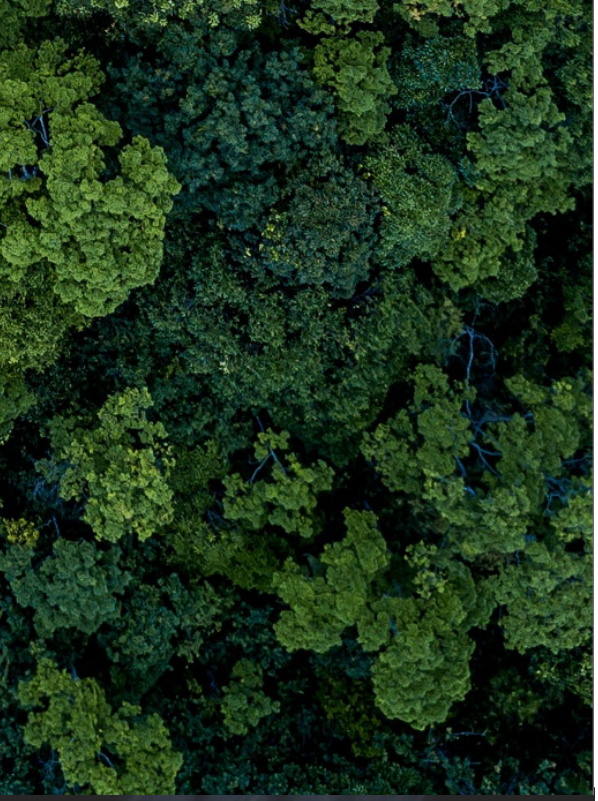


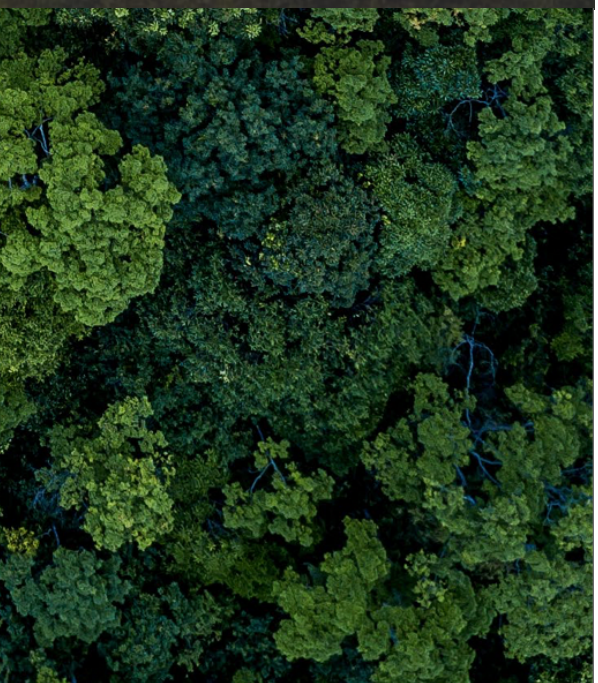

Although Drax Power Station is phasing out coal burning, it is still the single greatest emitter of carbon dioxide in the UK, burning more wood than any other plant in the world.

In return for trashing forests and fuelling climate change, Drax is receiving massive subsidies, when it should have been closed down years ago. In 2020, Drax cashed in on £2.27 million in subsidies for burning biomass every single day. Meanwhile, subsidies for genuinely renewable and low carbon onshore wind and solar power have been slashed across the UK.

Drax's biomass electricity counts towards the UK's legal target of producing 15% of all our energy from renewables in 2020. Yet in 2019, Drax burned the equivalent of 127% of the UK's entire annual wood production, to meet only 0.81% of the country's total final energy demand.1 For forests, communities, and the climate, it's time to #AxeDrax!





## DRAX'S BIOMASS CONVERSION AND IMPACTS

The power station consists of six units. Four of those have been converted to only burn wood pellets – three of them round the clock, with the fourth operating 'on standby', mainly when one of the others is shut down for maintenance.

Since 2015, Drax has been burning more wood than the UK produces every year. In 2020, Drax burned 7.37 million tonnes of pellets made from at least 14 million tonnes of green wood.2  By comparison, the UK's total annual wood production in 2019 was just 11.1 million tonnes.3



**CLIMATE IMPACTS:**

Burning wood for electricity is no less disastrous for the climate than burning coal.

