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Drax-commissioned report identifies 30 conditions for BECCS deployment

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A new report entitled [BECCS Done Well](#), which presents 30 conditions for bioenergy with carbon capture and storage (BECCS), was released yesterday (3 July).

Will Gardiner, CEO of Drax Group, invited Jonathon Porritt, environmental campaigner, to convene a High-Level Panel to conduct an independent inquiry into bioenergy with carbon capture and storage (BECCS). The panel, chaired by Porritt, convened Brad Gentry of the Yale School of Environment, Stuart Haszeldine of the University of Edinburgh and Clare O'Neill acting as an independent consultant, with Forum for the Future serving as secretariat. The report identified a cumulative and collective political failure that "all but guarantees what is called 'overshoot'". This means that, because there is such a high concentration of greenhouse gases already in the atmosphere, the only sustainable way to avoid a "cataclysmic outcome for humankind" is to draw down billions of tonnes of CO₂ back out of the atmosphere.

Dealing with overshoot means actioning carbon dioxide removals, with billions of tonnes of removals and storage needed every year by 2050, added the report. A number of Negative Emissions Technologies – both nature-based and technology-based – will be required to make that possible. BECCS is "very much in that mix," it said, adding that BECCS is on the cutting edge of emerging Negative Emissions Technologies. The contribution from BECCS is projected to expand significantly over the course of the next 30 years, and the report flagged the importance of taking a precautionary approach to the projected expansion.

The report added that, in terms of using public money to subsidise burning biomass to produce electricity alone, there is now "only a tenuous justification". "There are many better ways of producing low carbon electricity, particularly solar and both onshore and offshore wind, although balancing large amounts of renewables on the grid can be challenging. The UK's current subsidy regime supporting renewables by burning biomass will end in 2027," it said.

However, government support for BECCS to remove and store CO₂ (rather than for bioenergy without CCS) is a different matter. The study said it believed this approach is justified, due to the "overshoot" challenge identified above. Value for taxpayers' money is important regarding BECCS, as it is in terms of allocating subsidy to different sources of renewable electricity, according to the study. "The critical consideration here is that Drax's proposed BECCS plant at its power station near Selby in North Yorkshire gives the UK the best possible chance of testing those economic criteria at scale in the near term," it said. The scale of the proposed Selby plant brings 'first of a kind' engineering issues from a BECCS perspective. Although a high-risk venture, the report noted it believes the

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level of ambition is appropriate, due to the scale of the challenge the UK faces in delivering on its Net Zero by 2050 target.

Capture and storage of this complex supply chain comes right at the end, and the report looked all the way upstream - to the sourcing of the millions of tonnes of biomass that underpin the entire process, investigating many of the controversies that surround this industry: forest management, feedstock classification, certification, biodiversity protection, community engagement, monitoring and transparency.

Key findings

The report presented six key findings:

1. Firstly, it said that, even if sustainably sourced, burning woody biomass is neither the cheapest nor most efficient way of generating renewable electricity. Instead, companies like Drax can make a significant and comparatively rapid contribution to Net Zero targets by delivering on negative emissions. This is achieved by capturing and permanently storing the resulting CO₂ emissions. It noted that, other than Drax's own pilot plant, there are no BECCS plants utilising woody biomass.
2. Secondly, it said that woody biomass from well-managed forests (including thinnings and low-grade roundwood), and from waste matter from sawmills (such as sawdust and bark) can make a sustainable, economically significant contribution to existing forestry operations and local economies.
3. Its next finding emphasised that independent third-party monitoring, verification and certification is a critical part of the process, particularly in protecting biodiversity, water resources, soil carbon and Old Growth forest. Similarly, proactive engagement with local communities is fundamental.
4. Importing millions of tonnes of biomass from North America is a carbon-intensive business, the report added. Consequently, every effort must be made to reduce greenhouse emissions all the way along that supply chain.
5. The report's fifth finding was that, relating to Carbon Capture and Storage (CCS), the study relates specifically to the use of CCS with bioenergy plants. "Our report comments on the overall state of the wider CCS industry, but is not advocating for CCS more broadly," it emphasised. CCS on fossil carbon (rather than biogenic carbon) can never be Net Negative, it emphasised.
6. Its final key finding was that the implications of any significant expansion of BECCS plants globally are significant, necessitating both a highly precautionary approach from governments and private sector operators, and the strictest independent monitoring and governance arrangements to ensure positive outcomes for people, the environment and the climate.

Drax's response

Drax Group chief sustainability officer, Alan Knight, said: "If the world is to meet the global climate challenge, carbon removal technologies like BECCS need to be up and running at scale, as quickly as possible.

"However, what is arguably more important than the quantity of BECCS required is the quality of the BECCS



3 August 2023



SENT TO LSU AGCENTER/LOUISIANA FOREST PRODUCTS DEVELOPMENT CENTER - FOREST SECTOR / FORESTY PRODUCTS INTEREST GROUP delivered. To realise the transformational benefits BECCS could bring, we need to ensure it is implemented well – adhering to strict criteria and carefully monitored.

“In our response to the ‘BECCS Done Well’ report, we have addressed the criteria presented by Jonathon Porritt and the High-Level Panel on how to implement BECCS in a way that delivers positive outcomes for climate, nature and people.”

Jonathon Porritt, co-founder of Forum for the Future said: “As members of the High-Level Panel, we’re impressed at the level of detail in the responses from Drax to the 30 Conditions we put forward in our Report in November last year. And we’re pleased that the vast majority of these responses are positive.

“As is now beginning to be recognised, the whole area of ‘Bioenergy with Carbon Capture and Storage’ is becoming more and more material in the debate about Carbon Dioxide Removals and Negative Emissions Technologies. We believe Drax has positioned itself in the vanguard of this debate, ensuring both policy-makers and potential competitors understand fully what ‘done well’ really means.”

Drax is currently accelerating progress on the development of global BECCS projects. It is in formal discussions with the UK government to secure support from them to deliver BECCS at Drax Power Station, and it has selected two sites in the US, with nine more under evaluation.

Its full response to the report is available [here](#).

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