Drax response to 'BECCS done well: conditions for success for bioenergy with carbon capture and storage'

July 2023

drax

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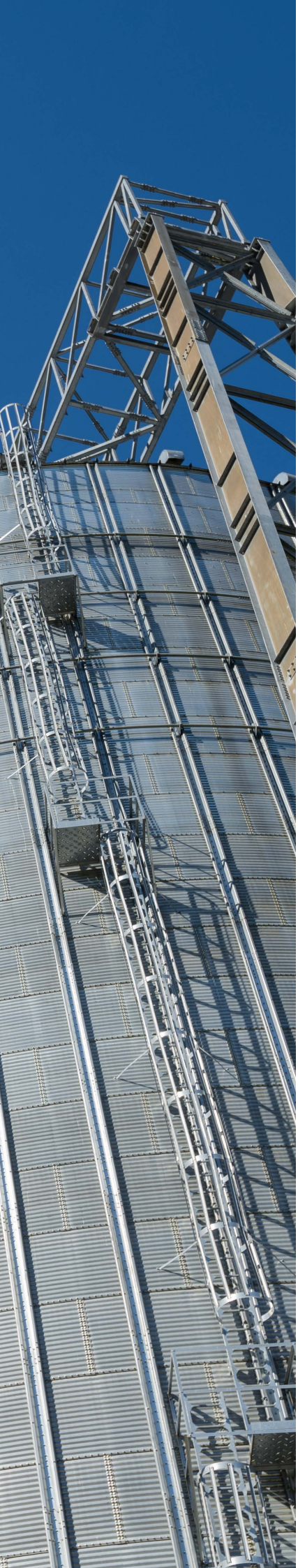

Introduction

To limit the Earth's temperature rise to well below 2 degrees – and as close to 1.5 degrees as possible – we must rapidly scale up technologies that remove carbon dioxide from the atmosphere. According to international research led by the University of Oxford, all pathways to achieving our climate change targets now involve substantial levels of carbon dioxide removal (CDR). The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) estimates that between approximately 0.75 and 18 billion tonnes of carbon must be removed from the atmosphere each year by 2050. With the potential to be one of the most affordable and scalable engineered CDR technologies, bioenergy with carbon capture and storage (BECCS) is expected to play a significant role in delivering the volumes of CDR we need. CDR, including BECCS, is not a substitute for deep emissions cuts, but an important tool as part of a wider toolkit to reach net zero. It has a significant role to play in abating emissions from some sectors of the economy where decarbonisation in the short term is prohibitively expensive or technologically infeasible. It can help companies and countries transition to net zero faster and more affordably.

However, what is arguably more important than the quantity of BECCS required is the quality of the BECCS delivered. BECCS exists in a complex ecosystem of land use, biodiversity, social factors, economics, carbon reduction and now, carbon removal. Each of these factors must be considered, and potential impacts carefully managed if BECCS is to play a meaningful role in achieving our climate change targets.

As a responsible BECCS developer, we have put significant effort into investigating to what extent, and under which conditions, BECCS can be scaled to make a material contribution toward fighting the global climate crisis whilst not having unintended negative consequences.

Conditions for BECCS done well

In 2022 Jonathon Porritt, environmental campaigner and co-founder of Forum for the Future, convened a High Level Panel to conduct an independent inquiry into BECCS, with Forum for the Future acting as Secretariat. The aim of the six-month inquiry (concluding in November 2022) was to identify the necessary conditions which, if met, would satisfy the panel of independent sustainability experts, that BECCS from woody biomass can deliver positive outcomes for nature, climate, and people. The panel's investigation resulted in 30 conditions under which BECCS can indeed be "done well". In this response, we set out that Drax agrees in principle with 24 of the 30 conditions. One condition we do not agree with, with reasons given. The remaining five conditions require further consideration before we can set out a meaningful response.

The responses set out in this document are not an end point in our work to make Drax a world-leading company driven by sustainability. Instead, this response marks the beginning of a process that will result in a set of sustainability commitments for BECCS that we will operationalise and hold ourselves to. More detail on that process is set out below, and further steps will be published in the coming months.

Recognising the importance of transparency, we use this response to address common concerns around BECCS as a carbon removal solution and describe under which conditions its scale-up meets the high bar on environmental and socio-economic sustainability that the public rightly expects. Our responses to these conditions have been shared with the High Level Panel. A formal reply from the Panel Chair, Jonathon Porritt, is included in this response.

Ongoing review and engagement

Stakeholders such as NGOs and civil society play an important role in enabling companies such as Drax to drive an equitable and inclusive net-zero transition. We therefore welcome review of our progress against these answers on an ongoing basis, and may commission further inquiries as our business develops and scientific perspectives evolve.

In order to operationalise these and other policy commitments within our business, we have enhanced our sustainability governance structure (Appendix 2). Under our governance, the Board is ultimately responsible for sustainability, and they have delegated this responsibility to the Executive Committee. The Chief Sustainability Officer is also a member of the Executive Committee, and has established an internal structure to ensure delivery of our sustainability aims. This includes an internal Sustainability Council that reports into the Executive Committee, with expert groups driving priorities for biomass sourcing, people, nature, and climate.

As a next step, we are compiling an 'Evidence Book' to share the scientific evidence base to underpin our ambition to scale up BECCS sustainably. This evidence base will represent our ongoing best thinking on the evidence for a scale up of BECCS. The book will be consistently updated with the latest scientific findings.

Furthermore, as an output of the stakeholder and scientific exercises, we plan to develop Drax's Sustainability Commitments. These commitments will be what we hold ourselves to in every BECCS project we undertake. In addition, we will actively ask the wider community to hold us and other BECCS developers accountable to these standards, noting these standards and relevant regulations will evolve as science and policy advance. These commitments are also feeding through to work we are doing to develop industry-recognised, high-quality standards for the sale of CDRs from BECCS.

