



Grounds of Concern re Drax 2023 Annual Financial Report (filed with FRC March 2024)

Ground 1

1. Drax's 2023 Annual Financial Report ("AFR") has breached the requirements of s. 414C(7)(a) Companies Act 2006 by failing to disclose critical information regarding Drax's ambition of becoming "*carbon negative by 2030*". Specifically, the AFR does not explain that this ambition is unlikely to be achieved because Drax's biomass is not "carbon neutral" and is based on a partial accounting methodology that excludes significant sources of emissions.
2. Additionally, the AFR fails to address uncertainties surrounding the future accounting of carbon stored with CCS that could have serious implications for the future credibility of Drax's carbon-negative claims.
3. These omissions mean that the AFR does not report, "*to the extent necessary for an understanding of the development, performance or position of the company's business*", on three key factors "*likely to affect the future development, performance and position of the company's business*" contrary to s. 414C(7)(a).

AFR page references: 9, 12, 14, 29, 30, 31, 45, 50, 51, 52, 53, 80, 98, 105, 110, 111, 118.

Rationale:

The essential pre-conditions for achieving carbon negativity with BECCS

4. There are at least two necessary pre-conditions for bioenergy to be theoretically capable of being carbon negative through the use of carbon capture and storage ("CCS") technology. As demonstrated below, neither of these pre-conditions – both key to Drax's future performance – is met, nor are they disclosed in the 2023 AFR.

A. The biomass needs to be carbon neutral

5. BECCS (biomass energy with carbon capture and storage) involves adding technology to a biomass power plant to collect and store the CO₂ emitted during combustion. Drax alleges that this process delivers a net removal of carbon from the atmosphere ("negative emissions"). Drax's 2023 AFR (p. 52) explains the company's overall "carbon negative" ambition, which it intends to deliver using BECCS:

"At Drax, "carbon negative" means we aim to remove more carbon from the atmosphere than we produce across our direct operations (Scope 1 and 2) globally, discounting those Carbon Dioxide Removals (CDRs) that we sell to third parties."

6. As noted in the IPCC's Sixth Assessment report, a necessary precondition for BECCS to achieve negative emissions is that the biomass burned is genuinely carbon neutral.¹ The report also notes that wood-based BECCS could remain a source of carbon for decades, rather than delivering negative emissions.² Such emissions are defined as "biogenic CO₂ emissions³".
7. While Drax reports its biogenic emissions in the AFR separately from direct ("Scope 1") emissions,⁴ it treats these emissions as "zero", as it did when it formerly claimed that its biomass was "carbon neutral". The same approach underlines its ongoing claims that BECCS can deliver negative emissions. Underpinning Drax's claims that biomass has zero or "low" emissions is the misapplication of a protocol included in the Intergovernmental Panel on Climate Change ("IPCC") guidelines for GHG reporting⁵; however, Drax has retroactively justified its incorrect treatment of biomass emissions with misleading references to the "closed" biogenic carbon cycle⁶ and on claims that "sustainable" biomass can achieve decarbonization.⁷
8. The IPCC emissions reporting guidelines provide for carbon emissions from biomass combustion to be recorded in the land sector, and to be marked as "zero" in the energy sector to avoid double-counting, as this would distort the assessment of global carbon emissions. As the IPCC guidelines explain:

*"Carbon dioxide (CO₂) emissions from the combustion of biomass or biomass-based products are captured within the CO₂ emissions in the Agriculture, Forestry and Other Land Use (AFOLU) sector through the estimated changes in carbon stocks from biomass harvest, **even in cases where the emissions physically take place in other sectors**. This approach to estimate and report all CO₂ emissions from biomass or biomass-based products in the AFOLU sector was introduced in the first IPCC guidelines for national greenhouse gas emissions (IPCC 1995),*

¹ Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the IPCC Sixth Assessment Report, Chapter 5, p. 763. Available at

https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter05.pdf

² *Ibid.*

³ "Biogenic emissions" are primarily carbon released into the atmosphere "*from the combustion or bio-degradation of biomass*", <https://ghgprotocol.org/sites/default/files/2024-03/GHG-Protocol-Integration.pdf>, p. 14. In bioenergy production, biogenic emissions therefore occur a) when biomass is harvested, b) when the wood is turned into pellets, and c) when those wood pellets are burned in a power station.

⁴ The reporting of biogenic emissions separately from Scope 1 (direct carbon emissions) is in-line with the GHG Protocol for corporate accounting: <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>, p. 25.

⁵ 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Available at <https://www.ipcc.ch/report/2019-refinement-to-the-2006-ipcc-guidelines-for-national-greenhouse-gas-inventories/>

⁶ At page 73, 2023 AFR. The AFR's reference to the "closed" carbon cycle gives the impression that Drax's biogenic emissions are instantaneously offset through ongoing tree growth, when in fact felling and burning trees represents a new source of CO₂ to the atmosphere that is not instantaneously offset, because new trees of equivalent mass do not instantaneously appear.

⁷ Page 2, AFR.

reflecting close linkages with data on biomass harvesting, and for the pragmatic reason to avoid double counting.”⁸ (Emphasis added)

9. The IPCC has made clear that the accounting of biomass emissions in the land sector of the source country and as “zero” in the energy sector of the country of use does not mean that there are no emissions from biomass energy generation, and that this accounting rule should not be interpreted as showing that biomass is “carbon neutral” or otherwise “sustainable”.⁹ Specifically, the IPCC’s Task Force on National Greenhouse Gas Inventories states on its FAQs page that:

“The overall IPCC approach to estimating and reporting bioenergy greenhouse gas emissions at the national level requires complete coverage of all IPCC sectors, including the AFOLU and Energy sectors. All CO₂ emissions and removals associated with biomass are reported in the AFOLU sector. Therefore, CO₂ emissions from biomass combustion used for energy are only recorded as a memo item in the Energy sector; these emissions are not included in the Energy sector total to avoid double counting. The approach of not including these emissions in the Energy Sector total should not be interpreted as a conclusion about the sustainability, or carbon neutrality of bioenergy ... Thus, the IPCC Guidelines do not automatically consider or assume biomass used for energy as “carbon neutral”, even in cases where the biomass is thought to be produced sustainably.” (Emphasis added)

