

Introduction - what is Drax requesting planning for?

Drax Power Station was originally designed and built by the CEGB to burn coal from the local coalfields in and around Selby. As environmental legislation developed, more stringent limits were placed on the emissions from coal-fired power stations like Drax. As part of the Large Combustion Plant Directive, limits on NOx (oxides of Nitrogen) and Sulphur Dioxide resulted in significant changes to the way in which power stations operated and led to the development of more advanced combustion and abatement technology.

This technology included Flue Gas Desulphurisation or 'FGD'. FGD technology in the UK was designed to use limestone (Calcium Carbonate) which is ground up and dissolved to form a concentrated solution. This solution is then fed into spray towers within which the flue gas is also passed through.

The Sulphur Dioxide within the flue gas reacts with the calcium carbonate forming calcium sulphate ($CaSO_4$) which is also known as gypsum and can then be recovered and collected from the FGD system. Gypsum as a byproduct can be subsequently be used in the construction industry for making plasterboard. Since its construction, the FGD system has performed efficiently and effectively at the power station and has reduced the Sulphur Dioxide emissions which would otherwise have been emitted, significantly.

As Drax has moved toward co-firing with biomass and then full conversion of units 1,2,3 and 4, there is no need to operate the FGD system due to the lower levels of sulphur in biomass fuels compared with coal resulting in far lower emissions of sulphur dioxide. As units 5 and 6 which remain on coal at Drax Power Station are due to cease operating in March, 2021; this means that the FGD system will become redundant as will much of the common plant which serves the system. For this reason, Drax will apply to decommission and demolish much of the FGD system and re-purpose elements of the materials handling infrastructure which remains onsite.

In addition to the FGD demolition, Drax is looking to expand its ability to receive and process biomass fuels in the form of woodchips. The receiving and processing infrastructure would look to make use of existing buildings as well as the rail system which serves the site. Additional conveyors would be required to move the biomass from the processing areas to storage areas prior to entering the combustion units.

These two aspects of Drax's future plans form the basis of the proposed development for which Drax will seek planning permission from Selby District Council in the near future. An interactive presentation has been developed to allow the public to explore the proposals in greater depth and to understand the areas of the site which these proposals relate to. In addition, Drax has generated a series of questions and answers about the proposed development as well as a feedback form for your comments and any additional questions you feel have not been answered.



Drax Power Station - history and development

Drax Power Station is the biggest renewable generator in the UK and the largest decarbonisation project in Europe. Located near Selby, North Yorkshire, it is connected directly to the national electricity transmission grid, for which it provides a host of system support services. It has a capacity of 3,906 megawatts (MW) and produces around 18 terawatthours (TWh) of power a year, 75% using compressed wood pellets, a form of sustainably sourced biomass.

The remainder is produced using coal, a fossil fuel being phased out by 2025, if not before. Drax Power Station supplies 12% of the UK's renewable power. Four of its six power generation units have been upgraded from burning coal to use biomass; there's a useful link to Drax Businesses:

https://www.drax.com/about-us/our-businesses/

Our history

1974

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

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.

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.

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.

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

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.

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

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

Drax acquires Opus Energy, the UK's largest non-domestic energy supplier outside of the Big 6. A third pellet mill - LaSalle BioEnergy in Louisiana - is purchased by Drax Biomass.

In April, Drax Biomass purchases a third pellet mill. LaSalle BioEnergy in Louisiana is commissioned in November.

Drax reveals it is planning for the option to repower one or two remaining coal units to gas and build up to 200MW of battery storage on site.

Will Gardiner becomes Group Chief Executive, as Dorothy Thompson retires.

A fourth coal-fired power generating unit is taken offline at Drax. Over the summer it is upgraded to run on biomass.

Drax submitted an application to the Planning Inspectorate for a Development Consent Order (DCO) for its Repower project.

In May, Drax announced that it is to pilot the first bioenergy carbon capture storage

(BECCS) project of its kind in Europe which, if successful, could make the renewable electricity produced at its North Yorkshire power station carbon negative.

In December, Drax acquires Scottish Power's portfolio of pumped storage, hydro and gasfired generation from Iberdrola.