The above underscores our ambition to be a world-leading, sustainability-driven company at the forefront of the fight against climate change by setting ambitious targets for carbon removals and holding ourselves to strict sustainability, socioeconomic and environmental standards.

‘BECCS done well’:
Concluding comments from the High Level Panel

As the four members of the High Level Panel which produced the ‘BECCS Done Well’ Report, in November 2022, we feel it’s appropriate to round out this year-long process with some concluding comments, having now received the response from Drax to our Report:

1. Accountability

We are all very impressed by the in-depth consideration that the Drax team has devoted to fashioning this response. The level of detail is comprehensive, and its readiness to engage with each of the proposed 30 Conditions in our Report should be reassuring for all those stakeholders involved in this critical area of debate and policy-making. In addition, we feel that the decision to prepare and publish a detailed ‘Evidence Book’ (regarding Drax’s plans to scale up its BECCS activities) is extremely welcome.

2. Governance

Although this may not command much external interest, we have particularly taken note of the various changes Drax has made to the ‘sustainability governance architecture’ within the company. We believe the high standards for transparency and accountability to which Drax is committed will benefit significantly from these internal processes.

3. Commitments

We are pleased to see that Drax has been able to respond positively to almost all the recommendations embodied in the 30 Conditions, in a way which will entail significant shifts within Drax in both policy and practice. Some of these changes were already under way when we published our Report in November last year, but many commitments are both new and material. We see this as a strong indication that critical sustainability considerations are now having a major influence on Drax’s strategy and business model.

4. Specific responses

The High Level Panel completed its work with the publication of its Report in November last year. It was not part of our brief to track the detailed responses from Drax to the 30 Conditions in our Report, and we will not therefore be doing any kind of ‘Condition-by-Condition’ analysis or response of our own. We believe there are others better placed to follow up in that way, including those in Forum for the Future who provided the Secretariat for the entire Inquiry process in 2022.

5. Addressing critical controversies

The one area where we feel your response could have been more robust relates not so much to the specific wording of Drax’s response to the Conditions, but to an occasional reluctance to engage more fully with the broader narrative in our Report – from which all these Conditions emerged. We feel it would be helpful for Drax to expand its current engagement on difficult issues like carbon accounting and carbon debt – if for no other reason than to indicate your willingness to engage with stakeholders on these less black-and-white issues.

6. Engagement

As you know, a large part of the motivation for members of the Panel in taking on this challenge was the hope that it would help ‘build bridges’ between Drax colleagues on the one hand, and the many NGOs and think tanks that have been critical of Drax over the last few years on the other. Several of the recommendations embodied in the 30 Conditions will require proactive engagement on Drax’s part with those critical stakeholders, with a view to establishing more common ground even when agreement remains elusive.

Brad Gentry
Stuart Haszeldine
Claire O’Neill
Jonathon Porritt (Chair)

Condition-by-condition response to the "BECCS done well" report

Our responses fall into three categories:

1. Agree or agree in principle
2. Does not agree
3. Requires further consideration

Inquiry Question One

What conditions would need to be complied with to ensure that the sourcing and processing of woody biomass delivers positive outcomes for nature, climate, and people?

1. Certification Schemes

Condition wording	Ensure 100% of feedstocks are certified under internationally-recognised sustainable certification schemes that deliver positive social and environmental outcomes to the highest possible standard.
Drax Response	Drax agrees. Materially all (97% in 2022) of woody biomass sourced for Drax Power Station is compliant with the standard designed for biomass, the Sustainable Biomass Program (SBP). The remaining woody biomass (and the non-woody biomass we use) is assessed to be compliant with the required standards through our own programme of checks and audits. Fibre sources to Drax Power Station include our own pellet mills and third-party sources. Some materials such as agricultural waste, may not have a suitable third-party scheme available, but nevertheless these sources are required to meet our own sourcing policy. Our sourcing policy sets out high standards for sourcing, including requirements for forest management and the sources of the fibre used. We publish details about our fibre sourcing annually in the ESG data supplement to our 2022 Annual Report, including the proportion of fibre sourced for Drax Power Station that is SBP-compliant.

2. Responsible Sourcing Policy

Condition wording	Exercise a policy of 'zero tolerance' with suppliers revealed to be in breach of these certification requirements, over and above compliance with all relevant national and local legislation.
Drax Response	Drax agrees in principle. The certification schemes we rely on for our third-party-sourced material, such as SBP, are designed to regularly review ongoing compliance. If the suppliers do not meet conditions, they will lose their certification status, which will lead us to assess their ability to remain suppliers. In addition, we should recognise that working with suppliers and developing guidance can be a powerful way of driving improvements, particularly in jurisdictions where supply chains are in their infancy. By offering the opportunity to do business, we can provide an incentive for suppliers to reach higher standards. Through this approach we will work with potential suppliers to drive improvements in practice by supplying guidance, targets and strong governance. This approach will only be used when it is clear that we are not compromising the regulatory standards and requirements in the countries of biomass supply and use.

