
INEOS
HYDROGEN
FUEL OF THE FUTURE

£13bn

£13billion invested capital across four, large-scale manufacturing facilities

5000

5000 UK employees supporting 37,400 jobs across the UK

£2.9bn

Providing £2.9 billion gross Value Added to the UK

raw materials

Producing a wide range of raw materials essential to manufacturing in the north of England and the central belt of Scotland

Hydrogen economy in the UK

INEOS is a global manufacturing company and the UK's biggest producer of clean, low-carbon hydrogen.

Our 26,000 employees produce the raw materials that can be found in everything from hand sanitiser to wind turbine blades, car components to electrical insulation, to blood bags, ventilators, and packaging.

Our products are vital in the transition to net zero.

The chlorine we make at Runcorn is essential to keeping 98% of the UK's drinking water safe.

We're committed to reach net zero by 2050 (2045 in Scotland) and have already taken concrete actions to create meaningful, and measurable, near and long-term reductions in our climate footprint.

Our position as both a producer and consumer of clean hydrogen gives us a unique perspective on the role it can play in the future.

By using the hydrogen that we already produce, we're already reducing emissions from our operations and we are committed to investing further in new production capacity.

We are already Europe's largest operator of industrial electrolysis, the technology necessary to produce hydrogen and we are growing our business by investing in 'first intent' clean hydrogen production across Europe.

But that's not the end of the story.

We recently announced a £1billion investment required to move to the production and use of hydrogen at our Grangemouth site in Scotland, linked to carbon capture and storage of more than one million tonnes per annum of CO_2 by 2030.

The plant will build a world-scale carbon capture enabled hydrogen production plant linked to the Acorn project.

Using our expertise in production technology and storage, we're helping to drive changes that will make hydrogen, and fuel-cell powered public transport, a reality.

What the hydrogen economy needs is investment in infrastructure and a clear plan from Government.

We were pleased to see the Government's commitment to hydrogen take shape in the recently published Hydrogen Strategy and we look forward to working together to build the hydrogen economy in the UK and beyond.

INEOS IS CURRENTLY IN THE PROCESS OF BUILDING A 20MW GREEN HYDROGEN ELECTROLYSER IN RAFNES, NORWAY

INEOS investments in hydrogen

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INEOS is aiming to contribute to the UK's climate targets, not only decarbonising energy for its existing operations, but also by providing products, such as hydrogen, that will help other businesses and sectors to do the same.

INEOS currently produces 400,000 tonnes of hydrogen from its chemical manufacturing operations.

Its experience in storage and handling of hydrogen, combined with its established know-how in electrolysis technology, puts INEOS in a strong position to drive progress towards a carbon-free future based on hydrogen.

INOVYN, the INEOS hydrogen business, has its headquarters in the UK and plans to build capacity to produce green hydrogen across the INEOS network of sites in Europe, in addition to partner sites where hydrogen can accelerate the decarbonisation of energy.

INEOS is involved in several projects to develop demand for hydrogen, replacing existing carbon-based sources of energy, raw materials and fuel.

INOVYN has already 60,000 tonnes low-carbon hydrogen available to develop the hydrogen transport market immediately.

INEOS Energy made a significant investment to provide cornerstone backing of HydrogenOne, the first London listed fund dedicated to clean hydrogen for the energy transition towards net zero carbon emissions by 2050.

We're also taking part in pioneering projects like Acorn carbon capture in Scotland, and HyNet in the North West.

HyNet alone will produce 80% of the Government's new UK-wide target of 5GW of low carbon hydrogen by 2030 and Acorn will enable the site in Grangemouth, Scotland, to transition to the use of hydrogen as the principal energy source.

We are currently in the process of building a 20MW green hydrogen electrolyser in Rafnes, Norway, that points to what is possible right here in the UK.

And we've committed to making hydrogen transport more accessible by signing a memorandum of understanding with Hyundai to explore production and supply of hydrogen, as well as new hydrogen applications, technologies, and business models.

INOVYN expects to develop further partnerships with leading organisations involved in the development of new applications and will work closely with UK and European Governments to ensure the necessary infrastructure is put in place to facilitate hydrogen's major role in the new green economy.

With the investments we have announced and already made, our commitment is clear: We're determined to lead the hydrogen revolution here in the UK and across Europe.

What we ask of Government

PRODUCTION

Make the UK the most attractive place for hydrogen producers

The UK has the potential to be one of the most attractive places globally for the hydrogen power sector. With Government backing to build the next generation of electrolysers and develop new storage capacity, that potential can be realised. If we're to meet the Government's target for 2030 as set out in its Hydrogen Strategy, we need to act now to begin developing the pipes, the pumps, and the tanks that will make the hydrogen revolution a reality.

