

Planning Application Representation:
Comments on “Report on the Implications for European Sites”

Proposed Development:
Drax Bioenergy with Carbon Capture and Storage Project

Proposed Location:
Drax Power Station, North Yorkshire

Applicant:
WSP UK Limited

Examining Authority Ref:
EN010120

Registration Identification Ref:
20032287
July 2023

1. Biofuelwatch submits these comments with regard to the “Report on the Implications for European Sites” [PD-020].
2. Paragraph references in this document relate to [PD-020] unless otherwise stated.
3. The reclassification of Lower Derwent Valley SAC habitat from ‘acid grassland’ to ‘calcareous grassland’ led to the change in conclusion regarding acid deposition impacts on the Lower Derwent Valley SAC and Ramsar referred to in paragraph 3.012. Biofuelwatch is unaware of evidence to show that ‘acid grassland’ is not present within the Lower Derwent SAC and Ramsar site. Paragraph 4.2.59 considers that “that neutral grassland was the most abundant broad habitat type and that more of the plots sampled were in the ‘calcareous’ rather than ‘acid’ or acid-neutral’ pH ranges” but this suggests that there are plots with acid or acid-neutral pH ranges. Paragraph 4.2.59 says “It agreed that it was therefore more appropriate to apply the CLo for calcareous grassland rather than acid”, but does not explain why a CLo that is not a reasonable worst case nor precautionary should be considered to be “more appropriate”. More explanation is required to justify what appears to be a non-precautionary assumption and therefore also a non-precautionary assessment. It should be assumed by the applicant, Natural England and the ExA that acid grasslands may exist within this SAC unless there is strong evidence to show it does not. Derbyshire County Council make several references to “acid grassland” in the Derbyshire Peak Fringe and Lower Derwent area¹ so there is reason to consider acid soils are likely to be present in at least some of the Lower Derwent Valley.
4. Paragraph 3.1.1 says, “the Applicant concluded that there would be no LSE on Thorne and Hatfield Moors SPA and its qualifying features in relation to Thorne and Hatfield Moors SPA ... IPs did not dispute this conclusion during the Examination.” This is incorrect. Biofuelwatch did dispute this conclusion and continues to dispute this conclusion.
5. Biofuelwatch’s comments in [AS-040] were in relation to Natural England’s comments in [RR-025]. Biofuelwatch considers paragraph 4.2.7 of [PD-020] to misrepresent Biofuelwatch’s comments because the preceding paragraphs of [PD-020] may be understood to imply Biofuelwatch agrees with Natural England’s assessment of all potential impacts on international (and nationally) designated sites. Biofuelwatch does not agree with all of Natural England’s conclusions.

¹ “Part One: Landscape Character Descriptions. 3. Derbyshire Peak Fringe and Lower Derwent” published by Derbyshire County Council <https://www.derbyshire.gov.uk/site-elements/documents/pdf/environment/conservation/landscapecharacter/part-1.3-derbyshire-peak-fringe-and-lower-derwent.pdf>

6. Paragraph 4.2.40 says “The realistic worst case scenario would be the mid-merit scenario, i.e. two Carbon Capture and Storage (CCS) units operating at full load for the entire year and in addition two non-CCS units operating at full load for 4000 hrs.” The report includes no information to justify this scenario to be “the realistic worst case”. Since the proposal is for carbon capture and storage, it is doubtful that conditions can be lawfully applied to require a minimum and maximum number of hours of operation of the non-BECCS units. The following scenarios may be worse than this scenario:
 - a. two Carbon Capture and Storage (CCS) units (with their associated biomass combustion units) operating at full load for the entire year and two non-CCS biomass combustion units operating at full load for the entire year
 - b. two Carbon Capture and Storage (CCS) units (with their associated biomass combustion units) operating at full load for the entire year with the non-CCS biomass combustion units not operating at all

Scenario a. may include greater overall emissions and so has the potential to result in higher nitrogen and acid deposition at some European ecological sites. Scenario b. may result in emissions of lower temperature and velocity and so could potentially result in higher pollution levels and deposition at some European ecological sites nearer the Drax site. Changes to the economic environment, regulations, the electricity market, biomass availability and regulation of biomass export within other countries could all affect the future operation/economic viability of the non-CCS biomass combustion units so both a. and b. are realistic scenarios. The applicant has dismissed scenario b. as “unrealistic and irrelevant” but the growth of genuinely renewable electricity generation in the UK is rapid and may change the need for electricity generated from biomass. Fire, or other accident, could lead to the non-CCS units being non-operational for an extended time. The explanation provided by the applicant in Appendix B of [AS-038] does not show why, for particular sites, scenarios a. and b. may not lead to higher impacts.