3. Catchment Area Analyses

Condition wording	Ensure 100% of the supply chain is assessed under Drax's Catchment Area Analyses (CAAs), to ensure that Drax is sourcing only from areas with stable or growing carbon stocks, and subject these CAAs to independent peer review. The company must apply this high standard to all forest types in the USA, British Columbia and other sourcing countries.
Drax Response	Drax agrees in principle. We recognise the significance and importance of maintaining forest carbon stocks. Our sourcing policy sets out practices to help us realise the positive contribution biomass can deliver for carbon emissions. That means that we have committed to sourcing only from catchments where our activity alongside others in the area collectively has a neutral or positive effect on carbon stocks at a timescale appropriate to the ecosystem and its current condition. For instance, this may mean sourcing from salvage operations designed to accelerate forest carbon stock recovery from pest infestation or other natural disturbance events. Drax collects data through CAAs as a minimum standard and going forward we intend that all of our source areas are covered by an up-to-date CAA. We ask our Independent Advisory Board (IAB) to review the CAA methodology we use and conclusions reached. We will then make these results available to the public. However, CAA is only one of a range of tools we use to understand carbon stocks and overall forest health. We continue to develop supplemental research methodologies with academic partners and research organisations to further understand our impacts on our source regions and will make these public after independent review. Our response to (condition 18) Forest carbon stock / carbon debt gives more details on sourcing only from areas with stable or growing carbon stocks.

4. Old Growth/High Conservation Value (HCV) Forests

Condition wording	Strengthen the company's current position on Old Growth / High Conservation Value forests, including an unequivocal commitment not to be involved in forestry operations (or purchase of products from operations) that damage or destroy Old Growth / HCV forests (as defined in each of its principal sourcing areas).
Drax Response	Drax agrees in principle. We believe that eliminating deforestation or damage to these types of forests, and other forests, is a core part of our commitment to forest biomass sustainability. Avoiding deforestation or degradation of the forest sources, as well as avoiding damage or disturbance to high carbon forest soils, are an explicit part of our sourcing policy. The latest SBP standard includes information on how to handle HCV forests, of which the vast majority of our woody biomass is certified against. Our sourcing policy is currently being reviewed and updated with more detailed operational guidance. Definitions of old growth, high conservation value, and primary forests are established regionally, and reflect local ecosystem dynamics and past forestry activity. Decisions on whether parts of forests meeting these definitions can be harvested for timber are typically made in conjunction with local forest regulatory bodies and affected communities. In addition, these issues will be addressed in certification schemes like SBP. For instance, in British Columbia, Canada, we source fibre from timber industry operations where regulations require that harvesting activity results in the protection of key species, habitats, ecosystems and where the residues harvested are surplus to that required to maintain soil health, and so would be wasted or otherwise destroyed to reduce the risk of pests or wildfire. Decisions to source in these areas will take into account the views of affected communities. We have governance and operational systems in place to source in accordance with all applicable laws and regulations, for instance the EU's Renewable Energy Directive (RED).

5. Biodiversity/Nature Positive

Condition wording	Commit to substantive forest restoration and biodiversity enhancements, together with local operators, with a view to turning the idea of being 'Nature Positive' into measurable, durable on-the-ground benefits for nature and local communities
Drax Response	Drax agrees in principle. We recognise the twin crises of nature and climate and that it is imperative while solving the climate crisis to also enhance all aspects of nature, including biodiversity. In 2021, we announced our commitment to the Nature Positive concept and are building internal governance and an active research base to show measurable and lasting improvements to all ecosystems with which we interact. Our initial work through our relevant internal expert hubs will seek to identify baselines for biodiversity and ecosystem functioning for the land we own, manage and / or buy from. We intend to use this information to establish and publish targets for protection and enhancement. We are working with environmental and business organisations to establish best practice in embedding nature positive targets in supply chains, such as the forests we source from. Through our piloting of the Taskforce on Nature-related Financial Disclosures (TNFD) Framework, we are at the forefront of developing an industry risk management and disclosure framework for nature.

6. Feedstock Assurance

Condition wording	Refine the existing Responsible Sourcing Policy for Biomass to tighten feedstock classification, ensuring complete alignment with classification under the Sustainable Biomass Program. Provide monthly reports on the composition of different feedstocks for each individual pellet mill, for example: sawmill residues (sawdust, bark etc); tree branches and tops; low-grade, diseased roundwood; thinnings; agricultural residues; pulpwood.
Drax Response	Drax agrees in principle. We recognise the importance of transparency which includes regular reporting. Drax is prepared to use the feedstock classification used by the SBP for the feedstocks we utilise for BECCS. We also need to meet requirements stipulated in other schemes and regulations, for example, sustainability requirements from Ofgem in the UK and criteria in REDII and REDIII and other relevant regulations in Europe. Alternative feedstock types will require their own criteria. The SBP and the Glasgow Declaration on Bioenergy are forums where we can take an active role in achieving consistency and coherence in feedstock classification and reporting across the industry. Monthly reporting of feedstock data will not be feasible due to commercial sensitivities and data quality and assurance processing timelines. We believe annual reports based on actual data will be more suitable to avoid a false sense of accuracy with respect to timing of the data.

7. Best Available Technology

Condition wording	Install Best Available Technology for pollution prevention (covering air, water and soil) on all pellet plants, going beyond local regulatory requirements where necessary.
Drax Response	This condition requires further consideration. We intend to continue exploring what controls are available and suitable to minimise emissions and pollution further, including the use of Best Available Technology Not Entailing Excessive Costs (BATNEEC) where practical. We are committed to complying with local regulations as the very minimum that is expected of us. We will continue to report emissions to air on an annual basis in the ESG supplement to our Annual Report for the assets we own and manage.

8. Community Engagement

Condition wording	Set up equitable and inclusive Community Engagement Programmes that reflect the regional context and specific areas of concern to stakeholders. Formalise the importance of these Programmes through the operation of Regional Advisory Councils (see Condition 28).
Drax Response	Drax agrees in principle. We have a Community Engagement Strategy in place, with action plans for each country where Drax has operations. Community Engagement plans are under development for the localities where we operate, including for individual plants, covering current pellet mill operations and future BECCS plants. These plans detail community liaison processes to establish close and timely engagement between our plants and their neighbours. Separately, we have established community and charitable support through donations and projects funded by the Drax Foundation, which was launched in March 2023. Together, these plans should deliver measurable, positive outcomes for local communities. This builds on Drax's existing community engagement activities in the UK and North America, including educational STEM outreach, and community giving programmes across all operations.