10. Drax no longer directly invokes the accounting convention of counting biomass emissions in the energy sector as zero to justify its claims that biomass actually has zero biogenic emissions. Nor does Drax any longer directly claim biomass is “carbon neutral”, the company’s own Independent Advisory Board having advised in 2022 that “*Drax should move away from saying “carbon stocks are increasing/stable” and stating biomass is carbon neutral*”.¹⁰ However, instead of abandoning the misleading claim that burning wood has “zero” emissions, the company has simply changed its language. Now, Drax states that its asserted “low carbon” status of biomass relies on keeping associated fossil fuel emissions below a certain level,¹¹ thus implying that biogenic emissions are zero – essentially the same misleading claim it made when it referred to biomass as carbon neutral. Most importantly for Drax’s claims about BECCS, however, is that as true carbon

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2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2, Chapter 2, 2.3.3.4., p. 2.4. Available at : https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/2_Volume2/19R_V2_2_Ch02_Stationary_Combustion.pdf

⁹ IPCC Task Force on National Greenhouse Gas Inventories, Frequently Asked Questions, at Q2-10: “*According to the IPCC Guidelines CO₂ Emissions from the combustion of biomass are reported as zero in the Energy sector. Do the IPCC Guidelines consider biomass used for energy to be carbon neutral?*” Available at: <https://www.ipcc-nggip.iges.or.jp/faq/faq.html>.

¹⁰ See, for example: V. Seabrook, “Power giant Drax told by own advisers to stop calling biomass 'carbon neutral'”, 2023. Available at: <https://news.sky.com/story/power-giant-drax-told-by-own-advisers-to-stop-calling-biomass-carbon-neutral-12866031>

¹¹ Page 55 AFR

neutrality is an essential pre-condition for carbon negativity with BECCS, the claim that biomass is “low carbon” is insufficient for the achievement of Drax’s “carbon negative by 2030” ambition. The overall carbon negative status depends on BECCS delivering negative emissions, which in turn depends on biomass being truly carbon neutral, which it is not – as the company itself has had to accept by ceasing to make such claims.

11. Framing a whole AFR on the achievement of a “carbon negative” ambition whilst omitting critical information for contextualizing and evaluating that ambition – i.e., the necessary precondition that biomass must be truly carbon neutral, and the fact that Drax has been told to stop using that term – constitutes a breach of s. 414C(7)(a) of the Companies Act 2006. By failing to disclose these critical factors, the company prevents investors and the public from understanding elements that will materially impact Drax’s future development and performance.

B. All emissions must be taken into account

12. It is only possible to determine the net emissions impact of a process, including attempts to achieve “negative emissions”, if full lifecycle carbon emissions from the biomass generation and BECCS operations are included and accounted for.
13. In the 2023 AFR, Drax is a) highly selective as to the carbon emissions that it includes and b) fails to report full lifecycle emissions.
14. The 2023 AFR (p. 52, as quoted above) states that Drax calculates carbon negativity based only on Scope 1 and 2 emissions¹², and excludes biogenic CO₂ emissions from the calculations. This is hugely significant because, as shown by Figure 1, Drax’s biogenic emissions, at 11,463ktCO₂e, are by far the most significant source of carbon emissions that Drax reports (actual biogenic emissions from all of Drax’s operations is far greater).

	Unit	2023	2022	2021	2020
Carbon emissions					
Generation CO ₂ e emissions ⁽¹⁾	ktCO ₂ e	141	310	525 ⁽⁹⁾	1,687
Group total Scope 1 ⁽²⁾	ktCO ₂ e	255 [Ⓐ]	336	932	1,693
Group total Scope 2 (location-based) ⁽³⁾	ktCO ₂ e	231 ^{Ⓐ(7)}	333	323	277 ⁽⁷⁾
Group total Scope 2 (market-based) ⁽³⁾	ktCO ₂ e	273 [Ⓐ]	332	323	338
Group total Scope 1 and 2 (location-based)	ktCO ₂ e	486	669	1,255	1,970
Proportion of Group (Scope 1 and 2) emissions within the UK	%	34 [Ⓐ]	51	78	87
Group total Scope 3 ⁽⁴⁾	ktCO ₂ e	3,534 [Ⓐ]	3,123	3,121	3,538
Biogenic CO ₂ emissions ⁽⁵⁾	ktCO ₂ e	11,463	12,130	13,415	13,627

Figure 1. Table showing Drax’s carbon and energy use data summary. (Drax 2023 AFR p. 50)

¹² Scope 1 covers direct GHG emissions from sources that are owned or controlled by the reporting company, for example, [fossil fuel] emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc. Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the reporting company.

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition 2004), p. 25. Available at <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf>

15. In claiming it can become a carbon negative company considering only its Scope 1 and 2 emissions (and, as discussed below, in claiming it can remove carbon from the atmosphere), Drax's 2023 AFR grossly misrepresents the full carbon impact of the company's operations and portrays a falsely optimistic and inaccurate picture of its ability to achieve carbon negativity. To have the "*high integrity carbon removals*" that Drax promises,¹³ any assessment of carbon negativity with BECCS must a) necessarily include all of Drax's carbon emissions, and b) follow the IPCC reporting guidelines, which, as explained at paragraph 8 above, do not endorse treating biomass as having "zero" emissions overall just because it is counted as such in the energy sector, and further, do not represent burning biomass as "removing" CO₂ from the atmosphere.
16. In addition to treating smokestack emissions of biogenic CO₂ as if they are actually "zero", the 2023 AFR also ignores large "upstream" CO₂ emissions (both biogenic and fossil-fuel derived) associated with biomass harvesting, processing, and transport, emissions which CCS technology will not be able to capture. The BECCS methodology that Drax published with Stockholm Exergi¹⁴ indicates that fossil fuel emissions from biomass harvesting, processing, and transport (which are Scope 3) are subtracted out in the calculation of net CO₂ storage. No account is taken, however, of the upstream biogenic CO₂ emissions (and methane) which add considerably to the CO₂ from biomass combustion that result from Drax's operations. These upstream emissions include:
- a. CO₂ emitted by the decomposition of forestry residues, roots, etc, left onsite after harvesting;
 - b. Loss of soil carbon due to disturbance from harvesting activities;
 - c. CO₂ emitted by wood burned for drying at the wood pellet facility (for example, Drax's Bastrop facility in Louisiana includes a wood-burning dryer that burns approximately 16 tonnes of wood chips per hour)¹⁵;
 - d. Methane emissions associated with the storage of wood chips at the pellet plant and the storage and transport of finished pellets, which studies show can be significant.¹⁶ Methane is a powerful GHG.

