of the CRCP compressor allows for various system simplifications

OTECHOS

otechos.com

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Parker Hannifin AB NUF

Parker is your global partner and key component supplier of technologies for applications throughout the hydrogen value chain.

With decades of experience in hydrogen including the Apollo 11 Mission we deliver many key components including a vast range of filtration solutions, water production/separation, sealing/shielding, nitrogen generation, dryers, sensors, coolers, piping & fluid connectors, instrumentation and more besides.

parker.com

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PowerCell Group

PowerCell Group develops and produces fuel cell stacks and systems with a uniquely high power density for aviation, marine, power generation, off- and on-road applications. Our products run on pure or reformed hydrogen and generate electricity and heat without any emissions other than water vapor. We have an extensive IP portfolio based on more than 25 years of innovation and are dedicated to supporting our customers in their transition to zero-emission operations. As a leader in hydrogen electric solutions, we contribute to an emission-free, more sustainable world. For more information about the company and our hydrogen electric solutions, please visit our website.

PowerCell Group

powercellgroup.com

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Provaris Norway AS

Provaris Energy is a developer of integrated green hydrogen projects for export to regional markets through the simplicity and efficiency of compressed hydrogen. Compression is a proven, safe and reliable method of storing and transporting hydrogen and is already used in the upstream and downstream hydrogen applications.

Energy efficiency should be the goal of all carriers of renewable energy. The energy efficiency of compression is supported by project feasibility level studies which demonstrate compression can improve the conversion efficiency by a factor of 8-10 when compared to liquid or chemical carriers. The outcome being we use less renewable energy when transported and sold as gaseous hydrogen.

Our proprietary Class approved hydrogen carriers store, transport, and deliver hydrogen in a gaseous form. Compressed hydrogen is a modular solution, that can accelerate the development of greenfield export projects due to the minimal technical barriers, small environmental footprint and flexibility to load follow the renewable energy profile. Simplicity of the Provaris approach eliminates the need for capital and energy intensive processes to convert and reconvert hydrogen gas to a higher density carrier in liquid or chemical form.

Provaris Energy established Provaris Norway AS in 2022 in order to cover the European market.

PROVARIS

provaris.energy

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Renewables Norway

Renewables Norway is a non-profit industry organization representing 400 companies involved in the production, distribution and trading of renewable electricity and heat in Norway. Norwegian power production is almost 100% renewable and emission-free. 95% of the power production stems from the 1600 hydropower plants, and 3.5% is generated from wind power.

Renewables Norway is working actively to improve the regulatory framework in which our member companies operate, both in Norway and in Europe. We are a member of Nordenergi, Eurelectric and Wind Europe. We aim to increase competence and promote the competitiveness of the Norwegian renewable industry for green value creation.

Renewables Norway values hydrogen as an important energy carrier for the renewable and all electric society. Several of our member companies are involved in ongoing and planned projects for production of green hydrogen for industrial applications, maritime transport and as an alternative to power grid investments.

Renewables Norway coordinates and manages R&D projects funded by power- and network companies and by The Research Council of Norway.

Fornybar Norge

fornybarnorge.no

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R. Stahl Scandinavia AS

Complete provider of explosion proof systems and products for the Hydrogen market.

- R. STAHL has decades of experience in explosion protection for Hydrogen-based industries, and a broad range of products and services to show for it.
- We can design and build any system you require from scratch to meet your precise requirements without compromising on safety – and we can revise any existing safety architecture in the same way.
- Our products, systems and technologies are internationally certified and available for any region of the world, with local support and service always within reach from one of our many offices around the globe.

STAHL

r-stahl-scandinavia.no

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SINTEF AS

SINTEF is Scandinavia's largest independent contract research organization. SINTEF develops and implements technological solutions in society and thereby creates value through knowledge generation, research and innovation.

SINTEF is a leading R&D and innovation actor in Europe within hydrogen technologies, with more than 30 years' experience and significant activities. Through participation in European projects with total budget of 300 M€ over the last decade, SINTEF has built leading competence in key hydrogen areas.

