

# Keadby 3 Low Carbon CCGT Power Station Project

## Stage One Consultation for new Low-Carbon Gas Fired Power Station

We are proposing to build a new gas fired power station at Keadby, North Lincolnshire. The project, known as Keadby 3, will have a generating capacity of up to 910 megawatts (MW) and will provide the essential back up to renewable generation and reliable and flexible energy during the country's transition to Net Zero.

Keadby 3 will be a highly efficient gas fired power station. It will either use natural gas as the fuel and be fitted with a Carbon Capture Plant (CCP) to remove carbon dioxide (CO<sub>2</sub>) from the emissions to air from the plant, or it will be fired on primarily hydrogen, with no carbon dioxide emissions to air from its operation. Both options are currently being considered, and government is also currently considering the roles of carbon capture and hydrogen in the power sector nationally.

Keadby 3 will require connections for natural gas and possibly hydrogen fuel, water for use in the process and for cooling and possibly for a pipeline to export the captured CO<sub>2</sub> into a gathering network being provided by others and from there to a permanent geological storage site. An electricity connection to export the generated electricity to the UK transmission system will also be required. The plant would be capable of operating as a dispatchable low-carbon generating station to complement the increasing role of renewables in supplying the UK with electricity.

The proposed location of Keadby 3 has been deliberately chosen to connect into the emerging proposals for the **Humber Low Carbon Cluster** – see details on **page 3**.

### Have your say

**The Stage One Consultation will begin on 22 June 2020.** We would like to invite members of the local community to visit our website at [ssethermal.com/keadby3](https://ssethermal.com/keadby3). We will also be hosting a virtual public exhibition which can be accessed online at [keadby3.consultation.ai](https://keadby3.consultation.ai) from 25 June 2020.

The website and the virtual public exhibition each include available information on the project proposals and will provide you with an opportunity to give feedback at this early stage in the design of the project.

All feedback must be received before the end of consultation on **27 July 2020 at 5pm**.

We are providing a number of different ways of providing feedback. Please turn to **page 5** for more information and a freepost questionnaire.

Indicative appearance of Keadby 3 in the context of Keadby 2 and the Keadby Windfarm



## What is Keadby 3?

**Keadby 3 project is a Low-Carbon combined cycle gas turbine (CCGT) generating station with a capacity of up to 910MW electrical output, to be built on land in the vicinity of Keadby 1 and Keadby 2 near Scunthorpe.**

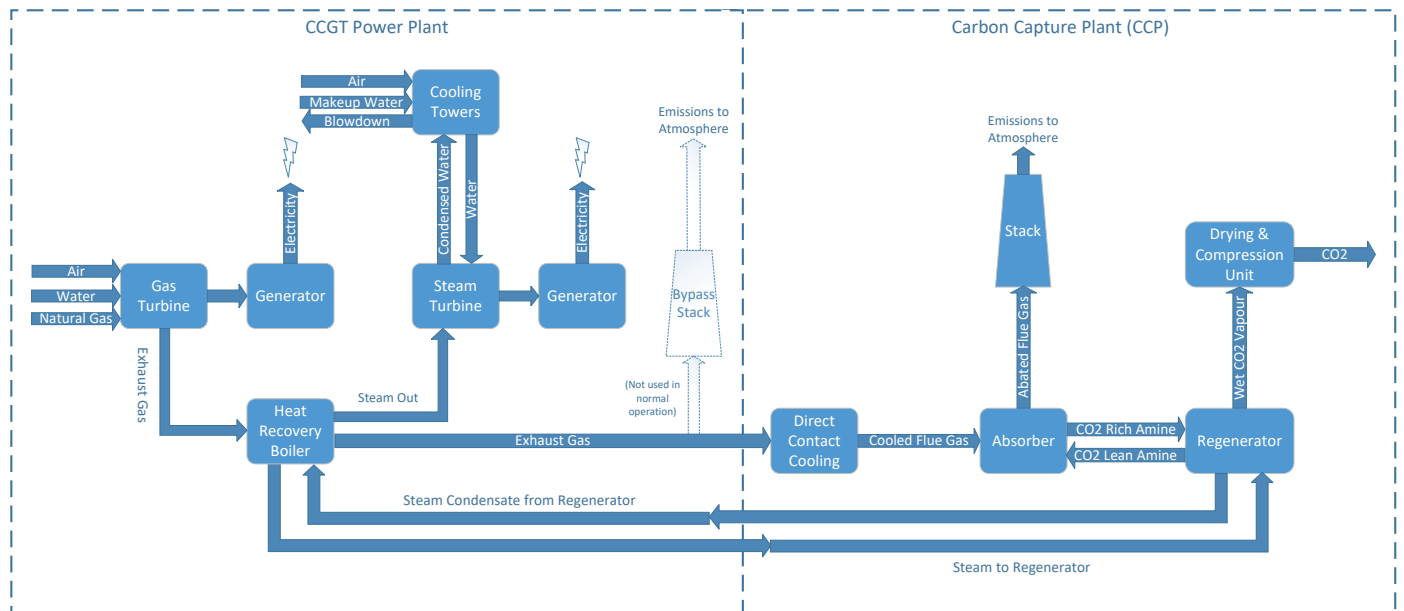
To develop Keadby 3, we must apply for a Development Consent Order (DCO) from the Secretary of State for Business, Energy and Industrial Strategy. This DCO if granted will permit the construction and operation of the project and specify what measures will be adopted to minimise its environmental effects.

