

Achieving net zero with hydrogen

A pathfinder by CMS



Experienced sector advisors across first of a kind projects and decarbonisation

Hydrogen is poised to play a critical role in delivering the decarbonisation agenda. This technology can be used across a wide range of sectors, and the potential to decarbonise difficult-to-electrify areas such as heat and transport, which account for a large percentage of the world's greenhouse gas emissions.

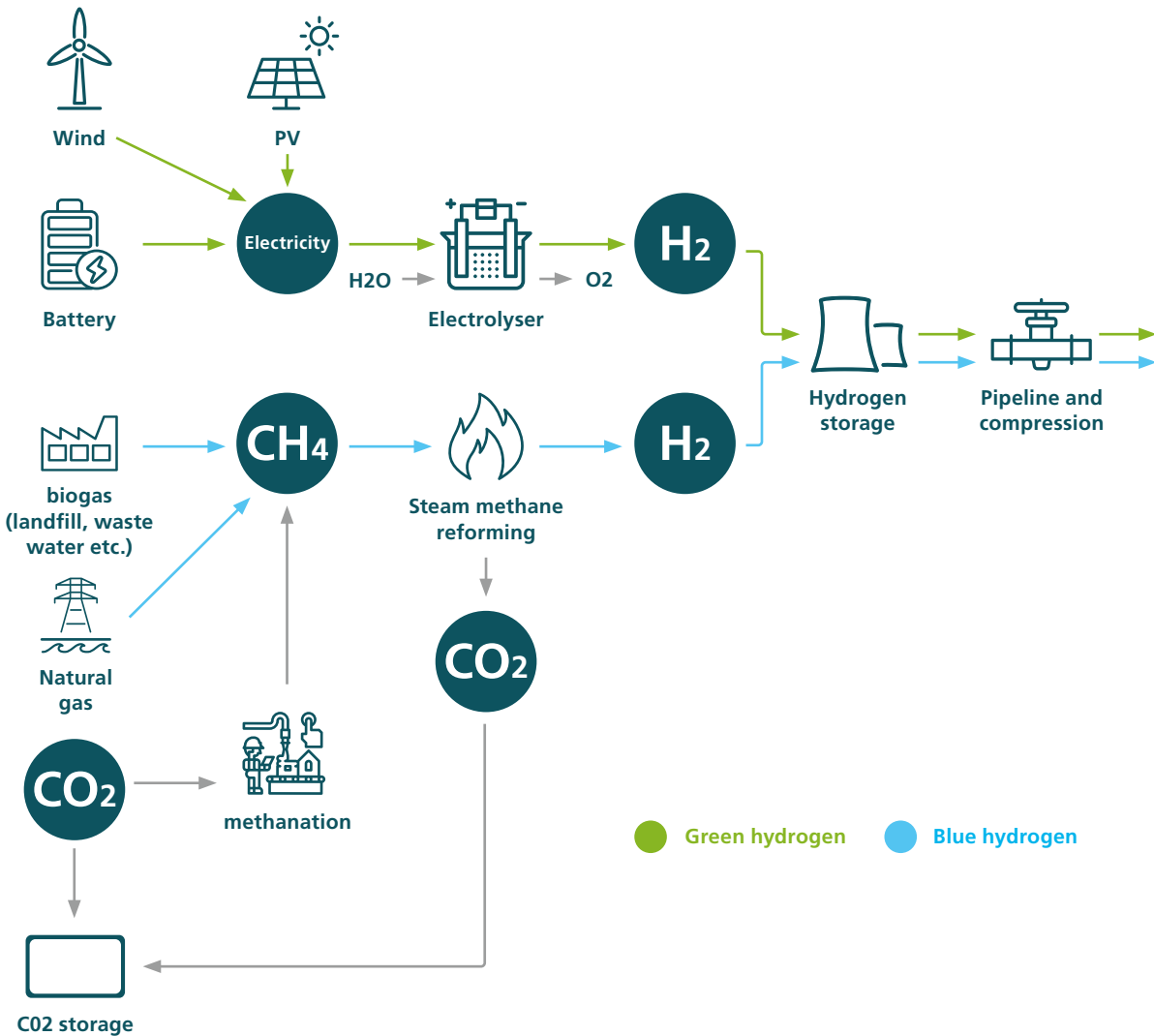
At CMS, we regularly advise on first of a kind projects and ways to reshape the existing energy systems to better achieve our clients' and the industries' objectives. Our dedicated Energy and Climate Change group works globally, and our experience across all aspects of this space is pre-eminent among law firms worldwide. We are consistently acknowledged as a leading and trusted advisor

to the energy industry, being described by legal directory Chambers Global as 'the best firm in the energy sector.'

