



ENVIRONMENTAL STATEMENT – VOLUME 1 – CHAPTER 3 CONSIDERATION OF ALTERNATIVES

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(a)

Document Reference Number: 6.1.3

Applicant: Drax Power Limited

PINS Reference: EN010120



REVISION: 01

DATE: May 2022

DOCUMENT OWNER: WSP UK Limited

AUTHOR: M. Marsh

APPROVER: S. Falconer

PUBLIC

TABLE OF CONTENTS

- 3. CONSIDERATION OF ALTERNATIVES..... 1
 - 3.2. Do Nothing Scenario 1
 - 3.3. Alternative Development Sites 2
 - 3.4. Alternative Layouts..... 3
 - 3.5. Alternative Technologies 5
 - 3.6. Alternative Construction Transport Routes 9
 - 3.7. Alternative Construction Laydown Areas 10
 - 3.8. Conclusion 11
- REFERENCES 12

3. CONSIDERATION OF ALTERNATIVES

- 3.1.1. This chapter sets out the Applicant's consideration of alternatives in line with Regulation 14(2)(d) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ("the EIA Regulations 2017") (HM Government, 2017) which states that an Environmental Statement (ES) should include:
- "A description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment."*
- 3.1.2. The Proposed Scheme has gone through several iterations and evolution in its design. The following alternatives have been considered for the Proposed Scheme:
- a. Do nothing scenarios;
 - b. Alternative development sites;
 - c. Alternative layouts (including the Habitat Provision Area);
 - d. Alternative technologies;
 - e. Alternative construction transport routes; and
 - f. Alternative construction laydown areas.
- 3.1.3. A number of design options are still under consideration, and these are discussed in **Chapter 2 (Site and Project Description)** (document reference 6.1.2). Options that have been considered and discounted are described in this chapter.

3.2. DO NOTHING SCENARIO

- 3.2.1. Drax Power Station currently operates on four biomass units (units 1 to 4). The two coal units (units 5 and 6) stopped generating electricity commercially in March 2021 and will cease operations entirely prior to works to construct the Proposed Scheme commencing. In the "do nothing" scenario, the biomass units 1 to 4 would continue as currently configured to generate electricity from sustainable biomass without the addition of post combustion Carbon Capture technology. Further detail around the mid-merit operating scenario assumed for the baseline is set out in **paragraph 15.5.8 (a) of Chapter 15 (Greenhouse Gases)** (document reference 6.1.15). Biomass absorbs carbon dioxide as it grows and releases carbon dioxide when it is combusted to fuel the electricity generation process. Drax's commitment to responsible biomass sourcing from sustainable sources (Drax, 2019) means that the units are currently and would continue to be producing sustainable, renewable electricity.
- 3.2.2. The generation of electricity through the combustion of biomass using the existing Units 1 and 2 is renewable. BECCS, however, would produce negative emissions (Department for Business, Energy & Industrial Strategy, 2021) and therefore has the potential to deliver a net decrease of approximately nine million tonnes of atmospheric carbon dioxide each year compared to the "do nothing" scenario.

- 3.2.3. This would be in line with the UK Government's Net Zero Strategy which deems BECCS essential for balancing the amount of greenhouse gases produced and the amount removed from the atmosphere, thereby achieving net zero carbon emissions, by 2050 by supporting the offset from hard-to-decarbonise sectors through negative emissions (Department for Business, Energy & Industrial Strategy, 2021). As such, in the "do nothing" scenario the Applicant would make a less significant contribution to the shift to a net zero society in the UK.