The capacity of Drax's power generation and storage assets increases to 6.5 gigawatts (GW), following the acquisition of Cruachan Power Station, Galloway and Lanark hydro schemes, and Damhead Creek, Rye House, Shoreham and Blackburn Mill power stations.

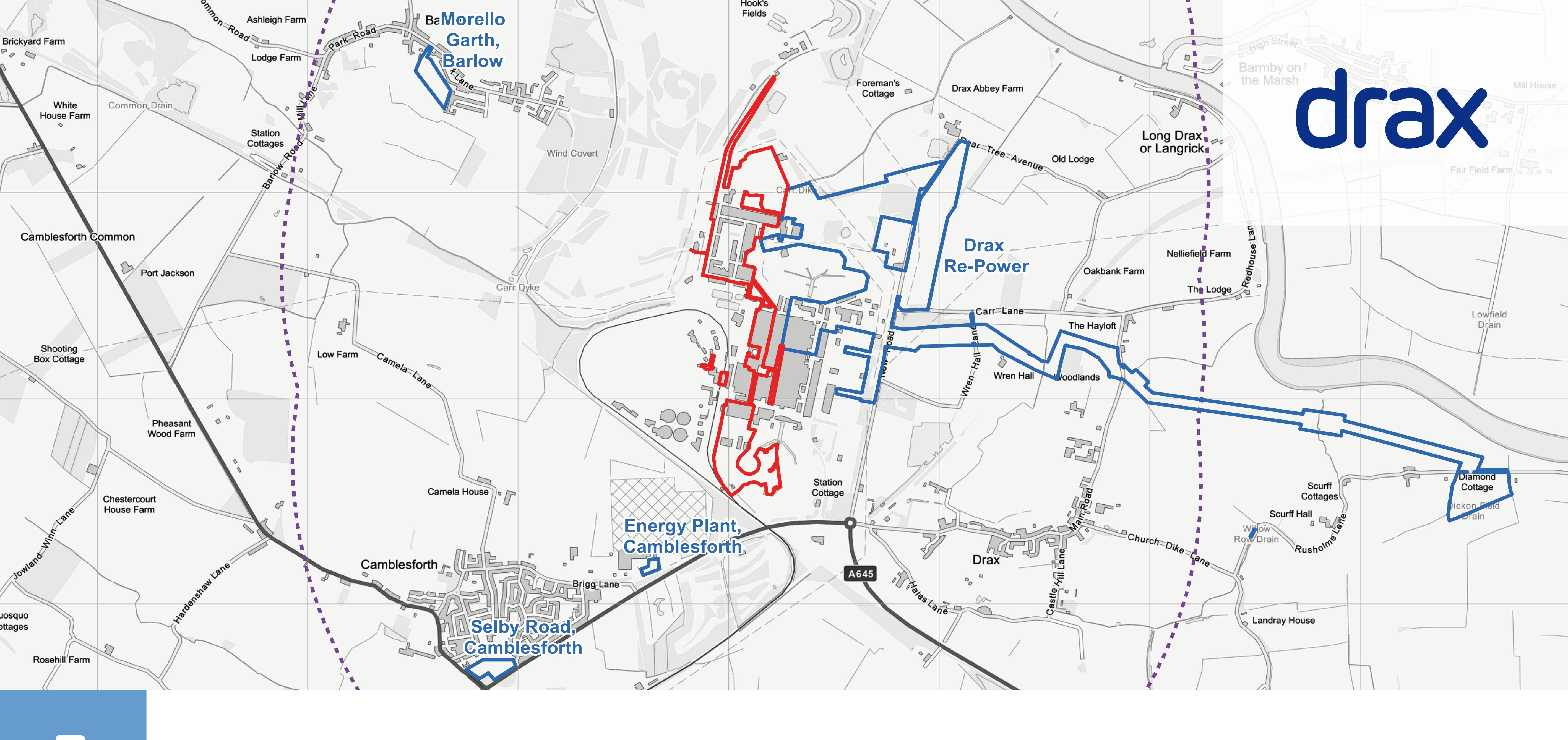
2019

In a world first, research engineers at Drax Power Station capture the carbon dioxide (CO₂) from an operational plant fuelled by 100% biomass feedstock.