9. Smaller Forest Owners

Condition wording	Investigate the possibility of working with smaller forest owners in southeast USA to help cover the costs of multiple certifications.
Drax Response	Drax agrees. We already provide support for interested smaller forest owners and managers to help them obtain certifications in the southeast of the US. For instance, Drax has developed landowner outreach materials distributed through its supplier network and has partnered with the American Forest Foundation, state and federal agencies, and conservation groups in the Morehouse Bioenergy sourcing area to assist family forest landowners with management support. We will continue this type of activity as we scale up our BECCS operations.

10. Ombudsman

Condition wording	Together with Drax's Independent Advisory Board, investigate the feasibility of establishing an independent Ombudsman covering all Drax's operations globally, reassuring stakeholders that Drax is prepared to be held to account in an appropriately transparent and rigorous way.
Drax Response	Drax does not agree. We agree with the need for an independent grievance process but do not agree that this should be achieved through the establishment of an Ombudsman. Drax recognises the importance of building strong relationships with local communities and engaging with national and international stakeholders. We believe the measures on community liaisons outlined in condition 8 and the grievance and dispute processes within certification systems like the SBP can achieve the same outcomes, and therefore do not believe an Ombudsman is required. We will continue researching best ways of engaging with all stakeholders and incorporate best practices into transparent grievance policies for our sites and jurisdictions where relevant mechanisms do not already exist. The condition links global stakeholder engagement with our Independent Advisory Board (IAB). However, the prime purpose of the IAB is to review our use of science and evidence in our business decisions, rather than act as an intermediary body for stakeholder engagement.

11. A 'New Narrative'

Condition wording	Develop a 'new narrative' regarding the company's positioning in the wider forestry industry, ensuring the kind of consistent and totally transparent communications on which trust in its business model depends.
Drax Response	Drax agrees. Our business model is evolving towards carbon removals via BECCS, and we have ambitions to build new BECCS projects in other regions. This means we will transition to become a larger player in the forestry and biomass industries and will have more potential to drive sustainable outcomes throughout these industries. We understand what and how we communicate really matters and we are committed to accurate, transparent, and evidence-based communications.

Inquiry Question Two

What conditions would need to be complied with to demonstrate that energy from woody biomass makes a positive contribution to decarbonisation, energy security, affordability, and a just transition?

12. Third Party Life Cycle Assessment Auditors

Condition wording	Work with NGOs and with independent third-party Life Cycle Assessment auditors to agree and validate input assumptions and data along each step of the BECCS value chain. Regularly update the resulting information at least annually for public consumption.
Drax Response	Drax agrees in principle. Scientific practice and the evidence base around Life Cycle Assessment (LCA) is improving, particularly around the forest carbon cycle. Drax proactively seeks to improve scientific understanding by working with scientists and other stakeholders. We are exploring how to further drive the development of the science in this area through active engagement where possible with scientists and practitioners. We will endeavour to update our available LCAs as frequently as possible, noting that annual updates may not always be possible or necessary. Drax already engages with academics and think-tanks through participation in events, roundtables, workshops and formal consultations to drive best practice on LCA analysis and will continue to do so. An example of this work is our Biomass Carbon Calculator, which has been developed following a public consultation on inputs and approaches. It is publicly available through our website. In addition, Drax has been involved with piloting the development of sourcing-region-specific LCAs within the GHG Protocol. We have also commissioned the Argonne National Laboratory to complete an LCA for BECCS projects in the USA. Further, the IAB provides guidance and oversight on science, including LCA modelling.

13. Value Chain Decarbonisation

Condition wording	Aggressively reduce emissions both from direct operations and the wider value chain, prioritising investment in renewable power for all pellet-making plants, while scoping out the feasibility of further decarbonisation measures on any new BECCS plants.
Drax Response	Drax agrees in principle. Our current targets are: • 75% reduction in Scope 1 and 2 emissions from electricity generation by 2030 • 42% reduction in non-generation Scope 1 and 2 emissions by 2030 • 42% reduction in Scope 3 emissions by 2030 Over the last 12 months, our Sustainability team has focused on developing our carbon accounting and reporting capabilities, culminating in the roll-out of a suite of carbon tracking dashboards. These provide a detailed overview of emissions from our direct operations as well as wider value chain and transportation emissions. Emissions and year-on-year changes were reported in the ESG supplement of our 2022 Annual Report and will continue to be reported annually. In the fourth quarter of 2022, Drax established a new internal Carbon Reduction Task Force, the purpose of which is to mobilise existing and new decarbonisation projects, including exploring decarbonisation measures for existing and future pellet and BECCS plants. In all markets where we operate, Drax advocates for greater renewables penetration and incentives for renewables deployment such as carbon pricing to support the decarbonisation of the energy sector. We will always investigate options for prioritising renewable power for pellet mills. Finally, the Drax Remuneration Committee has chosen to allocate a proportion of the 2023 Group performance scorecard to decarbonisation initiatives, ensuring that decarbonisation remains a strategic target against which performance of the Group as a whole is judged.

14. Working with Suppliers

Condition wording	Investigate options for working with suppliers to invest in low-carbon logging equipment, machinery and transportation.
Drax Response	Drax agrees in principle. We are actively working with suppliers to reduce carbon emissions in our value chain. Our carbon accounting and reporting capabilities show that the emissions of our suppliers (reported as Scope 3 emissions) make up a significant proportion of our overall emissions footprint. This is most notable across third party pellet and fibre supply, freight and transportation. Whilst we cannot control these emissions directly, we are working with our suppliers to reduce them. Examples include considering alternative propulsion systems with our maritime freight partners like green ammonia and wind power. Logging equipment and machinery are a lower contributor to emissions than transport, so are a lower priority at this time. We nevertheless remain committed to reducing emissions in this space as well.