SINTEF's hydrogen projects include:

- Hydrogen production from natural gas & renewable energy sources
- Membrane technologies for hydrogen separation
- Hydrogen quality analysis and standards
- Hydrogen liquefaction and storage
- Fuel cell & electrolyser materials development
- System and component testing and validation
- Hydrogen combustion (gas turbines)
- Modelling from micro to macro level
- Well-to-wheel analyses, LCA and feasibility studies
- Safety, societal and political aspects
- Techno-economic and value chain analysis
- Business models and decision support services

SINTEF

sintef.no

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A/S Norske Shell

Shell is a global energy company with a 110 year long history in Norway. Looking back at many decades of experience with complex developments, technology projects and safe and reliable operations, Norske Shell now powers progress towards a better energy future. As a stable and reliable energy provider to Europe we are producing our natural gas in the safest, cleanest and most efficient way. We are also using our competence from oil and gas to realise more carbon capture and storage and create new opportunities in renewables and cleaner energy solutions.

Shell aims to help build a global hydrogen economy by developing opportunities to produce, store, transport, and deliver hydrogen to end customers. Currently, Shell owns and operates around 10 per cent of the global capacity of installed hydrogen electrolysers and have started building Holland Hydrogen I, which will be Europe's largest renewable hydrogen plant when it enters operation in 2025. Shell sees a potential in hydrogen production in Norway with export to a growing European marked, and we are currently pursuing several large-scale opportunities both in green and blue hydrogen.

shell.no

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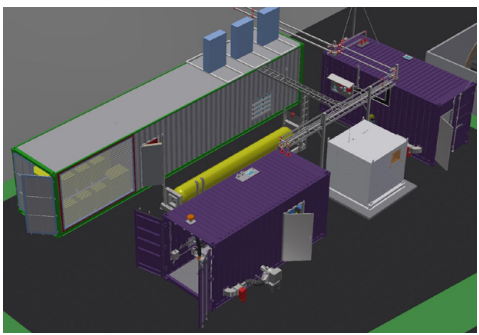
Slåttland Group AS

Slåttland AS is a Norwegian company with extensive experience and strong expertise in manufacturing, technology, and engineering.

They specialize in customized solutions for industries such as offshore, maritime, and oil & gas. The company has a clear focus on sustainability and renewable energy and has recently established itself as a key supplier of hydrogen solutions. With a solid foundation in technological innovation and quality, Slåttland combines modern manufacturing methods with environmentally friendly solutions to support the transition to greener energy systems in Norway and internationally.



SLÅTTLAND

slattland.no

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Standards Norway

Standards are essential to achieve the ambitious targets of a low carbon society, and hydrogen and ammonia as energy carriers play a key role.

Standards Norway manages the interests of the Norwegian hydrogen industry in national and international standardization (i.e. both NS, EN and ISO standards).

Norwegian experts can engage and influence:
- by participating in the Norwegian mirror committee for hydrogen technology (SN/K 182),
- by leading or participating in revision of standards either internationally or nationally, or
- by commenting on draft versions of standards through the Enquiry portal

Standards Norway is the sole national standardization body representing Norway and provides access to all standards through our web shop.

Standards Norway

standard.no

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Statkraft AS

Statkraft, the largest producer and trader of renewable power in Europe, have a strategy to be a producer and supplier of green hydrogen to industry and transport.

Green hydrogen will be an integrated part of the new energy market and support the hydro-, wind-, and solar- power development.

Statkraft will also be involved in other energy products like ammonia and methanol as long as renewable power and green hydrogen is the basis. In most projects Statkraft will seek partners to strengthen the business case.

Statkraft

statkraft.no

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Swagelok Norway

Swagelok Norway (SVAFAS Stavanger Valve & Fitting AS) has been an authorized Swagelok sales and service center since 1975, providing solutions for all fluid systems within Norwegian industry.

Systems for applications involving the storage, transfer, and use of hydrogen requires components with advanced performance capabilities. It also requires a strong understanding of materials science, fluid system design best practices, and industry certifications, standards, and approval processes.