The company records a 52% reduction in its carbon emissions in the first half of this year, compared to the same period in 2018. It uses its half-year financial results to announce that 94% of the electricity generated at Drax Power Station is now renewable.

Drax partners with Equinor and National Grid Ventures in September, launching Zero Carbon Humber - a partnership to build the world's first zero carbon industrial cluster and decarbonise the North of England.

At COP25 in Madrid, CEO Will Gardiner announced that Drax's ambition is to become the world's first carbon negative company by 2030.

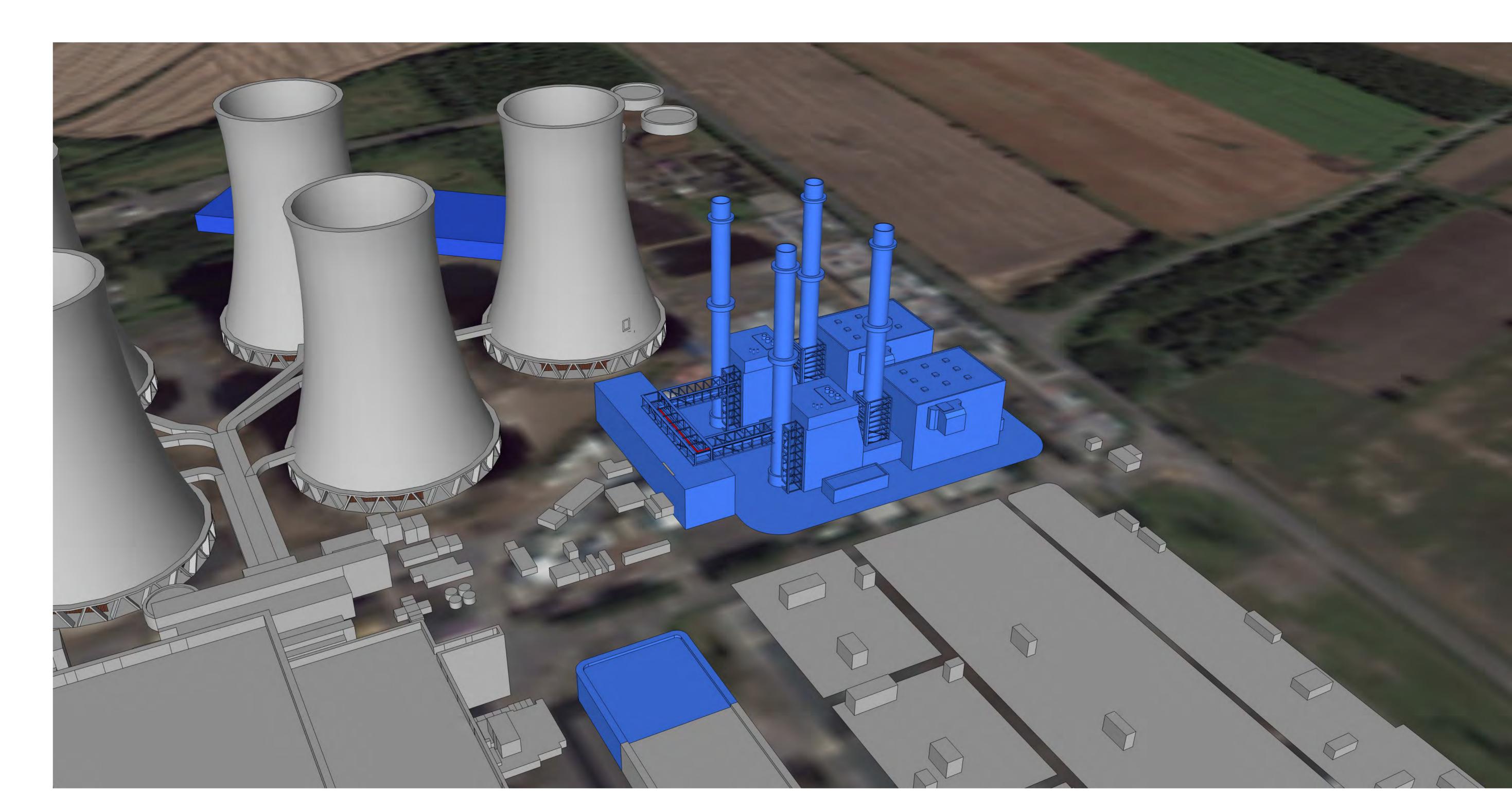


Cumulative Developments including Drax Repower CCGT

The Drax Repower project gained planning consent in October 2019. The project consist of repowering the coal-fired units 5 and 6 with gas. The project includes the development of 2 Combined Cycle Gas Turbines (CCGT) each of 2 x 600MW with a Heat Recovery Steam Generator with the ability to feed steam into the existing steam turbines operating at Drax Power Station.