15. Heat Recovery

Condition wording	Revisit and solve the challenge of maximising heat recovery to be able to produce both low carbon power and heat at the Selby plant, and work with regulators to ensure that all new BECCS plants will be designed to produce both power and heat.
Drax Response	This condition requires further consideration. We note that our ability to implement heat recovery is dependent on local context, demand, and whether the plant is a new build or conversion from coal. We interpret the condition as proposing to maximise heat recovery to reduce waste heat and maximise energy use from fuel. Our plans for new BECCS plants include using heat to dry where suitable, thereby reducing waste heat. Drax Power Station is an example of retrospective conversion of an existing asset. This asset has been designed to maximise and optimise the efficiency of steam recovery for the capture process over heat, given there is currently no local demand for heat. If that changes in future, we would reconsider the need to maximise heat recovery to supply heat as a product. For future conversions to BECCS, we will optimise assets for heat if there is sufficient local demand.

16. Land Availability Constraints

Condition wording	Review the existing analyses of potential availability of land for bioenergy production, at a global, national and regional level, and publish Drax's own assessment of potential constraints.
Drax Response	Drax agrees in principle. Drax recognises the importance of understanding the relationship between land availability and the growth of the biomass sector in response to BECCS and other users. We also recognise how important it is to manage competing demands on land to promote optimal outcomes for people, nature, and climate, including avoiding negative land use change. As part of our ongoing strategy, we analyse land availability of woody biomass as well as engaging with the published literature on this topic. We intend for this analysis to be up to date and to remain sensitive to competing land uses. We will also seek opportunities to understand wider availability of dedicated energy crops.

17. Pellet End-use

Condition wording	In terms of further expansion of pellet sales to global customers, restrict the sale of pellets to end-users that meet the Conditions outlined in this Report, including the potential incorporation of CCS technology into all bioenergy schemes at the design stage.
Drax Response	This condition requires further consideration. As set out in this document, further work is required to finalise how we intend to respond to several of the conditions outlined in this report. This work must be completed and internal systems embedded before we are in a position to share and agree these conditions with the wider sector. We also recognise that there are certain conditions within this report that we will not be feasibly or legally able to require from end users, for instance the establishment of an Ombudsman or Regional Advisory Councils. On the specific matter of unabated bioenergy, there are good reasons to supply pellets for unabated power generation in certain contexts, for instance in helping countries to transition from coal-based power generation. Largely due to conversion to biomass of our own coal-fired power station at Selby, we have reduced Drax's generation Scope 1 and 2 carbon emissions by circa 99% from 2012-2022 (taking into account our response to condition 18). There are still coal-dependent countries and regions for which biomass may be useful to power the transition away from coal (even if CCS is not employed immediately). Our BECCS ambition spells out clearly our desire to generate bioenergy substantially with CCS. We may also supply biomass for other uses that have high merit order, for instance Sustainable Aviation Fuel (SAF). Drax is currently researching the climate impact of different uses of biomass, through our work to update our biomass sourcing policy and ongoing lifecycle analysis. We will work with academia, NGOs and policy makers to contribute to scientific and policy debates about use of biomass.

18. Forest Carbon Stock / Carbon Debt

Condition wording	Restrict the sourcing of biomass feedstocks to extended forest landscapes, within well-regulated jurisdictions, that can demonstrate clear evidence of a constant or (preferably) an increasing carbon stock, through remote sensing and satellite technology, and seek to help grow carbon stocks in all principal sourcing areas.
Drax Response	This condition requires further consideration. In order to meet our sourcing policy for woody biomass, we primarily source from areas where carbon stocks can be measured and monitored, and where we can demonstrate that sourcing biomass has a neutral or positive impact on carbon stocks over timescales that are valid to local ecology. We will also source from areas where our harvesting is part of a regional management strategy that is designed to reverse or prevent a future decline of forest carbon stocks due to disturbances such as disease or wildfire. We already use Catchment Area Analysis and other Growth-to-Drain studies to measure carbon stocks and will continue to look to refine and develop methodologies, including remote imagery, to monitor and forecast carbon stocks. We intend to have the methodology peer reviewed and published. Through this methodology, we will be able to demonstrate that our involvement is having its intended effect and identify at-risk areas before degradation occurs. We will also continue to work with the community to develop further methodology for monitoring and reporting carbon stocks. As an example, we took part in a pilot for the GHG Protocol land use and removals guidance, assessing the process for estimating carbon changes in 2022 and 2023. We understand that this condition is related to well-regulated forest practices in terms of forest carbon, with which we agree. We also consider that "well-regulated" must include further aspects such as biodiversity and human rights. In this regard, we remain open to sourcing from areas where we feel that our activities provide motivation and incentive for the development of stronger regulatory practice. We are working to develop internal policy to achieve these aims, and will share this policy as it develops.

19. Domestic Feedstocks

Condition wording	Optimise the use of domestic biomass feedstocks here in the UK, subject to detailed consideration of land use constraints and sustainable sourcing conditions. Prioritise local sourcing for all new BECCS plants in other countries to minimise transport-related emissions.
Drax Response	Drax agrees in principle. For our new BECCS projects, located outside the UK, we will locate plants as close to sources of biomass supply as possible while simultaneously taking into account other factors such as proximity to geological carbon storage. However, we may need to source from further afield to ensure consistent access to the volumes of fibre required. For BECCS projects arising from conversion of legacy coal assets, we will explore using local biomass supply, including sustainably sourcing local biomass supply if feasible. For instance, in the UK, Drax has consistently sought out opportunities to leverage domestic feedstock for Drax Power Station in Selby and has explored ways to increase the supply of energy crops. In partnership with the National Farmers Union (NFU), Drax spent 2022 meeting with stakeholders in the UK agriculture sector to discuss the challenges of scaling up. We concluded that there are opportunities to source UK energy crops; however, further work is required to understand the economics, sustainability and land-use constraints, government positioning, and likelihood of farmer take up.