¹³ AFR 2023, p. 17.

¹⁴ Drax and Stockholm Exergi, "Methodology for measuring net carbon dioxide removal through bioenergy with carbon capture and storage (BECCS)" (June 2024) https://www.drax.com/wp-content/uploads/2024/06/V1.0_BECCS-Methodology_Drax-Stockholm-Exergi.pdf

¹⁵ Louisiana Dept of Environmental Quality. Morehouse Bioenergy, LLC – Wood pellet manufacturing facility proposed Part 70 operating permit renewal/modification. Available at: <https://edms.deq.louisiana.gov/app/doc/view?doc=11048577&ob=yes&child=yes> (official weblink) or alternatively https://drive.google.com/file/d/1iZMk3VJIYJtXYsY_KRsw5ycDwA0IUyA/view?usp=sharing

¹⁶ Alakoski, E., Jämsén, M., Agar, D., Tampio, E., & Wihersaari, M. (2016). From wood pellets to wood chips, risks of degradation and emissions from the storage of woody biomass – A short review. *Renewable and Sustainable Energy Reviews*, 54, 376-383. <https://doi.org/10.1016/j.rser.2015.10.021> ; Röder, M., Whittaker, C., & Thornley, P. (2015). How certain are greenhouse gas reductions from bioenergy? Life cycle assessment and uncertainty analysis of wood pellet-to-electricity supply chains from forest residues. *Biomass and Bioenergy*, 79, 50-63. doi: <http://dx.doi.org/10.1016/j.biombioe.2015.03.030>; Wihersaari, M. (2005). Evaluation of greenhouse gas emission

17. Drax should not be counting biogenic emissions that are stored with CCS as “removals” from the atmosphere, but at best, as representing a reduction of the amount of CO₂ their operations add to the atmosphere. If upstream biogenic emissions were fully counted, this would both increase Drax’s acknowledged CO₂ emissions and decrease the proportion of those total emissions that can be captured and stored belowground.
18. In effect, Drax has invented its own definition of “carbon negative” operations which is not what investors, or indeed anyone reading the AFR, would understand it to be. Defining the scope of its ambition to only include its Scope 1 and 2 emissions is not impermissible. What is misleading, however, is that the AFR is not providing information necessary for shareholders to understand that Drax’s “carbon negative” ambition relies on simply storing biogenic CO₂ belowground and counting that as a “removal” of CO₂ from the atmosphere to counterbalance its Scope 1 and Scope 2 emissions. However, treating storage of biomass CO₂ as a removal from the atmosphere is not supported by the IPCC emissions reporting protocol. Drax does not provide the calculations in the AFR that underpin its claims about negative emissions from BECCS and the ambition for the company to become carbon negative overall.¹⁷ Given the absence of explanation in the AFR, investors and the general public will be unaware that Drax is not aiming for carbon negativity in real terms and on the basis of its full carbon emissions.
19. The prominence of Drax’s “carbon negative” ambition as the overarching theme of the AFR makes it highly relevant to the future development of the business. The AFR thereby breaches s. 414C(7)(a) by repeatedly citing the IPCC as to the need for negative emissions¹⁸ but failing to explain that Drax’s approach improperly applies the IPCC’s convention of counting biogenic emissions as zero in the energy sector to thereby count biogenic emissions as being “zero” in reality, and inappropriately equates storage with removal.

Uncertainties in future IPCC reporting protocols further undermine the prospect of claiming ownership of carbon stored using CCS

20. Currently, the countries from which Drax obtains wood pellets employ IPCC carbon reporting protocols¹⁹ that assign to the source country the benefit of carbon stored in harvested wood products (“HWP”) but exported to another country. Likewise, when HWP are burned, the associated emissions are assigned to the source country.
21. The IPCC is about to initiate development of a protocol for assigning “ownership” of biogenic carbon stored belowground using BECCS. If, as it is entirely possible, the current

risks from storage of wood residue. *Biomass and Bioenergy*, 28(5), 444-453. doi: <https://doi.org/10.1016/j.biombioe.2004.11.011>

¹⁷ The BECCS Methodology document (fn 14) goes into some detail and makes clear that the methodology unjustifiably treats CO₂ storage as equivalent to removal.

¹⁸ AFR 2023, for example at pages 5, 13, 42.

¹⁹ 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Chapter 12: Harvested Wood Products. https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_12_Ch12_HWP.pdf

principles for assigning ownership of carbon in HWP were applied, source countries such as Canada, the U.S., and Estonia would retain ownership of the forest carbon stored belowground by Drax. Further, as is the principle for HWP, such storage would not constitute a “removal” from the atmosphere but merely a transfer of carbon from one pool (trees) to another (belowground storage). The uncertainties related to the ongoing development of international protocols that are likely to affect Drax’s ability to achieve its carbon negativity goal constitute a risk to the future development of the company that is not indicated to investors in the 2023 AFR. This omission constitutes a breach of s. 414C(7)(a) of the Companies Act 2006.

Conclusion and next steps:

22. In summary, the 2023 AFR fails to clearly explain that:

- (i) Biomass must be genuinely carbon neutral for BECCS to achieve negative emissions, as recognised by the IPCC;
- (ii) Drax relies on counting biomass CO₂ as “zero,” and treating CO₂ stored belowground as a “removal,” contrary to international GHG reporting guidelines and without providing any explanation as to how this calculation is made;
- (iii) Uncertainties currently exist regarding how the IPCC will count the ownership of carbon stored belowground using BECCS.

23. This lack of transparency regarding key factors associated with Drax’s business is clearly in breach of s. 414C(7)(a) of the Act.

24. To comply with the duty under s. 414C(7)(a) Companies Act 2006, Drax must, in this and future AFRs:

- Be transparent with investors that for BECCS to deliver real-world negative emissions requires the biomass itself to be truly carbon neutral;
- Provide the calculations and assumptions underpinning the assertions about BECCS delivering removals of CO₂ from the atmosphere and the company’s ambition to become carbon negative overall, and explain how these align, or do not align, with IPCC guidance on carbon reporting;
- Disclose that the IPCC has not yet developed a protocol for assigning ownership of CO₂ stored belowground with BECCS and how this could affect Drax’s future performance.

25. Given the centrality of BECCS and carbon negativity to Drax’s strategic aims to 2030 and beyond, the omissions above means that, at present, the 2023 AFR does not report on key

factors “*likely to affect the future development, performance and position of the company’s business*” in breach of s. 414C(7)(a).