3.3. ALTERNATIVE DEVELOPMENT SITES

- 3.3.1. Given the nature of the Proposed Scheme, i.e. retrofitting post combustion Carbon Capture technology to existing biomass generating units, geographically distant alternative power station sites were not considered viable and have therefore not been considered further as options for the Proposed Scheme. Furthermore, with respect to electrical connection, Drax Power Station is strategically positioned within the National Grid electricity network to meet electricity demand in the north and south of England and is also close to the Port of Goole.
- 3.3.2. The Applicant has previously considered developments adjacent to the Drax Power Station Site, for example, the White Rose Carbon Capture Project which was proposed to the north of the Drax Power Station Site. These sites which had been considered previously were not considered as suitable for the Proposed Scheme as the Drax Power Station Site, which was selected by the Applicant on the basis of the following:
- a.** The Drax Power Station Site is within the ownership of the Applicant;
 - b.** There is a long history of power generation on this site and the site is currently used for this purpose. The addition of post-combustion capture technology would mean there would be little material change to the land use;
 - c.** The majority of the Order Limits consists of brownfield land, whilst impacts to existing agricultural land would be temporary and only during construction;
 - d.** The Site has existing electrical and transport connections;
 - e.** It allows for core items of the existing infrastructure at the Drax Power Station to be re-used by installing Carbon Capture technology onto existing power generating units (Units 1 and 2), re-using the cooling water systems, Main Stack and electrical connections;
 - f.** The Site provides a suitable location for connection into the National Grid Transport and Storage Infrastructure that is to be part of the Zero Carbon Humber project. (It is noted that this infrastructure is to be consented under a separate Development Consent Order (DCO));
 - g.** The location of the Drax Power Station Site in relation to the proposed National Grid Transport and Storage Infrastructure and also the amount of carbon dioxide available from the Drax Power Station Site provides operational advantages for the Zero Carbon Humber network as it enables the network to be purged from one end of the network with the large volume of carbon dioxide that is required. Other carbon dioxide supply sites will not be able to do this as easily and as quickly as the Drax Power Station Site; and

- h.** The large and consistent volume of carbon dioxide available from the Drax Power Station Site provides a continuous supply into the Zero Carbon Humber network and consequently alleviates the operational impacts from more fluctuating supplies from other carbon dioxide supply sites.

3.3.3. Off-site solutions were not selected on the basis of the following:

- a.** That they would not be within the Applicant's ownership and would therefore require the compulsory purchase of significant areas of land to create a feasible solution;
- b.** Off-site locations may have required the use of greenfield sites, resulting in additional environmental impacts on those sites and along the route of any infrastructure to connect in with the Drax Power Station Site; and
- c.** An off-site location would need to provide infrastructure, such as cooling water systems and electrical connections, which would need to be built as there would be no existing infrastructure to connect into.

3.3.4. As a result of the reasons outlined above, the Drax Power Station Site was selected as the location for the Proposed Scheme.

3.4. ALTERNATIVE LAYOUTS

BECCS PLANT

3.4.1. Two solutions have been considered within the Drax Power Station Site for location of the Carbon Capture Plants and additional supporting infrastructure (Solvent Storage and Make-up System and Carbon Capture Wastewater Treatment Plant) required for the Proposed Scheme and these are a northern solution and a southern solution, the latter of which has not been selected. Reasons for selecting the northern solution are set out below:

- a.** The northern solution centres around the northern set of cooling towers, which enables the use of the existing cooling towers associated with unit 5 and unit 6 (currently coal operating units). As the two remaining coal units (units 5 and 6) stopped generating electricity commercially in March 2021 and will cease operations prior to works to construct the Proposed Scheme commencing, those units will no longer affect the operation of other parts of the Drax Power Station Site, allowing the northern cooling towers to be utilised. This is preferable as it would not affect the operation of the Drax Power Station infrastructure which uses the southern cooling towers;
- b.** The northern solution allows the re-use of existing infrastructure such as piles from the FGD plant which would be demolished prior to construction of the Proposed Scheme;
- c.** The use of the northern solution minimises pipe runs, in particular the high-pressure carbon dioxide pipeline, given the reduced area required to be covered; and
- d.** The close proximity of the main flue gas stack to the northern solution improves the flue gas supply and return tie-in locations.

