Drax Power Limited is proposing to repower up to two of its remaining coal-fired generating units (known as Units 5 and 6) and construct up to two gas-powered electricity generating units. This would involve Drax re-using certain equipment currently utilised in Units 5 and 6.

In addition, each unit would (subject to technology and commercial considerations) be connected to its own battery energy storage facility.

A new pipeline would provide gas to the new gas generating plants.

The Drax Repower Project would upgrade and enhance Drax’s generation capabilities into the 2030s and beyond, make Yorkshire home to large scale battery technology and provide lower carbon generation in line with Government plans to phase out coal-fired power stations.

Today’s exhibition forms part of a comprehensive consultation programme to engage with and inform our local communities and stakeholders, and for the project team to gather people’s comments on the Repower Project.

Please take the time to read the information on display, speak to members of our team and share your views with us.

The final design of the Repower Project will have regard to the comments that we have received since the Project was announced last year, the comments that we receive today and during the period of Statutory Public Consultation that will end on 27th February 2018.
A history of innovation

For 50 years, Drax has continued to innovate in response to the UK’s energy needs. The Drax Repower Project is the latest pioneering project undertaken by the company:

1967 The Selby coalfield is discovered. The Central Electricity Generating Board begins building Drax Power Station to use its coal.

1974 Drax Power Station starts generating electricity after its first 660MW unit is commissioned. It is the most advanced and efficient coal-fired power station ever built in the UK.

1975 Drax Power Station is officially opened with three generators and a total generating capacity of just under 2,000MW. It has the capability to power around two million homes.

1986 Drax doubles in size and capacity, becoming the largest power station in the UK.

1988 Drax becomes the first power station to invest in retrofitted flue gas desulphurisation (FGD) equipment. Once fully operational in 1995, it removes 90% of sulphur dioxide emissions, making it the cleanest coal-fired power station in the UK.

2003 Drax Power Station starts co-firing biomass, a renewable alternative to coal.

2008 Boosted-over-fire-air (BOFA) technology is retrofitted to all boilers, reducing nitrous oxide (NOX) emissions.

2012 Drax Power Station completes a five-year project, worth over £100m - the largest steam turbine modernisation programme in UK history - to upgrade its high and low-pressure turbines. This saves around one million tonnes of carbon dioxide emissions, equivalent to taking 275,000 cars off the UK’s roads.

Drax commits to transforming the business into a mainly biomass-fuelled generator using compressed wood pellets in place of coal. It plans to upgrade the three generating units that came online in the early 1970s.

2013 The first of three power generating units is fully converted to use compressed wood pellets in April.

2014 The second power generating unit is upgraded to biomass in May.

Drax completes construction of four large storage domes used to house the biomass supply. Each dome is bigger than the Royal Albert Hall, can hold 75,000 tonnes of high-density wood pellets and is explosion proof.

2016 The third power generating unit is fully upgraded to biomass.

2017 The Drax Repower Project is announced.
What is the Drax Repower Project?

- The construction, operation and maintenance of up to two new gas-fired generation units, with a combined capacity of up to 3,600MW (up to 1,800MW per unit), and located predominantly within the boundary of the existing Drax Power Station site.
- The construction, operation and maintenance of up to two battery storage facilities (one per unit and each up to 100MW capacity) within the Drax Power Station site. The storage facilities are likely to be housed in a dedicated stand-alone building.
- The gas-fired generation units would include up to four new turbines (up to two per unit) that can operate in combined-cycle or open-cycle modes.
- The construction, operation and maintenance of a new gas pipeline connection to the National Gas Transmission System (to the east of the Drax Power Station site and on land outside Drax’s ownership); two possible routes for the pipeline are being consulted on.
- An electrical connection into Drax’s existing substation that would allow electricity to be exported into the National Grid. We plan to use the existing electrical infrastructure within the existing power station site.
- An option to install a temporary crane adjacent to the existing jetty on the River Ouse to bring equipment and materials to the proposed Repower Project during its construction. If Drax decides not to use the jetty, it would transport equipment and materials by road; this may require the utilisation of temporary highway powers between Goole and Drax Power Station, such as the temporary closure of roads and the removal of barriers to enable HGVs and abnormal loads to reach Drax Power Station.
- Land set aside for potential carbon capture technology in the future, and for temporary construction laydown and contractor parking.
- The plant would be designed to operate for up to 25 years. The whole scheme would upgrade and enhance Drax’s generation capabilities into the 2030s and beyond.

