

COSTAIN

Shaping our energy future: Hydrogen and CCUS

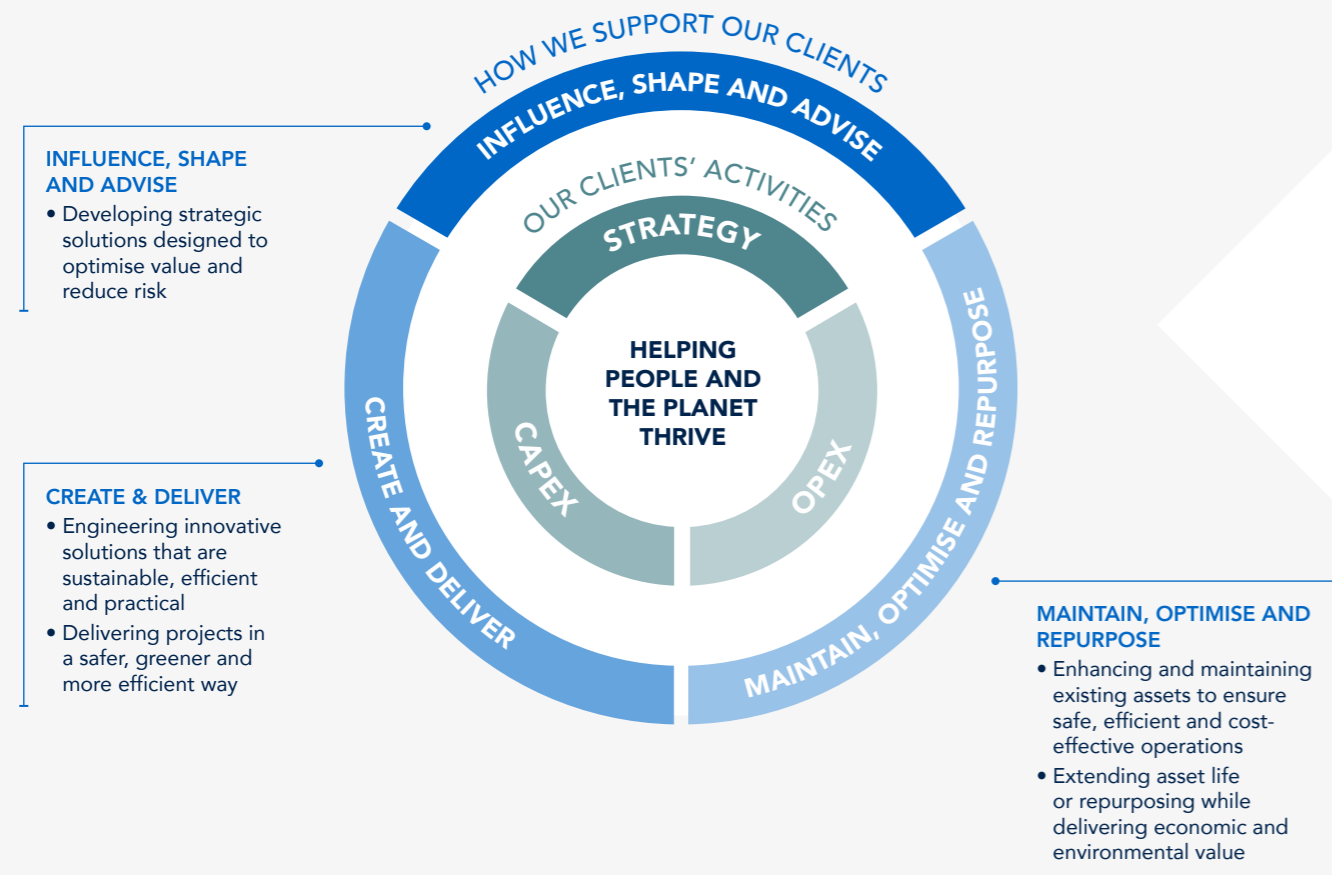


Improving people's lives.

Playing a leading role in the deployment of solutions to develop the hydrogen and CCUS markets.

