

# PETERHEAD LOW CARBON CCGT POWER STATION PROJECT

Stage 2 Consultation – 23 August to 1 October 2021

SSE Thermal and Equinor are seeking to develop and operate a new low carbon combined cycle gas turbine (CCGT) power station at Peterhead. This project, which will be known as Peterhead Low Carbon CCGT Power Station Project or 'Peterhead Carbon Capture Power Station' (hereafter referred to as 'the Project'), will be located on land at the existing Peterhead Power Station in Aberdeenshire. The Project will have a generating capacity of up to 910 megawatts (MW) and will utilise existing connections at the Peterhead Power Station such as cooling water, gas supply and grid connections.

In line with both companies' vision and commitment to a net-zero future, the Project will use natural gas as its fuel and will be fitted with a Carbon Capture Plant to remove the carbon dioxide (CO<sub>2</sub>) from its emissions. The CO<sub>2</sub> will be transported by a pipeline to be safely stored in an offshore storage site typically comprising depleted oil and gas fields. The CO<sub>2</sub> pipeline from the Power Station will be subject to separate consent applications and undertaken as part of a separate project known as the Acorn Project.

In order to develop the Project, we will need to obtain consent under Section 36 of the Electricity Act 1989. We are therefore preparing a Section 36 application for submission to the Scottish Government Energy Consents Unit (ECU). Successful development of the Project will also be subject to support for the shared CO<sub>2</sub> infrastructure from the UK Government through its industrial clusters process<sup>1</sup>.

## Find out more and provide comments

In May 2021 we announced the Project and carried out our Stage 1 Consultation. We have now developed the plans for the Project further and are able to provide more detailed information as part of this Stage 2 Consultation. We would once again welcome your feedback. There are three ways to learn more about the Project: Visiting our virtual exhibition, joining one of our online webinars, and/or attending our in-person public exhibition events. Each of these is described below.

## Virtual Exhibition

We would like to invite members of the local community to visit our virtual exhibition space which will be available from **Monday 23rd August until Friday 1st October 2021**. Please view our virtual public exhibition space available at <https://peterheadlowcarbon.consultation.ai/>

<sup>1</sup> [www.gov.uk/government/publications/cluster-sequencing-for-carbon-capture-usage-and-storage-ccus-deployment-phase-1-expressions-of-interest](https://www.gov.uk/government/publications/cluster-sequencing-for-carbon-capture-usage-and-storage-ccus-deployment-phase-1-expressions-of-interest)

## Webinar Sessions

We are also holding online webinar sessions where members of the Project Team will provide an overview of the Project followed by an opportunity for you to raise any questions you may have. The dates and times for the webinar sessions are provided below:

- Tuesday 31 August at 3pm
- Thursday 2 September at 7pm
- Wednesday 15 September at 1pm

The webinars will start at the times shown and can be accessed via the virtual exhibition space. Further instructions are provided on page 8.

## In-Person Public Exhibitions

In addition, you are also invited to visit our in person public exhibition events, which provide the opportunity to meet the Project Team, find out more information about the Project, ask questions and provide feedback on the proposals. Details of the events are provided below:

Date	Time	Venue
Monday 6 September	4pm to 7pm	Buchan Braes Hotel, Boddam, AB42 3AR
Tuesday 7 September	10am to 12.30pm & 2pm to 4:30pm	Peterhead Football Club, AB42 1EQ
Wednesday 8 September	10am to 1pm	Buchan Braes Hotel, Boddam, AB42 3AR

If Government guidance relating to Covid 19 changes we may need to cancel these events at short notice. If this is the case we will do our best to inform members of the community as far in advance as possible.

The events will be held with social distancing measures in place to make them as safe as possible for visitors and staff. We'd therefore encourage you to pre-register for your chosen timeslot at Eventbrite via the following links to guarantee entry at your preferred time:

**Monday 6 September:** <http://tiny.cc/6Sep>

**Tuesday 7 September:** <http://tiny.cc/7Sep>

**Wednesday 8 September:** <http://tiny.cc/8Sep>

Registering will help us control numbers and ensure social distancing can be maintained, however you can still attend without pre-registering but may experience a short wait before being allowed entry. Before setting off to an event, please check the Project Website for the latest information on how the events will be run.