Ground 2

26. The 2023 AFR has breached the requirements of s. 414C(7)(a) Companies Act 2006 in that it minimises the significant technological uncertainties surrounding BECCS and its ability to deliver negative emissions. The AFR also fails to: a) give any information on the risks posed by BECCS, and b) to inform investors of the rising costs of Drax’s BECCS plans. Given the centrality of BECCS and carbon negativity to Drax’s strategic aims to 2030 and beyond, this risk minimisation and the absence of a fall-back plan could jeopardise the future success of the company. It constitutes a failure to report on a key factor “*likely to affect the future development, performance and position of the company’s business*” in breach of s. 414C(7)(a).

AFR page references: 53, 87, 97, 98, 105.

Rationale:

27. There is currently very little BECCS deployment in the world. Moreover, there is no BECCS plant that is currently operating at commercial scale and storing all the carbon from sourcing, producing, transporting and burning the biomass and running the BECCS facility, much less delivering “negative” emissions. The technology therefore remains unproven at scale. As a result, there is great uncertainty regarding the ability to operate BECCS at the scale envisaged by Drax²⁰. The European Academies Science Council (2022) has noted:

*“The continued high uncertainties summarized ... over how much and when any CDR [carbon dioxide removal] can be achieved through BECCS, and risks of perverse effects on climate, food, biodiversity and other critical Sustainable Development Goals”.*²¹

28. The 2023 AFR skips over these technological uncertainties, expressing them only in the briefest and most minimal of terms. It makes no mention at all of the environmental and other risks mentioned by EASAC above.

²⁰ See, for example, EASAC, Forest bioenergy update: BECCS and its role in integrated assessment models, 2022, p. 2: “*The deployment of the underlying CCS technology continues to be slow and operational experience limited; thus uncertainties remain over how much CO₂ can be captured from combustion gases and the extra energy required (parasitic energy cost). There is a trade-off between the amount of CO₂ removed from the stack gases and the energy required in the capture and storage stages, and the latest evidence suggests that performance is currently significantly below that assumed in models.*” Available at: https://easac.eu/fileadmin/PDF_s/reports_statements/Negative_Carbon/EASAC_BECCS_Commentary_2022_WEB_final.pdf

²¹ *Ibid*, p. 15.

29. The minimal coverage given to BECCS risks and uncertainties can be seen on page 53 (Figure 2) where the AFR explains the “*key assumptions and dependencies*” related to its “*carbon negative by 2030*” objective. Technological dependencies mentioned consist of brief reference to “*potential uncertainties associated with deployment of BECCS at scale*”, but no additional detail:

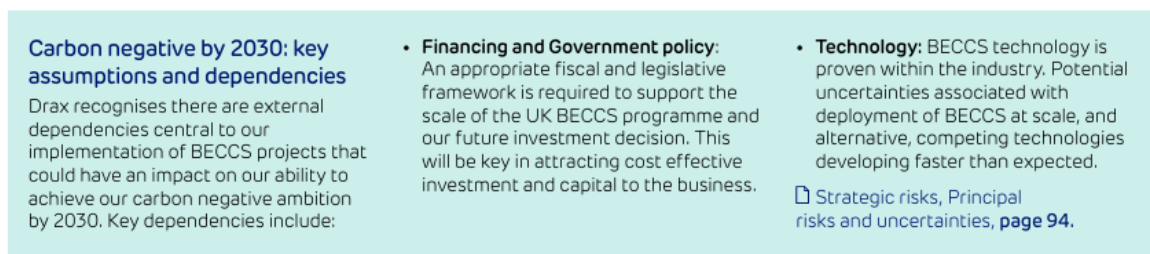


Figure 2. Overview of Drax's carbon reduction pathway. (2023 AFR p. 53)

30. No further information is provided in the “Strategic risks” section from page 94 onwards. Page 98 has a strategic risk section relating to Drax's ambition to be a global leader in carbon removals, yet there is nothing in the “risk and impacts” section relating to BECCS technological uncertainty or deployment issues.

31. The minimal discussion of technological uncertainty with BECCS stands in contrast to the far more detailed way that the AFR discusses risks related to “*market volatility and biomass availability*” and “*potential escalation of Middle East conflict*” (both p. 97).

32. Furthermore, tucked away at the bottom of page 87 is information that Drax has significantly revised down – by almost 50% – its ambitions as to the amount of CO₂ “removals” that its BECCS project is aiming to deliver by 2030. In the 2022 AFR, Drax was aiming for 12MT of removals by 2030; in the 2023 AFR, this has become just 7MT. The reason given is that this reflects “*realistic timelines based on the progression of projects to date*”. Whilst no detail is provided as to why progress has slowed, this clearly suggests that some technological or other deployment issues have already been encountered. The failure to provide any detail about this in the AFR deprives investors of the necessary facts on which to take informed decisions and actions relating to Drax's BECCS plans.

33. In addition, CCS projects for coal have repeatedly disappointed. By way of example, the Boundary Dam 3 (BD3) coal plant in Saskatchewan, Canada, illustrates the shortcomings of CCS technology, with a CAD 1 billion investment capturing far less CO₂ than the 90% promised when the project was built. Given the underperformance of CCS with coal despite extensive resources and decades of effort, it is even more implausible to expect success with woody biomass, which presents greater technical and operational challenges.

34. The AFR also fails to mention the rising costs of Drax's BECCS project. This is plainly a factor that could affect the achievement of the project and therefore affect Drax's future development. Energy think-tank Ember has examined this in a report published in January 2024, and reported that:

*"If it were to go ahead, Drax's proposed BECCS project would be extremely costly ... Previously, Ember has estimated that Drax's proposed BECCS plant would cost the UK energy bill payer £31.7 billion across a 25 year contract, equal to around £1.3 billion each year. However, recent price increases in wood pellets (which are likely to persist for at least the next two to three years and potentially further into the future) and new forecasts of future wood prices elevates our estimate to £1.7 billion each year (a description of the methodology behind this calculation is included below). This doubling of the current subsidy would continue to be drawn from an additional cost on UK energy bills."*²²

35. These outstanding uncertainties, sustainability risks and rising costs clearly amount to "factors" that are likely to affect the company's future development, performance and the position of the company's business. Furthermore, there is nothing in the AFR to indicate the existence of a back-up plan for achieving the 2030 carbon negative ambition if BECCS fails to deliver as Drax intends. It is unclear whether there is such a back-up plan and Drax simply has not so stated in the AFR, or if in fact there is no alternative route to meeting this ambition. If no back-up plan exists, this is also a factor that is likely to affect the company's future development, performance and the business' position.