Swagelok Norway actively supports companies developing hydrogen technologies by providing the fluid system expertise and deep understanding of application requirements they need to compete effectively in a performance-driven, safety-focused market. Our stainless-steel components are designed to deliver the seal tightness, grip strength, thermal performance, corrosion resistance, ductility, and ease of assembly needed to make hydrogen vehicles and infrastructure viable.

Swagelok Norway can also provide the support needed to overcome design challenges, select components, and troubleshoot issues while developing fuel storage, transportation, and delivery systems. We also design and assemble subsystems and assemblies built to customers exact specifications, ready to be installed. Furthermore, we offer training on fluid system best practices, trends and technology, installation, and safety.

Swagelok Norway

stavanger.swagelok.com/en

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TEKY AS

From concept design to commissioning, TEKY provides complete control system, automation, safety & digitalization solutions for the entire hydrogen value chain.

Automation & control system services:
Requirement studies, specification development, cost/benefit report of multiple automation systems, instrument and automation equipment selection & procurement. Automation software development (PLC, DCS, HMI, SCADA), integration testing, installation & commissioning. Supports all major automation OEMs like Siemens, ABB, Schneider electric, Rockwell automation, Mitsubishi etc.

Safety services: HAZOP, FMECA, shutdown (ESD, PSD, F&G) studies, alarm philosophy, LOPA, functional safety management, safety (SIL) requirement specifications, functional safety assessments in accordance with IEC 61508/61511.

Testing, R&D services: Provides modern testing facilities for development and technology validation of smart industrial equipment (sensors, valves, motors & drives, electronic devices like PLC, communication devices, IIoT devices etc.). Interface testing between industrial software solutions & field devices.

TEKY

teky.no

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Tolcon AS

For 30 years, Tolcon has been market leader as supplier of all energy gas solutions from component level to larger turnkey system solutions. Hydrogen is one of the major players in the energy transition with clean energy mixtures, and Tolcon intends to make its experience through participation and development of new projects in Norway.

Our knowledge and established network with partners open up great opportunities for the development of more sustainable energy solutions, where our set of available solutions spans from hydrogen generation through electrolysis up to the end users metering, passing through storage, pressure control and blending with natural gas.

TOLCON

tolcon.no

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Toyota Norge AS

Toyota Norge is a subsidiary of Toyota Motor Europe, and is responsible for the marketing and sales of their second generation Mirai Fuel Cell Electric vehicle and promotion of the hydrogen society. Toyota Fuel cells are also used in buses, trucks, ships, trains and generators, and Toyota intends to offer their components to third-parties in building hydrogen ecosystems.

toyota.no/mirai

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UMOE ADVANCED COMPOSITES

Umoe Advanced Composites AS

Umoe Advanced Composites (UAC) is the leading global supplier of large fibre glass type IV pressure vessels and modules for containment, storage and transportation of Hydrogen on land-based and maritime applications. We are breaking new ground by offering safe and price-competitive solutions for optimal containment, storage and transportation of larger volumes of Hydrogen, challenging traditional steel and carbon fibre alternatives.

Competitive advantage developed from 15 years of know-how in glass fibre vessel manufacturing, R&D and close collaboration with global customers and suppliers. UAC products are in daily use world wide by our top tier customers.

UAC deliver plug&play ready modules in different sizes, highly customized, ensuring high-performance utilization with excellent fatigue properties and durable liftetime. Enabling optimized balance between product performance, CAPEX and OPEX.

Ultimate safety is granted both by the material properties of the fibre glass pressure vessels and by the structural design of our modules. We subject our products to stringent fire, fatigue, stress rupture, burst, impact and proof tests. The composite materials in the Type IV pressure vessels have lightweight, very robust, non-toxic and non-corrosive properties, elimination risk of galvanic oxidation and wide temperature tolerances.

uac.no

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The University of Oslo (UiO)

The University of Oslo (UiO) offers studies at Bachelor, Masters and PhD levels in disciplines relevant to hydrogen technology; physics, chemistry, materials science, and technology systems, as well as supporting areas like mathematics, informatics, statistics/risk analysis, law, and social sciences. The materials science programs provide knowledge and training within renewable energy technologies, among these hydrogen. There are several strong and relevant activities at UiO for hydrogen technologies organized within Centre for Materials Science and Nanotechnology (SMN) with participating groups from the Departments of Physics and Chemistry. Topics include petroleum chemistry and catalysis; solid electrolytes and materials for gas separation membranes, fuel cells and electrolysers; hydrogen storage materials; semiconductors for solar energy conversion; high temperature sensors; and fundamental research in materials science and nanotechnology. UiO partakes in a number of national and international projects within or related to hydrogen technology.