## Provide Comments

We encourage you to provide feedback on our proposals. There are a number of different methods you can use:

- The Feedback Form – this is attached to this newsletter and can be returned via Freepost. The Feedback Form is also available on the Project Website [www.ssethermal.com/peterheadccs](http://www.ssethermal.com/peterheadccs) and as part of our virtual exhibition at <https://peterheadlowcarbon.consultation.ai/> Paper copies will also be available at the public exhibition events.
- By post to Freepost – **Peterhead Low Carbon CCGT Project**
- By email to [thermalenquiries@sse.com](mailto:thermalenquiries@sse.com)
- Leave a message on 0800 211 8270 – if you would like us to call you back, please include your name and number as part of your message.

Postal services may take longer at present due to COVID-19. Please observe all relevant precautions. We cannot guarantee consideration of feedback provided via methods not listed above (such as on social media).

Please provide any comments by **Friday 1 October at 5pm**.



## About the Peterhead Carbon Capture Power Station

The Project will consist of one combined cycle gas turbine (CCGT) unit with a total electrical output of up to 910MW. The CCGT will comprise of one high efficiency gas turbine and associated Heat Recovery Steam Generator (HRSG, a type of boiler) and steam turbine. The CCGT will combust natural gas to drive a gas turbine, which is connected to a generator producing electricity. A by-product of this process is usable heat which remains in the gas; this is passed into an HRSG which makes steam to generate additional electricity via a steam turbine.

Approximate heights for the main buildings are as follows:

- HRSG building 56m
- HRSG stack 85m
- Steam turbine 35m
- Gas turbine 32m.

The Project will also include a post combustion Carbon Capture Plant (CCP), allowing for the capture and compression of the carbon dioxide (CO<sub>2</sub>) from the Power Stations emissions; this will be connected to a CO<sub>2</sub> transport pipeline that forms part of the Acorn Project Carbon Capture and Storage (CCS), under development by other parties. The destination for the CO<sub>2</sub> transport and storage system is subject to a separate study and consent application.

Approximate heights for the core CCP buildings are as follows:

- Exhaust gas cooling and conditioning plant (approximately 36m)
- Absorber column (approximately 100-130m)
- Solvent reclaimer tower (approximately 53m)

An illustrative site layout is provided in the image below depicting potential locations of core Project components. This is an initial indicative layout and will be subject to refinement throughout the Environmental Impact Assessment (EIA) process and as engagement with technology suppliers progresses.



SSE Thermal operates the existing Peterhead Power Station in Aberdeenshire. The Power Station became operational in 1982 and has an output of up to 1,180MW. The Project will be constructed alongside the existing Peterhead Power Station, but with the long-term vision for the Peterhead site to only deliver low-carbon power generation.

The existing Power Station continues to provide essential flexible and efficient generation to keep the lights on while supporting the continued growth of renewables on the system. It currently has a contract to provide capacity to the grid until September 2022 and will have opportunities to secure further agreements in future auctions. As part of our Environmental Impact Assessment work for the Project, we will make appropriate assumptions regarding the likely future running hours of the existing Power Station.

The Project and its low carbon operation will be prioritised over the running of the existing Power Station and while ultimately, Peterhead Carbon Capture Power Station is designed to replace unabated generation (i.e. without carbon capture) at the Site, the Project is in the early stages of development and no decisions have yet been made about when the existing Power Station will close.

### About the Acorn Project

It is proposed that the Project will be a key customer to the Acorn Project Carbon Capture and Storage (CCS). The Acorn Project is led by Storegga with their partners Harbour Energy and Shell, with funding support from the UK and Scottish Governments, and the European Union. Based at the St. Fergus Gas Terminal in North East Scotland, the Acorn Project will make use of existing gas pipelines and infrastructure to transport CO<sub>2</sub> directly to the Acorn CO<sub>2</sub> storage site below the Central North Sea for safe storage. The Acorn Project is subject to a separate consent application and will be undertaken by the Project Acorn partners.