Conclusion and next steps:

36. The failure to provide any detail in the AFR about the remaining technological and deployment risks associated with large-scale BECCS, environmental and other risks, and the rising costs of BECCS, deprives investors of the necessary facts on which to take informed actions relating to Drax's BECCS plans. This lack of information clearly poses a risk to the company's future development, performance and position, contrary to s. 414C(7)(a) Companies Act 2006.
37. To rectify these deficiencies in line with s. 414C(7)(a) Companies Act 2006, Drax should ensure that the 2023 AFR, and future AFRs:
- Summarise the key information on the primary technological and/or deployment issues that relate to the BECCS-driven 2030 carbon negative ambition;
 - Summarise the key information on the environmental risks that are potentially associated with BECCS and how Drax intends to address these;

²² Ember, "Drax's BECCS project climbs in cost to the UK public" (January 2024), p.1. Available at: <https://ember-energy.org/app/uploads/2024/10/Draxs-BECCS-project-climbs-in-cost-to-the-UK-public.pdf>.

- Include at least some information regarding the current cost estimates of Drax's BECCS plans, including changes in those estimates;
- Explain how these issues could affect the company's ability to meet its stated carbon negativity goals;
- State whether there is an alternative plan to meet those goals, and if so, and what this is.

Ground 3

38. Under s. 414C(7)(b) of the Companies Act 2006, the strategic report of a quoted company must include information about environmental matters, including the impact of the company's business on the environment, including "*information about any policies of the company in relation to those matters and the effectiveness of those policies.*"
39. Drax's 2023 AFR has breached these requirements in that it makes no mention of the evidence that Drax continued to source logs from old growth forests in British Columbia throughout 2023, including from ancient forest with high biodiversity value, and from priority deferral areas that are meant to be protected.²³ This is a significant environmental impact from Drax's activities on which Drax was required to report.

AFR page references: 73

Rationale:

40. In the 2023 AFR, Drax claims that its biomass is "*sustainably sourced*". The opening statement on the "*Biomass Sourcing*" chapter on page 72 sets out the centrality of this sustainable sourcing to Drax's business model:

"Sustainably sourced biomass is central to realising our strategy and our climate positive, nature positive, and people positive outcomes."

41. Page 74 goes on to explain Drax's overall approach to its biomass sourcing:

"Our Responsible Sourcing Policy for biomass, available on the Drax website, sets out the criteria by which we acquire biomass, which is processed by Drax's Pellet Production Operations in North America and used to generate renewable power at Drax Power Station."

42. The Responsible Sourcing Policy contains a section on Drax's commitment to protect the natural environment. In relation to pellet sourcing, the first three of Drax's specific commitments to protect the environment are as follows:²⁴

- Avoid damage or disturbance to high carbon forest and soils;
- Avoid damage or negative impact to designated or known sensitive sites or high biodiversity areas.
- Avoid deforestation or degradation of the forest resource.

²³ Please see paragraphs 45-51 below.

²⁴ Drax Responsible Sourcing, A policy for biomass from sustainable forests, 2019, Chapter 5. Available at: <https://www.drax.com/sustainable-bioenergy/responsible-sourcing/#chapter-5>

43. Contrary to these assertions in the AFR and its supporting documents, there is considerable evidence that Drax sources wood for its pellet production from highly biodiverse forests in Canada. Canada is the second largest supplier of wood for Drax's pellets after the USA, as shown on page 72 of the AFR. The Canadian wood comes primarily from British Columbia (BC).
44. Drax is clearly obtaining wood from old growth and primary forests, as it directly admits as recently as April 2024 in a lobbying letter to Minister of Forests in BC.²⁵ The letter expresses concern that new EU legislation "*will likely result in a ban on sourcing and placing on the market of any material from old-growth and primary forest areas*" and that such a ban would hurt Drax's business. The letter was covered in a story by the Financial Times.²⁶
45. Furthermore, Canadian NGO Conservation North has investigated Drax's wood sourcing in BC over several years. In their most recent report on the subject, "*Logging What's Left*", published in February 2024,²⁷ they explain the importance of BC's remaining old growth forest:

"In BC, Old Growth is Primary forest that has reached an advanced age and consists of communities of plants, animals and other life forms that have lived together long enough to develop complex, interconnected relationships. Productive Old Growth forest with large trees covers only 3% of the province, and is now very limited because of a century of logging, mostly for sawlogs and pulp. In 2021, the government of BC convened a technical committee to identify and map Old Growth forest types, including the rarest Old Growth forest types that are at high and near-term risk of irreversible biodiversity loss if they are logged. These rare Old Growth forest types were recommended by the technical committee for short-term protection from logging and are referred to collectively as Priority Deferral Areas. The committee identified three categories of rare Old Growth with the highest risk of being logged over the short-term: Remnant Old Growth, Ancient Forest and Big-treed Old Growth."

46. A BBC Panorama documentary broadcast in October 2022 showed old-growth forests being logged and the tree trunks being transported by truck to one of Drax's pellet mills. In response to this documentary, Drax issued a denial statement, which included the following:

²⁵ See FOI Request - JED-2024-41201. Available at:

<https://www2.gov.bc.ca/enSearch/detail?id=7AFDBC16F15F42E289E9F7DDB0F80C40&recorduid=JED-2024-41201>

²⁶ Millard, R. (2025, January 22). Drax lobbied Canada for intervention on EU forest protection measures. Financial Times. Available at: <https://www.ft.com/content/37be1af0-373a-4cb6-921b-0e7db032a85b>

²⁷ Conservation North, "Logging What's Left", February 2024. Available at: <https://conservationnorth.org/wp-content/uploads/Drax-in-BC-report.pdf>

“As anyone in the BC [British Columbia] forestry industry knows, the forests there are not harvested for biomass, they are harvested for high value timber used in construction. 80% of the material used to make our pellets at Drax in Canada is sawmill residues – sawdust, wood chips and bark left over when the timber is processed. The rest is waste material collected from the forests which would otherwise be burned to reduce the risk of wildfires and disease. This is the material used by Drax to produce 12% of the UK’s renewable and secure electricity, playing a vital role in keeping the lights on for millions of homes and businesses.”