7. It is disappointing that [PD-020] says, with reference [REP7-018], that “Biofuelwatch remains concerned about the air quality modelling and operational emissions of pollutants on the European sites” (paragraph 4.2.77) without also explaining and addressing Biofuelwatch’s concerns (such as those listed in [REP7-018] regarding Natural England’s responses to Biofuelwatch’s questions).
8. The assessment of impacts [PD-020] is reliant on the applicant’s predictions of pollution impacts. In paragraph 4.2.67 [PD-020] it says “It [Natural England] noted that the Applicant had used precautionary/conservative assumptions in the model to mitigate for the uncertainty and that the modelling had been undertaken in accordance with good practice“. As explained in [REP2-073], some of the potential sources of uncertainty are considerable. As explained in [REP7-018], not all modelling assumptions are precautionary and there is insufficient evidence that the assumptions that are precautionary are sufficient to outweigh the assumptions that are not

precautionary. As explained in [REP2-073], ADMLC Guidance describes good practice and the applicant's modelling predictions do not conform to important aspects of ADMLC Guidance. The apparent acceptance that "the modelling has been undertaken in accordance with good practice" appears misplaced and deserves explanation in light of the ADMLC Guidance. Without further evidence, the apparent acceptance that precautionary/conservative assumptions mitigate for the uncertainty (when the uncertainties have not even been quantified) also appears misplaced.

9. Natural England has not commented on important sources of uncertainties raised by Biofuelwatch in [REP2-073]. To mention just four examples of the many uncertainties raised:
 - a. The assessment of impacts on European sites has made no allowance of modelling prediction uncertainties arising from the modelling software even though the ADMS developer's own validation shows significant uncertainties in modelling predictions and even though research such as that carried out by M. Theobald et al (referred to in [REP2-073]) shows the two most widely used air dispersion modelling systems can give very different results.
 - b. The applicant has used a modelling software version for which the applicant has provided no validation reports and the validation reports on the ADMS developer's website (which are for a different software version) are not independent and use scenarios known to the developer when the software was written. It is therefore to be expected that the modelling software uncertainties shown by the developer's validation reports will be minimum uncertainties and likely to be exceeded.
 - c. The deposition velocities used by the applicant were recommended by AQTAG (Air Quality Technical Advisory Group) in 2014, but AQTAG did not state they were worst case nor did AQTAG supply supporting evidence. Neither Natural England nor the ExA have provided any evidence that the AQTAG deposition velocities used by the applicant are precautionary or worst-case. No attempt has been made to quantify the uncertainty arising from the deposition velocities used.
 - d. The uncertainties arising from the assumption that the flue gases from the BECCS and non-BECCS units will mix completely. The characteristics of all current Drax flue gases are very similar but the proposal will result in BECCs flue gases having a much lower temperature and reduced velocity. Any evidence provided by the applicant of good mixing of flue gases from the existing plant is therefore not sufficient to show flue gases from the proposal will mix perfectly. The applicant has made no estimate of the modelling prediction errors that may arise from its assumption of perfectly mixed gases at the point of release.
10. In *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (Case C-127/02)* [2005] 2 CMLR 31, the Grand Chamber of the European Court of Justice considered that the Habitats Directive must be interpreted in

accordance with the Precautionary Principle. Natural England recognises the importance of the Precautionary Principle on the habitats assessment (paragraph 4.2.55). Whilst Natural England's response in [REP6-050] recognised uncertainty, Natural England provided no quantified level of uncertainty. Biofuelwatch listed many sources of uncertainty. These remain unquantified by the applicant, Natural England and the ExA. Natural England and the ExA appear to have made an assessment using predictions that are not worst case and without quantifying cumulative uncertainty and without even considering the potential impact of some sources of uncertainty on possible impacts. It is difficult to see how such an assessment can be considered consistent with the precautionary principle making it potentially vulnerable to a judicial review.