For more information on the Acorn Project, please visit <https://theacornproject.uk/>

### Carbon Capture at Peterhead

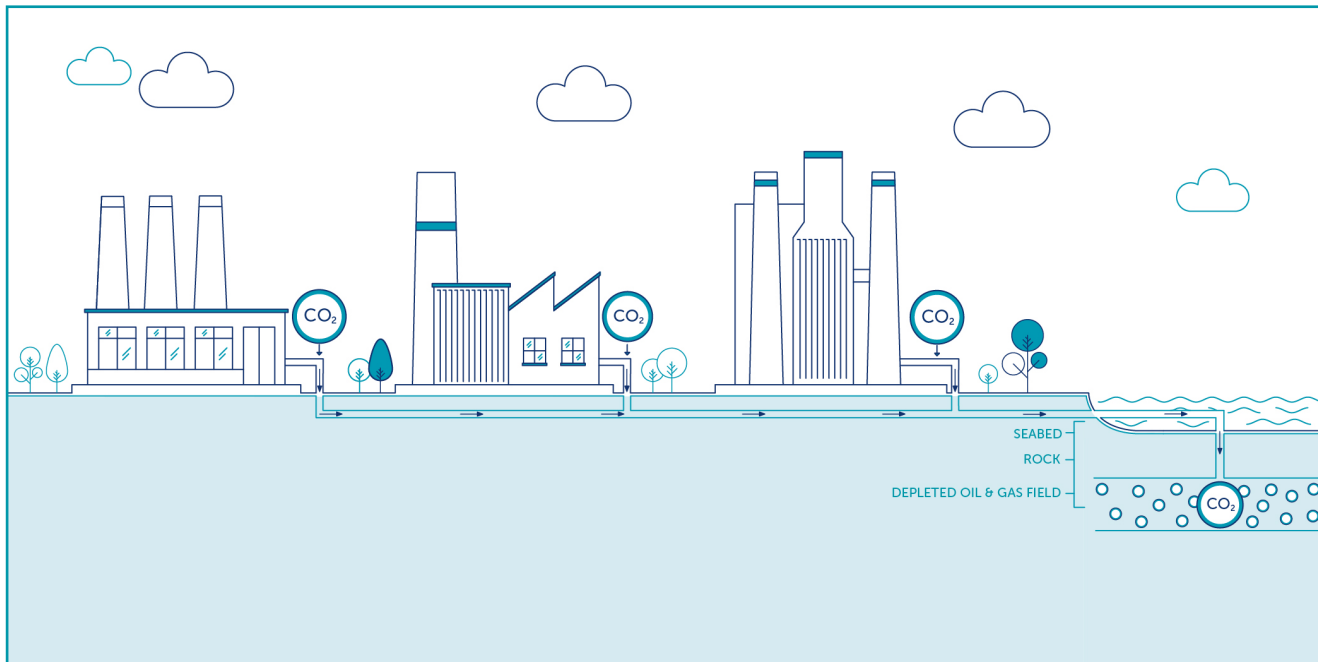
In 2011, the UK Government selected Peterhead Power Station as a potential candidate for a pilot project of carbon capture and storage in the UK. That project, developed by SSE and project partners Shell, would have been a world-first fully integrated commercially operating CCS solution. However, in 2015 the Government announced that the £1bn grant for developing new carbon capture and storage (CCS) technology was no longer available.

Since this time, many factors have changed and advanced. The UK has legislated to cut national greenhouse gas emissions to net zero by 2050, and Scotland has committed to being net zero by 2045. This will require a major transition in the way we generate and use energy, with CCS being one of the crucial technologies able to support a renewables-led power system and as a necessity for reaching the net zero ambitions. The Climate Change Committee (CCC) has stated the need to invest in low carbon technologies and that the roll out of CCS is a key action in achieving net zero.

There has been significant progress and momentum from UK Government in developing policy and routes to market which will enable investment in carbon capture technology and we have engaged with the Scottish Government, where there is also support for these technologies. This, combined with the legislative imperative to reach net zero emissions by 2050 or before, provides confidence that the UK will see investment in power stations with carbon capture this decade.

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. The Project will only be built with a clear route to decarbonisation, by equipping it with post-combustion Carbon Capture Plant (CCP) technology.

## What is CCS?



A diagram to demonstrate a CO<sub>2</sub> storage system

Carbon Capture and Storage (CCS) is a technology that can capture at least 90% of the carbon dioxide (CO<sub>2</sub>) emissions produced from the use of fossil fuels in electricity generation and industrial processes, preventing the CO<sub>2</sub> from entering the atmosphere. The CCS chain consists of three parts; capturing the CO<sub>2</sub>, transporting it, and then securely storing the CO<sub>2</sub> underground, in depleted oil and gas fields or deep saline aquifer formations.