47. The 2023 AFR makes no reference to the Panorama documentary and the evidence contained within of clear and extensive environmental impacts of Drax’s activities.²⁸ Nor does it explain what, if any, action Drax has taken to address the logging practices shown in the documentary.
48. Throughout 2023, Conservation North carried out a detailed investigation to see if Drax had ceased sourcing from BC’s old growth forests following the Panorama documentary. Conservation North used data from the Government of British Columbia as to the volume and weight of all logs arriving at Drax’s Canadian pellet mills to identify each timber load that arrived in 2023 and the associated timber mark. It analysed this against government spatial data showing the timber mark of different cut forest blocks on public land.²⁹
49. In their report, Conservation North published data showing that *“a high volume of logs arriving at Drax’s BC pellet mills in 2023 were from Old Growth forest, including Priority Deferral Areas”*.³⁰ Given that old growth forests, in addition to being vital biodiversity reserves, also hold high carbon stocks having sequestered carbon over many decades, logging them for bioenergy is incompatible with Drax’s proclaimed commitment to use *“sustainably sourced biomass”* (which suggests a high degree of care for the environment) and is contrary to the express commitments in the Responsible Sourcing Policy.³¹
50. Furthermore, the Conservation North investigation found that about one-quarter of the woody material that goes into Drax’s pellet plants in BC comes directly from logging operations in the form of logs or wood chips. This amounted to around 430,000m³ of wood in 2023, with logs accounting for almost 60% of this volume. The rest is byproduct from nearby industries, such as sawdust from sawmills. This directly contradicts Drax’s Panorama denial statement which claims that 80% is sawmill residues and the remaining 20% is waste material collected from the forest. As the images in both the Conservation North report and the Panorama documentary clearly show, the wood coming out of BC’s forests and being transported to Drax’s pellet mills is tree trunks, not waste material.

²⁸ The Panorama documentary is available here: <https://vimeo.com/795555785/c6e9420ff6>

²⁹ Conservation North (fn 27). The full methodology used by Conservation North is explained on p. 2 of the report.

³⁰ *Ibid*, p. 2. Priority deferral areas are explained in the report as *“Old Growth forest types recommended by a technical committee appointed by the provincial government to be protected from logging as a matter of urgency.”*

³¹ 2023 AFR, p. 72.

51. The report also found that:

- Almost 60% of the loads of logs for which there is spatial data indicating geographical origin arrived with timber marks where 10% or more of the corresponding cut block area(s) were Old Growth forest;
- 42% originated from timber marks where more than half of the corresponding area was Old Growth forest; and
- 10% was from timber marks where more than 90% of the corresponding area was Old Growth forest.

52. The case studies in the report illustrate the point even further. In the case below, Drax sourced 46 loads of logs between February and March 2023, 20% of which was ancient forest that was more than 250 years old:³²

FX9020	
Loads of logs received by Drax: 46	Logged by: Canfor
Volume of wood received: 2,613m ³	Proportion Old Growth forest: 86%
Proportion of total cut block volume: 8%	Proportion Priority Deferral Area: 35%
Drax's Burns Lake mill received 46 loads of logs with the timber mark FX9020 in February and March 2023. Twenty percent of the total timber mark area corresponding to the entirety of one of the three cutblocks associated with the timber mark was Ancient Forest, more than 250 years old. A second cut block was entirely Big-treed Old Growth, estimated to be 149 years old, and a third cut block associated with the timber mark was mostly covered in 149-year-old Old Growth forest, around half of which remains and is currently being logged.	

Figure 3. Image from 6 page of the Conservation North “Logging What’s Left” report.

³² Conservation North, “Logging What’s Left” (fn 27), p. 5.



Figure 4. Top: Image of cut block FX9020 showing the logging of ancient forest from page 6 of the Conservation North “Logging What’s Left” report. Bottom: Map of cut block FX9020 from p. 6 of the same report showing in black outline priority deferral areas and areas of old growth logged to obtain wood for Drax’s pellet facilities.

53. The images above show high carbon, high biodiversity value forest that Drax has cut down for wood pellet production in clear breach of its Responsible Sourcing Policy, and with a clear environmental impact in degrading Canada’s forests. In view of the obvious environmental impact, this sourcing practice in 2023 should have been included in the 2023 AFR under the duty in s. 414C(7)(b).

54. Conservation North summarises its investigation as follows³³:

“Since BBC Panorama and CBC Fifth Estate exposed Drax’s logging of Primary forest in 2022, including Old Growth forest in a Priority Deferral Area, Drax’s sourcing policy appears to have shifted towards procuring all of its wood from other companies. However, as this investigation shows, this has done little to prevent trees from Old Growth forests from being fed into Drax’s BC mills. This investigation has uncovered clear evidence that throughout 2023 Drax regularly sourced whole trees from timber marks corresponding to cut blocks containing Old Growth forest, including Big-treed Old Growth and Ancient Forest within Priority Deferral Areas ... Both Drax and the logging companies it sources from are complicit in the destruction of globally-important Old Growth forest.”

55. A related point comes from a statement that Drax makes on p. 73 of the AFR in terms of the quality of the tree trunks it uses for wood pellets. It claims that:

“30% of the wood Drax used in 2023 was “low-grade roundwood”. Drax defines “low-grade roundwood” as “material which does not satisfy the quality standards set by the timber industry and is unsuitable for use in a sawmill”.

56. Contrary to this, the Conservation North report explains that the logs entering Drax’s pellet mills are graded as follows: Grades 1 & 2 (sawlog grade) = 2.9%, Grade 4 (pulp grade) = 85.7%, Grades 6 & Z (waste) = 11.5%. It goes on to state that:

“[i]t is assumed that only 11.5% of the logs are wood classed as having no use other than bioenergy, since Grade 4 logs can also be used by panelboard and pulp producers, and to produce products such as fence posts”.

57. The evidence above directly contradicts Drax’s claim in the AFR that the 30% of logs used to produce its pellets is *“material which does not satisfy the quality standards set by the timber industry and is unsuitable for use in a sawmill”*. This is a further example of Drax’s failure in the 2023 AFR to comply with the duty in s. 414C(7)(b): using good quality wood for wood pellets can drive increased logging, given that a higher volume of trees needs to be logged to meet the demands of both sawmills and pellet production. This is yet another environmental impact of Drax’s activities that is not mentioned in the 2023 AFR.

