



Welcome to our Virtual Exhibition

Our public consultation will run from Tuesday 4th February 2025 lasting for six weeks, until 11:59pm on Tuesday 18th March 2025.

Thank you for visiting our virtual exhibition on our public consultation for Staythorpe Power Station Carbon Capture Project.

This consultation aims to introduce you to our preliminary proposals and seek your feedback and insight that will inform and, where appropriate, influence the design of the project. Please let us know your views by completing our online feedback form. Additional information is available in our Document Library.

The feedback we receive at this stage, coupled with the ongoing environmental and technical surveys, will play a crucial role in shaping the design of the project that we will present in our submission of proposals to the Department of Energy Security and Net Zero (DESNZ).



Staythorpe Power Station

Who is RWE and RWE Generation UK?

RWE is the developer proposing the Staythorpe Carbon Capture project at the existing Staythorpe Power Station.

The RWE group is currently the largest power generator in the UK and a leading renewables developer, generating enough power for around 12 million homes with a diverse portfolio of wind, solar, hydro, biomass and gas, with a clear strategy to become carbon neutral by 2040.

RWE Generation UK (to be known as RWE) is part of the RWE group and operates approximately 7GWe of efficient gas-fired plants in the UK, which supports the transition to renewables by providing a firm and flexible source of power. The UK plays a key role in RWE's 'Growing Green' strategy to grow its renewables portfolio. Between 2024 and 2030, RWE expects to invest €55 billion in new green technologies and infrastructure to support the energy transition.

Beyond Staythorpe Power Station, the RWE group has several significant projects in the surrounding region. These include the 1.4GWe, £3bn Sofia offshore wind project in the North Sea, a solar proposal at Tween Bridge in North Lincolnshire, and the state-of-the-art operations and maintenance centre, Grimsby Hub, which is nearing the end of construction.

RWE is committed to creating long-term jobs and opportunities in the region and has invested in initiatives that support the training and development of low-carbon jobs, such as our apprentice and graduate programs.



RWE projects on the East Coast

The Need for Carbon Capture and Storage

Power stations with carbon capture technology are essential in the UK's transition to a decarbonised energy system, providing low carbon, reliable, and flexible energy at times when energy from renewable sources is insufficient to meet demand.

The role gas has played in the UK's power system has evolved over time and continues to do so. As coal and oil power stations have shut down, gas has played an increasingly central role, providing around 40% of the UK's power in 2022 and up to 50% at certain times, as well as representing a cleaner alternative to coal and oil.

In the future, Combined Cycle Gas Turbine (CCGT) facilities with carbon capture plants will operate alongside renewables to ensure security of supply, including during periods of low renewable generation and periods of peak demand.

As an operator of around 7GWe of efficient gas fired capacity in the UK, RWE Generation UK recognises the central role we play in helping to drive forward this decarbonisation through responsible, proactive stewardship of the UK's largest gas fleet.

Our UK Decarbonisation Journey

We are the largest power generator in the UK,

supplying around 15% of the country's electricity, including approximately 7GW of efficient gas-fired capacity and over 2.8GW of renewables in the UK.

We plan to invest €8 billion net into new clean energy infrastructure in the UK from 2024 to 2030.

Our plan supports the UK government's target to decarbonise the electricity system by 2035 and provide security of supply.

Combined these three projects will deliver:

- A Approximately 4.5GW of secure, flexible, low carbon energy – enough to power around 8.1 million homes.
- B Capture approximately 1.1 million t/year of CO₂, the equivalent of removing 2.2 million petrol cars from the road.
- C Support and create 300+ high quality, long-term operational jobs and thousands of jobs during construction and in the supply chain.

We closed our last UK coal plant in 2020.

We have cut the carbon intensity of our UK electricity generation by 43% since 2012.

Prioritising three 'lighthouse projects' for decarbonisation;

- 1 Existing plant at Staythorpe (CCS)
- 2 Existing plant at Pembroke (CCS and/or H2)
- 3 A new build Combined Cycle Gas Turbine generating plant (CCGT and CCS) near Stallingborough.

These three sites cover more than 60% of RWE's total UK gas generating capacity, and represent the first step in decarbonising our gas fleet.

Our ambition is to have the first of our fleet decarbonised by 2030.