The final technology selection will be determined by SSE Thermal in light of various technical and economic considerations. It will also be influenced by the prevailing policy and market conditions after the DCO is granted.

At this stage, the design of Keadby 3 therefore incorporates a necessary degree of flexibility, for example, in relation to the infrastructure to enable the CCGT to be fired primarily on hydrogen fuel or to enable CO<sub>2</sub> from a conventional natural gas-fired CCGT unit to be captured, compressed and exported for offshore storage.

This flexibility is necessary to allow us to use engineering studies, environmental assessments and information from different technology providers to determine the most appropriate design for the project within agreed parameters.

As a low-carbon CCGT, Keadby 3 comprises one high efficiency gas turbine and associated steam turbine and either the infrastructure required to allow the CCGT to fire primarily on hydrogen gas, or inclusion of a post combustion Carbon Capture Plant (CCP) in a scenario where natural gas is used as the fuel. In the latter scenario, this is required in order that CO<sub>2</sub> emissions are captured and directed to an offshore geological store through the Humber Low Carbon cluster pipeline network being developed by National Grid Ventures and partners. A diagram of these components, and optional components, is shown below.



Schematic of CCGT Power Plant and Carbon Capture Plant

Cooling would most likely be achieved through the use of hybrid wet/dry cooling towers using makeup water that is either abstracted from the River Trent or from the Stainforth and Keadby Canal to the south of Keadby 3. The decision as to which source is used for the cooling water makeup is being determined through engineering and environmental studies.

## About us

SSE Thermal is part of the FTSE-listed SSE plc, one of the UK's broadest-based energy companies. Over the last 20 years, SSE has invested over £20bn to deliver industry-leading offshore wind, onshore wind, gas generation, energy-from-waste, biomass, energy networks and gas storage projects, including investing millions of pounds to develop carbon capture and storage (CCS) projects. It operates six of the most flexible and efficient power stations in the UK and Ireland, jointly operates two of the most efficient energy-from-waste plants with Wheelabrator Technologies, and holds around 40% of the UK's conventional gas storage capacity.

Through projects like the 910MW Keadby 2 CCGT, which is in construction, older power generation is being displaced by newer and more efficient technologies which support the transition to Net Zero. When completed, Keadby 2 is expected to be the cleanest and most efficient gas-fired power station in Europe.

By building on established skills in asset management and project development, SSE Thermal's vision is to become the leading generator of flexible thermal energy in a zero-carbon world.

## Need and benefits

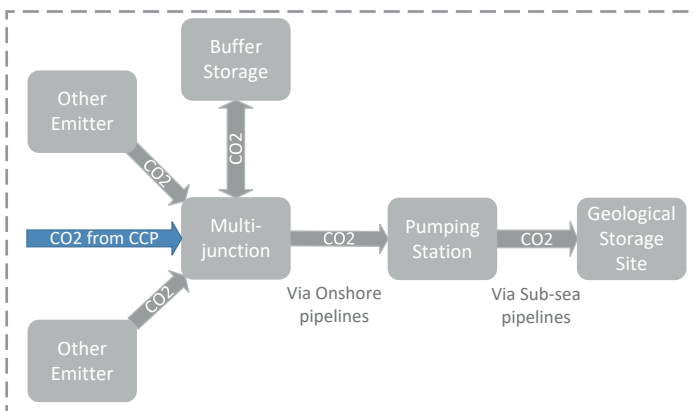
**The UK has legislated to cut national carbon emissions to Net Zero by 2050. This will require a major transition in how we generate and use energy.**

The Committee on Climate Change<sup>1</sup> (CCC) and the National Infrastructure Commission<sup>2</sup> (NIC) - have identified that flexibly operated thermal generation is needed to help the transition to Net Zero including decarbonised generation through the use of hydrogen fuel or the use of CCS.

