#AXEDRAX FOR THE CLIMATE, FORESTS AND COMMUNITIES

biofuelwatch

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Since 2012, Drax Plc has morphed from a single-asset company, operating the UK's biggest coal power station to now operating the world's biggest wood-burning plant, as well as being the second biggest producer of wood pellets globally, supplying companies across Europe and East Asia. Drax power station, in Yorkshire, emits more CO_2 than any other facility in the UK.

In return for burning huge quantities of wood from forests that are logged in the Southeastern USA, Canada the Baltic States and elsewhere, Drax received almost £1 billion in subsidies during 2021, paid from a surcharge on UK electricity bills. Thanks to those generous subsidies, Drax made more than £100 million in profits and is increasing its dividends, i.e. pay-outs to shareholders. This comes at a time when the UK is facing the worst cost of living crisis in at least sixty years,[1] including record fuel bills.

Drax's biomass electricity counts towards the UK government's goal of de-carbonising electricity generation by 2035,[2] even though scientists around the world have warned that large-scale burning of forest wood for energy makes increases carbon emissions for decades if not centuries and is incompatible with the limiting global warming to 1.5 degrees.[3]

Finally, Drax's pellet sourcing and production is harming public health and worsening quality of life amongst local communities. In the Southeastern USA, pellet plants are predominantly located in communities with an above-average level of poverty, many of them African Americans.[4]

DRAX'S WOOD PELLET PRODUCTION AND BIOMASS ENERGY:

During 2021, Drax power station in Yorkshire burned 8.3 million tonnes of pellets[5] made from around 16.6 million tonnes of freshly cut ('green') wood. This was the equivalent of 155% of the UK's entire wood production, to meet just 0.85% of the country's recent final energy demand.[6]

60% of the pellets burned by Drax that year were imported from the Southeastern US, 22% from Canada and 11% from the Baltic States. The remainder came mostly Brazil, Portugal and Belarus. No UK wood was burned.

In addition to burning more wood than any other company globally, Drax has also become the world's second biggest pellet producer, following the takeover of Pinnacle Renewable Energy in April 2021. That takeover overnight more than doubled Drax's pellet production from 1.5 million to 3.1 million tonnes. It also turned Drax into an international wood pellet supplier to other energy companies in Europe (including Lynemouth Power in the UK, RWE and Uniper in the Netherlands and Engie in Belgium and East Asia.

According to its Annual Report, Drax aims to increase its pellet production to 8 million tonnes by 2030, of which 4 million tonnes would be sold to other companies, with the remainder burned for Drax's energy generation. This expansion is well underway: in April 2022, Drax opened a new pellet plant in Alabama, with two more under development in Arkansas.

All of Drax's existing and planned pellet plants are located in the Southeastern USA and in Canada (British Columbia and Alberta).

CLIMATE IMPACTS:

Burning wood – especially wood taken directly from the forest - for electricity is no less disastrous for the climate than burning coal.

Per unit of electricity, biomass emits no less CO_2 from smokestacks than burning coal does.[7] Drax reported in its 2021 Annual report that its wood burning in Yorkshire emitted 13.42 million tonnes of CO_2 into the atmosphere. This makes Drax power station the UK's single biggest source of carbon emissions.

Drax argues that almost all the emissions from biomass burning can be ignored (except for ones from burning fossil fuel in pellet plants, shipping, etc.). This flies in the face of science:

In February 2021, more than 500 scientists wrote to world leaders, highlighting the impacts of cutting down trees and burning the wood for energy: "*Regrowing trees and displacement of fossil fuels may eventually pay off this carbon debt, but regrowth takes time the world does not have to solve climate change. As numerous studies have shown, this burning of wood will increase warming for decades to centuries. That is true even when the wood replaces coal, oil or natural gas.*"[8] Drax's justification for claiming large greenhouse gas reductions for burning wood rather than fossil fuels relies on the fact that emissions from biomass burning "*are counted as zero in official reporting to both UK authorities and under the UK Emissions Trading...*T*his methodology originates from the United Nations Framework Convention on Climate Change*" (UNFCCC).[9] Yet, while UNFCCC accounting rules do state that such emissions are not counted towards those of a country's energy sector, the Intergovernmental Panel on Climate Change (IPCC) points out: "*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.*"[10] Drax is thus hiding its very real carbon emissions behind a carbon accounting technicality.

Image: Cut Carbon Not Forests

SOUTHEASTERN USA:

Drax currently operates five pellet mills in the Southeastern USA: one in Louisiana, one in Mississippi, and two in Alabama, with two smaller ones under development in Arkansas. The majority of the wood sourced by those pellet mills comes from monoculture pine plantations. Across the region, such plantations have been expanded at the expense of the rich forest ecosystems that are being clearcut. They are 'sterile' plantations with virtually no undergrowth, inhospitable to wildlife.