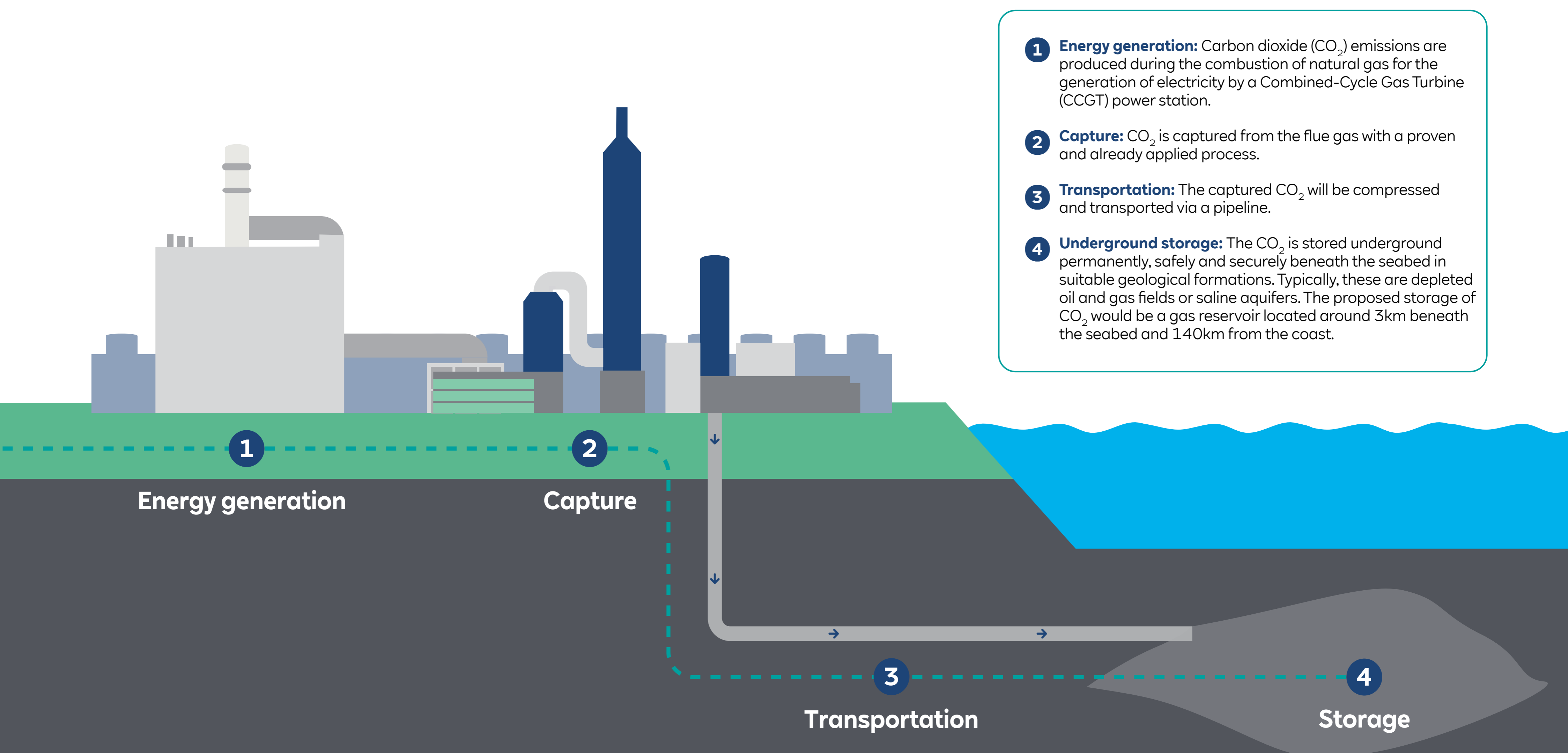
We will take learnings from these lighthouse projects to identify opportunities in decarbonising the remainder of our gas generation fleet.

2040

What is Carbon Capture?

Carbon Capture is a proven technology which will help support the transition to net-zero, by allowing the decarbonisation of reliable and flexible energy generation sources that can support and work alongside renewable generation.

There are currently 30 large-scale carbon capture and storage (CCS) and carbon capture, usage and storage (CCUS) projects in operation around the world and over 150 in development. Globally, CCS and CCUS deployment has tripled over the last decade.



Summary of the post-combustion carbon capture and storage process

Our Proposals

The proposed carbon capture technology would be built as a retrofit to the current Staythorpe Power Station, which is a Combined Cycle Gas Turbine (CCGT) facility, operating on natural gas.