The Development also included a battery facility of 100MW per unit and a new gas pipeline connection connecting into the National transmission system. The documentation and examination of the project can be found on the planning inspectorate's website.

The Drax Repower project could form part of the future Drax infrastructure and it is important to recognise this in other future Drax developments onsite.



Site view highlighting 'unit X'



Site view highlighting both units and the gas infrastructure



Main features of Drax Power Station and the surrounding area



Proposed Red Line Boundary and its context with the current operational power stationand its context with the current operational power station



Flue Gas Desulphurisation demolition and Biomass Handling & Receipt

Following the conversion of generating units 1-4 from coal to biomass, the Flue Gas Desulphurisation (FGD) system associated with these units was no longer required to operate. This is because of the significantly lower sulphur content in wood pellets compared with coal resulting in far lower concentrations of Sulphur Dioxide emissions. Units 5 and 6 are currently still capable of combusting coal, however, these units are due to cease operation in March 2021; at this point the FGD systems serving all 6 units at Drax will no longer be required to operate. For these reasons, an application to decommission and demolish the FGD system will be made.

Since the power station will continue to generate electricity, it is important that infrastructure which has become obsolete is dealt with safely and does not become a potential constraint to efficient operation or indeed development of future projects onsite at Drax Power Station. In the first instance it is expected that the FGD absorbers serving units 1 and 2 would be demolished first. Further assessments on the remaining FGD systems serving units 3, 4, 5 and 6 would be made and their demolition would then be expected to follow on.

The materials used to construct the FGD systems will be assessed prior to demolition and wherever practicable, these materials will be segregated in order that they can be recycled at suitable facilities offsite. It is likely that these materials will be moved by road to these recycling facilities. Some materials will not be suitable for recycling and will have to be disposed of, again at the appropriate facilities.

Due to the age of the FGD components and following a preliminary assessment, it is believed that there are negligible amounts of asbestos associated with the construction materials of the FGD systems; although where the FGD systems interface with older elements of the Power Station, there is a possibility of asbestos being part of the materials located here hence the correct safety precautions will always be taken.

As part of the 'Screening Request'* made to Selby District Council, specific elements of the demolition activities were identified as requiring assessment. These included Traffic and Transport, Waste management, Noise, Ecology and Flood risk. Discussions have been ongoing with Selby District council as well as North Yorkshire County Council and the relevant officers associated with those technical disciplines.

*the Screening Request and the District Council's Screening Opinion are available from the Selby District Council's Planning Portal website http://public.selby.gov.uk

Biomass Handling and Receipt

The existing coal units at Drax Power Station are expected to largely cease operation in Summer 2021, although they have secured a capacity market contract which extends to September 2022 and they may be called upon to operate for short periods of time. Biomass units are subsidised until 2027 and Drax aims to make biomass units commercially viable without subsidy. This will require changes to the Site to store and process other forms of biomass.

As part of this process, discrete items of plant from the FGD common system are to be adapted to accommodate the reconfigured biomass receipt, handling, storage and onward transfer of processed biomass fuel to the dedicated biomass generating units at Drax.