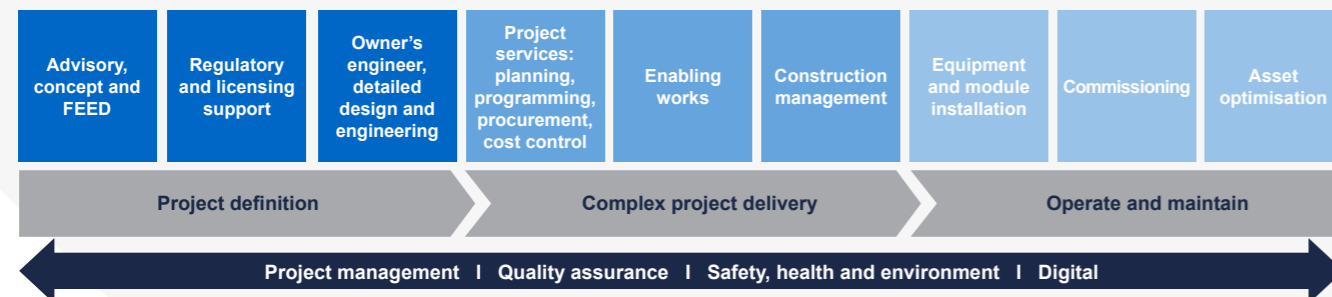
We are an engineering consultancy with a heritage of over 70 years in gas separation and processing, helping to realise the transition to hydrogen through our work on hydrogen production and transportation concepts and carbon capture and storage schemes.

From large-scale industrial clusters to community-based schemes, we identify opportunities for decarbonisation and develop the project from its initial concept, proving the feasibility and enabling investment decisions. We are technology agnostic, meaning we can make the best recommendations for your project. Our wealth of experience in project management, engineering, procurement and construction management makes us perfectly placed to successfully deliver your project.



Our capabilities

Our multi-sector engineering capabilities enable us to deliver value and innovation across all phases of the project lifecycle, from initial feasibility, through design and build to operation and maintenance.