The University of Oslo commercializes its research and has founded spin-off companies through its technology transfer partner Inven2.

UiO : University of Oslo

uio.no

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University of South-Eastern Norway (USN)

University of South-Eastern Norway (USN-TNM-PEM) does research and education on hydrogen technology (BSc. / MSc. / Ph.D.) within hydrogen safety and process technology. We focus on physical effects, pre-normative research, and the safe design of hydrogen systems. USNs research is theoretical and experimental, with laboratory and field facilities for studying the impact of explosions and hydrogen behavior. We are developing tools for predicting physical effects based on experimental results. We are a member of HySafe, IEA Hydrogen Safety, IDERS - The Institute for Dynamics of Explosions and Reactive Systems.

Projects:

- FME MoZEES (NFR, 2017-2025)
- FME HYDROGENi (NFR, 2022-2030)
- HyTunnel-CS (EU, 2018-2022)
  Pre-normative Hydrogen safety in tunnels and confined spaces
- HyRESPONDER (EU, 2020-2023)
- H2Konstabel (NFR, 2022-2024)
- HySchool (Researcher school, 2022-2030)
- Gen2Energy (RFF, 2021-2022)
- H2Maritime (NFR, 2018-2022)
  Maritime hydrogen
- H2NOR (IN, 2021-2024)
  Safe maritime FCs
- HyLOCD (NFR, 2021-2024)
- SH2ift2 (NFR, 2021-2025)
  Safe use of hydrogen
- Green Platform (Technip Norge) Subsea storage
- Green Platform (Wärtsilä Gas Solutions) Ammonia

University of South-Eastern Norway

usn.no

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Varanger KraftHydrogen AS

Producer of Green Hydrogen. Established H_2 plant in Berlevåg. From Q1 2024 delivery of compressed hydrogen to end-user.

VARANGER KRAFT hydrogen

varanger-kraft.no/hydrogen-1

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Vergia

Vergia is an investment and development platform focused on enabling hydrogen and Power-to-X projects across Europe. The company invests in- and supports project development companies that originate, develop, and mature hydrogen and Power-to-X projects toward final investment decision (FID) and construction, and maintain ownership and governance in operations.

Vergia enters early- and mid-stage development of green hydrogen production projects, typically integrated with renewable power sources and industrial off-take opportunities. The company works closely with local development partners, technology providers, banks / ECAs and industrial stakeholders to structure projects that are technically robust, commercially viable, and bankable.

Vergia's role typically includes project development strategy, project governance, financial structuring and funding, and operational management. Vergia supports developers in progressing projects through feasibility, permitting, and commercialization phases and shares best practices across the platform.

Through its portfolio of companies and partnerships, Vergia aims to support the scaling of hydrogen and Power-to-X solutions that contribute to industrial decarbonization and the development of a competitive European hydrogen economy.

vergia.com

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Viken Hydrogen AS

Viken Hydrogen aims to be the most competitive supplier of green hydrogen in our region. Our core competence is to develop, construct and operate hydrogen plants. The company is owned by Akershus Energi, Greenstat, and Østfold Energi.

Our ambition is to increase the pace of the hydrogen value chain development and by that contributing to the decarbonisation of fossil-based industry, heavy duty and maritime transport, construction sites, etc. in our region.

We aim to develop our business through industrial long-term partnerships and welcome you to contact us to explore opportunities Viken Hydrogen AS for cooperation.