Separate to the proposed Repower Project and as part of ordinary site reconfiguration proposals, Drax may undertake some works ahead of the Repower Project; these works may involve the demolition and relocation of some existing equipment and buildings within the Drax Power Station site. Such works are likely to require a separate planning permission from Selby District Council, which may be sought this year. Equally, the site reconfiguration works may be included in Drax’s application for the Repower Project, and therefore reference to these works can be found in the consultation materials.
The Project development area

An indicative site layout is being developed to determine the spatial requirements for the plant and the connections into the existing infrastructure, including the 400KV substation and the main turbine hall.

Our design work has determined that space for the gas receiving facility and a gas compressor building cannot be accommodated within the boundary of the existing power station but will be to the east of New Road within the gas pipeline corridor.

Drax will be applying for consent to repower units 5 and 6 and construct up to two gas fired generating units.

However, at this stage, Drax cannot confirm whether it will construct one gas fired unit (producing 1,800MW of electricity) or two gas fired units (producing another 1,800MW creating a total of 3,600MW of electricity). Accompanying each gas fired unit would be (subject to technical and commercial considerations) a battery storage facility with a capacity of 100MW.

Accordingly:
• one gas fired unit and battery storage facility = 1,900MW of electricity generated.
• two gas fired units and battery storage facilities = 3,800MW of electricity generated.
Why Repower?

- Invest in lower carbon, efficient and flexible power generation.
- Support the Government in taking coal off the grid.
- Reinforce Drax’s role as one of the UK’s largest energy producers.

We announced plans for future gas generation at Drax Power Station in June 2017, as part of an ongoing research and development project. The Project is part of Drax’s strategy to play a vital role in changing the way energy is generated as the UK moves to a low carbon future.

The Repower Project would repower up to two of our existing coal units by re-using some of the infrastructure in newly constructed gas fired generating units and extend their operations into the 2030s.

The Repower Project is a response to the revolution taking place in our energy system. Renewable technologies now account for a larger proportion of Great Britain’s electricity sources than ever before, and they’re growing.

Last year was a record-breaking one for renewables. Biomass, wind and hydro all registered their highest energy production ever, while solar recorded its highest ever peak output.

However, in a power system increasingly made up of intermittent renewables, it is even more important to have a range of technologies that can respond quickly to spikes in demand and drops in supply - for example, when the sun isn’t shining and the wind isn’t blowing.

In short, what the power system of today needs is flexibility and security.

The Drax Repower Project would enable Drax to provide even greater flexibility to the national electricity grid. Our proposed new gas units and, subject to technical and commercial considerations, the new battery storage facility(ies), combined with our existing biomass units, would provide low carbon electricity at significant scale at short notice when the system needs it. For example, in response to very low wind speeds affecting wind power productivity, unexpected power station unit outages elsewhere in the country, or times of high energy demand particularly in the winter. It will also keep us on track to meet our carbon-reduction challenges.

Our plans are also a response to the UK Government’s commitment to see all coal-fired generation phased-out in this country by 2025.
The role of gas in the energy mix

• Gas generation plays a key role in the UK’s energy system.
• Global gas reserves are diverse.
• Gas power plants can run 24 hours a day or provide back-up to intermittent renewables, like wind and solar power.

Nearly 45% of the country’s power already comes from gas, mostly generated by combined cycle gas turbine (CCGT) power plants.

CCGT plants can deliver a steady supply of baseload power - just like Drax Power Station currently does with both coal and biomass. In addition, the gas turbine technology that Drax would be using can generate electricity in response to peaks and troughs in demand.

Looking to the future, gas generation will play an increasingly important role supporting the energy grid to ensure security of supply.

What is Combined Cycle and Open Cycle technology?
Subject to further studies, the gas turbine generating units will be designed to operate in both open cycle and combined cycle mode. When operating as an open cycle gas turbine (OCGT), the exhaust gas from the gas turbine will be sent direct to the atmosphere through a bypass stack.

When operating as a combined cycle turbine (CCGT), natural gas is fired into the combustion system in order to drive a power turbine that is connected to an electricity generator. The hot exhaust gases generated are passed through a Heat Recovery Steam Generator before being emitted to the atmosphere through a stack. The steam that is generated by the boiler is used to produce additional electricity, and the steam leaving the steam turbine is condensed and this water is returned to the process for reuse.

The combined technology would mean that each gas unit will have up to four stacks, meaning that should we construct two gas generating units, there would be up to eight new stacks.

