



**A vision
for the UK's
net zero transition**

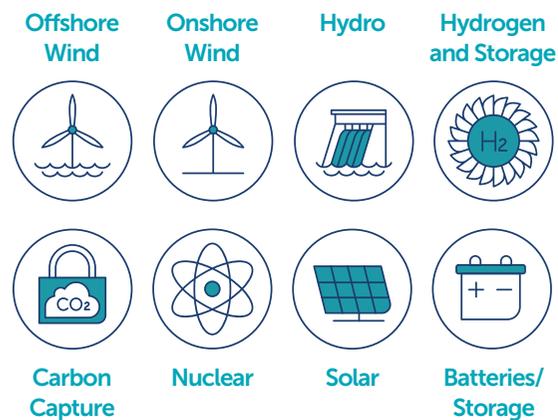


Securing sustainable homegrown energy

SSE is the UK's clean energy champion and is building more offshore wind than any other company in the world.

That's because we know renewable power will be at the heart of the UK's transition to net zero emissions, with significant growth of offshore wind happening this decade. Low-carbon flexible power – power that can be turned on and off when the system needs – will provide crucial back up when the wind doesn't blow and the sun doesn't shine; making sure the lights stay on, keeping the engine of industry firing and maintaining connectivity in our increasingly digital world.

A mix of renewable and low-carbon technologies will be needed to deliver a net zero power system by 2035, in turn unlocking the decarbonisation of the wider economy.



Delivering this decade

SSE Thermal is responsible for the operation of several flexible power stations across the UK. This flexibility is vital to ensuring the UK has the power it needs but we recognise it must be low-carbon in its own right. That is why we have closed our coal-fired power stations and why we are so committed to repurposing our existing sites and assets using low-carbon technologies. Crucially, the hard work on this transition must be done this decade – this is the only way we can successfully achieve a net zero power system by 2035.

Carbon Capture Power Stations

Building new super-efficient power stations, capturing at least 95% of carbon emissions and storing them safely underground

Hydrogen Power Stations

Using low-carbon hydrogen with zero carbon emissions at point of combustion, or blending hydrogen into existing stations

Hydrogen Production

Using excess renewables to create carbon-free hydrogen, alongside other forms of low-carbon hydrogen, which can then be stored and used to provide energy when needed

Hydrogen Storage

Converting existing underground salt caverns or creating new purpose-built caverns to store hydrogen and underpin the hydrogen economy



Growing the economy and protecting 1.5m jobs

Our mission is about much more than achieving a net zero power system. The same low-carbon technologies we are bringing forward will be key to underpinning wider industrial decarbonisation, in turn creating real opportunities for workers and communities in our industrial heartlands. Carbon capture technologies will help protect approximately 1.5 million jobs across the UK, in addition to new low-carbon opportunities.

Working with partners, we are committed to developing a low-carbon economy in key industrial clusters within the UK, including the north-east of Scotland and in the Humber.

In each region, we are bringing forward a major power CCS project, each of which is expected to capture up to one and a half million tonnes of CO2 a year. Combined, that represents 10% of the UK Government's 2030 target.

Keadby 3 Carbon Capture Power Station

Keadby 3 could become one of the UK's first power stations equipped with carbon capture technology and in December 2022 became the first power CCS project to receive planning permission. The plant, which is being developed in collaboration with Equinor, would plug into the shared pipelines being developed through the East Coast Cluster with the CO2 being stored off the coast.

Peterhead Carbon Capture Power Station

SSE Thermal and Equinor are developing the low-carbon power station in Aberdeenshire, with the plant potentially becoming Scotland's first flexible power station equipped with carbon capture technology. It would plug into the shared pipelines being developed through the Scottish Cluster with the CO2 being under the North Sea.

Each low-carbon station would see an investment of **£2.2bn** and would:



Generate **£1.2bn** for UK economy



Support **240+** jobs a year



Supporting a Just Transition

Gwen Stewart, Chemist, Peterhead Power Station

The Peterhead site has gone through a few transitions in its time, from using heavy oil to gas and hopefully now to carbon capture. We need to work towards net zero but continue to provide the flexible energy the country needs, and Peterhead Carbon Capture Power Station can do that while retaining the skills and expertise of the current workforce and creating new jobs at the same time.



Hydrogen at the heart of net zero

Within SSE, we know hydrogen has an integral role to play in reaching net zero and we're bringing forward projects across hydrogen value chain, with a particular focus on the Humber region. In doing so, we are bringing energy and opportunity to a new generation, building a pipeline for low-carbon careers.

