

EN010120: Drax Bioenergy with Carbon Capture and Storage Project Development Consent Examination	Robert Palgrave, Interested Party No. 20031751 Representation for Deadline 6 9 May 2023
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Addressing the following question in ExQ2: 19 April 2023

PPL.2.1: A suite of documents published under ‘Powering up Britain’ was published on 30 March 2023. What, if any, are the implications for the consideration of the application?

1. FORTHCOMING BIOMASS STRATEGY. The ‘Powering Up’ suite of documents make multiple references to a Biomass Strategy, stating that it will be published by the end of Q2 2023. The expectation is that the Biomass Strategy will set out specific requirements for the use of Power BECCS. For example in the Consultation Response to ‘**Business model for power bioenergy with carbon capture and storage (Power BECCS)**’

[<https://www.gov.uk/government/consultations/business-model-for-power-bioenergy-with-carbon-capture-and-storage-power-beccs>]:

“Projects brought forward under the power BECCS business model and the feedstocks used will be required to adhere to strict sustainability criteria, as is required under current biomass support schemes. The sustainability criteria include Greenhouse Gas Emissions Criteria and Land Criteria. Section 3 of this document details the policy development taking place to develop Greenhouse Gas Emissions Criteria specific to power BECCS. Those wider sustainability criteria are to be reviewed and strengthened where possible, and the recommendations will be set out in the forthcoming Biomass Strategy, which will be published in Q2 2023.”

And further at page 53:

“It is clear from the responses that setting a GHG threshold will help ensure that power BECCS will meet a suitable level of CO2 removal, providing it is calculated in a way that is appropriate and accurate. Although it is noted that taking a net approach to rewarding captured CO2 could also achieve the same outcome, (see Question 24), Government will develop options for setting a maximum GHG threshold for the supply chain emissions from power BECCS. Research is underway to gather evidence on the supply chain emissions from a variety of feedstocks being used in a power BECCS plant, that take carbon capture efficiency and conversion efficiency into account. Government agrees that the current methodologies for calculating the supply chain GHG emissions from bioenergy support schemes are a starting point,

*but agree **they need some refinement prior to being appropriate for power BECCS.***

(Emphasis added)

2. The Applicant's submissions to the examination included statements on the sustainability of its biomass feedstock supply chain and calculations of its supply chain emissions. These statements were made in the context of existing requirements and guidance applicable to unabated biomass power. Until the sustainability provisions of the forthcoming Biomass Strategy are published, including specific criteria for Power BECCS, the examination cannot fully assess if the Applicant's proposed development would be compliant.

3. VALIDITY OF BECCS. In the same document at page 59 we find:

*"We will continue to work closely across government to ensure that, where appropriate, there is alignment with emerging policy across the GGRs business model, UK ETS and REMA, the Net Zero Growth Plan and the Energy Security Plan, and that our policy is in line with the forthcoming Biomass Strategy. **We intend to publish a report led by the Department for Energy Security and Net Zero Chief Scientific Adviser's Task and Finish Group which sought to establish an evidenced based position on the validity of BECCS as a GGR option to deliver negative emissions.**"*

(Emphasis added)

4. Again, it would seem premature to conclude the examination without an understanding of the implications of this report, which seeks to *"establish the validity of BECCS etc"*.

5. SUPPLY CHAIN EMISSIONS THRESHOLD. Drax's current GHG emissions (supply chain emissions) are approximately 100kgCO₂eq per MWh, (as stated in their Annual reports) and are therefore considerably higher than the threshold now in place for unabated biomass power. In August 2018 the threshold for supply chain emissions under future Contracts for Difference supporting biomass burning from 200 to 29kg CO₂eq/MWh or less.