A regional approach to industrial decarbonisation

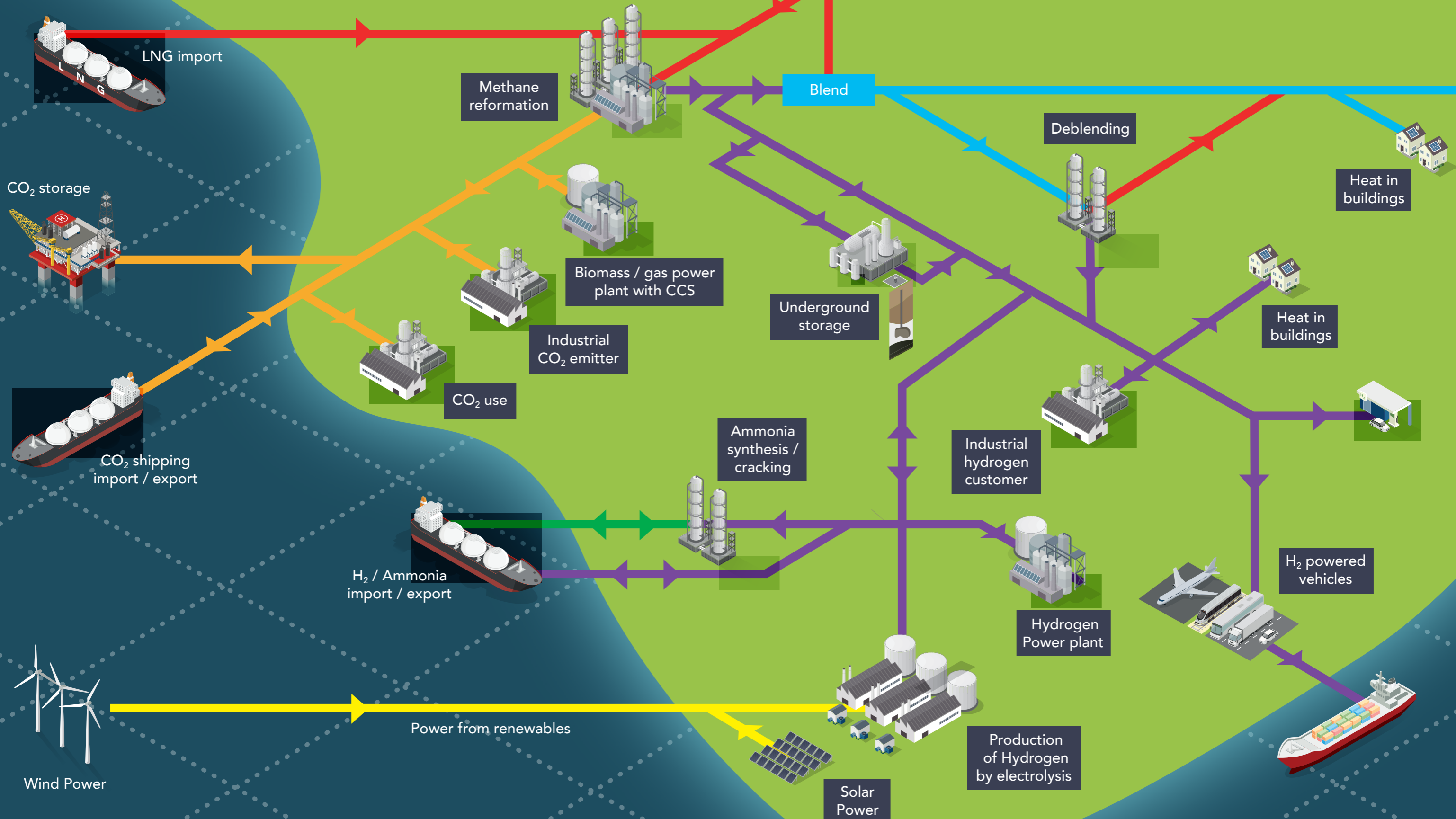




The hydrogen value chain

KEY

Natural Gas	Hydrogen/natural gas blend	CO ₂
Hydrogen	Ammonia	Electricity



Our work

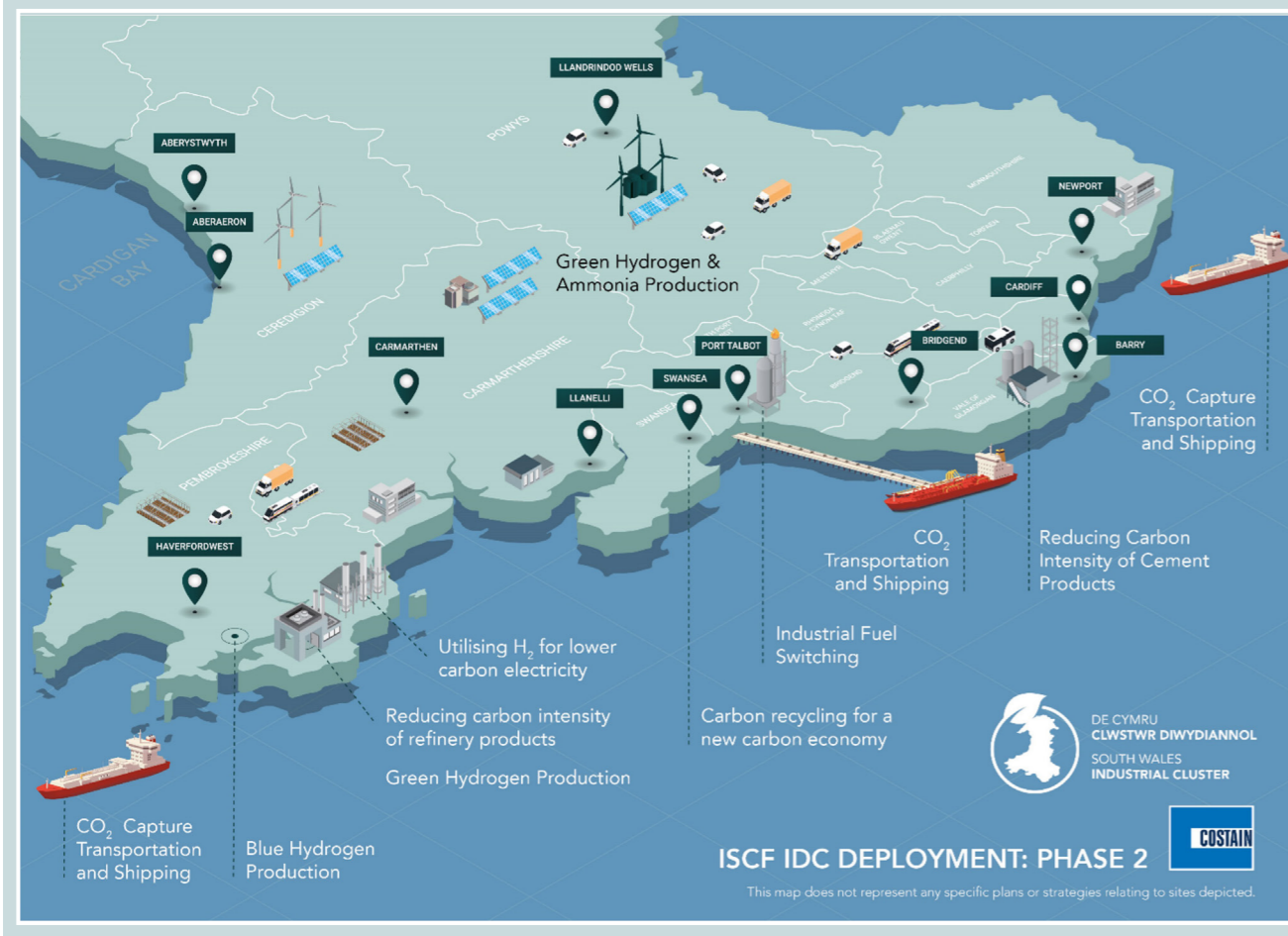
Taking a whole system approach, we are supporting clients, industrial clusters and key stakeholders with their strategic intentions around hydrogen and CCUS to move us rapidly towards a decarbonised economy.