- 3.4.2. Reasons for not selecting the southern solution are set out below:
- a. The southern solution would cause greater disruption to the operation of the Drax Power Station infrastructure, as it would be required to tie into the southern cooling towers, currently in use;
 - b. The southern solution would not be able to use the existing infrastructure for the FGD plant, due to be demolished, and would therefore cause greater impacts and disruption;
 - c. The use of the southern solution would require longer pipe runs to be constructed; and
 - d. The southern solution would be located further away from the main flue gas stack and would therefore need to occupy a greater area of the Site.
- 3.4.3. For the reasons outlined above, the northern solution was selected as the location for the Carbon Capture Plants and additional supporting infrastructure.

ORDER LIMITS

- 3.4.4. A number of refinements have been made to the extent of the Order Limits shown in **Figure 1.2** (document reference 6.2.1.2); the areas which have been removed from the Order Limits or refined, and the reasons for this, are set out below.

Habitat Provision Area

- 3.4.5. The Habitat Provision Area has been drawn up to include areas of land which are already within the Applicant's ownership, avoiding compulsory acquisition. Furthermore these areas are located within close proximity to the Site and the habitats affected by the Proposed Scheme and therefore enable enhancements close to the identified potential impacts of the Proposed Scheme. The following refinements have since been made to this area:
- a. Removal of an approximately 30 m strip along the northern boundary of the Habitat Provision Area to avoid potential impacts in relation to the River Ouse;
 - b. Significant refinement of the Habitat Provision Area to remove large areas of arable land in order to minimise impacts to existing agricultural land;
 - c. Removal of a block of woodland in the south-eastern corner of the Habitat Provision Area given the limited opportunities for mitigation in the existing woodland; and
 - d. Inclusion of a permanent area to the north of the East Construction Laydown Area, formerly included as temporary land take for construction laydown purposes, to maximise benefits gained through mitigation on what is considered to be poor quality agricultural land.

East Construction Laydown Area

- a. Removal of a strip along the southern boundary of the East Construction Laydown Area to avoid impacts to existing trees adjacent to Carr Lane; and
- b. Removal of the northern part of the East Construction Laydown Area to avoid temporary impacts to a public right of way and to provide additional areas for habitat provision to the north (as noted above).

Drax Power Station Site

- a. Removal of land around the southern cooling towers, railway loop and biofuel storage area which are no longer required for engineering purposes.

3.5. ALTERNATIVE TECHNOLOGIES

SOLVENT TECHNOLOGY AND SELECTION

- 3.5.1. In 2018, the Applicant demonstrated post-combustion capture from 100% biomass feedstock through installation of a pilot facility at the Drax Power Station Site. The pilot plant utilised a non-amine solvent.
- 3.5.2. Non-amine solvent technology is not yet sufficiently technologically advanced nor has been demonstrated at scale to be a viable technology option which could be utilised for the BECCS development, as it would be required by 2027. It has therefore not been selected as a technology option for pre- Front-End Engineering Design (Pre-FEED) or FEED. Drax continues to support the development of such technologies, including the enabling of research into engineering solutions of the first non-amine solvent based pilot plant installed at the Site in 2018.
- 3.5.3. A Feasibility Study, which included a comparison of solvents, was carried out by the Applicant's Technical Supplier. This study identified the technical advantage of the selected amine solvent, as the chosen option reduces steam demand and increases Regenerator pressure (i.e. reducing the compressor power requirement). It is also expected to result in reduced degradation of the solvent and reduced solvent emission levels (as a result of lower steam demand).
- 3.5.4. Following the completion of the pre-FEED, the Applicant chose a preferred supplier to be taken forward to the next basic engineering stage of design. The preferred supplier further improved the Applicant's confidence in amine solvent by installing and successfully operating an amine solvent based post-combustion Carbon Capture pilot facility at the Drax Power Station Site in 2020.