The project will likely comprise of the following key infrastructure:

- Four Carbon Capture units to capture CO₂ emissions - one for each Gas Turbine.
- A facility to compress and purify CO₂ for onward transport from the site.
- New on-site electrical transformers.
- A water treatment plant and drainage system.
- Additional cooling infrastructure.

If consented the project could deliver a number of benefits including:



A gross output capacity of approximately 1.5GWe of decarbonised, secure flexible energy – enough to power 3.3 million homes



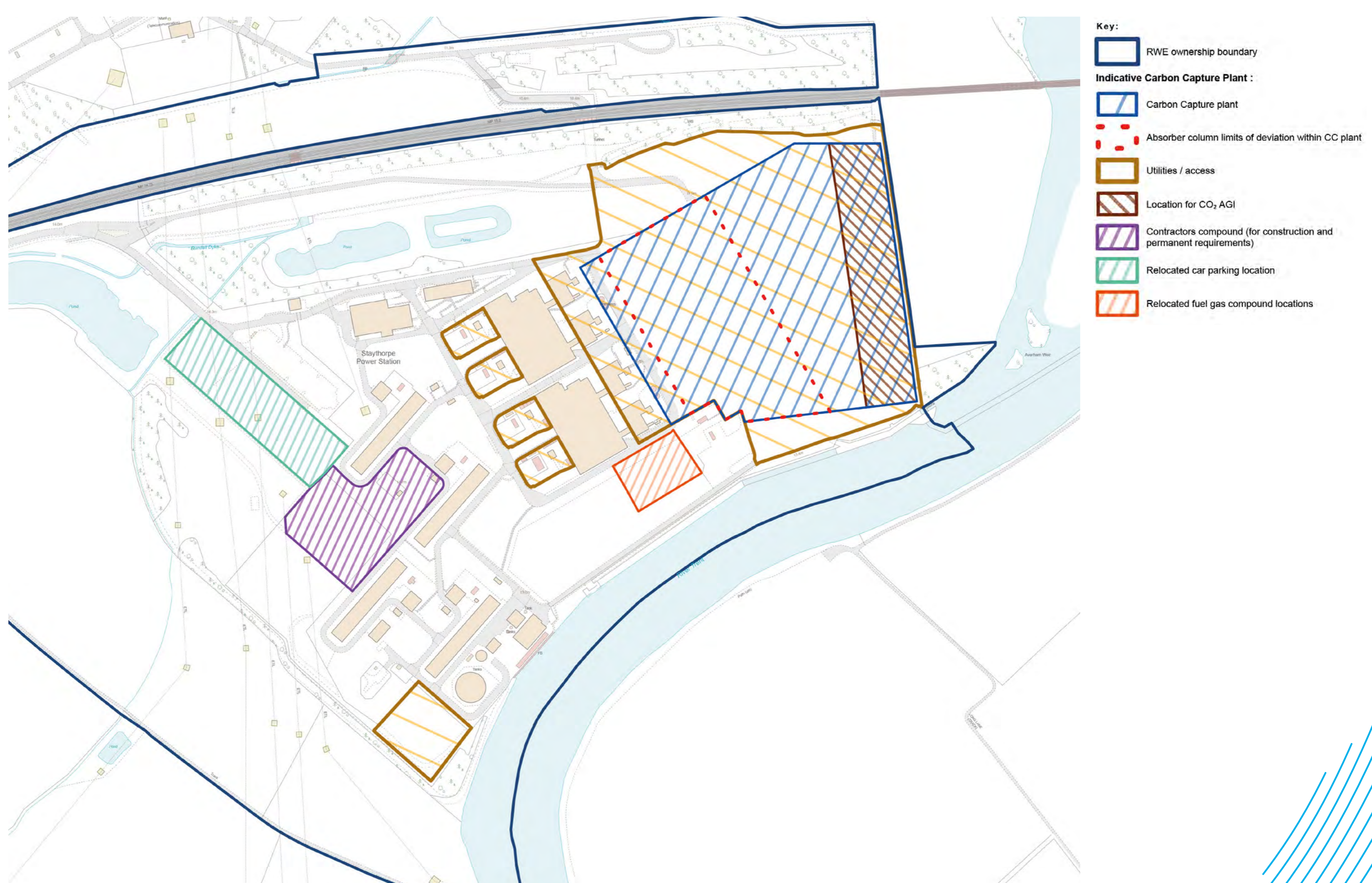
The equivalent of removing 740,000 petrol cars from the road through the capturing of 3.7MtCO₂/year



Ongoing high-quality, long term operational jobs



1000s of jobs supported during construction



The plan above shows the site layout with the carbon capture changes

Why Now?