(see Clause 79 – "Contracts for Difference scheme for renewable electricity generation: Government response to consultation on proposed amendments to the scheme – Part B" by Department for Business, Energy and Industrial Strategy (2018) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736588/Part_B_Consultation_Response.pdf)

6. Given that Drax's self-reported supply chain emissions (at 100kgCO₂eq per MWh) are so far in excess of the current threshold (29kgCO₂eq per MWh), there is little prospect of them becoming compliant if they continue to rely on feedstock imported from N. America and Europe. The suggested tightening of the supply chain emissions

threshold under Power BECCS would make this even more unlikely. And as the annual woodfuel consumption at Drax exceeds the UK's total timber production, it is simply not possible for Drax to switch its fuel supply to domestic sourcing in order to meet the current supply chain emissions threshold.

7. TECHNOLOGY READINESS. The Powering Up documents treat BECCS as a proven technology, making highly optimistic projections of its feasibility from scant evidence. Here from page 14 of the Consultation Response to '**Business model for power bioenergy with carbon capture and storage (Power BECCS)**':

*"Neither bioenergy nor CCUS are new technologies. CCUS has been working safely and effectively since 1972 to capture CO₂ from a wide range of industries and sectors. **BECCS in industrial applications has been demonstrated at two plants under development in Norway, combining CCUS with biomass use in cement manufacture, and with energy from waste**, so far demonstrating successful capture at a few thousand tonnes of CO₂, and aim to save 0.8 MtCO₂ per year by 2024."*

8. The reality is that Power BECCS at the scale envisaged at Drax is totally unproven. The reference above to "*two plants under development*" in Norway "*so far demonstrating the capture of a few thousand tonnes of CO₂*" is far from convincing. The Drax BECCS proposal is to capture a thousand times this level, and to operate nearly continuously.

9. In this context, the exchange below, recorded in the Applicant's Consultation Report (**Document Reference Number: 5.1**) is pertinent.

"7.13.10. These are questions raised by Biofuelwatch during statutory consultation on the live chat event (18 November 2021), the team took the questions away to follow up with a written response provided on the 19 November 2021:

1. Q, How much CO₂ has been captured and how much has been stored as part of the joint trial with MHI and over what period?

i. A The carbon capture pilot captures around 250 kg/h of CO₂. The purpose of the trial was to provide data on the capture of CO₂ from biomass flue gas that will help to validate the full-scale design of the capture system.

ii. The CO₂ was released into the flue gas stream after capture, as there is not yet any CO₂ transportation & storage infrastructure in place for permanent sequestration.

2. Q, What percentage of CO₂ from a biomass unit do you expect to capture in future?

i. The plant will be designed to capture up to 95% of the CO₂ in the flue gas

3. Q, Has it been established through the trial how much of a biomass unit's electricity will be required to capture a set proportion of CO₂? Are there trial results from which to deduce the energy penalty?

i. This was not within the scope of the trial; however, it has been an important consideration in the selection of the vendor and energy efficiency is an essential part of the project design. Specific values are commercially confidential at this point, but this aspect will be considered in the relevant chapter of the Environmental Statement.

7.3.11 Biofuelwatch contacted Drax with further questions on 22 November 2021, these questions and responses are below:

1. How much CO₂ has been captured in total over the course of the trial?

2. How long have you been conducting the trial?

3. How many hours have you been able to capture 250Kg/hour without interruption?

i. In response to your questions, the trial unit has been running since mid-2020, during which time it has been regularly taken in and out of operation.

The aim of the trial was to not to prove operational reliability, as a pilot plant is not representative of a large-scale process in that regard. Instead, the trial has been successful in its aim of providing data on the interaction of the carbon capture solvent with Drax flue gas."

(Emphasis added)

10. The Applicant admits that it did not aim *"to prove operational reliability, as a pilot plant is not representative of a large scale process.."*. Consequently there is no meaningful data from which the ExA or the SoS can determine the likely long-term performance of the proposed development. The scale of carbon captured in the pilot trial is tiny relative to the proposed development. Taken together with the paucity of evidence put forward in the 'Powering Up' document suites, it is evident that BECCS is a long way from the proven technology which could be relied on to provide a reliable source of large-scale negative emissions.