The efficiency of the generating turbines is expected to be up to 63%, compared with coal-fired plant that are 35-40% efficient.

Optimising energy in this way significantly increases the efficiency of the operation.

What is a battery storage unit?
Battery technology represents an opportunity to use our energy system more efficiently. Historically, electricity has had to be used as soon as it was generated because it has been difficult to store. At times this can be inefficient, such as when wind and solar farms are generating more clean electricity during the summer than what is needed to meet national demand. However, thanks to recent advances in research and innovation, the prospect of storing electricity is now becoming a reality.

Subject to technology and commercial considerations, we are proposing that each repowered unit would be connected to its own battery storage facility, each facility with a capacity of up to 100MW and located within the boundary of the Power Station site.
Local consultation & engagement

In October/November 2017, Drax shared its outline proposals with the local community, local politicians, the media and a range of other stakeholders and statutory consultees. Homes and businesses in the vicinity of Drax received a leaflet about the Repower Project, and exhibitions were held in the area to seek initial comment and feedback on issues that needed to be considered in taking the Repower Project forward.

This informal engagement provided information on the development area and the location of key elements of the Repower Project including the proposed generating units, battery storage facility(ies) and the gas pipeline connection.

Local feedback
Over 120 people attended the exhibitions, with over a third completing feedback forms. Based on the feedback received more than 71% of people were supportive of the Repower Project, with 17% of people neutral and 7% of people opposed (5% did not express a view).

Comments included:
• Support for the promotion of new gas turbine technology on the Drax Power Station site and the role it would play in providing a flexible and secure energy supply.
• The role of gas generation in the wider energy mix alongside renewable technologies.
• Support for re-using the existing site for new development.
• Potential disruption for local communities and landowners during construction including noise and construction traffic.
• Control of light pollution from the plant in operation and the jetty if used for the transport of construction material.
• Measures to control emissions.

What’s changed since then?
Since the informal engagement, we have undertaken further work to develop and assess the Repower Project including:
• Development of the site layout and sizing of the main buildings and structures.
• Further consideration of the two gas pipeline route options - both options remain open for consideration, with similar environmental impact. We are currently in discussions with National Grid about the options to connect to their National Transmission System.
• Preliminary construction traffic routes have been identified; it is no longer a preference to use the jetty to transport larger plant and equipment to the site during construction due to the potential environmental effects, although it remains an option at this stage pending a final decision.
Project construction

Transport
Drax's preferred option is to bring construction material to site by road, although the movement of larger plant and equipment via the Port of Goole and offloaded at the existing jetty on the River Ouse is still an option.

However, the scope for using the jetty is limited given the restrictions on the weight of loads that could be transported, the limitation on the type of barge that could be used so as to avoid dredging of the River Ouse which would likely have impacts on ecology, and a reliance on tidal windows for movements.

We have also listened to concerns about the proximity of residents to the jetty and the impact of lighting during the use of the jetty.

The preferred construction transport route is 'tried and tested'. Some works to the highways may be necessary in order to bring larger plant and equipment to site. This would involve the removal of street furniture and temporary closure of part of the highway, normally at night and for the duration of the movement only. The land will be reinstated to its former condition once the loads have been delivered.

Construction workers would travel to site via the existing road network. Contractors would be encouraged to use public transport, cycling and car sharing to reduce the number of cars coming to site.

Access for all construction traffic would be through the existing access entrances to the Drax Power Station.

At this stage, it is envisaged that access for the construction of the gas pipeline would also be from New Road to the proposed construction compound north of Carr Lane.

Construction Programme
It is proposed that the Repower Project would be constructed in two stages. The repowering and construction of the first unit would be constructed over a three year period, which would be followed by a 12 month break in construction before work on the second unit starts.

The first unit could be repowered and operational in 2022/23, with the second unit completed in 2026/27.

The battery storage facility(es) and gas pipeline would be constructed within the first half of this programme. The gas pipeline would take around 12 months to install.

Construction Working Hours
During construction, it is expected that the normal hours of working would be 7.00am to 7.00pm Monday to Friday, and 7.00am to 1.00pm on Saturdays.

It is likely that some construction work and deliveries will be required to be 24 hours at certain times during the construction programme; if this is necessary, prior permission will be sought from Selby District Council.
The gas pipeline

The gas turbine generating units will require a new gas connection from the National Transmission System, the main gas network that serves the country.