We believe efficient gas-fired generation is essential to delivering Net Zero emissions by 2050, providing the flexibility needed to back up a system based on renewables. Stimulating investment in CCS and hydrogen technologies can also support and reduce the costs of industrial decarbonisation, through the use of shared infrastructure. SSE Thermal has signed an agreement, alongside 10 other leading energy and industrial companies, to transform the Humber region into the world's first 'zero-carbon cluster' by 2040, as described below.

Keadby 3 will only be built with a clear route to decarbonisation, either using hydrogen as a low-carbon fuel, or equipping it with post-combustion CCS technology.

It would support long-term direct and indirect local employment and also support the Humber Low Carbon Cluster proposals and the environmental and economic benefits these will bring to the region.



Schematic diagram of a regional carbon capture and storage cluster

## About the Humber Low Carbon Cluster

**The Humber Low Carbon cluster is a consortium of 11 energy and industrial companies, including SSE Thermal, that have agreed to work together to develop a joint plan to decarbonise industrial emissions and transform the Humber region into the world's first Net Zero carbon industrial cluster by 2040.** The consortium is focused on using emerging CCS and hydrogen technology to decarbonise energy and industry in the Humber region. The initiative has the potential to capture and store around 10% of UK's CO<sub>2</sub> emissions per year by 2040.

The companies involved include some of the largest businesses in the region. The plan has the potential to contribute to the future prosperity of the UK's largest industrial hub, which contributes £18bn towards UK Gross Value Added (GVA), and to safeguard up to 55,000 jobs across the region.

<sup>1</sup> Net Zero Technical Report (CCC, May 2019: page 19).

<sup>2</sup> Net Zero - Opportunities for the Power Sector (NIC, 2020: page 7)

## What are you doing about environmental impacts?

**As a responsible developer and we aim to create a positive impact and add value to the local area through our projects.**

We have begun to carry out on-site surveys of ecological interests, safely and in line with government requirements in relation to coronavirus. We also have a range of existing environmental information from our operation of Keadby 1 and the construction of Keadby 2.

In our Stage Two Consultation we will set out initial findings of environmental assessment work that is being undertaken along with proposals for mitigation of any likely significant effects identified.

An EIA Scoping Report for the Keadby 3 project was recently submitted to the Secretary of State. This will determine the topics that will be covered in the EIA work, and the methods to be used in the assessments. We expect to study the following topics:

- Air Quality;
- Noise and Vibration;
- Traffic and Transportation;
- Ecology;
- Water Resources and Flood Risk;
- Geology, Hydrogeology and Land Contamination;
- Landscape and Visual Amenity;
- Cultural Heritage;
- Socio-economics;
- Climate Change and Sustainability; and
- Cumulative and Combined Effects.

The detailed assessments for each of these topics will be undertaken in accordance with standard guidance and best practice and reported in an Environmental Statement (as part of the EIA) which will be included in the DCO Application. Where likely significant adverse environmental effects are identified, mitigation measures will be described where possible to reduce these effects.

## What might Keadby 3 look like?

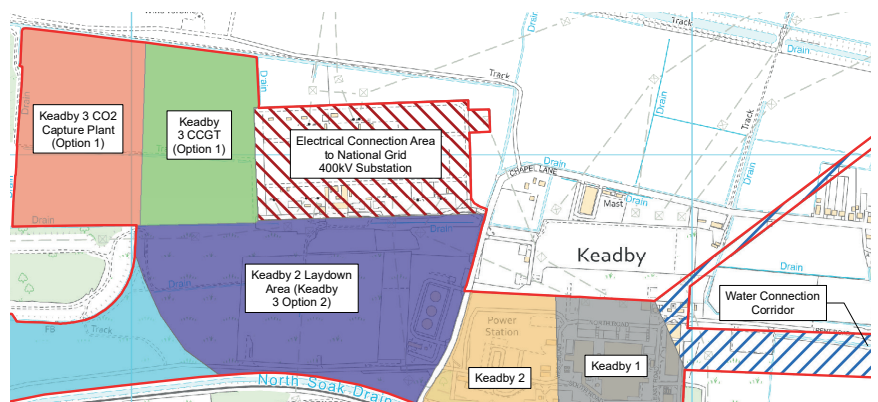
**The CCGT will be of similar scale and appearance to Keadby 2, with the largest features being the turbine hall and the stack.**

If natural gas with post combustion carbon capture is chosen, the CCP is likely to comprise a number of individual structures, storage tanks, pipelines and a stack.

If the plant is to be fired on hydrogen, this wouldn't require a CCP plant but instead there would be some additional storage tanks and pipelines.