The follow works will be undertaken:

- Discrete items of plant from the FGD common system will be adapted to accommodate reconfigured biomass receipt, handling, storage and onward transfer of processed biomass fuel to the dedicated biomass generating units at Drax
- The area currently used as a car park will be repurposed and will house the machinery to process the material, with dryers and other equipment to process the biomass
- There will be a number of silos to be constructed on site, similar to the existing silos on site

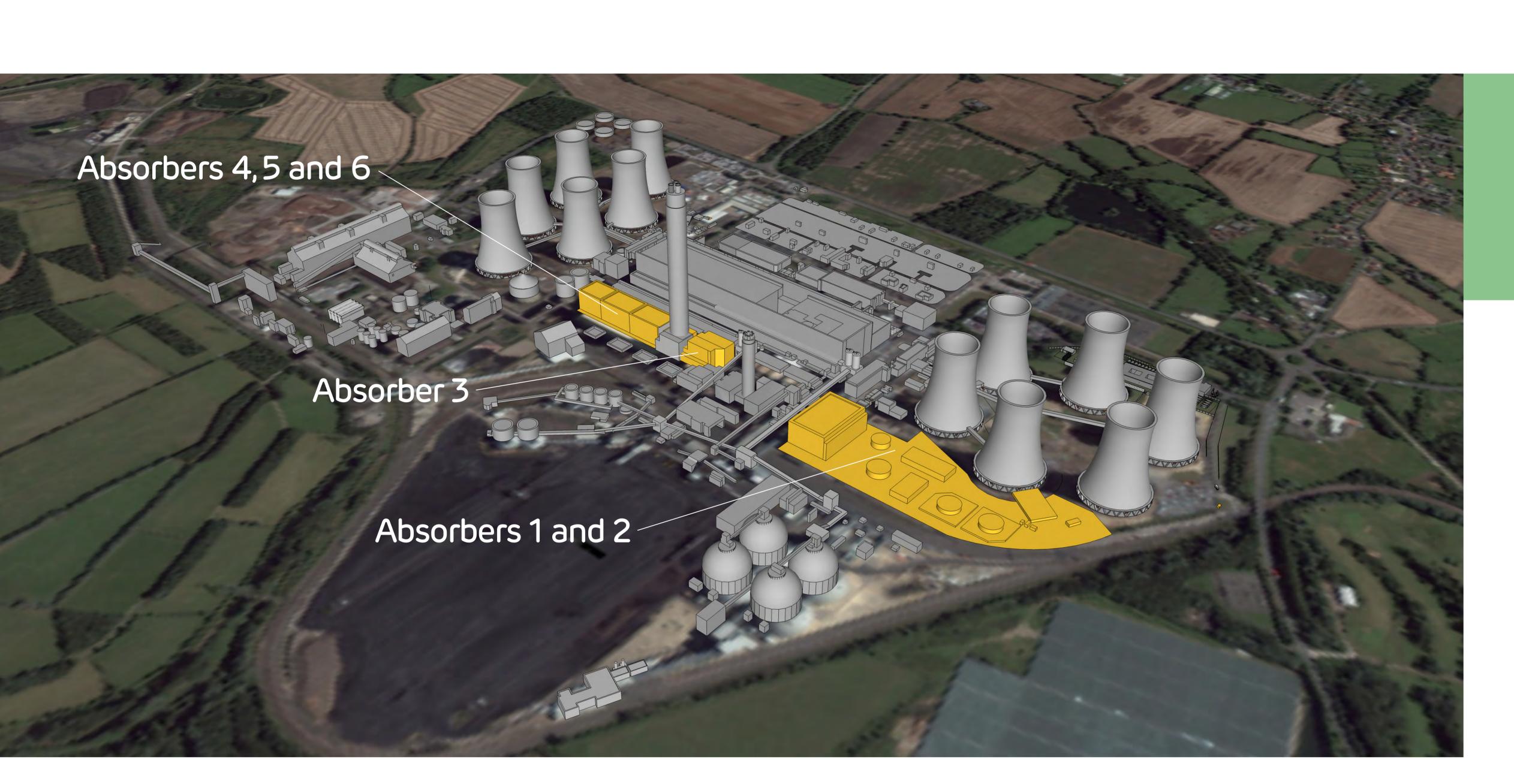
When the coal operation ceases, a number of existing buildings (the limestone and gypsum storage buildings) will be re-utilised and kept as storage units of the biomass, both processed and unprocessed. Within these buildings will be machinery to move the material potentially with a conveyor to move the material to the processing area and biomass units. The conveyors will not exceed the height of the buildings and the nature of use as material storage will remain the same. Therefore amendments to the building should be classed as Permitted Development and not need planning permission.