20. Carbon Accounting and Reporting

Condition wording	Engage proactively with key NGOs and academics to explore complexities and controversies in current carbon accounting and reporting methodologies, reaching out to Government departments to help facilitate the dialogue.
Drax Response	Drax agrees. We engage with academics, researchers, independent organisations, and key carbon accounting bodies to understand and shape best practice in carbon accounting. Specifically, we have played a role in reaching a conclusion on outstanding complexities and controversies, including taking part in the pilot of the GHG Protocol for land sector emissions and various public consultations. We intend to engage with key bodies on these topics and remain committed to better understand their concerns and address these challenges in our own approaches to carbon accounting and reporting. Drax will follow best practices on carbon accounting and reporting as outlined by the applicable standards, such as the GHG Protocol, and widely accepted international conventions on reporting of biomass.


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Inquiry Question Three

What conditions would need to be complied with to ensure that BECCS from woody biomass makes a material, ongoing contribution towards Net Zero targets?

21. Knowledge Transfer Centres

Condition wording	Establish open knowledge-sharing platforms with all existing and prospective BECCS operators globally.
Drax Response	Drax agrees in principle. We already make our scientific research public and fund PhD and postdoctoral studies. We also engage with relevant academic research groups and industry bodies, with the intention to present work at conferences and other open events. We are open to facilitating the systematic transfer of knowledge along our value chain, where experts in each stage of the BECCS process can share their expertise and experiences with others involved in the same or subsequent stages. This is always subject to compliance with applicable laws and regulations and the need to protect commercially sensitive information and intellectual property. For example, we are already collaborating with other developers to establish best practice in BECCS carbon removal certification methodology. This collaboration should allow for more clarity for BECCS developers and suppliers in the carbon markets, support effective implementation of technology, identify knowledge gaps and create opportunities for innovation.

22. Carbon Capture Rates

Condition wording	Given this is a huge 'first of a kind' engineering challenge, Drax and its capture technology partner, Mitsubishi Heavy Industries, may reasonably anticipate relatively low average capture rates in the first year of operation (to make on-site engineering adjustments and adaptations), but must then operate at a 95% capture rate from the start of Year Two.
Drax Response	Drax agrees in principle. Whilst appreciating that this is a first of its kind operation, we have confidence our Power BECCS technology will operate at 95% capture rate, and we will publish capture rate data. We are partnering with Mitsubishi Heavy Industries at Drax Power Station. We are also working with the Environment Agency to ensure that the requirements and conditions pertaining to a minimum 95% capture rate are set out in Drax Power Station's environmental permit in line with the Environment Agency's Best Available Techniques guidance on capture rates for post-combustion capture. For our other Power BECCS projects we may work with other partners, also seeking to achieve a 95% capture rate.

23. Transparent Reporting

Condition wording	Agree, as a condition of future Government support for Drax's carbon removals, to publicly disclose stack emissions (including SOX, NOX, uncaptured CO_2 and capture-solvent derivatives), as well as captured tonnages of CO_2 on a weekly basis. Agree that all such support from taxpayers should be paid retrospectively on the basis of tonnes of CO_2 successfully captured and stored.
Drax Response	Drax agrees in principle. It appears that there are three distinct conditions that are integrated into a single condition. Each has been explored individually to provide a more comprehensive response. First, we agree with the importance of transparent reporting to promote accountability, encourage ethical behaviour, and build trust and credibility with stakeholders. At Drax Power Station, all these are or will be regulated by our environmental permit and/or our greenhouse gas permit. We are committed to monitoring and reporting in compliance with regulation and permit requirements. The listed metrics, with the exception of those related to capture solvent, are already published and are either shown on the public register, our 2022 Annual Report or our web resources. This will also be true of carbon capture once the plant is online. Second, Drax challenges the need to disclose data weekly. Sharing data without proper verification, quality control and context setting for the sake of increased frequency could result in inaccurate outcomes. We will disclose data at the most frequent verifiable cadence, and at least in line with regulatory requirements, to ensure high data integrity. Finally, we agree with the retrospective payment model based on captured tonnage where relevant. However, we note that responsibility for this decision lies with the host governments rather than Drax itself. We further note that current indications suggest that for the UK, payments will be based on tonnage captured, with storage monitored elsewhere in the infrastructure chain.

24. Negative Emissions Credits

Condition wording	If the company moves to commercialise the negative emissions credits from its Carbon Dioxide Removals, it must be prepared to surrender enough removal credits to ensure its own value chain is strictly Net Zero, and must avoid any double counting once the new standards for negative emissions credits have been agreed.
Drax Response	Drax agrees in principle. We will only sell carbon removals that are net of emissions in our BECCS value chain. This will be done in compliance with the relevant certification methodology once developed. We propose that every credit purchased will represent a net removal of one tonne of CO_2 to the buyer. We also agree that credits must avoid double counting across businesses, which means that only one company can claim the benefit of one BECCS removal credit. If Drax sells a credit to a buyer, it will not claim the benefit towards its own climate targets. There is a difference between neutralising our BECCS value chain emissions and achieving a Drax corporate net zero target, which also includes our non-BECCS assets. In order to achieve corporate net zero, we may adopt a portfolio approach and buy other credits in addition to our own, as is industry practice.