STEAM SOURCE

- 3.5.5. At the start of the pre-FEED process, options regarding steam source included:
 - a. Steam extraction from the existing (host) biomass units (Unit 1 and Unit 2);
 - b. Conversion of biomass-fuelled Unit 3 to a combined heat and power (CHP) plant; and
 - c. New gas fired steam generator(s).
- 3.5.6. The option for extracting steam from the existing (host) biomass units (Unit 1s and 2) (bullet a in **paragraph 3.5.6** above) does not require any additional fuel input and so does not impact the carbon intensity of the Proposed Scheme. This option does however result in a reduced power output from Units 1 and 2, which has been considered within the GHG assessment. The option for supplying steam from new gas fired steam generators (**paragraph 3.5.6 (c)** above) would require a natural gas input and would therefore increase the carbon intensity of the Proposed Scheme,

although the impact to the power output from Units 1 and 2 is minimal. A decision was made by the Applicant that the primary aim of the Proposed Scheme would be to deliver negative emissions and support the transition to net zero and that this should be prioritised over maximising power output. As such, supplying steam from new gas fired steam generators was discounted prior to pre-FEED.

- 3.5.7. As a result of the work undertaken at pre-FEED the option for conversion of Unit 3 to CHP (**paragraph 3.5.5 (b)** above) was discounted. This was because it would be complex to implement and this could lead to impacts to the operation of Unit 3, high construction and operational costs and would also require the use of fossil fuels.
- 3.5.8. The remaining option for steam supply to the process - steam extraction from the existing (host) biomass units 1 and 2 (**paragraph 3.5.6 (a)** above) was therefore taken forward for the Proposed Scheme.
- 3.5.9. Work was undertaken to identify the optimum point of interconnection with the existing (host) unit, with this either being interconnection to the existing unit boiler or interconnection with the existing unit turbine. At this stage, it has been confirmed that the steam supply for the process by an interconnection to the existing unit boiler is the preferred option. However, the Applicant will retain the option to interconnect with the existing turbine open to maintain full flexibility as the Proposed Scheme moves into detailed design.

EMISSIONS POINT

- 3.5.10. Preliminary emissions modelling was carried out to assess the optimum location for the release of flue gas from the process. Two options were considered:
- a.** Release of flue gas from the top of absorbers; and
 - b.** Re-routing of the flue gas through ducts back to the existing stack.
- 3.5.11. It was concluded that re-routing the flue gas back and releasing it from the existing stack (b) was the preferred option from an environmental impact perspective. This is because:
- a.** Due to the height of the existing stack (259 m agl), atmospheric dispersion of flue gas emissions would be more effective than releasing the flue gas from a shorter stack; and
 - b.** There would be no additional visual impact due to there being no increase in height for the absorbers, nor a new stack required, and therefore no change to the baseline conditions.

MODIFICATIONS TO THE EXISTING WATER PRE-TREATMENT PLANT

- 3.5.12. To ensure suitable quality of circulating water through the Proposed Scheme, modification works are required to the existing water pre-treatment plant. Three options for the modification works were reviewed and have been outlined below:
- a.** Retrofitting the existing four sedimentation tanks with technology such as the installation of lamella plate technology to improve performance; or

- b.** Installation of up to two weir-type water pre-treatment systems in addition to the existing sedimentation tanks; or
- c.** Installation of up to four additional sedimentation tanks in addition to the existing sedimentation tanks.

3.5.13. Following inspection of the existing sedimentation tanks and further design work to understand the circulating water requirements for the BECCS process equipment, it was determined that the less intrusive option (a) would provide water of suitable quality. As such, the more intrusive and environmentally invasive options (b) and (c) were discounted. Options (b) and (c) are considered more environmentally invasive compared with option (a) because of the increased visual impact and the increased land take which subsequently encroached onto an existing natural drainage ditch and reduced the area for retained vegetation.