11. Natural England said "For European sites, a key consideration is always whether the proposal will undermine the conservation objectives of the site – for example, will it counteract overall actions to restore deposition of air pollutants to below critical loads. ... In this case, Natural England agreed with the conclusions in the applicant's HRA that the proposed development will not impact on measures to reduce emissions from existing sources (such as Drax itself, via increasingly stringent environmental permit conditions and the National Emissions Ceiling Regulations) and from the dominant sources of N deposition in the area (agricultural operations and imports from other countries via long range transport)" [REP6-050]. Natural England's argument is flawed because:
 - a. There is no guarantee that any measures to reduce emissions from existing sources and from other sources will be successful. Any such measures that may exist may not be successful in reducing deposition at all and are independent (or largely independent) of the proposal under consideration. Any conditions imposed by the ExA cannot mandate these other reductions so there is a risk that these reductions may not materialise.
 - b. Even if these other measures do result in a reduction in deposition, there is no evidence that they will be sufficient to reduce deposition below critical thresholds.
12. It is obvious that a significant increase in deposition of air pollutants will frustrate a conservation objective to restore deposition of air pollutants below critical levels especially when there is no plan in place sufficient to give high confidence that all loads/levels will be reduced below critical thresholds. The logic of Natural England's assessment is flawed. It is irrational to consider a proposal that will cause a significant increase in deposition of air pollutants above critical levels to be consistent with conservation objectives requiring reductions of air pollutants below critical levels.
13. Natural England considers "However, having regard to the site specific considerations in this case, including evidence provided by the applicant in the appropriate assessment (section 4.3.75-4.3.85 of the HRA), and the fact that effective and reliable mitigation is

proposed for the BECCS project itself, Natural England was able to accept the conclusion that the additional nitrogen and acid deposition would not result in an adverse effect to integrity of the SAC.” [REP6-050] Considering the reasons given by Natural England in this statement:

- a. “site specific considerations”: the same section of [REP6-050] shows Natural England’s apparent consideration of “site specific considerations” to be underpinned by *Compton v Guildford Borough Council 2019*. *Compton v Guildford Borough Council 2019* is a very different scenario for the reasons given in [REP7-018]. Significant increases above critical thresholds can be expected to cause significant harm.
- b. “effective and reliable mitigation”: whilst Natural England may consider the mitigation proposed to be effective and reliable, the applicant has not shown the mitigation sufficient to prevent likely impacts. Natural England has not shown why it considers mitigation to be sufficient for it to “accept the conclusion” when the applicant’s own modelling still shows significant likely impact.

14. Such extremely weak reasons are clearly inadequate in light of the “extra caution” that Natural England considers to be necessary “when critical loads for a protected site are exceeded in the background” [REP6-050].
15. Table 1.17 of Appendix 6.5 [REP8-012] shows the modelled cumulative annual nitrogen deposition at Thorne Moor SAC/SSSI in excess of the 1% significance threshold. In paragraph 4.2.61, “NE agreed that the Applicant’s conclusion that the level of deposition and the potential consequential vegetative change continues to fall within the bounds of natural variation and would lead to negligible (and imperceptible) effects on the SAC appeared justified based on the evidence presented and the overall comparatively low levels of in-combination nitrogen deposition.” Even small increases in average deposition over a long period are known to cause ecological harm. Any increase in excess of the 1% significance threshold is not “negligible” but “significant”. It may be “imperceptible” in that it may not be possible to measure small increases in nitrogen deposition and attribute them to the proposal, but such increases can be expected to cause significant harm. A comparison of levels of deposition with the “bounds of natural variation” is not sufficient to ensure LSE because, whatever the natural variation in levels, increased deposition will increase those levels. Since the levels are already above the critical load, this can be expected to result in greater environmental harm. As considered above, Natural England’s reasoning does not demonstrate the “extra caution” it considers to be necessary.
16. The above analysis makes it difficult to understand why different reasons have been given for no LSE on the qualifying feature (nightjar) of the Thorne and Hatfield Moors in paragraph 3.0.7. In paragraph 3.0.7, a distance of 9.1km and the lack of heathland, moorland, woodlands with large clearings and recently felled plantations within or adjacent to the application site are considered sufficient to show

no LSE. However, the modelling predictions show significant impacts at the Thorne and Hatfield Moors so a distance of 9.1km is clearly not sufficient to show there will be no LSE. The lack of particular habitats at or adjacent to the site clearly does not prevent impacts on habitats further from the site such as at Thorne and Hatfield Moors. Neither the reasons provided in paragraph 3.0.7 nor those given by Natural England in [REP6-050] are sufficient to show no LSE. Biofuelwatch do not understand why [PD-020] includes the flawed reasons in paragraph 3.0.7 but does not consider the predicted increases above critical thresholds in light of the conservation objectives of Nightjar, that explicitly refer to the changes that may result from exceeding critical values of air pollutants (see [REP2-073]).

