

White Rose Carbon Capture and Storage (CCS) Project

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The White Rose CCS (Generating Station) Order

Land adjacent to and within the Drax Power Station, Drax, near Selby, North Yorkshire

Applicant's Statement of Common Ground with the Environment Agency - **DRAFT**

The Planning Act 2008

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



Applicant: Capture Power Limited
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Glossary	
BAT	Best Available Technique
CCS	Carbon Capture and Storage
CHP	Combined Heat and Power.
CO ₂	Carbon dioxide.
CL	Critical load or level
CPL	Capture Power Limited.
DCO	Development Consent Order.
DWSZ	Drinking Water Safeguarded Zone.
EA	Environment Agency
EP	Environmental Permit.
ES	Environmental Statement.
HRA	Habitats Regulations Assessment.
NERC	Natural Environment and Rural Communities Act 2006.
NFU	National Farmers Union.
NPS	National Policy Statement
PEC	Predicted Environmental Concentration
SAC	Special Area of Conservation
SoCG	Statement of Common Ground.
SoS	Secretary of State
WRCCS	White Rose Carbon Capture and Storage.
YWT	Yorkshire Wildlife Trust.

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1.0 INTRODUCTION

OVERVIEW

- 1.1 This is the Statement of Common Ground ('SoCG') between Capture Power Limited (the 'Applicant') and the Environment Agency ('EA') relating to the application (the 'Application') that has been made to the Secretary of State ('SoS') for a Development Consent Order ('DCO') under Section 37 of the Planning Act 2008 (the '2008 Act').
- 1.2 The Application seeks development consent for the construction, operation and maintenance of the White Rose Carbon Capture and Storage (CCS) project (the 'Project'). The Application was submitted in November 2014 and accepted for Examination on 17 December 2014.
- 1.3 The Project would be located on land within and adjacent to the operational boundary of the existing Drax Power Station site (the 'Power Station site'), near Selby, North Yorkshire.

THE BACKGROUND TO THE PROJECT

- 1.4 The Project comprises a new thermal generating station (an ultra-supercritical oxy-fuel coal-fired power plant of up to 448 MWe gross with the ability to co-fire biomass) that will be fitted with carbon capture and storage ('CCS') technology and associated development.
- 1.5 The CCS technology would capture up 90% of the carbon dioxide emissions from the new power plant. The carbon dioxide would be transported via the National Grid Carbon Limited's Yorkshire and Humber CO₂ Pipeline (a separate project) for permanent storage beneath the North Sea.
- 1.6 The Project forms part of the UK Government's CCS Commercialisation Programme and would assist in demonstrating new coal-fired power plant fitted with CCS at a commercial scale. The Project would make an important contribution toward the delivery of national energy policy, which is aimed at ensuring the security of energy supplies while moving toward a low carbon electricity generation mix.

THE APPLICANT

- 1.7 The Applicant, CPL, is an English private limited company that was incorporated in December 2011 as a fully owned subsidiary of Drax CCS Limited (a company fully owned by Drax Group plc) to promote the Project.
- 1.8 In December 2013 ALSTOM UK Holdings Limited (an Alstom Group company) and The BOC Group Limited (a Linde Group company) each acquired a one-third interest in CPL. The Applicant (CPL) is therefore currently a joint venture company equally owned by Drax CCS Limited, ALSTOM UK Holdings Limited and The BOC Group Limited.

THE ENVIRONMENT AGENCY

- 1.9 The EA is a non-departmental public body, the stated purpose of which is "*to protect or enhance the environment, taken as a whole*" so as to promote "*the objective of achieving sustainable development*".
- 1.10 The EA is a statutory consultee in respect of all applications seeking a DCO that are likely to affect land in England.

THE PURPOSE AND STRUCTURE OF THE SOCG

- 1.11 The purpose of this SoCG is to set out the agreement that has been reached between the Applicant and the EA in respect of the following matters:
 - Environmental permit.
 - Air quality.
 - Flood Risk.
 - Surface Waters and effluent discharge.

- Water abstraction and treatment.
- Groundwater and Land Contamination.
- Impact on Drinking Water Safeguarded Zone.
- Flood risk.
- Nature conservation.
- Waste and Environmental Management.
- Combined heat and power.
- Carbon capture and storage.