According to a study commissioned by the Southern Environmental Law Centre, burning pellets from Southeastern US pine plantations in the UK will be worse for the climate than the UK's average electricity for a period of at least 40 years.[11]

Image: Dogwood Alliance

As well as burning pellets produced at Drax's own mills, the company also sources from the world's largest pellet producer, Enviva. Enviva has come under heavy criticism from US environmental NGOs for regularly sourcing wood from clearcut coastal hardwood forests – many of them wetland forests called 'bottomland hardwoods' in the region. Those forests lie at the heart of a global biodiversity hotspot, home to a high number of animal and plant species found nowhere else in the world. Just 20% of the vast hardwood wetlands forests once found in the region remain, and only 10% are protected.[12]

Drax admits that most of its wood pellets from the region are made from whole trees, not residues, however, it describes those trees as 'low grade roundwood' and 'thinning's'. While monoculture tree plantations are indeed thinned prior to clearcutting after further growth, logging of hardwood forests in the Southeastern USA virtually always involves clearcutting. The terms 'low-grade', or 'low value' are routinely applied to any tree cut down and burned for energy, because the size or shape of the tree is unsuitable for local sawmill requirements, or simply because it is surplus to the demand from sawmills.[13]

CANADA:

In 2020, an investigation by the North American NGO Stand.earth[14] first showed that at least a proportion of pellets produced for export in British Columbia were being made from whole trees, and that some of them "are likely being made with wood from threatened species habitat", with the

growing wood pellet export market putting "additional strain on endangered species like woodland caribou."

In 2021, prior to Drax's takeover Pinnacle Renewable Energy (a former pellet supplier of Drax amongst others), Stand.earth published "Risk Maps" which showed that "Pinnacle's seven wood pellet facility 'haul zones' overlap with critical primary forests and threatened species habitat"[15]. They warned that "an area of nearly 845,000 hectares...of unprotected primary forests and threatened caribou (reindeer) habitat in British Columbia will be at greater risk of being turned into wood pellets if Drax solidifies its footprint in this region."

Image: Stand.earth

Now, in its 2021 Annual Report, Drax for the first time admits to sourcing wood from old growth forests for its own pellet production, not just in British Columbia but also in Alberta. It states: *"Our acquired pellet plants in British Columbia (BC) and Alberta, Canada, operate in regions that include old growth forests. Our approach continues to evolve as the provincial Government of BC embarks on a multi-year comprehensive review of old growth forests, including interim protections for some of these forests until the review is completed. We are supportive of the review process currently underway and we will follow the development of new policies related to old growth management closely, and ensure our procurement policies and procedures are aligned*". In short, Drax is saying that it will continue to turn wood from old growth forests into wood pellets as long as the provincial governments allow this to happen.

What Drax fails to disclose here is that it has been collaborating closely with decision makers in British Columbia. So much so, that, in April 2022 they hired Diane Nicholls, until then the Provinces' Chief Forester (employed by the Ministry of Forests, Lands and Natural Resource) to become their Vice President of Sustainability for North America[16]. Nicholls herself bears much of the responsibility for continuing to permit clearfelling including of oldgrowth forests. In 2017, she reported that an additional 2.4 million m^3 had been logged over five years in the Prince George area alone, but called this additional logging an "important tool" to secure the flow of wood to pellet mills.[17] Nicholls also permitted the continued aerial praying of biodiverse forests with herbicide in order to kill off deciduous trees and turn the forests into monocultures of lodgepole pine.[18] In short, Drax's new "sustainability" officer herself ensured that the company can source wood for pellets from oldgrowth forests.

BALTIC STATES:

In Estonia and Latvia, Drax buys pellets from Graanul Invest, Europe's largest pellet producer, which was taken over by Apollo Global Management Inc. in 2021. A 2020 report by Estonian Fund for Nature and Latvian Ornithological Society[19] illustrates how the growing demand for wood pellets for export has accelerated logging and is contributing to forest degradation and thereby a loss of carbon sequestration by forests. In Estonia, the amount of wood taken from forests rose threefold between 2009 to 2018, and in Latvia, more logging took place in 2019 than at any time since 2000.

Image: Save Estonia's Forests

In July 2021, a report by Centre for Research on Multinational Corporations, SOMO, commissioned by Greenpeace Neatherlands[20] highlighted "logging in high conservation value forest (HCVF) areas, logging in water sheds and logging in peatland forests." According to the authors: "*the type of harmful logging revealed in this report is also likely to be linked to Dutch wood pellets imports. This is because Graanul Invest is either involved in these controversial felling practices as a forest company or has been linked to them as a forest company client...The company does not have systems and procedures in place to prevent wood from other controversial logging sites being used to produce wood pellets*." Given that this report looked specifically at Graanul Invest, a pellet supplier to both Dutch power plants and to Drax, the same applies to Drax.

Estonia's and Latvia's forests are unique hotspots of biodiversity, and logging that is happening even in the few remaining oldgrowth forests is destroying vital habitat for rare and endangered species including the Flying squirrel, Capercaillie, Black stork and Hazel grouse. In Estonia, the number of forest birds is declining by 50,000 breeding pairs year on year.