Transport of material to the biomass handing facility will be via train using the current rail system in place at Drax Power Station, then transported on Site using existing conveyor systems. Unloading facilities will be modified and upgraded within the existing FGD rail and road loading / unloading facilities. However, these works should be classed as Permitted Development and not need planning permission.

All of the Site is within the curtilage of the operational plant and the main plant and associated activities (with the exception of the FGD absorber buildings) will remain 'live' throughout the implementation of the project.



FGD demolition and Biomass Handling & Receipt - areas of development





FGD demolition areas

- Absorbers 1 and 2, South Heavy/Processed Fuel Oil (PFO) tanks, Gast Turbine (GT) Fuel Oil Tanks, Storage Sheds (Yarrows) and Waste Compound/Office buildings
- Absorber 3
- Absorbers 4,5 and 6





Biomass handling and receipt facility

Discrete items of plant from the FGD common system will be adapted to accommodate reconfigured biomass receipt, handling, storage and onward transfer of processed biomass fuel to the dedicated biomass generating units at Drax.

- The area currently used as a car park will be repurposed and will house the machinery to process the material, with dryers and other equipment to process the biomass
- There will be a number of silos to be constructed on site, similar to the existing silos on site



Laydown waste handling and segregation

Temporary laydown for equipment, machinery and tools, administrative offices/welfare, waste handling and segregation facilities.



FAQS

When will Drax be making the planning application?

An full planning application will be submitted to Selby District Council in Autumn 2020.

Who makes the decisions on the planning application?

Selby District Council will have the final decision on the planning application.

How do I find and where can I see the application?

The application will be available to view electronically on Selby District Council's planning portal website.

Are all the activities within the power station site?

Yes, the entire development for which the application is being made is all within the curtilage of the existing power station.

How long before the demolition starts?

Demolition would commence early in 2021 subject to planning permission being granted.

Will these demolition activities be noisy or dusty?

Activities which do generate noise will be identified and mitigated wherever possible. Drax has extensive experience of managing and mitigating activities which can generate dust.

Will there be explosives used to demolish the structures?

Currently there are no plans to use explosives in the demolition activities. If this changes, then this will be communicated to the various Councils and Parish Councils.

Will I see any difference to the power station?

Yes, the proposed development results in the removal of the FGD buildings, these are large structures and their removal will change the view particularly from the west of the station. The biomass receipt and handling facilities will result in additional conveyors on the Western side of the station interfacing with the limestone and gypsum facilities as well as driers and processing plant.

Why does Drax need more biomass fuel?

Drax will cease burning coal in March 2021 and has invested significantly in converting units 1-4. As Drax looks to continue operating beyond 2027, the company will look to develop more economic biomass fuel streams and efficient transport, handling and processing methods to maintain a competitive cost of electricity generation.

When will Drax stop burning coal?

Drax is currently looking at ending coal generation in March 2021, it is possible that Drax units 5 and 6 could be called on to generate after this date, although this is likely to occasional and for a very limited period of time.

What has happened to the Repower CCGT project?

Drax received planning consent for the Repower project in October 2019. Drax is currently considering its options for new gas fired generating stations.

Will there be increased traffic on the roads/railway?

The material demolished on site will likely leave the power station by road. The project includes a waste management and segregation area where materials can be correctly separated ready to be recycled. Due to the reduction in activites from units 5 and 6 including the raw materials used in the FGD system, there will likely be an overall reduction in traffic movements following demolition of the FGD system.

How do I respond to the planning application?

Selby District Council will have a specific page on their planning portal and comments can be made here. There will also be the facility to respond directly to Drax and we will try and respond as soon as possible.

How long will the demolition / building take?

- Application submitted to Selby District Council mid-September, 2020
- Planning Decision December, 2020
 (assuming 13 weeks for a major planning application)
- Decommissioning work and preparation across FGD units Q1 2021 Q4 2022
- Demolition works commence on Absorbers 1 and 2 Q1 2023

Will the work create any new jobs?

There will be specific and specialised demolition jobs associated with the FGD demolition. The Biomass receipt and handling facilities will also generate a number of jobs during the construction phase. Drax will advertise specific roles where relevant.

Who should I contact if I have more questions?

You can contact the Drax project team via https://www.drax.com/contact-us or you can contact Selby District Council's Planning team.