Staythorpe Power Station has a rich history, dating back to 1950 when Staythorpe A, a coal-fired power station, was first commissioned. Staythorpe B followed in 1962, further boosting the region's power generation capacity.

Both coal-fired stations were eventually decommissioned, but in 2010, the site was revitalised with the opening of Staythorpe C, a state-of-the-art, 1.7GWe gas-fired power station. This modern facility, operated by RWE, continues to be a key player in the UK's energy landscape, combining efficiency with commitment to sustainability.

Implementing carbon capture technology at Staythorpe is essential for its future and longevity. RWE has a clear direction of travel for the future; to become carbon neutral by 2040. In support of this, we are targeting investments of hundreds of millions of pounds to decarbonise our

sites. We are committed to transitioning our UK gas fleet to support the UK's decarbonisation targets whilst also maintaining security of supply.

In the meantime, our CCGT plants still have a vital role to play. As more and more energy is produced from renewable sources such as wind and solar, the energy system becomes increasingly weather dependant. Our CCGT plants are crucial to fill the gap when there is not enough wind or solar energy available to meet demand. This means we can help ensure a steady supply of electricity.



Staythorpe B Power Station control room



Staythorpe A & B Power Stations



Staythorpe A Power Station



Staythorpe A Power Station

Storage of the CO₂

The Staythorpe Carbon Capture Power Station will connect into a CO₂ transportation pipeline, which will transfer the captured carbon to offshore storage facilities beneath the North Sea – this spur line would be a part of the Viking CCS Network Project.

What is the Viking CCS Pipeline?

Viking CCS, led by Harbour Energy, will play a pivotal role in decarbonising the strategic industries located in the Humber, Lincolnshire and Nottinghamshire regions. RWE is exploring options with Harbour Energy to transport the captured carbon through the Viking CCS network, to offshore facilities beneath the North Sea.

The first section of the Viking CCS network to be progressed is a 55km pipeline that will transport up to 10 million tonnes of carbon dioxide a year by the end of 2030 from Immingham to the former Theddlethorpe Gas Terminal. From here, it will join an existing offshore pipeline

to the Viking area in the UK southern North Sea, where the CO₂ will be injected into depleted gas reservoirs 3km beneath the seabed. A spurline would be required to serve the Staythorpe Power Station.

Staythorpe Power Station CCS and Viking Pipeline CCS while complimentary, are ultimately separate projects (and will be achieved by separate consenting routes), which subject to government sequencing would be connected. More information on the Viking Pipeline - pipeline.vikingccs.co.uk



Section 36 Variation Explained

As this project will not increase the generation capacity of the existing power station, and is located on the Power Station site, planning consent for the proposed site requires a variation to the existing consent for the site. This falls under Section 36C of the Electricity Act 1989.

The Section 36 Variation process involves several stages:



Assessing Environmental Impacts

As part of the Section 36 variation process, we are required to undertake an Environmental Impact Assessment (EIA) to assess impacts and identify any likely potential significant effects (both positive and negative) the project could have on the environment.

Environmental impact assessments evaluate a wide range of topics such as landscape and visual impact, biodiversity, cultural heritage, flood risk traffic, noise and other considerations. As part of the planning process, we are assessing the impacts of this project during construction, operations and eventual decommissioning, as well as considering the combined impacts on other nearby projects.

A summary of the scope of these assessments and the preliminary findings of likely environmental effects during construction and operation are outlined in our [consultation brochure](#). Decommissioning effects are generally considered to be similar (or less than) construction effects.





Next Steps

Thank you for visiting our virtual consultation. Your involvement in this consultation is invaluable at this early stage. We want to gain feedback from the local community, so please complete the feedback form on our website.

Alternatively, you can provide your views by:

 Emailing us at info@staythorpeccs.com

 Calling us at **0808 303 7087**

 Or mailing us at **FREEPOST RWE Decarbonisation**

The deadline for the public consultation is 11:59PM on Tuesday 18th March 2025.

We encourage you to provide your feedback within this period to ensure that your comments are considered as we further refine our proposals.