The connection would comprise:

- A new underground pipeline approximately 3km in length (600mm diameter) extending eastwards from Drax Power Station and primarily across agricultural land. It would be installed at a depth of at least 1.2m.
- An Above Ground Installation (AGI) at the connection to the National Transmission System, likely to be housed in a compound (likely to have a footprint of 62m x 30m and a height of up to 2.5m).
- A Gas Receiving Facility (GRF) to connect the pipeline to the gas generating units (likely to have a footprint of 35m x 75m and a height of up to 8.5m).

The construction would be undertaken within a fenced-off strip of land which may vary in width along the pipeline route. This is likely to be up to 30m wide for standard sections and may be expanded up to 100m wide around crossings of roads and drainage ditches to accommodate equipment and storage areas. The pipeline would be constructed by excavating a trench into which the pipe would be laid and then covered. Areas containing physical or environmental constraints may make use of trenchless crossing techniques such as boring or horizontal drilling.

Once the pipeline is installed, the land would be reinstated to its former use and condition. The loss of hedgerows would be avoided where possible and sections of hedgerows that are removed would be replaced.

Following the construction of the pipeline, agricultural activities can continue above the pipeline. However, there would be some restrictions surrounding activities, including deep ploughing and the planting of trees.

The pipeline AGI and GRF would be located outside of the main boundary of the Drax Power Station site, on land that Drax does not currently own. In order to lay the pipeline, Drax will therefore need to either reach agreement with relevant landowners to acquire the necessary rights in their land, or seek powers from the Secretary of State to compulsorily acquire the necessary rights. We have been speaking to the owners of land that might be affected by the pipeline connection works.

Route options for the gas pipeline

We are consulting on two gas pipeline corridors connecting the proposed Gas Receiving Facility for the Repower Project to two different locations on the National Transmission System (NTS). There are two pipes, or "Feeders", which we could connect into and they are known as "Feeder 7" and "Feeder 29".

To reach these Feeders from the Drax Power Station site, there are two route options (A and B):

- Option A: running to the east and connecting with the NTS either east of Brier Lane or off Rusholme Lane near to the existing National Grid Drax Above Ground Installation.
- Option B: running south east and connecting with the NTS at the junction where Brier Lane meets New Lane.

A decision on which route option is preferred will be made following consultation.
Environmental Impact Assessment

As part of the planning process, we will be undertaking an Environmental Impact Assessment (EIA). The EIA will consider the potential impact of the Repower Project on a range of environmental topics, including:

- Air quality
- Noise and vibration
- Historic environment
- Biodiversity
- Landscape and visual
- Ground conditions and contamination
- Water resource, quality and hydrology
- Waste
- Socioeconomics
- Cumulative impact with other projects in the area

Our EIA is being undertaken in accordance with a Scoping Opinion issued to us by the Secretary of State in October 2017, legislation, guidance and best practice. It is being carried out by WSP, a specialist environmental and engineering consultancy.

The work completed to date is set out in a Preliminary Environmental Information Report (PEIR) which contains the results of the preliminary assessment of the likely significant environmental effects of the Repower Project, as well as an indication of proposed mitigation measures to avoid, minimise or reduce any adverse effects.

Preliminary environmental information is produced to inform interested parties of the potential environmental effects of a proposed scheme, on which they are being consulted. The PEIR does not contain the final findings, as the EIA is ongoing and a full Environmental Statement (ES) will be submitted as part of the DCO application.

The Non-Technical Summary of the PEIR provides an overview of the findings and preliminary assessments. Copies of both the PEIR and the Non-Technical Summary can be viewed at today’s exhibition, at local council offices and libraries and can be downloaded from http://repower.drax.com

The key potential environmental effects associated with the construction and operation of the Repower Project are considered to be air quality, noise, traffic and transport and landscape and visual.
Environmental assessment

Air Quality
The gas fired plant would contribute some emissions to the air via the emissions stacks.

These emissions would include:
- nitrogen oxides
- carbon monoxide

These emissions would be regulated by the Environment Agency through an environmental permit.

The results of the air quality assessment have been used to inform the height of the emissions stacks so as to protect people and wildlife from the effects of emissions. It is currently anticipated that the stacks would be up to 120m in height: for comparison, the main stack at Drax is 259m high. With stack height set to 120m, no exceedances of air quality limits for human health are predicted.

The preliminary assessment has concluded that emissions of nitrogen oxide and ammonia may contribute to nitrogen and acid deposition over protected ecological sites. Further assessment is being undertaken and potential mitigation options will be discussed with Selby District Council, the Environment Agency and Natural England.