Further information on CCS can be found at our virtual exhibition space and at our public exhibition events.

### What has changed since Stage 1 Consultation?

The Stage 1 Consultation ran from 10 May to 7 June 2021 and was intended to introduce the Project to the local community and provide an opportunity to comment on the early proposals. As part of the consultation, newsletters (which included a Freepost Feedback Form and details of a Virtual Exhibition Event) were posted to every residential and business address within a 5km radius of Peterhead Power Station. The feedback received at Stage 1 was mostly positive, with all comments recorded and taken into account when preparing for this latest stage of consultation. Full details of the consultation methods employed to engage with the local community and a summary of the feedback received from participants at Stage 1 can be accessed in the Virtual Consultation Portal, in addition to the wider Stage 2 Consultation materials.

An Environmental Impact Assessment (EIA) Scoping Report was submitted to the ECU in May 2021, identifying likely significant environmental and social impacts of the Project, and the proposed scope and methodologies for the EIA. Feedback has been received from a number of consultees which will be addressed throughout the EIA process. In addition, we have been engaging directly with a range of consultees such as the Scottish Environment Protection Agency (SEPA) and NatureScot on specific technical aspects of the EIA. The Project design has also been progressing iteratively alongside the EIA and we are now able to provide initial visualisations of the Project.

### Environmental Impact Assessment (EIA)

EIA is the process of identifying, evaluating and mitigating the likely significant effects of a project. A team of environmental specialists are conducting a range of studies to assess the potential effects that the Peterhead Carbon Capture Power Station Project could have. The scope of these studies is agreed by the Energy Consents Unit (ECU) in consultation with the appropriate regulating bodies such as SEPA and the local planning authority. The results of these studies will inform the design of the Project and protect the environment by minimising potential effects on receptors such as the local community, wildlife, water quality, landscape, recreation and tourism.

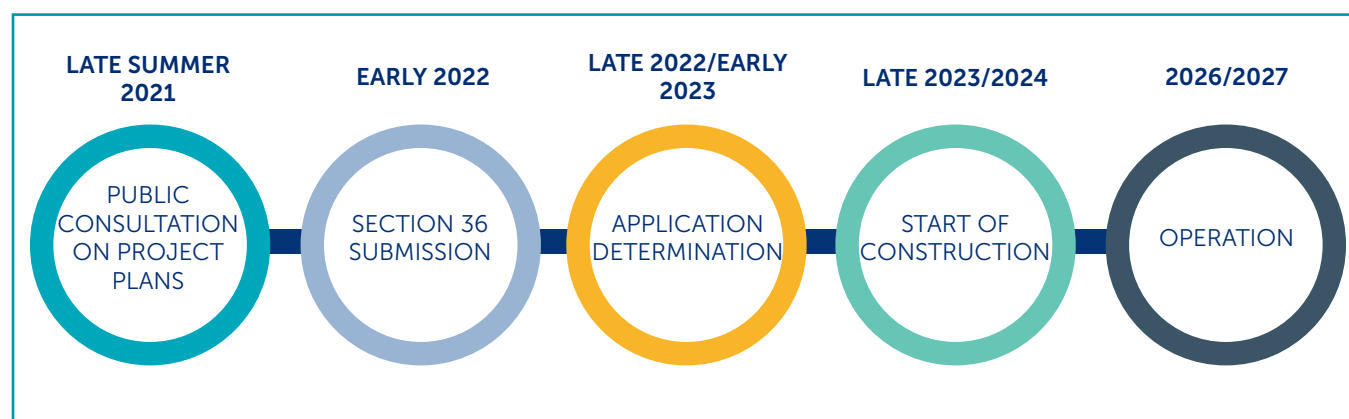
The studies will be presented in an EIA Report which will also contain a non-technical summary. The results of the EIA will ensure that the potential effects of the Project are known to decision makers such as the Scottish Ministers and the planning authority to inform their decision-making on the application.