1.12 The SoCG also sets out any matters that are not agreed.

2.0 MATTERS AGREED

ENVIRONMENTAL PERMIT

- 2.1 There are a number of other consents and licences, in addition to the DCO, that are required in respect of the construction and operation of the Project, including a variation to the Environmental Permit ('EP') for the Drax Power Station site. Although the 2008 Act provides the ability to include the EP within the DCO, it is agreed that the Applicant's chosen approach to progress the EP variation application separately is acceptable.
- 2.2 The consents and licences that the Applicant has identified as being required (in addition to the DCO, are listed within the 'Other Consents and Licences' document (Document Ref. 5.3). This is a live document and details the discussions that have taken place to date with the relevant consenting bodies. It also sets out any actions that are required and confirms the status of the applications required.
- 2.3 It is agreed, in accordance with Section 5 of the Overarching National Policy Statement for Energy (EN-1), paragraph 4.10.6, that the Applicant has made early contact with the EA in respect of the EP variation. The contact was made to discuss the requirements of the EP variation application and to ensure that it took account of all relevant considerations in order that the EA is able to provide timely advice and assurance to the SoS that the EP would be forthcoming.
- 2.4 The EP variation application was submitted to the EA on 8 April 2015. Receipt of the application was acknowledged by the EA on 10 April 2015. The Applicant awaits confirmation of 'Duly Made' status.

AIR QUALITY

- 2.5 The assessment of the effects of the Project on air quality is set out in Environmental Statement ('ES') Volume 1, Chapters 6-8 (Document Ref. 6.2) and ES Volume 2, Chapter A 'Emissions to Atmosphere Technical Report' (Document Ref. 6.3.1). Associated analysis of potential effects on European Sites is presented in ES Volume 3 Section L - Habitats Regulations Assessment Report (Document Ref. 6.4.5).
- 2.6 There is the potential for air quality effects as a result of direct emissions to air from operation of the Project. Additionally, potential effects on air quality could result from increased traffic during construction, operation and decommissioning. Effects on air quality could lead to secondary impacts on both sensitive human and ecological receptors. There is also the potential for air quality effects as a result of project start-up and shut down and emissions during some foreseeable non-routine operations.
- 2.7 The applicant has undertaken dispersion modelling to assess the effects from the operational Project (oxy-mode and air-mode) on sensitive human receptors. It was agreed that modelling would be undertaken for the plant functioning 100% in air and oxy-modes.
- 2.8 It is agreed, in terms of methodology, that the effects on human receptors are assessed using the maximum ground level concentration predicted at any point on the grid predicted by atmospheric dispersion modelling as a worst case approach. In addition, it is agreed that the results of the modelling are based upon the worst case results for any of the five years of meteorological input data used.
- 2.9 Dispersion modelling was also undertaken to assess the effects from the operational Project (oxy-mode and air-mode) on sensitive ecological receptors. Assumptions implicit in this modelling were consulted upon and agreed.
- 2.10 In terms of mitigation measures, it is agreed that the plant will operate using Best Available Technique ('BAT'); therefore, plant specific mitigation measures have been incorporated into the data used to model emissions from the Project and predict impacts on air quality. Flue gas from the boiler will enter the electro-static precipitator where fly ash will be removed, then pass through wet flue gas desulphurisation where acidic gases such as sulphur oxides and hydrogen chloride will be captured and removed. The plant will also include selective catalytic reduction to further reduce emissions. ES Volume 1, Chapter 5 Project Description (Document Reference 6.2) outlines assumptions in terms of the key pollution abatement technology.

- 2.11 During the normal operation (oxy-mode) it is predicted there will be minor adverse effects on air quality related to two substances (arsenic and chromium VI). However, it is agreed that at the levels predicted neither substances will exceed limits designed to protect human health. It is agreed that in oxy-mode there will be no significant effects on ecological receptors due to changes in air quality.
- 2.12 When the plant is functioning in air-mode it is predicted there could be minor adverse effects on air quality for three substances (sulphur dioxide, arsenic and chromium VI). However, it is agreed that none of the substances will exceed levels above those designed to protect human health.
- 2.13 In terms of ecological receptors (European Sites) based on the worst case scenario (the plant operating in air mode for 100% of the time) critical loads from the plant's emissions to atmosphere and subsequent acid deposition and SO₂ concentration could result in more than 1% of the Critical Level or Critical Load (CL) and 70% of the Predicted Environmental Concentration (PEC) at the following three European Site's:
- River Derwent Special Area of Conservation (SAC) – SO₂;
 - Skipwith common SAC – acid deposition and SO₂; and
 - Thorne Moor SAC – acid deposition.
- 2.14 With regard to this, Natural England has confirmed, that on the basis of the Habitats Regulations Assessment Report, no adverse effects on the integrity of any European sites are anticipated. However, it is agreed that the EA will review the data again during the EP process. Air dispersion modelling files have been sent to the EA as part of the permitting process.
- 2.15 It is also agreed that in reality air-mode the Project is not likely to lead to significant effects on air quality or protected sites because although the Project will start-up and shut-down in air-mode, and will also operate in air-mode when the air separation unit, gas processing unit or the CO₂ pipeline are off-line, these events are expected to be relatively infrequent and short term in nature.