Two options are currently being evaluated for the layout of these two main components:

- location of the CCGT on the current Keadby 2 laydown area with the CCP co-located in this area or the former tank farm; or
- location of the CCGT and CCP on land to the west of the existing National Grid substation to the north of the Keadby 2 laydown area.



Main areas of the site (indicative)

## What are the timescales for this project?

It takes several years to plan and develop this type of project and there are several factors which need to be clarified and confirmed before we would be in a position to take a Final Investment Decision (FID), including obtaining a Development Consent Order (DCO), a form of planning permission and other necessary powers. The earliest a DCO would be granted is around two years away, and FID would be some months after that. Construction would take a further three years approximately.

## What will be included in your DCO application?

The application for the DCO would seek development consent for the power station, the hydrogen or carbon capture equipment, cooling and electrical infrastructure, and associated development, such as any new or modified access arrangements and any biodiversity provision. The DCO may, with the agreement of the Secretary of State, include other powers necessary to construct and operate the power station. A public examination would be carried out by the Planning Inspectorate on behalf of the Secretary of State to review the proposals against government policy and examine how the applicant has addressed impacts.

## How can I find out more and provide my feedback?

### SSE Thermal is committed to providing safe, convenient and clear information about the project in order to raise awareness and obtain feedback on the proposals.

We are publicising the Stage One Consultation by posting this newsletter to addresses in North Axholme ward, the parish of Gunness and Burringham and within 2.5km of the Keadby Power Station site; publishing notices in local newspapers; writing to local elected representatives; and online advertising.

There are three ways to obtain more information about the project:

- The website at: [ssethermal.com/keadby3](https://ssethermal.com/keadby3). Here you can find copies of our consultation documents (banners, plans, and drawings) and background reports such as our EIA scoping report. This will be open for the entire consultation period. A link to our online version of the feedback form is also provided.
- Our virtual exhibition website at: [keadby3.consultation.ai](https://keadby3.consultation.ai). This contains banners, plans, a frequently asked questions

document and a link to our feedback form. A video introduction is provided and audio read-out of the banners is available, along with a 'Live Chat' feature at the following dates and times:

**29 June 10am-1pm and 4-6pm;**

**1 July 11am-3pm and 5-7pm**

**9 July 4-8pm**

**10 July 9am-12pm**

- By telephone on 0800 211 8194, to request a free paper copy of the consultation materials.

Thank you for taking the time to read this newsletter. To help us record your views about the project and to improve the effectiveness of our consultation with local communities, we would be grateful if you complete this feedback form. Your written comments will help us to take your views into consideration during the development of our proposals.

**1. Which of our consultation methods have you used? Tick all that apply.**

- Read the newsletter  
 Visited the virtual exhibition  
 Had a 'live chat' with the project team on the virtual exhibition site  
 Visited the project website  
 Left a message on the telephone line  
 Requested a paper copy of the documents via the telephone line

**2. Are you happy with the methods available and were you able to find the information you wanted?**

**3. Please provide any comments you have about the Keadby 3 project.**

**4. Should you wish to be kept informed, please tell us your preferred means of doing this and enter the details into the box below.**

- E-mail  Post

Please tear off this postcard and send it to FREEPOST KEADBY 3. No stamp is required.

This form should be returned to us by **Monday 27 July 2020 at 5pm.**

Feedback can be provided using:

- The feedback form (via the website, exhibition, or the postcard at the end of this newsletter);
- e-mail; or
- Telephone.

Postal services may take longer at present due to coronavirus. Please observe all relevant precautions in relation to coronavirus, and use the alternative methods listed above if you are in an at-risk group. We cannot guarantee receipt of feedback provided via social media commenting and messaging, and therefore recommend you use the methods listed above.

Feedback must be received by **5pm on 27 July 2020**.

The feedback received at this stage will be taken into consideration during the refinement of the project proposals. A second period of consultation (Stage Two Consultation) is expected to take place during Q3 of 2020.

### Will I be able to access the virtual consultation using my smartphone?

Yes, the consultation tool being used for the project has been designed to be accessed from all devices, including smartphones, tablets and desktop devices.

### What if I don't have access to the internet?

SSE Thermal wants to ensure that all interested parties are able to view the project proposals and provide their feedback. Copies of the consultation materials can be provided in hard copy via post, upon request.

### Can I access the virtual exhibition more than once?

Yes. The virtual exhibition will open on Thursday 25 June 2020 and you can log onto it at any time between then and the end of the entire consultation period and SSE Thermal will welcome additional feedback on the proposals throughout.



