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# Consenting and Real Estate Considerations for Developing Hydrogen Projects

## Early stage issues in developing hydrogen projects

While hydrogen is the most abundant molecule in the universe, it does not occur naturally in its elemental form. It needs to be produced by separating it from other elements.

Presently, 90-95% of the hydrogen produced in the world is “grey”, which means it is produced from natural gas (methane), usually by steam reformation method. Other methods (and colours) of hydrogen are:



### Green Hydrogen

Uses electricity derived from renewables for electrolysis, which splits water molecules (H<sub>2</sub>O) into hydrogen and oxygen.



### Blue Hydrogen

Like grey hydrogen it is produced using methane, but the CO<sub>2</sub> is captured and stored using CCUS.

Hydrogen is beginning to play a critical role in delivering the decarbonisation agenda. It has possible applications 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. CMS has long been involved in the development of demonstration and commercial scale new technologies in the energy sector, including networks projects, carbon capture usage and storage (CCUS), and the delivery of first of their kind consents. As such, we recognise the potential of hydrogen and strongly support the development of the hydrogen sector.

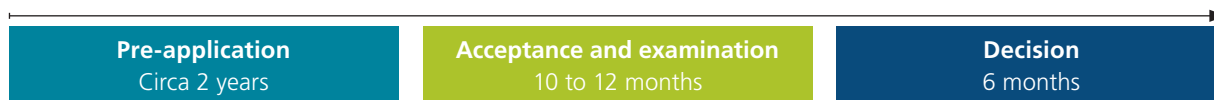
The delivery of hydrogen will require an holistic approach and a network of new or repurposed infrastructure, including: distribution and transmission networks, CCUS, hydrogen production facilities, and new transport and storage facilities.

The key early stage legal issues to consider for demonstration or commercial scale development of any hydrogen or CCUS project are: **consents**; **land rights**; and **regulation**. We set out the key considerations in respect of these issues below.

## Key consenting challenges

Major hydrogen projects are likely to be nationally significant infrastructure projects (NSIPs) which require a development consent order (DCO) under the Planning Act 2008. Whilst the overall success rate for DCO projects is high, a number of high-profile refusals relate to CCUS, gas storage and offshore projects.

An indicative timeline for securing a DCO, and some of the key consenting considerations, are below.



### Issues

<b>Co-ordination and co-location</b>	Related elements of infrastructure may be developed by different parties, and/or co-located with existing development, which requires co-ordination of different consent applications and/or variations.
<b>Need &amp; Funding</b>	A robust justification of need will be necessary, in particular where a project is contingent on other infrastructure. Previous CCUS projects have also failed at the consent stage due to insufficient evidence of funding.
<b>Environmental Challenges</b>	Hydrogen and CCUS projects will be scrutinised for their environmental impacts and risks. Impacts and risks to European sites, particularly in the marine environment where storage may occur, is a key challenge.
<b>Consultation &amp; Optioneering</b>	The DCO process is front-loaded, and a robust consultation and optioneering strategy is essential. For any major project, but particularly for first of their kind projects, it is essential for promoters to bring key stakeholders (such as the HSE, Natural England, local authorities and other undertakers) along with them.
<b>Hazardous Substances</b>	To the extent that there are elements of onshore storage, separate applications for hazardous substances consent (HSC) will be required. HSC applications can be contentious because they impact development.
<b>Environmental Permitting</b>	Some aspects of hydrogen and CCUS may also require additional environmental permits, requiring further co-ordination between consent processes.
<b>Policy Position</b>	The Energy National Policy Statements (NPSs) are ten years’ old and currently the subject of a legal challenge. An updated suite of NPSs may provide a clearer policy framework for hydrogen and CCUS. The delayed National Infrastructure Strategy may also provide clear support for hydrogen and CCUS and related infrastructure like industrial clusters and freeports.

## Key land issues



## Key early stage regulatory considerations

### Legal framework

- No specific regulatory framework/statute for development of hydrogen projects
- Piecemeal, with differences for transport, industry and heating sectors so need to consider the implications of each in turn
- Established framework for pipeline/network development and operation which can support hydrogen blending and transport
- Established regulation of hazardous activities/substances especially for (road) transport and storage

### Funding and incentives

- R&D funding for transport, industry and heating sectors but need to assess against cumulative State aid
- Some incentives available through price controls on pipelines but need to ensure alignment with the regulators to avoid future disputes
- Potential new models being considered by government and industry that would need to be factored into the contractual matrix

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