WASTEWATER TREATMENT PLANT

3.5.14. Two different options were identified for stripping ammonia from an effluent stream originating during the quenching of the flue gas:

- a.** Air stripping units; and
- b.** Closed system steam stripping units.

3.5.15. The use of air stripping units (option a) would have introduced ammonia emission points and potential environmental impacts due to regular venting from the top of the stripper columns. Additionally, large air blowers would be required to provide the air flow required within the ammonia strippers, increasing the electrical load and contributing to the noise and vibrations levels for the Proposed Scheme.

3.5.16. Following an initial assessment of option a, it was concluded that steam stripping units within a closed system was the preferred option (option b). This reduces the environmental impact by eliminating the ammonia emission points, requires smaller equipment and avoids the introduction of an additional electrical load.

COOLING OPTION

3.5.17. Consideration was given to two options for the cooling requirements of BECCS. These were as follows:

- a.** Cooling would be provided by using the existing cooling towers at the Drax Power Station. Drax Power Station currently uses hyperbolic (natural draught) cooling towers that are 116.5 m in height. River water is abstracted from the River Ouse and pumped to Drax Power Station where it is treated to remove solids and other material. The treated river water is then used for cooling. No additional water would be abstracted from the River Ouse or discharged as a result of this cooling option; and
- b.** New cooling towers would be installed on the north side of the Drax Power Station Site to provide cooling for compression facilities. This option would only be used should a low flow of 100 MW through the North Cooling tower system become unfeasible.

3.5.18. Cooling option (a) was chosen as it allows for greater efficiencies due to closer proximity to the new BECCS plant equipment. It also reuses existing infrastructure

resulting in less environmental impact e.g. uses fewer materials, less visual impact, less disruption during construction. This option would also not require any additional water to be abstracted from the River Ouse for additional cooling water make-up .

PROVISION OF ADDITIONAL ABATEMENT TECHNOLOGY

- 3.5.19. During pre-FEED it was identified that there may be an opportunity to reduce amine degradation by reducing nitrogen dioxide content through full time operation of the existing selective non-catalytic reduction (SNCR) (existing abatement technology installed on the biomass units which requires injection of aqueous ammonia in the flue gas stream). This would reduce the requirement for amine solvent make-up and improve the reusability and life cycle of the solvent. However, the investigation found that the benefits associated with a reduced amine degradation due to the reduced nitrogen dioxide content were only marginal and so for the purpose of the FEED and environmental assessments, it was assumed that the SNCR was not in full time operation and so the nitrogen dioxide levels will remain the same as the current levels (i.e. without SNCR in full time operation).
- 3.5.20. Performance tests will be conducted with and without SNCR once the plant is operational to confirm the most effective solution however as the SNCR is existing abatement technology that is already installed, consent for it is not sought as part of this DCO.

CARBON DIOXIDE DEHYDRATION TECHNOLOGY

- 3.5.21. With regard to carbon dioxide dehydration technology two options were assessed:
- a. solid desiccant dehydration technology which is a process which uses adsorption to retain water on the surface of the desiccant particles; and
 - b. triethylene glycol (TEG) which uses a highly concentrated TEG solution as an absorbing medium to capture water particles which are subsequently removed in a regeneration unit to enable reuse of TEG.
- 3.5.22. The TEG process introduces a risk of TEG carryover which adds an impurity to the captured carbon dioxide. This has the potential of introducing Control of Substances Hazardous to Health (COSHH) implications for pipeline maintenance as well as damaging soft parts and seals within the pipeline.
- 3.5.23. National Grid Carbon Limited (NGCL) have clarified a preference to use solid desiccant dehydration and avoid any risk associated with TEG carryover. Additionally, the carbon dioxide pipeline specifications state that a range of chemical impurities, including glycol, should be below detectable limits, or else agreed with NGCL. Finally, OPEX and CAPEX for solid desiccant beds is similar to that of a TEG process.
- 3.5.24. Therefore, it was decided to proceed on the basis of using solid desiccant dehydration technology.