The clean energy transition has fast become a topic that pervades every aspect of business. At CMS, our deep understanding of the energy, heating and transport sectors means that we are uniquely placed to advise you. Advising on this emerging technology and its uses is no exception.

If you would like to speak to us about hydrogen, please get in touch with your usual CMS contact in the Energy and Climate Change Group, who would be delighted to discuss innovative solutions with you.

Ways to make and use low-carbon hydrogen





Some highlights of our experience

Hydrogen in the transport sector

- **John Laing Investments** on partnering arrangements regarding the H2Bus Europe project (EUR 39.6m) to deploy 605 hydrogen fuel cell buses and supporting hydrogen refuelling infrastructure in Denmark, the UK, and Latvia.
- **University of St Andrews, Scotland** on its project to develop hydrogen powered trains for demonstration by late 2021.
- **National Grid Ventures** in collaboration with Cadent, SGN and Arup on Project Cavendish a hydrogen project to take hydrogen from the Isle of Grain to South London for use in London Underground and to power London's hydrogen buses.
- Advising **BOC** on bidding for a concession contract being let by Michelin Scotland Innovation Parc, Dundee for the construction and operation of a hydrogen refuelling station.
- **Plastic Omnium** on the establishment of a joint venture with ElringKlinger for the development and large-scale production of fuel cell stacks for zero carbon mobility in Austria and Germany.
- **Pale Blue Dot** as the consortium developing the Acorn Hydrogen project in Scotland to produce "blue" hydrogen using North Sea gas, with CO2 emissions stored using existing and reported oil and gas infrastructure. Hydrogen produced is intended to be used in transport applications, and in the gas grid to decarbonise domestic and industrial heating.
- **Transmission system operator** regulatory issues and legal frameworks for hydrogen transmission and offtake for use in the transport network.

- **Public infrastructure provider** on the establishment of a joint venture for the development and implementation of a hydrogen project for its transportation requirements
- **Enegix** on corporate structuring and fundraising matters relating to its planned green hydrogen plant and 3.4GW of wind and solar energy generation in Ceará, in the North East of Brazil – the first and largest such project to be announced in the country.

Hydrogen in the industrial sector

- **Northern Ireland Water** on the procurement and contracting of the up to GBP 25m oxygen and hydrogen project (starting with a 1MW electrolyser project) to produce green hydrogen for use in decarbonised transport and to optimise oxygen in the wastewater treatment system
- **A confidential client** on the collaboration agreement and the terms of the construction and offtake of hydrogen and green ammonia supply for an industrial project being developed in Germany.
- **H-TEC Systems GmbH** on the investment in it by the German-based engine maker, MAN Energy Solutions SE. The electrolyser manufacturer is aiming to supply electrolysers for production of green hydrogen to be used in optimizing wind energy production and providing grid management services.
- **A confidential client** on the use of green hydrogen for domestic and commercial heating across northern England – one of the biggest hydrogen projects in the UK (ongoing).