Conclusion and next steps:

58. Drax’s use of wood from old-growth forests and priority deferral areas is a significant impact of its activities on the environment. The absence of any information on this in the AFR is contrary to the clear requirements of s. 414C(7)(b) Companies Act 2006. The same is true of its use of good quality wood that is suitable for other purposes.

³³ *Ibid*, p. 11.

59. To rectify these deficiencies, Drax must ensure that the 2023 AFR, and future AFRs, provide complete and accurate information about its biomass sourcing that is rigorously verified against publicly available data from the Canadian and other national authorities to avoid any potential greenwashing. Drax should also voluntarily disclose sourcing data related to the private land that it sources from in Canada and elsewhere.

Ground 4

60. Drax's 2023 AFR has breached s. 414C(7)(b) Companies Act 2006 by portraying the company as having drastically reduced its carbon emissions since 2020. The AFR minimises Drax's true carbon emissions, and therefore its environmental impact, by presenting emissions reduction figures that exclude the sizeable biogenic emissions from Drax's biomass operations and failing to explain and/or qualify its reduction figures on this basis. The AFR also fails to explain that emissions of biogenic carbon warm the global climate just as effectively as fossil carbon, thus minimising the effect of its activities on the climate.³⁴

AFR page references: 50, 52, 53, 54, 55, 73.

Rationale:

61. As explained in ground 1 above, the AFR provides a partial and highly inaccurate quantification of Drax's annual carbon emissions by excluding Drax's biogenic emissions. Drax then uses this partial quantification of its annual carbon emissions to calculate emissions reductions on the same partial basis, whilst presenting those reductions as if they are based on the company's total direct emissions.
62. In the AFR, Drax reports its biogenic emissions as being 11,463 ktCO₂e (thousand tonnes of CO₂ equivalent) at p. 50 of the 2023 AFR. Including these in the summation of carbon emissions would give a total of 16,417 ktCO₂e. Yet the company does not mention biogenic CO₂ in its overview of its emissions on page 51 of the AFR. (Figure 5).

³⁴ Drax reports emissions from burning biomass as "biologically sequestered" CO₂. In 2020 the plant emitted 13,273 kt of biogenic CO₂ (Drax Annual Report 2020, https://www.drax.com/wp-content/uploads/2021/03/Drax_AR2020.pdf at p. 50) and generated 14.1 TWh of electricity from biomass (p. 22). Expressing these emissions as a rate per GWh of electricity generated from biomass, emissions can be seen to be 20% higher (at 941 tonnes per GWh in 2020) when electricity is generated from biomass than from when they were burning coal (784 tonnes of CO₂ per GWh in 2012, as reported at page 58 in the 2022 AFR https://www.drax.com/wp-content/uploads/2023/03/Drax_AR2022_single_pages.final_.pdf).

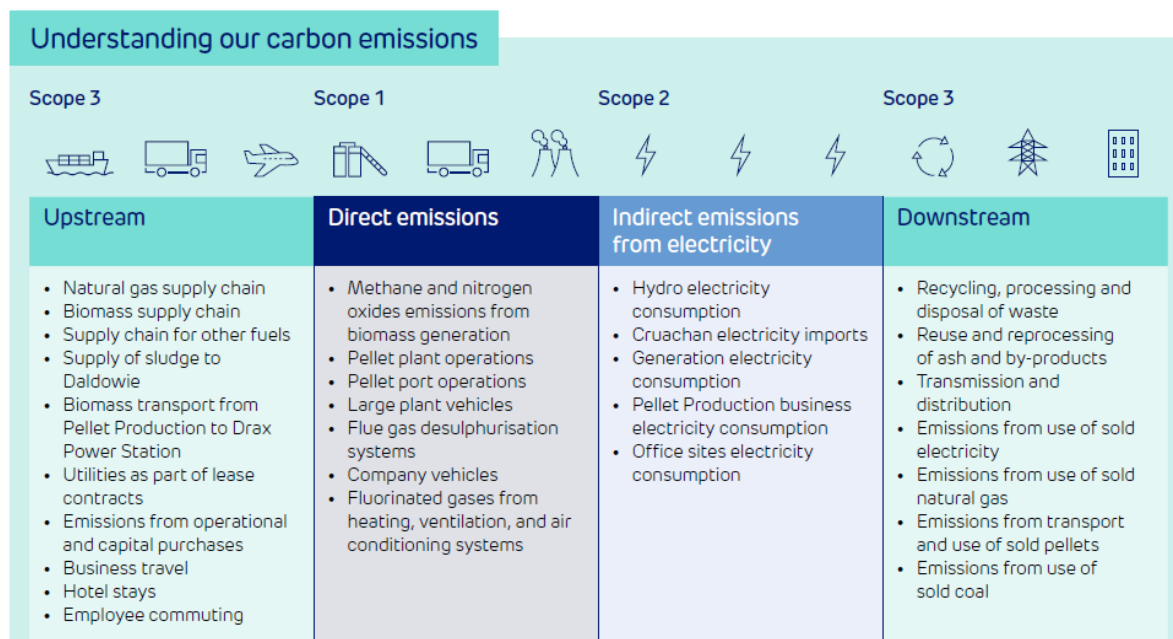


Figure 5. How Drax categorizes its emissions (Drax 2023 AFR p. 51)

63. Drax’s biogenic CO₂ emissions are not included in the table above, even though they are obviously “*direct emissions*” from Drax’s biomass generation and should be included therein.

64. The AFR further creates the misleading impression that biogenic carbon is emitted in a “*closed carbon cycle*” (page 73), thereby creating the false impression that emissions from logging are uniquely offset by ongoing forest growth. In reality, of course, when a tree is logged and burned, a new equivalent tree does not immediately spring up to take its place, so there is a net emission of CO₂ to the atmosphere. Drax further describes its biomass as “low carbon” referencing “lifecycle” emissions, but as shown by the quote from page 55 of the AFR below, it fails to explain that the lifecycle emissions in this case do not include the biogenic carbon emitted while making and burning the wood pellets:

“Biomass can only be considered a low carbon, renewable energy solution when certain evidence exists. The evidence must show that savings of greenhouse gas (GHG) emissions are delivered on a lifecycle basis, compared to alternatives such as fossil fuel generation. Therefore, we collect fuel and energy data for each step within the supply chain. This enables us to calculate lifecycle GHG emissions for our biomass and check we are compliant with relevant regulatory requirements.”³⁵

65. The above quote demonstrates that while Drax states that it calculates lifecycle GHG emissions for its biomass, it fails to calculate its CO₂ emissions reductions calculations on the same basis.