17. In paragraph 212 of [REP2-073] Biofuelwatch raised concerns, based on a study for Norway's CO₂ Technology Centre Mongstad, about the impact of amine deposition (and subsequent nitrosamines and nitramines). Biofuelwatch were not satisfied by the applicant's response, see [REP6-034] in response to [REP4-020]. The amine critical loads used by the applicant are not precautionary. Also:
 - a. The deposition level predictions provided in [REP4-020] have presumably been made based on an amine deposition velocity that is essentially just an educated guess (see paragraph 241 of [REP2-073]) and not necessarily precautionary.
 - b. The applicant appears to have predicted deposition of nitrosamines and nitramines but not the nitrosamine and nitramine concentrations that would arise from the breakdown of amines after deposition. The Norway's CO₂ Technology Centre Mongstad study shows the risk that amine breakdown products could exceed limits. Concentrations of amine breakdown products arising after amine deposition must be modelled for the assessment to be robust. Amine breakdown products can persist for long applicant's periods risking harmful elevated environmental concentrations (paragraphs 212-214 of [REP2-073])
18. Paragraph 4.2.56 of [PD-020] shows Natural England also raised concerns about amine impacts and "considered amine impacts for ecological receptors only in terms of deposition and not concentration". Whilst paragraph 1.3.18 of [APP-127] refers to the derivation of amine deposition fluxes at all receptor and grid locations, [REP8-012] (and early versions of Appendix 6.5) includes neither tables showing amine depositions nor tables showing amine concentrations. Biofuelwatch is unclear what deposition impacts Natural England considers have been carried out at ecological receptors.
19. The comparison with a critical level for a different chemical, ammonia, in paragraph 4.2.57 gives false confidence because different pollutants have very different impacts and very different critical levels. It is therefore difficult to understand why the applicant's consideration of a level against a threshold for a different pollutant to have "addressed all its concerns" (paragraph 4.2.58). Biofuelwatch requests the ExA provide much more explanation to justify its faith in Natural England's confidence.

20. Ecological assessments of European sites require an in-combination assessment but the consideration of impacts from amines and their breakdown products has been made without determining:

- a. levels of amines arising from biomass combustion
- b. background levels of amines and their breakdown products
- c. other potential sources of amines and their breakdown products (paragraph 190 of [REP2-073]) which may combine with the proposal's emissions

Without consideration of amines (and their breakdown products) from other sources (including natural sources), the assessment is not robust. Biofuelwatch considers such an assessment does not meet legislative requirements which require in-combination assessments. Without information to the contrary, a precautionary approach must assume that background levels of amines together with those arising from combustion of biomass may already result in levels of amines (and their breakdown products) in excess of levels that cause ecological harm.

21. Paragraph 4.2.60 says "NE considered that the proposed monitoring, recording, and reporting to the EA was appropriate to ensure emissions from the Proposed Development remained within the limits used for the assessments." Monitoring and reporting something is not the same as controlling or limiting something. Biofuelwatch considers Natural England's confidence that simply monitoring, recording and reporting will be sufficient for emissions to remain with limits to be misplaced.

22. With regard to 4.2.60, Natural England recommended that "the Applicant undertake operational monitoring at the European sites ... to support the Applicant's claims that acid deposition and other pollution was decreasing at the European sites" but later considered this was "unnecessary as it would not be possible to identify triggers for further measures". This shows Natural England recognised there to be a risk that acid deposition and other pollution may not decrease. The recommendation for monitoring was only abandoned when the Applicant raised the concern "that such monitoring would be unlikely to be able to distinguish between impacts arising from the Proposed Development and from other sources". This shows Natural England identified a risk from acid deposition and other pollution and recognises that the control measure it originally proposed could not control the risk because "it would not be possible to identify triggers". There is therefore a risk to a European site sufficient to warrant control measures but for which no satisfactory control measure can be identified. Such a risk of harm to a European site that cannot be adequately controlled is unacceptable. It shows the necessity of further emissions reductions to avoid the risk of harm and shows the location to be inappropriate for the proposed emissions.

23. Paragraph 1.1.5 considers the applicant has not identified any potential impacts but [REP6-021] says "For some European Sites, LSE were identified for a proportion of the qualifying interests." LSEs (Likely Significant Effects) are "potential impacts". 5.1.5 of [REP6-021] acknowledges that other plans and projects could exacerbate the impact. Whilst 5.1.8 of [REP6-021] concludes that "the Proposed Scheme would not have an adverse effect" this is *after* mitigation (paragraph 5.1.6 of [REP6-021]). The need for mitigation shows a "potential impact". Biofuelwatch therefore considers paragraph 1.1.5 does not correctly represent the information the ExA has received.
24. Paragraph 2.1.5 should say "that the European sites identified by the Applicant were the **European** sites that were relevant to the assessment." Biofuelwatch have found no confirmation in [REP3-012] that the Councils referred to by the ExA considered the HRA to include all sites relevant to the assessment (which include sites that are not European sites).