Viken Hydrogen

vikenhydrogen.no

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Viking

Viking was founded in 1997 with the vision that travel could be more destination focused and culturally immersive.

Viking has grown to a fleet of more than 90 vessels, offering river, ocean and expedition voyages on all seven continents. Viking provides destination-focused itineraries for curious travelers, with each journey including a shore excursion in every port and an onboard and onshore enrichment program that provides deep immersion in the destination through performances of music and art, cooking demonstrations, informative port talks and carefully selected guest lecturers.

With more than 450 awards to its name, Viking is a leader in the industry and was rated #1 for Rivers, #1 for Oceans (for ships sized 500 to 2,500 berths) and #1 for Expeditions by Condé Nast Traveler for the second year in a row in the 2024 Readers' Choice Awards. This marks the first time a travel company has won these three categories in back-to-back years.

VIKING

viking.com

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Vireon AS

Vireon is a Nordic hydrogen company specializing in the development, ownership, and operation of hydrogen infrastructure, targeted at the heavy-duty transportation sector as well as industry pilots and construction. If a customer wants green hydrogen – Vireon can deliver all across the Nordics.

Founded in 2023, the company is actively engaged in building a robust hydrogen infrastructure across Norway, Sweden, Denmark, Iceland and Finland, with subsidiaries in all five countries.

Vireon has been granted significant funding from Enova in Norway, from the EU, from Business Finland, and other national and international grants to accelerate hydrogen infrastructure development. With strong backing from our owners and strategic partners, Vireon is at the forefront of building a sustainable, zero-emission infrastructure across the Nordics.

VIREON®

vireon.com

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Western Norway University of Applied Sciences (HVL)

At HVL we have a strong focus on education and continual education in hydrogen technology, covering technical, environmental and economical aspects of the entire hydrogen value chain. We also do applied and fundamental research on selected hydrogen technology topics such as hydrogen production, and are currently establishing HVL HydrogenLab.

Western Norway University of Applied Sciences

hvl.no

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Westgass Hydrogen AS

Westgass Hydrogen is a green energy company focused on accelerating the transition from fossil fuels in Europe and emerging markets. We will enable customers to run carbon neutral businesses by 2030.

Our purpose is to supply affordable and easily accessible green hydrogen and green ammonia, leveraging our experience, expertise and network in the energy sector.

We are fuelling the energy transition with green hydrogen by

- Building a distribution and sales network of green hydrogen across Norway
- Providing clients in the mobility sector high pressure refilling and off-grid fast charging
- Delivering off-grid power to replace high capacity diesel generators

We are safeguarding our climate with green ammonia by

- Developing green ammonia facilities in emerging markes for local fertilizer production
- Delivering zero carbon electricity to rural communitie through green hydrogen fuel cells
- Supplying industries in Europe with clean feedstock

westgass

westgass.com

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Worley Origo Process AS

Worley Origo Process consists of 16 process engineers with broad experience that spans from basic research and technology development to practical challenges, engineering, process safety and process simulations. Since 2002, quality and job satisfaction have been central values to establish a strong in-house professional environment.

Process competence is supplied to hydrogen companies with a high degree of flexibility. Examples of deliverables are listed below.

- Facilitate hazard and operability studies (HAZOP) and design reviews.
- Assist in the development of hydrogen production plants, i.e., mass and energy balances, process simulations, process safety evaluations and engineering.
- Assist with technology development and research.

Process engineers working with Worley Origo Process have PhD or MSc degrees within the fields of chemical engineering or chemistry. Projects are performed in own offices in Stavanger, or by working full or part-time as consultants in the customers' office.

The Australian Worley concern consists of 48,000 of the world's brightest minds in energy, chemicals and resources, all working to deliver a more sustainable world.

origo-process.no

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Yara Clean Ammonia

Building on its long experience and leading position within global ammonia production, logistics and trade, Yara has recently established the Yara Clean Ammonia (YCA) unit. Yara Clean Ammonia will enable climate smart agriculture, based on “green fertilizers” and Yara’s farming solutions, capture growth opportunities in emission-free fuel for shipping and power, and deliver clean ammonia for industrial applications.