25. Enhanced Oil Recovery

Condition wording	Continue to prohibit the use of any captured CO_2 for Enhanced Oil Recovery here in the UK, and commit to the same constraint for all future BECCS plants, operated or supplied by Drax, in the USA, Canada and globally
Drax Response	Drax agrees. BECCS is not designed to be a manufacturer of CO_2 for Enhanced Oil Recovery. Drax therefore will not capture carbon for use in Enhanced Oil Recovery. We intend to develop mechanisms to ensure that where there is connected infrastructure, we can demonstrate that the volume of CO_2 captured by Drax has been permanently stored in geological reservoirs not subject to Enhanced Oil Recovery. We will release further details on these mechanisms once they are finalised.

Inquiry Question Four

What are the implications for Drax of these conditions, and for the wider biomass industry, in terms of policy and governance? How will verification work, in an authoritative and transparent way, demonstrating compliance with these conditions?

26. Precautionary Principle

Condition wording	Consistently apply the Precautionary Principle when making decisions regarding sourcing biomass feedstock and siting new BECCS facilities, particularly as regards the risk of deforestation through Indirect Land Use Change and the need for totally robust certification and governance standards which may exceed local standards.
Drax Response	Drax agrees in principle. In this instance, we interpret the Precautionary Principle as avoiding negative Indirect Land Use Change (ILUC), and other spill over effects, and recognise the importance of avoiding these outcomes. Finding a method to ensure the avoidance of negative indirect impacts on land will require global coordination and cooperation across numerous industries. We will play an active role in coordination, including: • Proactively engaging in ongoing industry-wide land use workstreams • Exploring where our existing stakeholder groups and industry relationships can be used to shape the best approach for BECCS and the wider biomass sector As we push for a long-term solution, we intend to put into place processes for studying and mitigating impact on land, including: • Developing an evidence-based approach to understand the potential impacts of current activities on land use in the regions where we currently operate • Considering the impact of potential future business activities on land use through scenario analysis, including at a regional and global level • Acting where local land use change risk is assessed to be significant to participate in solutions to counteract risk of local land use change

27. Transparency and Disclosure

Condition wording	For purposes of full transparency across the entire value chain, the company should publish: – its biomass supply chain GHG emissions, externally assured (as in Condition 12), as it already does today; – the current emissions from the burning of the biomass in its plant at Selby, prior to the reabsorption of those emissions in new forest growth (as in Condition 22), as it is already required to do; – and, when the two CCS units are fully operational at the Selby plant, emissions associated with the capture, compression, transport and injection of the CO_2 for storage in saline aquifers or depleted oil and gas reservoirs.
Drax Response	Drax agrees in principle. We recognise the need for transparency and commit to the required reporting now and in the future, including meeting all reporting regulations. We have disclosed all relevant and required data in the 2022 Annual Report and ESG data supplement, published on our website, and will continue to disclose this data in our annual reporting.

28. Transparency Dashboard

Condition wording	Consult with policymakers and NGOs on setting up a comprehensive Transparency Dashboard, establishing a set of indicators with ambitious targets to generate positive nature, climate and people outcomes, as laid out in earlier Conditions. Put the resulting Dashboard into operation as soon as possible.
Drax Response	Drax agrees in principle. Many of these data points were reported in the 2022 Annual Report, and we will expand this reporting as additional metrics are developed. We are happy to commit to collaborating with academics, policymakers, and NGOs to understand how to most effectively present these metrics.

29. Regional Advisory Councils

Condition wording	Establish multi-stakeholder Regional Advisory Councils in all principal sourcing regions to reflect a diversity of views and interests, coordinated in conjunction with Drax's existing Independent Advisory Board. Ensure all Community Engagement Programs are properly represented on these Councils.
Drax Response	This condition requires further consideration. We recognise the importance of establishing multi-stakeholder engagement platforms in sourcing regions, bringing together foresters, workers, NGOs, industry experts, and other interested parties. Drax is developing a community sentiment metric to ensure that local and regional perspectives are captured and will explore a commitment to having a community liaison in its plants. This is in line with our commitment to condition 10. However, we are considering the best way in which to utilise multi-stakeholder engagement forums to set out our future policy and operationalise our standards.

30. The Glasgow Declaration

Condition wording	Work with all signatories to the Glasgow Declaration on Sustainable Bioenergy to minimise risks associated with a possible 'boom in new BECCS', particularly in those parts of the world where regulation and enforcement are weak. BECCS Done Well must become the watchword for any emerging global industry, and Drax must take the lead here.
Drax Response	Drax agrees in principle. Drax agrees and is committed to leadership in this space. We will continue to work with stakeholders associated with the Glasgow Declaration to build global support, increase the ambition, and expand its scope to cover requirements of current and future end users of biomass. The primary goal of these activities will be to drive the discussion around standards and best practice, particularly in regions where biomass standards are still developing.