Hydrogen and network regulation

- **Open Grid Europe GmbH** on the European and German regulatory framework for hydrogen including conditions for a market ramp-up of blue hydrogen as well as possible support systems. The study is based on the production of hydrogen from natural gas and the permanent offshore storage of the resulting CO₂.
- **DEME Concession NV** in respect to the policy framework for the development and operation of the Hyport Duqm, the largest green hydrogen project in Oman, including advising on land rights agreements to be granted in the Duqm zone.
- **A European transmission system operator** on regulatory and legal implications for the gas network of hydrogen transmission and the conveyance of hydrogen on the gas network.
- **ERM** on regulatory and consenting matters relating to its Dolphyn (Deepwater Offshore Local Production of HYdrogeN) project for the production of 'green' hydrogen at scale from seawater by using electrolysis powered by floating, offshore wind turbines and exporting the hydrogen for use in the gas networks.
- **Neptune Energy** on its Dutch PosHYdon project, world's first offshore green hydrogen pilot including on policy and regulatory issues and its commercial strategy for the hydrogen.
- **City of Frankfurt am Main** policy and regulation for the production, storage, transport and delivery of hydrogen in a waste incineration context, including advising in respect to hazardous substances and health and safety matters.
- **Technical testing organization** on the establishment of a joint venture to provide consulting and project services related to hydrogen applications for third parties. The parties intended to meet the increased demand for contact persons with expert knowledge in the field of hydrogen and to generate follow-up business for their respective core businesses.
- As part of the **Gas Goes Green industry expert group**, advising on regulatory issues in respect the decarbonisation of the UK gas grid.

Key considerations

Existing infrastructure

- Retrofit opportunities
- Consenting and permitting
- Contractual obligations/revenue impacts
- Shareholder and debt arrangements
- Decommissioning
- Potential disputes with third parties

New infrastructure and construction

- Market entry and partnering
- Ensuring flexibility to adapt to technology changes
- State aid
- Competition law issues and merger clearance
- Stranded asset risk
- Supply chain and risk allocation

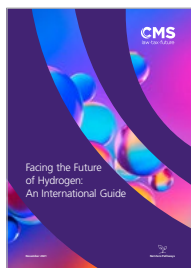
Corporate and corporate finance

- Availability of optimum revenue models
- Partnering and shareholder arrangements
- Fundraising (debt and equity)
- Mergers and acquisitions

Navigating the legislative and regulatory framework

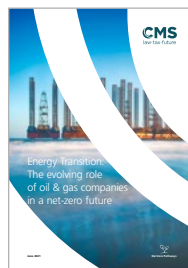
- Safety case
- Licensing regime
- Approaches with regulators and government
- Price control (setting, reviewing and monitoring, and appeals)
- New business models (demand and supply)
- Environmental considerations

Our thought leadership



CMS Expert Guide to hydrogen law and regulation

The Expert Guide: Facing the Future of Hydrogen offers readers the opportunity to reflect on the international legal landscape for hydrogen projects, and face the future of the opportunities that this versatile energy vector may unlock. This 2021 edition of the guide draws on insights from some of the most experienced global energy experts, providing an insightful perspective on the extent to which hydrogen has already been embraced by different countries, the challenges faced in optimising hydrogen application and on developments in the worldwide hydrogen economy since the first edition of this guide.



Energy Transition: The evolving role of oil & gas companies in a net-zero future

After an extraordinary year of health and economic challenges, the global oil and gas sector has an essential role to play in the economic recovery. The same could however be said of any economic recovery and expansion over the past 100 years – during this time oil and gas companies have provided most of the primary energy that has fuelled huge economic growth. But this time does look different. The oil and gas sector will power economic recovery not just through oil and gas exploration and production, but also (and perhaps counter-intuitively to some) through facilitating the transition to a lower-carbon economy and eventually a net zero future. This report presents a wide-ranging review of the role of oil and gas companies in that future.



Climate Risk report

This report focuses in on three discrete risks. First, of financial institutions holding corporates to account over perceived climate risks. Second, the risk to corporates on what they do and say about the impact on their business from (or from their business on) climate change. Finally, risk of litigation against corporates relating to climate change.



Time for Transition: Energy M&A 2022

The report published in co-operation with Mergermarket explores dealmaking in the energy sector in the age of COVID, digital disruption and energy transition. In addition to providing M&A deal statistics from across jurisdictions, the report includes analyses and comments from CMS experts that look at the market trends and put them in a wider context.

Further information

CMS Energy and Climate Change

<https://cms.law/en/int/global-reach/international/expertise/energy-climate-change>

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ENERGY & CLIMATE CHANGE

Today's energy sector requires expertise in global geopolitics, economics and regulation; but, rather than becoming more standardised and commoditised, the sector's pace of change is accelerating. CMS teams work across the globe to help meet the demands of climate change, technological disruption, urbanisation in developing economies, social concerns and political agendas.

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