The following topics will be included in the EIA, with further information on each available at both the virtual exhibition space and the in person public exhibition events:

- Air Quality
- Noise
- Heritage
- Ecology and Ornithology
- Landscape and Visual Impact Assessment
- Ground Conditions
- Traffic and Transport
- Water Environment and Flood Risk
- Climate
- Socioeconomics, Tourism and Recreation

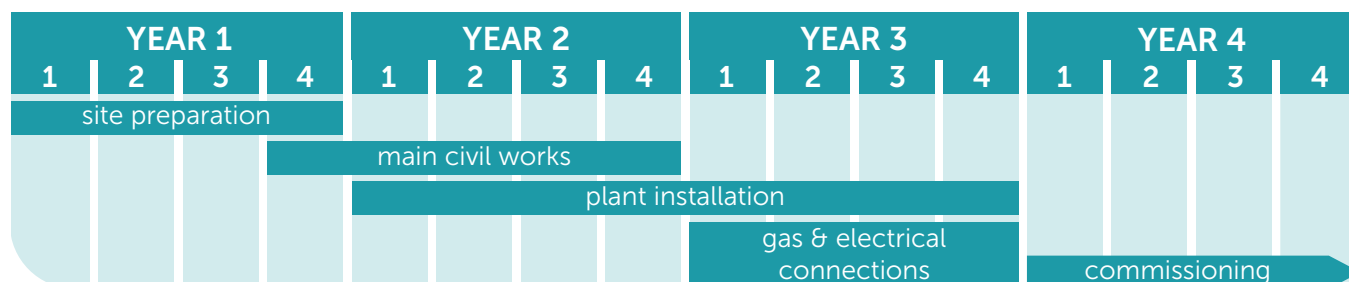
### Indicative Programme

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 consenting. The process would take at least two years, and a FID would be some months after that. Construction would take a further three years approximately. The diagram below sets out an indicative programme.



### Construction

Construction of the Project could potentially start as early as Quarter 4 2023, with construction activities to be completed within three years followed by a commissioning phase. The figure below shows an indicative programme.





## Haul Routes and Laydown Areas

Construction traffic and road haulage will be achieved along designated transport routes that will be defined and assessed as the EIA and design progresses.

Construction laydown areas will be required within the Site, specific requirements will depend upon the final choice of technology and contractor. At this stage, laydown requirements have been estimated and assessed using worst-case assumptions. Subject to final selection, the laydown areas would be secured by fencing and gates, levelled and underlain by a permeable membrane.

## Earthworks and Connections

Some earthworks may be required to reprofile the site. As far as practicable, excess spoil will be reused as part of the construction works although some movement of materials to and from the site may be necessary. Soils will be stored away from watercourses and areas of higher flood risk.