Measures will be implemented during the Project’s construction to minimise dust generation, including sheeting of vehicles, appropriate handling and storage of topsoil, and ensuring vehicles are well maintained.

Noise
A preliminary noise assessment of the construction and operational noise impacts has been undertaken taking into account current noise levels and proximity to homes and other users sensitive to noise in Barlow, Camplesforth, Drax and Long Drax, and other individual properties closer to the proposed site of the gas generating units and the gas pipeline corridors.

The assessment concludes that with appropriate mitigation all potential significant effects can be avoided.

During construction, noise will be controlled through a Construction Environment Management Plan; these measures are likely to include restrictions on plant and equipment that generate noise, restricting noisy works to the daytime, and compliance with agreed construction traffic routes.

Traffic and transport
To assess the impacts of the construction phase on the transport network, a preliminary transport assessment has been undertaken and is included in the PEIR.

It is envisaged that most construction traffic will use the M62 and A645 as this is the most direct route to the site. During the peak of construction there are expected to be up to 140 HGV movements per day. The highest number of car trips per day to the site during construction will be approximately 400. The preliminary transport assessment concludes that these levels of increase in traffic would not have significant adverse effects on the road network.

A Travel Plan and Construction Traffic Management Plan would be developed to minimise disruption to road users.

During operation, the proposed plant is not anticipated to result in a significant increase in the operational workforce at Drax or require additional deliveries. Therefore, there will be a negligible effect on traffic and transport in the area once the Repower Project is completed.

Landscape and Visual
A landscape and visual impact assessment has been undertaken which considers the impact of the Repower Project on local landscapes and from a number of viewpoints.

Whilst the Repower Project would be part of an existing industrial landscape, the scale of the plant and battery facility(ies) is likely to have some adverse effects on the landscape character of surrounding farmland and the landscapes around the River Ouse and River Aire.

There are also likely to be adverse effects on local views towards the Repower Project from local public rights of way and places within 2km.
Planning and consultation

The Planning Process
Given its generation capacity (more than 50MW), the Repower Project is classed as a “Nationwide Significant Infrastructure Project”. We are therefore required to submit an application for a Development Consent Order (DCO) to the Secretary of State for Business, Energy and Industrial Strategy via the Planning Inspectorate, a central government office.

We intend to submit our DCO application within the next six months. If accepted, an Examining Authority will be appointed, comprised of one or more planning inspectors from the Planning Inspectorate. The Examining Authority will undertake an independent examination of the application before making a recommendation to the Secretary of State, who will make the final decision as to whether to grant the DCO for the Repower Project.

Selby District Council and North Yorkshire County Council are key consultees in the process, along with local parish councils and other local and national organisations, such as East Riding of Yorkshire Council, the Environment Agency and Natural England.

In summary, the process that Drax is following in order to obtain a DCO is:
- Informal and statutory consultation with local councils, local landowners, local communities, the public and other interested parties.
- Feedback received over recent months and during this period of statutory consultation will help shape the DCO application; the statutory consultation is being carried out in accordance with our Statement of Community Consultation which can be downloaded from the Project website or viewed at local libraries and council offices.
- Provide a Consultation Report with the application for the DCO that demonstrates how we have consulted with the public and have had regard to consultation feedback.
- If our DCO application is accepted for examination, we will publish notices in local and national media updating the public and inviting them to make their own representations to the Planning Inspectorate about the application.

In advance of submitting the DCO application, we are also considering undertaking some on-site reconfiguration works, including the relocation of facilities within the existing Drax Power Station site complex. This work may need to be undertaken during the course of 2018. If required, we will apply to Selby District Council for a planning permission for these reconfiguration works under the Town and Country Planning Act 1990. However, we may also carry them out at the same time as carrying out the Repower Project, and so the reconfiguration works may also be included in our DCO application. For this reason, the PEIR includes the site reconfiguration works as part of the environmental assessment.

Project Timetable/Key Milestones

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<td>Liaison with local councils, landowners and other statutory organisations</td>
<td>Environmental Impact Assessment (EIA)</td>
<td>Project design &amp; engineering</td>
<td>First public exhibitions (non-statutory)</td>
<td>Publication of Statement of Community Consultation</td>
<td>Statutory period of consultation, including consultation on the PEIR and public exhibitions January 16 to February 27</td>
<td>Detail of the Project, including the EIA, finalised</td>
<td>Submission of DCO application</td>
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