Yara is uniquely positioned to enable the hydrogen economy in a market expected to grow by 60 percent over the next two decades.

Yara Clean Ammonia is supported by 17 production units, operates 11 ships and 18 ammonia terminals across the world. Yara Clean Ammonia is headquartered in Oslo, Norway.

Yara Clean Ammonia

yaracleanammonia.com

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Zero Emission Resource Organisation

ZERO is a non-profit environmental organization working for zero emissions solutions. In our view, emission-free alternatives exist for all energy use, and ZERO works continuously for their realization. We are not consultants, but participate in partnerships financed by third parties. ZERO has been working with hydrogen since 2002.

The key priorites have been to get sufficient incentives for hydrogen production and infrastructure, and to establish a domestic market with large-scale users in industry and the transport sector.

ZERO

zero.no

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Å Energi

Å Energi is Norway's largest renewable energy group with operations throughout the value chain from production to end customer. The cornerstone of our business is hydroelectric power, with around 11.3 TWh generated annually at 73 wholly-owned and part-owned power plants.

To serve an emerging market within transportation, maritime and construction, we are establishing green hydrogen production plants adjacent to new and existing power plants, minimizing the need for grid upgrades and land use, utilizing existing infrastructure. We are establishing our first hydrogen production plant at Pikerfoss hydro power plant in Kongsberg, with expected production start by the end of 2025. Å Energi aim to serve a hydrogen market in the south and eastern Norway.

Å Energi are also involved in ammonia-related projects. We are developing a project in Kvinesdal related to a large scale green ammonia plant. Through the company Ammonia AS (partly owned by Å Energi) we are developing an underground ammonia storage system eliminating safety distances.

Å
ENERGI

aenergi.no

Swagelok (SVAFAS Stavanger Valve & Fitting AS) offer training on fluid system best practices, trends and technology, installation, and safety.

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Enova SF

Enova SF is a public enterprise owned by the Norwegian Ministry of Climate and Environment. Enova SF`s goal is to contribute to reduced greenhouse gas emissions and in the development of climate technologies necessary for bringing Norway to the low emission society in 2050. Enova supports projects mainly through the granting of investment aid with an aim to reducing barriers and stimulating lasting market development. Enova's support instruments are mainly aimed at the potential users of new climate technology, who have climate gas emissions today. Both industry and transport are prioritized sectors for Enova, in which hydrogen may become an important solution for reduction of climate gas emissions.

enova

enova.no

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Innovation Norway

Innovation Norway is part of the Norwegian governments public support system, and we contribute to sustainable growth and exports for Norwegian businesses through capital, expertise and networks. Hydrogen is a prioritized area for Innovation Norway, and our most relevant funding schemes are the environmental technology grants and innovation loan.

Innovation Norway

innovationnorway.no

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The Research Council of Norway

The Research Council of Norway provides funding for fundamental, strategic and applied research within the hydrogen area. This is both in terms of technologies for production, storage, distribution / transport and the use of hydrogen. The Research Council of Norway is pivotal in relation to Norwegian participation in international cooperation agreements. Projects related to hydrogen and hydrogen based solutions will mainly be funded through the Research Council's Portfolio for energy, transport and low emission

The Research Council supports both Researcher Projects, Competence projects with research organisations as contracting parties, and Innovation projects, where industry companies are contracting parties. Through Pilot-E, The Research Council is collaborating with Enova and Innovation Norway to accelerate the projects from research to demonstration and market introduction. The Research Council also supports Centers for Environmentally Friendly Energy Research (FME). FME MoZEES and FME NCCS are covering environmentally friendly transport based on hydrogen and batteries and CCS including blue hydrogen production respectively. A new Center for Environmentally Friendly Energy Research dedicated to only hydrogen activities will be launched March 2022. For an overview of public funding allocated to hydrogenrelated projects, see HEILO.

The Research Council of Norway

forskningsradet.no

Litra have a goal to strongly reduce their emissions, and they believe that hydrogen will be an important part of achieving this goal.

Norwegian
Hydrogen Forum

Contact us

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