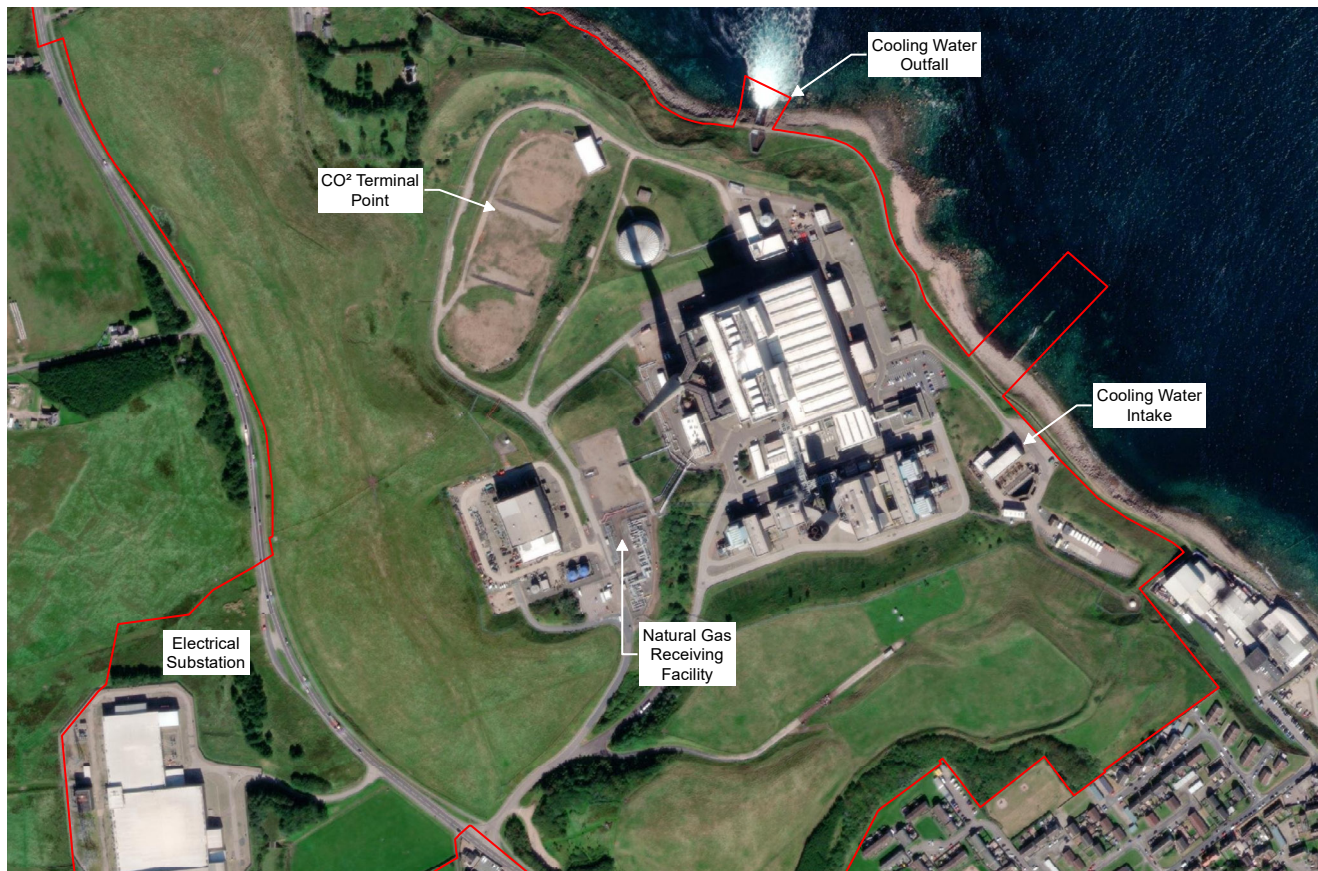
The existing cooling water abstraction intake and outfall used for Peterhead Power Station will also be utilised for this Project and new connections and pipework will be installed to facilitate the use of these.

The water abstraction point is located in Boddam Harbour to the south-east and a water outfall discharging into Sandford Bay to the north-east.

The existing gas pressure reduction station located within the existing power station site will be used and new gas pipework will be installed. Electricity transmission infrastructure will be required to connect the Project to the National Grid electricity transmission system through the existing SHETL 275kV substation.

## Construction Phase Mitigation

We would require our contractor to produce and maintain a Construction Environmental Management Plan to control construction activities to minimise, as far as reasonably practicable, impacts on the environment and amenity. This would include industry best practice measures as well as specific measures set out in our EIA Report. A Framework Construction Environmental Management Plan will be produced in support of our Section 36 application and will set out a range of measures such as core construction working hours, key management and monitoring activities to be carried out by the contractor. It is also expected that a range of mitigation measures will be secured through conditions attached to the Section 36 consent.





## Accessing the virtual exhibition and webinars

We are holding a series of webinars (please see page 1 for the dates and times).

To attend one of these:

- Firstly visit <https://peterheadlowcarbon.consultation.ai/> and click on the link for your preferred date to add the joining instructions as an appointment in your desktop/tablet/smartphone calendar.
- Then a few minutes before the start time on your chosen date, click the link (or dial the telephone number) in the joining instructions. The link will open in a browser window, or in Microsoft Teams if it is installed on your device.
- Each webinar will be around one hour in length and will include a presentation followed by a question and answer session. Those joining the session online will be able to use the 'Chat' function to submit questions which will be logged and covered during the question and answer section. Those joining via telephone will be given the opportunity to ask questions at the end of the session.
- The webinar sessions will be public events so please be aware that your name/username will be visible to all other attendees.

## Find out more

If you have specific questions or comments, please contact the Project Team using the details below:

**FREEPHONE 0800 211 8270**

Freepost – Peterhead Low Carbon CCGT Project

[thermalenquiries@sse.com](mailto:thermalenquiries@sse.com)

[www.ssethermal.com/peterheadccs](http://www.ssethermal.com/peterheadccs)