WE NEED:

- Government support to build new water electrolysers and develop UK technology environment
- An ambitious renewables plan that complements a developing hydrogen sector
- Investment in infrastructure, such as carbon capture and large-scale hydrogen storage

DEMAND

Hydrogen power that's accessible to all

Building a hydrogen economy means empowering consumers to make the switch to hydrogen power. Nations, including Germany and the US, are targeting a quadrupling of their hydrogen fuelling stations and already offer grants and rebates for consumers purchasing hydrogen fuel cell cars. There's no reason the UK can't follow their example or go even further.

WE NEED:

- Ambitious commitments to build new fuelling stations for the next generation of cars
- New measures to cut the cost for early adopters of hydrogen power that will pave the way for the future
- Incentives for energy intensive industries to switch to low carbon hydrogen

REGULATORY

Unlock hydrogen's potential

To unlock the potential of UK hydrogen and help rapidly decarbonise our economy, the sector and Government need to work together to deliver on the country's strategic priorities. Taking early decisions can put us on the path to an expanded hydrogen economy by 2030. And incentivising councils and providers to switch to fuel cell powered public transport can be the spur to developing the UK's hydrogen technology capacity.

WE NEED:

- Developing the partnership between industry and Government to deliver hydrogen fuel
- Taking early decisions to put us on the path to an expanded hydrogen sector by 2030
- Incentivising public transport to adopt fuel cell powered vehicles to boost the UK's technological capacity
- Investment in hydrogen filling stations for public transport vehicles

Carbon capture and storage

INEOS Grangemouth moves forward on the next phase of its journey to reduce greenhouse gas emissions to net zero by 2045, with further investment in excess of £1 billion.

CLIMATE change is one of the most urgent environmental, economic and social issues of our time. INEOS has set an ambitious plan in Scotland to achieve net zero by 2045 and we have announced the next stage of our roadmap which includes an investment in excess of £1 billion at our Grangemouth site.

Our roadmap to net zero builds on the significant reductions we've already made at Grangemouth.

When INEOS bought the site in 2005 it was emitting around five million tonnes of CO_2 per year. We've already reduced that to three million tonnes today.

Our next step, to use hydrogen combined with carbon capture via the Acorn project, will reduce this to below two million.

Our roadmap, which extends beyond the Acorn project, has one goal, and that is to safely and efficiently reduce CO_2 emissions to zero by 2045

The Acorn project is an ambitious carbon capture & storage plan that INEOS is excited to be a part of.

The project unlocks the carbon capture & storage, and hydrogen infrastructure essential for meeting our net zero targets.

It is extremely innovative. It utilises existing gas pipelines and Scotland's excellent geology for CO_2 storage to enable capture and storage of 5-10 million tonnes a year of CO_2 by 2030.

The INEOS and Petroineos site at Grangemouth in Central Scotland has already reduced CO_2 emissions by 37% since taking ownership in 2005.

The Acorn Project will enable further emission reduction – 60% lower versus 2005 - by permanently storing CO_2 from the site, with scope for further significant reduction beyond 2030.

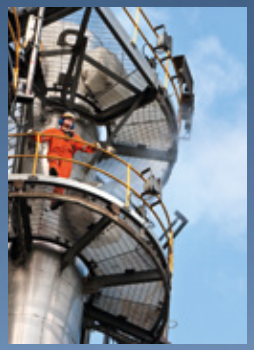
INEOS and Petroineos will play a crucial role in the transition to net zero by producing clean, low-carbon hydrogen to be used at its site and distributed to support third party investment in wider decarbonisation opportunities.

420km
420km of existing pipeline to be reused

5m
5 million tonnes a year CO2 stored by mid-2020s

15,000
15,000 jobs per annum supported

1m
Over 1 million tonnes a year CO_2 from Grangemouth by 2030



This is a pivotal moment for UK industry

The UK Government is deciding on at least two industrial clusters to prioritise for development – through its Track 1 process – to be operational by the mid-2020s, to deliver on the Prime Minister's commitment to capture 10MtCO_2/year by 2030.

Carbon capture & storage is crucial to realising the UK's net zero target by 2050, decarbonising industry, enabling the hydrogen economy through blue hydrogen production and creating negative emissions to offset hard-to-abate sectors.

What the Government must do?

It is essential the Government backs three schemes in the UK covering Scotland and the North East and North West of England.

Selecting three clusters now will determine the UK's potential to be a global leader in carbon capture & storage and attract significant low-carbon industry investment from around the world across a broader number of schemes.

Scottish cluster should be selected for development now because it reliably repurposes existing oil and gas infrastructure and unlocks access to over 600million tonnes of CO_2 storage, equivalent of 30% of the UK's CO_2 storage resource.