CARBON DIOXIDE COMPRESSION

- 3.5.25. With regard to carbon dioxide compression, two options have been considered:

- a. Option 1: A single compression centre comprised of up to eight acoustically enclosed compressors to the west of the existing northern cooling towers.
- b. Option 2: Two compression centres including up to eight acoustically enclosed low-pressure compressors west of the cooling towers and up to eight acoustically enclosed high-pressure compressors within the Woodyard, an area in the northwest corner of the Drax Power Station Site.

3.5.26. Following a detailed review of both Option 1 and Option 2, it was concluded that Option 1 could be optimised by having a single compressor centre, containing up to eight Carbon Dioxide Compressor Buildings housing up to sixteen acoustically enclosed compressors, thereby using less land space and reducing the noise impact when compared to both the original Option 1 and Option 2.

ELECTRICAL POWER DEMAND

3.5.27. Two options were assessed with regard to the electrical power demand for the Proposed Scheme and these were either “unit supplies” or “station supplies”:

- a. Unit supplies refer to the indirect supply of electrical power through initial supply of high temperature and high pressure steam extracted from the biomass units, driving up to two Combined Power Turbines and connected generators as part of the Proposed Scheme to provide the required electrical load for the BECCS plant.
- b. Station supplies refer to the direct supply of electrical power from the existing National Grid; kV switchgear - the existing point of export of electrical power, on the Drax Power Station Site. Taking electricity from this supply point would reduce the overall amount of electrical power exported from Drax Power Station.

3.5.28. Unit supplies are the preferred option as it supplies electrical power to all parts of the Carbon Capture process in conjunction with conditioning the steam required for the capture process without impacting the Drax Power Station electricity generation.

3.5.29. However, to ensure uninterruptable operation of the Proposed Scheme during start-up / shutdown, transient and fault conditions (when power from the Combined Power Turbine is not available), an alternate secondary electrical supply would be required, which would be provided from the existing 132 kV air insulated switchgear. The electrical supply philosophy for the Proposed Scheme would therefore be unit supplies in the first instance but with a secondary electrical station supply to provide additional resilience.

3.6. ALTERNATIVE CONSTRUCTION TRANSPORT ROUTES

3.6.1. Consideration was given to the transport of construction materials and abnormal indivisible loads (AILs) during construction.

3.6.2. The use of the existing Drax railway was considered and discounted on the basis that the AILs cannot fit under the railway bridges and the majority of the plant is not able to be transported by rail. Additionally, the existing Drax railway line is already used for the delivery of biomass to Drax Power Station which operates a just in time model. As a result, the railway line often operates at full capacity and any additional usage on the railway line could negatively impact the operation of the biomass units

by causing a disruption to biomass availability, resulting in reduced loads or the closure of units and ultimately reduced production of electricity to the grid. The use of the Drax railway line was therefore discounted as a transport route solution.

3.6.3. The following two additional options for the transport of AILs were presented within the **EIA Scoping Report** (document reference 6.3.1.1):

- a. Transport from the Port of Goole by road along the A161 (Goole Bypass), the M62 and then the A645 to Drax Power Station (the 'Road Option'); and
- b. Transport from Port of Goole by via the River Ouse to an upgraded Drax jetty and then by road along Redhouse Lane and Carr Lane (the 'Water Option').

3.6.4. Extensive consultation was held with East Riding of Yorkshire and National Highways to discuss these options and a study of the route options against National Highways' Water Preferred Policy (National Highways, 2019) was undertaken. It was considered that the upgrade of the Existing Drax Jetty should be discounted as any enabling works would have given rise to significant environmental effects, including, but not limited to, impacts on wintering birds and otters, higher levels of noise and vibration and changes to landscape character. The cost would also be significantly higher when compared to the 'Road Option'. The options were subject to a 'reasonableness' test which assessed whether movement by water was economically viable in accordance with the 'Water Preferred Policy – Guidelines for the movement of AILs' (National Highways, 2019). The assessment concluded that the Road Option passed 'Test 2' and that movement by road should be granted. This assessment was submitted to the Department for Transport via National Highways and approval of the proposed strategy was confirmed 20 April 2021.