³⁵ Page 55, 2023 AFR.

66. By discounting its biogenic emissions, Drax minimises the environmental impact of its activities. This is shown as follows: It is stated on page 52 of the AFR that Drax has reduced its direct carbon emissions per GWh generation (“Scope 1”) by 89% since 2020. Whilst this is technically correct under the GHG reporting protocol since the company no longer emits Scope 1 emissions from coal, Drax’s direct emissions also include biogenic CO₂. While Drax does disclose its biogenic CO₂ emissions, the AFR does not make clear that these biogenic emissions are excluded from its direct emissions reduction equation. Nor does it make mention of the fact that these emissions have an adverse effect on the environment. There is no emissions reduction target in the AFR for Drax’s biogenic emissions – the only category of emissions without such a target. Taken together, these points mean that the message implicit in the AFR is that biogenic emissions are unimportant and of no consequence, when in fact, the biogenic carbon emitted by Drax’s direct operations warms the planet to the same extent as fossil-fuel derived carbon.
67. Consequently, the figures and graphs showing that direct emissions have been reduced suggest that Drax’s operations are doing far more to mitigate climate change than they actually are. The absence of explanation around the treatment of biogenic emissions in the 2023 AFR means the reader will be unaware that biogenic CO₂ is another, highly significant source of Drax’s direct carbon emissions, with a material bearing on the extent of Drax’s emissions reductions.
68. In summary, Drax’s claims of having reduced its emissions are misleading, insufficiently documented and lacking in transparency. As a result, the AFR minimises the impact of Drax’s activities on the environment. This is contrary to s. 414C(7)(b) Companies Act 2006.

Conclusion and next steps:

- In order to comply with s. 414C(7)(b), the 2023 AFR and all future AFRs must clearly disclose that Drax’s claims about having “reduced” its emissions are based on calculations that exclude its single largest source of direct emissions, biogenic carbon;
- Include, at a minimum, alternative emissions reduction calculations that include biogenic carbon emissions as another category of direct emissions, to provide investors with a complete and transparent picture of this critical environmental impact;
- Disclose what the emissions rate is when biogenic emissions are included and provide information on the amount of electricity generated each year, to enable checking of these calculations.

Ground 5

69. Drax has breached section 414C(7)(b) of the Companies Act 2006 insofar as its 2023 AFR fails to provide sufficient information about the extent to which Drax's pellet production operations violated environmental regulations and adversely impacted the environment.

AFR page references: 34, 45, 61.

Rationale:

70. The 2023 AFR provides an inadequate level of information regarding the significant environmental violations reported in relation to its pellet production in the US, and the air pollution impacts thereof. The references in the 2023 AFR are limited to the following:

- On page 61, the AFR briefly mentions that a group of residents of Gloster, Mississippi, local to Drax's Amite pellet plant *"have alleged that air quality has worsened in the area since the plant opened in 2016"*.
- On pages 45 and 61, there is reference to Drax receiving two notices of violation in 2023 and 2024 related to self-reported discrepancies of air pollutant calculation and deficiencies in visual inspections, as well as equipment testing.
- The AFR then provides some information regarding the actions Drax carried out to remedy the problems, namely installing *"new technologies"* to improve the environmental performance of the plant and engaging with local communities. Contrary to the specific requirement in s. 414C(7)(b), there is no evaluation of the effectiveness of these measures.

71. In addition, and contrary to the statutory requirement in s. 414C(7)(b), the 2023 AFR fails to address the true scale and gravity of Drax's environmental violations and their impact. Specifically, Drax's 2023 AFR breaches s. 414C(7)(b) for the following reasons:

- (i) According to a recent report carried out by *Land and Climate Review*,³⁶ in 2023, Drax committed over 600 documented environmental violations. Nearly 3,500 additional incidents in Drax's 2023 reporting are expected to be classified as regulatory violations once state authorities conclude their review thereof.
- (ii) The reported environmental violations committed by Drax in 2023 include numerous breaches across six Drax-owned pellet plants located in

³⁶ C. Corcoran, *"Drax-owned facilities broke environmental rules more than 11,000 times in the US"*, Land and Climate Review, November 2024, available at: <https://www.landclimate.org/drax-usa-11000/>

Mississippi, Alabama, Georgia, Illinois and Washington. There is no mention of this in the 2023 AFR.³⁷

- (iii) At the Amite pellet plant in Mississippi, environmental violations in 2023 were not limited to self-reported air pollutant calculation discrepancies as indicated in the AFR.³⁸ Drax was also found by the local authority to have exceeded permitted hazardous air pollutants limits and to have failed to conduct required emission performance tests multiple times.³⁹
- (iv) Numerous other violations occurred in 2023 which concerned the emanation of fugitive emissions, multiple excess releases of hazardous air pollutants, bypasses of critical emissions control technologies, improper documentation of operational activities and exceedances of the permitted range in respect to other parameters.
- (v) Whilst the AFR refers to technological improvements made to address the violations, there is no evaluation of their effectiveness, nor of the effectiveness of Drax's relevant policies.

72. As demonstrated, Drax's 2023 AFR omits critical details about environmental violations committed by the company during the year. Consequently, it deprives stakeholders of the ability to assess the full scale of Drax's environmental non-compliance and related impacts on the environment. Moreover, Drax fails to include information about the effectiveness of the policies it has in place to address and remedy environmental violations at its pellet plants, the consequent worsening of air quality, and the impact on local communities.

Conclusion and next steps:

73. Complying with the duty under s. 414C(7)(b) Companies Act 2006 requires Drax in its present and future AFRs to:

- Provide complete and accurate information about instances of environmental non-compliance related to its operations;
- Include information regarding the environmental harms resulting from its environmental violations;

³⁷ *Ibid.*

³⁸ 2023 AFR, pp. 34, 45, 61

³⁹ C. Corcoran (fn 36), Annex. Land and Climate Review's research publishes official documents issued by US state governments, which shows that Drax engaged in multiple breaches of air quality laws and other environmental regulations. The exact types of violations are enlisted in annex to the research and can be consulted together with copies of relevant official documents.

- Provide a comprehensive evaluation of the effectiveness of both the measures and policies put in place to address the violations and their impact on the environment.