PORTUGAL:

Drax has been increasing its wood pellet imports from Portugal in recent years. Those pellets are primarily made from pine. A 2021 report jointly published by the Portuguese NGO ZERO - Associação Sistema Terrestre Sustentável and Biofuelwatch[21] concluded: "*the vast majority of the feedstock is from primary sources, i.e. directly from forestry operations, with secondary sources such as industrial waste representing a much smaller share*." The report included three case studies of pellet mills, all of which "*are clearly using roundwood or sections of tree trunk as their main feedstock, which they are classifying as residues, 'low-grade roundwood' or even secondary materials.*" According to forestry industry association Centro PINUS pellet plants used nearly one quarter of pine roundwood in Portugal, and pine harvesting exceeded pine regrowth by 56.6%.[22]

IMPACTS ON COMMUNITIES LIVING AROUND PELLET PLANTS BELONGING TO OR SUPPLYING DRAX:

In 2018, an investigation by the Environmental Integrity Project[23] revealed that 7 out of 21 pellet plants in the Southeastern USA had violated their air permit during the previous year by emitting unlawful amounts of pollutants. A further four held permits that failed to comply with the federal Clean Air Act. Of the 15 largest pellet plants, at least eight had suffered fires and explosions between 2014 and 2018, releasing large amounts of air pollutants and/or injuring workers.

In 2021, the regulatory authorities in Mississippi fined Drax $2.5 million for exceeding emission limits for Volatile Organic Compounds (VOCs) over a period of several years. This was the highest fine ever levied against any wood pellet producer in the Southeastern USA.[24] VOCs are precursors to ground level ozone, which is linked to respiratory illness.

Also in 2021, two fines were levied against a Drax pellet plant in Aliceville, Alabama, according to the company's Annual Report.

DRAX PROSECUTED OVER ALLEGED HEALTH AND SAFETY BREACHES IN THE UK:

The UK's Health and Safety Executive (HSE) has charged Drax with two offences: risking workers' health, safety and welfare through exposure to wood dust, and reaching risk assessment obligations before letting employees work with potentially hazardous substances.[25] According to the HSE, health and safety breaches occurred over a period of a more than a decade. Drax has pleaded not guilty and the full trial has been scheduled for summer 2023.[26]

<u>DRAX'S SUBSIDIES</u>

During 2020, Drax received £982.5 million, i.e., just under £1 billion in renewable electricity subsidies[27]. More than 99% of those were for burning

wood pellets in its Yorkshire power station, with the remainder for Scottish hydro power acquired from Scottish Power in 2019.[28] This translates into subsidies for £2.68m for every day for Drax burning wood. Those subsidies are financed through a surcharge on electricity bills. They significantly exceed Drax's gross profits, which means that the company couldn't keep operating the power station without them.

DRAX'S "BECCS" (BIOENERGY WITH CARBON CAPTURE AND STORAGE) PROJECT AND CLAIMS:

Drax's current biomass subsidies are due to end in 2027. Without a new subsidies award, it is difficult to see how Drax power station could continue to operate. Drax hopes to succeed in getting such subsidies by re-framing its UK strategy in order to fit within the government's 2021 Net Zero Strategy.[29] That strategy includes a highly ambitious target for "greenhouse gas removals", with BECCS as one of the technologies supported. Drax is in the process of applying for planning consent for installing carbon capture equipment for two of its biomass units, while National Grid has included a pipeline extension to Drax in its larger CO_2 pipeline planning proposal.[30] Drax claims it is "*set to capture and permanently lock away at least eight million tonnes of CO_2 a year...by 2030*", with large-scale carbon capture starting from 2027.[31]

However, the company has a serious problem with this: Capturing carbon from biomass combustion is not a technology that has been proven at scale anywhere in the world. New technologies, particularly complex ones, go through nine stages of 'technology readiness', with "full commercial application" being the last one.[32] The technology Drax wants to use is at best at Level 5 of that curve (large scale prototype), the company seeks to bypass the next three stages entirely, and achieve large-scale commercial use by 2027. There is no precedent for this from any other technology developments.

Indeed, in response to questions by Biofuelwatch in March and November 2021[33], Drax admitted that:

- The carbon capture technology developed by C-Capture, used in Drax's first BECCS pilot project starting in 2018, is not a proven technology.
- It has no data about the amount of energy required for carbon capture using the technology chosen, developed by Mitsubishi Heavy Industries (MHI).
- It has no data on the reliability of the MHI technology.
- It has not achieved continuous operation of carbon capture.
- So far, all captured CO2 has been released into the atmosphere.

Staking investments of hundreds of millions of pounds and the viability of Drax power station on future subsidies that are contingent on large-scale carbon capture would clearly make no economic sense for the company.

Not surprisingly, therefore, Drax is asking for two different subsidies:

1) ongoing renewable energy subsidies per unit of biomass electricity generated, via a further Contract for Difference (effectively more of what the company is getting today);
2) additional subsidies for 'negative emissions' for any tonne of CO2 actually captured for carbon sequestration or commercial use.[34]

It is hard to avoid the conclusion that Drax is merely using "BECCS" as a means to continue getting vast sums of renewable energy subsidies for continuing with "business as usual", i.e. for burning millions of tonnes of wood pellets as it is today. However, even if capturing carbon from a plant such as Drax's was to one day become possible, it would still result in further forest degradation, harming biodiversity and climate change

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