FLOOD RISK

- 2.16 The assessment of effects of the Project in terms of flood risk is set out in ES Volume 1, Chapters 6-8 (Document Ref. 6.2) and ES Volume 2, Chapter C 'Surface Water and Flood Risk Technical Report' and Chapter C.1 'Flood Risk Assessment' (Documents Refs. 6.3.3 and 6.3.4).
- 2.17 It is agreed that the Project would operate on a platform constructed to bring it to a level that is above the flood risk level for the operational area and that it would be served with suitable emergency access and egress. The height of this platform was calculated by a breach analysis (of the River Ouse) and a detailed flood risk assessment ('FRA'); both of which have been agreed with the EA.
- 2.18 It is acknowledged that the development platform would reduce the storage capacity of the flood plain and the Project would change (increase) the rate and volumes of surface water run-off from the pre-Project levels. It is agreed that together these factors could increase the risk of flooding elsewhere. However, notwithstanding the potential adverse effects, it is agreed that through the site raising, flood risk would be appropriately managed and that flood risk effects to receptors as a result of the Project and associated loss of floodplain storage are not considered significant and that the Project would not significantly increase the risk or severity of flooding on neighbouring land. No other risks from other flood sources have been identified in the study area. It is also agreed that even if flood defences were to fail, the Project would be adequately protected.

SURFACE WATER

- 2.19 It is agreed that the Project includes sufficient means to manage contamination risks to surface waters from spills and leaks which would be avoided and/or minimised through good operational management practice. It is also agreed that the various other mitigation measures inherent in the design of the Project will prevent significant effects on water quality and secondary effects on ecology and other surface water users.
- 2.20 Overall, it is agreed that there would be no significant effects on surface water resources or on ecological populations and human users that rely on them. Process effluent discharges would be

treated and within the current consent conditions for the Drax Power Station under the variation to the existing EP.

2.21 It is agreed that the following requirements contained at Schedule 2 of the draft DCO (Document Ref. 2.1) are sufficient to secure the proposed mitigation:

- No.12 'Surface and foul water drainage',
- No.13 'Flood risk mitigation',
- No.14 'Contaminated land and groundwater',
- No.18 'Construction environmental management plan'.

2.22 The changes suggested by the EA in its Relevant Representation to requirements 12 and 13 are agreed by the applicant

WATER ABSTRACTION, TREATMENT AND EFFLUENT DISCHARGE

2.23 It is agreed that the assessment of water treatment is sufficiently covered by the assessment in ES Volume 1, Chapters 6-8 (Document Ref. 6.2) and ES Volume 2, Chapter C 'Surface Water and Flood Risk Technical Report' (Document Ref. 6.3.3).

2.24 It is agreed that new water treatment facilities would be provided as part of the Project, which would be linked to existing facilities within the existing Drax Power Station site. It is agreed that this addresses previous queries raised by the National Farmers Union ('NFU') in relation to water intake and discharge infrastructure.

2.25 It is agreed that the Project would operate within existing abstraction and discharge parameters/limits set by the existing EP for the Drax Power Station site, and that these would continue to be regulated by the EA through the EP and that there is sufficient headroom.

GROUNDWATER AND LAND CONTAMINATION

2.26 The EA agree with the conceptualisation of the geology and hydrogeology of the site contained within ES Volume 2, Chapter D Geology Technical Report (Document Reference 6.3.5). It is also agreed that the ES adequately identifies all potential sources of contamination existing on the Project site, as well as the environmental receptors and potential pathways subject to the mitigation outlined within the ES. It is agreed that the Project would not result in significant effects on groundwater or in terms of land contamination.

IMPACT ON DRINKING WATER SAFEGUARDED ZONES

2.27 In response to the NFU's Relevant Representation, the Applicant has undertaken an investigation of the potential for significant effects on Drinking Water Safeguarded Zones ('DWSZ') as a result of emissions from the operation of the Project.

2.28 The modelling results for the Project indicate that nitrogen deposition would increase most to the east of the Project site. When considering the design life of the Project (circa 30 years), even in the worst-case scenario model (where the carbon capture system or Air Separation Unit are not available and the plant is functioning in 'air mode'), the nitrogen deposition in this area would only result in 10.8 kg of nitrogen per hectare. As a comparison, this quantum of deposition equates to only two conventional sacks of grassland NPK fertiliser (each sack contains approximately 5 kg of nitrogen) spread over a hectare, over the course of 30 years.