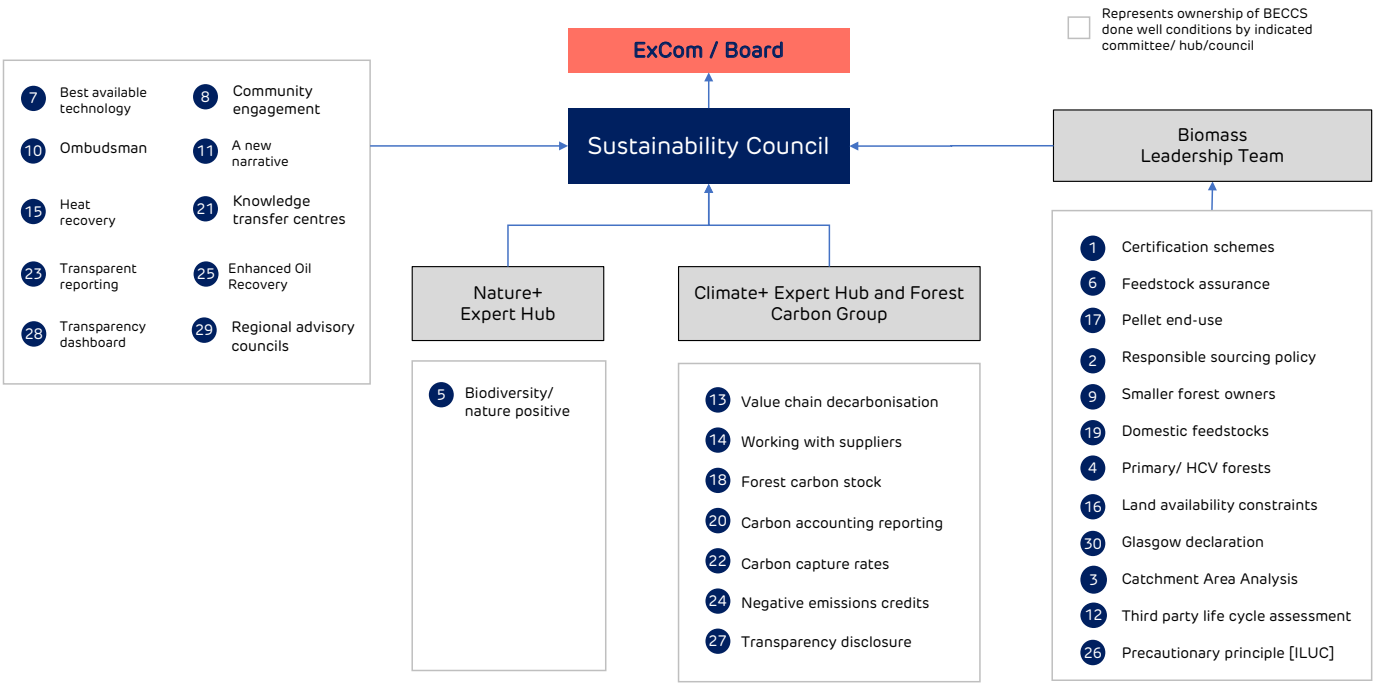
Appendix 1: Definitions

Sustainable Biomass Program (SBP)	SBP is a certification scheme designed for woody biomass used in industrial energy production. Originally created by biomass end-users, SBP has evolved and has had a multi-stakeholder governance structure since 2019.
Forest Stewardship Council (FSC®)	Founded in 1993, this international non-governmental organisation promotes responsible management of the world's forests. Its certification system covers more than 200 million hectares of forest.
Programme for the Endorsement of Forest Certification (PEFC)	Founded in 1999, this global alliance of national forest certification schemes is an independent, non-profit, non-governmental organisation that promotes sustainable forest management through independent third-party certification.
Sustainable Forestry Initiative (SFI)	SFI is a US-focused, voluntary, third-party forest certification that began in the 1990s in response to market concerns about forest management. Today, SFI is a fully independent, charitable organisation responsible for maintaining, overseeing and improving a sustainable forestry certification program that is internationally recognised and among the largest in the world.
Taskforce on Nature-related Financial Disclosures (TNFD)	The TNFD is currently developing a framework that will allow companies to assess and disclose dependencies and impacts on nature. The framework is in beta stage, with the full framework and guidance due to be released in Autumn 2023. The TNFD is funded by governments, the UN, and philanthropic giving.
Greenhouse Gas (GHG) Protocol	The GHG Protocol is a joint initiative between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) that develops comprehensive frameworks to standardise reporting of greenhouse gas emissions and management.
Independent Advisory Board (IAB)	The IAB was established in 2019 and comprises scientists, academics, and forestry experts. Its primary role is to provide independent challenge, insight and advice on key aspects of the development and implementation of Drax's sustainability strategy; provide scrutiny of Drax's impacts on nature and climate; review and assess Drax's sustainability-linked policies; and make recommendations on how Drax can improve its practices.

Appendix 2: Sustainability Governance Structure

Under our governance, the Board is ultimately responsible for sustainability, and they have delegated this responsibility to the Executive Committee. The Chief Sustainability Officer sits on the Executive Committee, which has established an internal structure to ensure delivery of our sustainability commitments. This includes an internal Sustainability Council that reports into the Drax Executive Committee, with expert groups driving priorities for biomass sourcing, people, nature, and climate.

Each of the "BECCS done well" conditions has a governance hub within Drax which will own the follow-up actions and develop and track metrics. This structure will be reviewed, and may evolve over time to better meet these objectives.



Forward Looking Statements

This document may contain certain statements, expectations, statistics, projections and other information that are, or may be, forward-looking. The accuracy and completeness of all such statements, including, without limitation, statements regarding the future financial position, strategy, projected costs, plans, beliefs, and objectives for the management of future operations of Drax Group plc ("Drax") and its subsidiaries (the "Group"), are not warranted or guaranteed. By their nature, forward-looking statements involve risk and uncertainty because they relate to events and depend on circumstances that may occur in the future. Although Drax believes that the statements, expectations, statistics and projections and other information reflected in such statements are reasonable, they reflect the Company's current view and no assurance can be given that they will prove to be correct. Such events and statements involve risks and uncertainties. Actual results and outcomes may differ materially from those expressed or implied by those forward-looking statements. There are a number of factors, many of which are beyond the control of the Group, which could cause actual results and developments to differ materially from those expressed or implied by such forward-looking statements. These include, but are not limited to, factors such as: future revenues being lower than expected; increasing competitive pressures in the industry; uncertainty as to future investment and support achieved in enabling the realisation of strategic aims and objectives; and/or general economic conditions or conditions affecting the relevant industry, both domestically and internationally, being less favourable than expected, including the impact of prevailing economic and political uncertainty. We do not intend to publicly update or revise these projections or other forward-looking statements to reflect events or circumstances after the date hereof, and we do not assume any responsibility for doing so.

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