Aldbrough Hydrogen Pathfinder

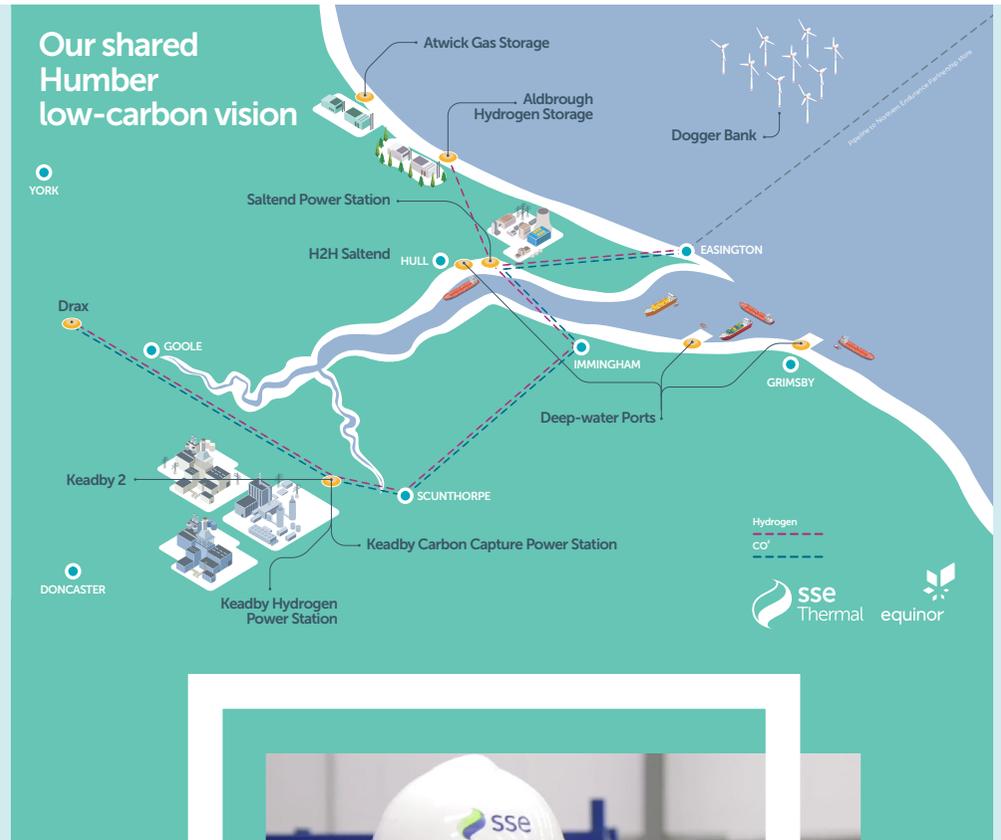
This first-of-a-kind project in the Humber would unite hydrogen production, storage and power generation in one location by the middle of the decade. Pathfinder will support the evidence base for wider deployment of flexible hydrogen power in the UK's net zero journey and is a major enabler of SSE Thermal's wider Humber ambitions.

Aldbrough Hydrogen Storage

The proposed Aldbrough Hydrogen Storage facility could be in operation by early 2028, with an initial expected capacity of at least 320 Gigawatt hours (GWh), which is enough to power over 860 hydrogen buses a year. Delivered in collaboration between SSE Thermal and Equinor, it could be one of the world's largest hydrogen storage facilities.

Keadby Hydrogen Power Station

SSE Thermal and Equinor are also developing Keadby Hydrogen Power Station, which would have a peak demand of 1,800MW of hydrogen, producing zero carbon emissions at the point of combustion. It could be the world's first major 100% hydrogen-fired power station, securing at-scale demand for hydrogen in the region for decades to come.



Creating new opportunities

Oscar Brownlee, Apprentice, Aldbrough Gas Storage

I've got family working in the energy industry and it's always something I've wanted to get into. Aldbrough is a great place to work and the transition to a hydrogen future is really exciting. Being part of a younger generation it creates more jobs for people in the local area and lets me take on new challenges and learn new things.



Our pledge

We know these technologies will be needed. As coal-fired power stations close, aging nuclear and gas-fired power stations switch off, and demand for electricity doubles with increased uptake of electric vehicles and electric heating, new capacity will be needed to fill the gap.

To keep the UK on track to a net zero power system by 2035, 7-9GW of carbon capture power stations and up to 8GW of hydrogen fired peaking power stations will be needed by 2030, alongside significant renewables growth.

This means the investment SSE Thermal is making in these technologies now is crucial, to ensure the low-carbon power stations we will need can be operational this decade.

This would form part of SSE's £24bn investment programme in the UK – equivalent to £7m every day. As we invest in and develop these new technologies, we are committed to delivering a fair and just transition to net zero.

We pledge to:

- 1 Keep health, safety and wellbeing at the core of our activity
- 2 Engage with our communities and stakeholders, to minimise disruption and identify opportunities to deliver local benefit
- 3 Work with supply chain partners to build domestic supply chain capabilities and include local supply chain requirements in contracts
- 4 Boost inclusion and diversity, so a workforce with different perspectives and experiences can continue to innovate, to deliver the low-carbon solutions needed to reach net zero
- 5 Work towards achieving biodiversity net gain by 2025 for areas where we construct large capital projects

Our ask

We cannot deliver these projects on our own; collaboration, partnership and policy, alongside deployment of the shared decarbonisation infrastructure, will be crucial.

We ask the UK Government to:

1. Progress the deployment of carbon capture and storage and hydrogen infrastructure in at least four industrial clusters by 2030
2. Support first-of-a-kind carbon capture and storage and hydrogen projects to investment decisions before the end of 2024
3. Increase its ambition for carbon capture power stations to 7-9GW by 2030, with regular auctions for Dispatchable Power Agreements
4. Set out a policy ambition for hydrogen in the power sector and a strategy for delivering at least 8GW hydrogen capable power stations by 2030
5. Accelerate the delivery of business models for hydrogen transport and storage infrastructure, to kickstart the hydrogen economy





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