# FREEPOST KEADBY 3

### Is the virtual exhibition difficult to use?

No. The tool has been designed by industry experts to be user friendly. An instruction video will be featured as part of the page to provide a guide to the tool. You can also contact us by phone if you require any support.

### Will you be using the same kind of methods for your Stage Two Consultation?

We are committed to providing safe, convenient and clear information on the project. The methods which may be used for the Stage Two Consultation have not yet been decided. We will consider the feedback from Stage One Consultation and any specific feedback received from the community, and seek the views of the local authority, North Lincolnshire Council, as well as the evolving UK position on managing the effects of coronavirus.

### I would like to know more about Keadby 2 – is this consultation for me?

This consultation is about the emerging proposals for Keadby 3. If you have any queries or comments about the construction or operation of Keadby 2, please write instead to [jade.fearon@sse.com](mailto:jade.fearon@sse.com) or telephone 01724 788236.

### When will Keadby 3 be operational?

As part of our commitment to a Net Zero emissions future, we will not build any further gas-fired power stations unless they have a clear route to decarbonisation. This DCO application will provide us with the option to construct a low carbon CCGT at Keadby, but a final investment decision would follow on afterwards, and will be dependent upon prevailing market conditions and policy frameworks. We want to work with government, regulators, industry partners and other stakeholders to create the right policy framework to enable the development of both CCS and hydrogen. Construction would take approximately 3 years.

### What is carbon capture and storage?

Carbon capture and storage (CCS) is a technology that can capture at least 90% of the carbon dioxide emissions produced from the use of fossil fuels in electricity generation and industrial processes, preventing the carbon dioxide from entering the atmosphere.

The CCS chain consists of three parts; capturing the carbon dioxide, transporting the carbon dioxide, and securely storing the carbon dioxide emissions underground, in depleted oil and gas fields or deep saline aquifer formations.

Planning for early deployment of CCS in the UK has been deemed a "necessity, not an option" by the Committee on Climate Change, if we are to achieve net zero emissions by 2050.

### Will the Keadby 1 Power Station keep running?

Keadby 1 Power Station has served the energy network since 1996 and has a generating capacity of up to 735MW. The gas-fired power station has a contract to provide capacity to the grid until September 2022 and will have opportunities to secure further agreements in future auctions. Our Environmental Impact Assessment work for Keadby 3 will make appropriate assumptions regarding the likely future running hours of Keadby 1.

### What is the current status with the Keadby Wind Farm extension, will it be taken further?

At the present time, the Keadby Wind Farm project is on hold and not being progressed.

## Data Privacy Notice

SSE Thermal ('we', 'us') is committed to ensuring the privacy of your personal information. We may process information that you provide to us. This data may include your name, your address, your telephone number, your email address, your employer or any group on whose behalf you are authorised to respond; and your feedback in response to any consultation or notification by SSE Thermal ('the consultation') in connection with the development consent application or related regulatory consent applications ('the application'). We will use your personal data for the following purposes:

- to record accurately and analyse any questions you raise or feedback you have provided in response to the consultation;
- to report on our consultation and notification, detailing what issues have been raised and how we have responded to that feedback;
- to personalise communications with individuals we are required to contact as part of future consultation or communications; and
- to deliver documents you have requested from us.

The legal basis for processing this data is that it is necessary for our legitimate interest, which is carrying out consultation and notification activities, delivering documents that you request from us, and analysing and reporting feedback in connection with our application for development consent or other approvals. In addition to the specific purposes for which we may process your personal data set out above, we may also process any of your personal data where such processing is necessary for compliance with a legal obligation that we are subject to.

We may provide your personal data to the following recipients where necessary:

- Other SSE group companies, and their third party service providers and professional advisors where required in connection with the consultation or the consent application, and the insurers of any of the above where reasonably necessary for the purposes of obtaining and maintaining insurance cover, managing risks, obtaining professional advice and managing legal disputes; and
- The Planning Inspectorate (or any successor body). The Planning Inspectorate's privacy notice is available at:  
<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2018/05/ni-privacy-statement.pdf>

Personal data that we process for any purpose shall not be kept for longer than is necessary for that purpose. Unless we contact you and obtain your consent for us to retain your personal data for a longer period, we will delete your personal data as soon as practicable following the outcome of the consent application. We may retain your personal data where such retention is necessary for compliance with a legal obligation to which we are subject.

The rights you have in relation to your personal information under data protection law are: to access; to rectification; to erasure; to restrict processing; to object to processing; to data portability; and to complain to a supervisory authority. You may exercise any of your rights in relation to your personal data by e-mailing us at: [consultation@keadby3.co.uk](mailto:consultation@keadby3.co.uk) or by writing to Freepost Keadby 3.