2.29 In terms of the DWSZ themselves, the following conclusions can be drawn:

- Surface Water Safeguarded Zone - The Surface Water Safeguard Zone to the north and north-east of the Project site is designated by the Environment Agency to reduce pesticide use (metaldehyde). Nitrogen deposition resulting from the Project would not therefore affect the status of this zone nor be of any relevance to it.
- Ground Water Safeguarded Zones - In geological terms, the Ground Water Safeguard Zone (GWSZ) to the south of the Project site lies beneath a substantial thickness of clay (around 8-10 metres). As such, there is no pathway for nitrogen deposition on the surface to connect with the

relevant groundwater body (notwithstanding the fact that nitrogen deposition would in any event be insignificant). The GWSZ further to the south-west has a more limited thickness of clay (around 1-3 metres) or non-existent clay layer, overlying the sandstone unit. However, this area would experience the lowest level of nitrogen deposition.

- 2.30 It is agreed that the additional investigations undertaken demonstrate that there is negligible risk of the Project resulting in significant effects on DWSZ.

NATURE CONSERVATION

- 2.31 The assessment of effects upon nature conservation is set out in ES Volume 1, Chapters 6-8 (Document Ref. 6.2) and ES Volume 2, Chapter I 'Ecology Technical Report' (Document Ref. 6.3.14).
- 2.32 It is agreed that the Project would provide for on-site habitat mitigation, including some mitigation of the reduction in wetland habitat through the provision of the flood attenuation pond, but that this would not fully off-set the loss of habitat at the Project site. The principle of providing further habitat mitigation off-site is agreed. It is also agreed that the priority for such mitigation would be the improvement and or provision of wetland habitat (and other terrestrial) habitat loss.
- 2.33 The Applicant, EA and the Yorkshire Wildlife trust (YWT) have agreed to work together to identify options for further mitigation with the objective of reaching agreement on a preferred option and an appropriate mechanism to secure this before the close of the DCO Examination.
- 2.34 It is agreed that requirement 16 'Biodiversity management plan' would provide an appropriate mechanism to secure the on-site (within the Project site) biodiversity mitigation identified within the ES in addition to the on-going management of on-site habitat. It is agreed that the requirement should be amended to refer to a 'Biodiversity mitigation and management plan'.
- 2.35 The parties are in discussion with regard to an appropriate mechanism by which to secure the agreed off-site mitigation.
- 2.36 In terms of the Habitats Regulations Assessment ('HRA'), during its development the Applicant provided the EA with the methodology and sites to be considered and also of a number of the drafts that were developed. The EA advised the Applicant that the key ecological issue surrounding this scheme *"will be the potential for air pollution to affect the European protected site at Thorne Moor"*. The HRA considered this site amongst others and there is agreement on the approach and its conclusions; although the EA will consider the HRA further during the EP process. It is agreed that there would not be adverse effects upon the integrity of European sites.

WASTE AND ENVIRONMENTAL MANAGEMENT

- 2.37 Details relating to waste and environmental management are set out within ES Volume 1, Chapter 5 Project Description, Section 5.9 Waste Management and Section 5.10 General Environmental Management (Document Ref. 6.2), ES Volume 3, Section J Construction Environmental Management Plan (Document Ref. 6.4.1) and Section R Framework Site Waste Management Plan (Document Ref. 6.4.11). It is agreed that the project information, assessment of effects and mitigation outlined is sufficient subject to the points relating to the drafting of the DCO.
- 2.38 The Applicant accepts the EA's request (within its Relevant Representation) that *"in consultation with the Environment Agency"* is added to the end of the first part of proposed requirement 25.
- 2.39 The Applicant also accepts the EA's request (again within the Relevant Representation) that the Soil Management Plan and Sediment Control Plan mentioned in Section 6.2.2 of ES Volume 1 Chapter 6, Summary of Construction Stage Effects (Document Ref.) are secured through an amendment to requirement 18 'Construction environmental management plan'.

COMBINED HEAT AND POWER

- 2.40 It is agreed that the Applicant has thoroughly assessed the feasibility of combined heat and power ('CHP') through its CHP Assessment (Document Ref: 5.6) in line with the relevant guidance and policy documentation referenced within the assessment itself.

- 2.41 In addition, it is agreed that the draft DCO includes an appropriate draft requirement (requirement No. 21 'Combined heat and power') that will ensure that during the lifetime of the Project the feasibility of CHP is periodically reviewed and space is maintained for CHP facilities in order to ensure that it is 'CHP Ready' in accordance with EA guidance.

CARBON CAPTURE AND STORAGE

- 2.42 It is agreed that the Carbon Capture and Storage ('CCS') and Carbon Capture and Readiness (CCR) Statement (Document Ref. 5.7) demonstrates that the Project complies with the requirements of the CCS/CCR regulations and guidance.
- 2.43 It is agreed that there would be no need for any retrofitting of carbon capture technology as the Project would have the ability to capture carbon from the commencement of operations.

3.0 MATTERS NOT AGREED

3.1 No matters have been identified at this stage that are the subject of disagreement between the Applicant and the EA.

Signed

Print name and position

On behalf of the Environment Agency

Date

Signed

Print name and position

On behalf of the Capture Power Ltd

Date