3.6.5. A further alternative road route was suggested by East Riding of Yorkshire post-EIA Scoping which involved transport from the Port of Goole via Goole town centre, however following an AIL route assessment this solution was discounted as unfeasible due to the vehicle being unable to physically navigate the alternative route through densely built up areas of the town.

3.6.6. The chosen option is therefore to transport AILs from the Port of Goole by road along the Goole Bypass, the M62 and then the A645 to Drax Power Station.

3.7. **ALTERNATIVE CONSTRUCTION LAYDOWN AREAS**

3.7.1. No viable alternatives to the proposed Drax Power Station Site Construction Laydown Areas were identified due to a lack of available space on the Drax Power Station Site above and beyond that already proposed in the **Figure 2.3 (Construction Laydown Plan)** (document reference 6.2.2.3). The locations of specific construction laydown plot areas on the Drax Power Station Site were chosen based on their current purpose (i.e. the existing northern site entrance car park will be maintained as car parking for construction workers, and the existing limestone and gypsum storage buildings which following cease of coal operation, would be redundant, will be used for covered laydown and fabrication) or due to their close

proximity to the BECCS construction area, which reduces construction traffic movements around the site.

- 3.7.2. The East Construction Laydown Area outside the Drax Power Station Site has the advantage of being in ownership of the Applicant. Although located outside of the Drax Power Station Site, it is still in close proximity to the BECCS construction area, enabling access and transport to and from the site with minimal environmental impacts. The large area provides sufficient space for laydown of plant, equipment and materials, light fabrication, storage of topsoil from the area and as an overflow car park during construction. Through an iterative design process this area has been refined to remove areas which are not required.

3.8. CONCLUSION

- 3.8.1. This chapter sets out the main reasons for the options selected for the Proposed Scheme and the reasons for not opting to select the other alternatives considered, including the “do nothing” Scenario.
- 3.8.2. Given the nature and requirements of the Proposed Scheme, geographically distant alternative power station sites were not considered a viable option and have therefore not been considered further.
- 3.8.3. The northern solution for the location of the Carbon Capture Plants was selected based on minimising disruption to existing processes, the re-use of existing infrastructure, the minimisation of pipe runs and the close proximity of the main flue gas stack.
- 3.8.4. Refinements have been made to the Order Limits over several iterations to remove areas of land which are no longer required for engineering purposes and to reduce impacts where possible.
- 3.8.5. A number of alternative technologies have been considered for the Proposed Scheme and selected on the basis of the outcome of feasibility studies, the reliability and efficiencies of certain technologies and their reduced environmental impacts.
- 3.8.6. Transport of AILs and construction materials by road from the Port of Goole was selected instead of the alternative use of the Drax Jetty, which would have resulted in greater environmental impacts and higher costs.
- 3.8.7. Due to a lack of available space on the Drax Power Station Site beyond those areas already proposed for the Drax Power Station Site Construction Laydown Areas, no viable alternatives were identified. The East Construction Laydown Area, selected due to its proximity, has been refined to remove areas which would not be required for construction laydown purposes.

REFERENCES

Department for Business, Energy & Industrial Strategy. (2021). Biomass Policy Statement.

Drax. (2019). *Drax sets world-first ambition to become carbon negative by 2030*.

Drax. (2019). Responsible Sourcing: A policy for biomass from sustainable forests.

HM Government. (2017). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended).

IPCC. (2019). *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Volume 2, Energy*.

National Highways. (2019). *Water preferred policy - Guidelines for the movement of abnormal indivisible loads*.