A world leading truly sustainable industrial cluster

Costain leads the South Wales Industrial Cluster (SWIC) deployment project collaborating with multiple partners to develop up to 35 individual carbon-reduction programmes. The project aims to increase energy efficiency and avoid carbon emissions while exploring opportunities for Carbon Capture Usage and Storage (CCUS) and low carbon power generation to decarbonise industry in South Wales and support the green industrial revolution agenda.

As lead for deployment, our consultants use their deep client insight and industry knowledge gained from years of delivering integrated complex delivery programmes across multiple sectors, to provide advice and practical options to achieve better outcomes for the economy of South Wales.

The SWIC deployment project will create pathways and opportunities to promote Wales as a leading global player in decarbonised industrial and economic growth, with a goal of net zero carbon (NZC) by 2040.



Enabling carbon capture and storage

Helping the UK meet its net zero targets through the design of safe, cost-effective carbon capture and storage facilities.

Costain is supporting the delivery of the Acorn CCS Phase 1 project, which is an enabler to meeting the Scottish and UK governments' net zero carbon emissions targets.

The flagship Acorn CCS project, which is supported by Scotland's biggest industries, aims to capture carbon emissions from the onshore gas facilities at the St Fergus terminal in the north of the country and transport them to an offshore storage site.

Costain has completed the FEED design for the Acorn CCS project including the flue gas gathering, capture technology integration, conditioning and compression, pipeline repurposing and the subsea facilities.

Developing Hydrogen storage

Developing first-of-a-kind hydrogen storage for the UK's green energy future.

We are collaborating with INEOS Inovyn on the development of a hydrogen storage facility for the HyNet North West project.

The HyNet system will take low carbon hydrogen from production to consumption, balancing supply and demand. The facility, the largest in the UK, will enable up to 1.3 TWh of excess hydrogen to be stored underground in salt cavities during periods of low demand and discharged into the gas network during peak winter periods. We are undertaking the concept study and front end engineering design that will shape and create the infrastructure required for the import, storage and export of hydrogen at the facility.

Renewable Hydrogen for vehicle fleets

Developing a renewable hydrogen source for vehicle fleets

Costain and Welsh Water are working in close collaboration to develop a hydrogen production facility in South East Wales, using waste gases from the sewage treatment process as a source to produce fuel grade hydrogen. The renewable hydrogen could power local fleet vehicles (including Welsh Water's fleet), saving significant amounts of carbon emissions and improving air quality.

A demonstrator project is planned, located in Cardiff. The plant would utilise 35GWh of biogas to help generate 2000 kg per day of hydrogen, enough to fill up the equivalent of 100 buses.



Gas gathering pipeline

Delivering ground-breaking onshore carbon capture project in Teesside

On behalf of its partner bp, the operator of the Northern Endurance Partnership (NEP) has awarded Costain an onshore FEED contract for the East Coast Cluster carbon capture, utilisation, and storage (CCUS) project. Costain will deliver the onshore CO₂ gathering pipeline and the new grid connection for the gas power station.

The scheme will play a significant role in improving the lives of people living in the Northeast and represents a significant boost for the industrial heartlands of Teesside and the Humber.

The award comes after the Department for Business, Energy & Industrial Strategy (BEIS) selected the East Coast Cluster in October 2021 as one of the UK's first CCUS clusters to move forward in development.

About us

Our multi-discipline, multi-sector team can advise on the best approach to develop your hydrogen and CCUS projects.

Our design teams

We have over 1300 multi-discipline engineering and design management professionals across the UK, including onshore, offshore and subsea. We can put together the right combination of experts to create a team tailored to your needs, including:

- Civil engineers
- Construction specialists
- Controls & instrument engineers
- Cost estimators
- Design engineers/CAD/E3D
- Electrical engineers
- Materials and corrosion specialists
- Flow assurance specialists
- Mechanical engineers
- Pipeline engineers
- Piping and layout engineers
- Process engineers
- Project engineers
- Rotating machinery engineers
- Structural engineers
- Technical safety and environmental specialists
- Technology specialists

Contact us to learn more



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