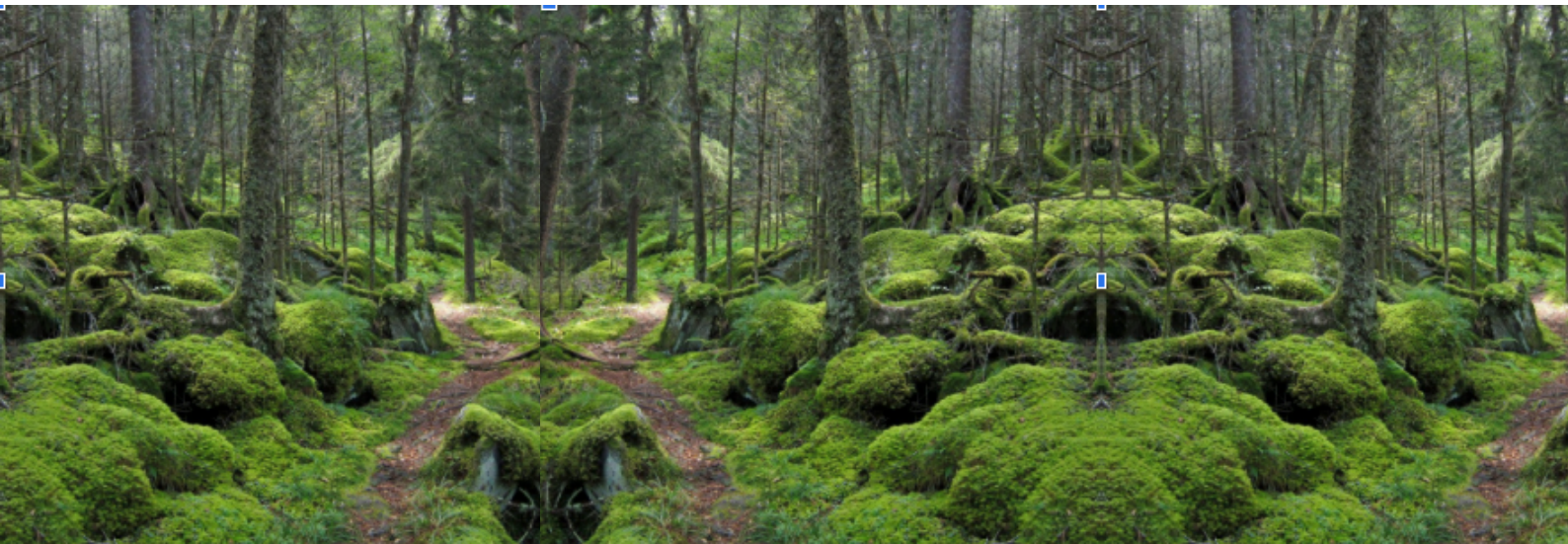
Per unit of electricity, biomass emits more CO2 from smokestacks than burning coal does.4 Biomass supporters claim that this CO2 should be ignored because it will be absorbed by newly planted trees. In 2020, Drax reported that its biomass burning released over 13 million tonnes of CO2 into the atmosphere, in addition to 2.67 million tonnes from fossil fuels. However, Drax argues that almost all of 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 January 2018, a letter by 800 scientists was sent to the European Union, warning: “Even if forests are allowed to regrow, using wood deliberately harvested for burning will increase carbon in the atmosphere and warming for decades to centuries as many studies have shown even when wood replaces coal, oil or natural gas. The reasons are fundamental and occur regardless of whether forest management is ‘sustainable’.”




## DRAX'S PELLET SOURCING:

In 2020, 63% of the pellets burned by Drax were imported from the southeastern US. In addition to those 4.68 million tonnes, Drax also burned 1.23 million tonnes from Canada and 836,542 tonnes from the Baltic States, as well as smaller quantities from Portugal, Brazil, Belarus and Russia.



**WOOD PELLETS FROM CLEARCUT COASTAL HARDWOOD FORESTS AND MONOCULTURE PINE PLANTATIONS IN THE SOUTHERN US:**

Drax now owns three pellet mills in the Southeastern USA: two in Louisiana and one in Mississippi. The 1.4 million tonnes produced at those mills in 2019 are believed to be sourced mainly from monoculture pine plantation. 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 Center, burning pellets from SE 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.

Wood pellet production causes increased air pollution, wood dust, heavy traffic and noise. Because of where the pellet mills and export facilities are sited, the industry disproportionately affects communities of colour and lower income communities – who are often already exposed to other forms of industrial pollution and social exclusion. In February 2021, Drax was fined a record $2.5 million for serious and persistent breaches of its air quality permit at its Amite pellet plant in Mississippi.

Drax's single biggest external pellet supplier is the USA's – and the world's – biggest 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 swamp or wetland forests – as well as contributing to environmental injustice by siting its pellet facilities in places already exposed to high levels of industrial pollution and social deprivation.

See here for a documentation of evidence about Enviva by three US conservation NGOs, which shows how Enviva pellet mills are sourcing wood directly from clearcut wetland forests.



Clearcut to supply Enviva Pellets. Photo: Southern Enviormental Law Center

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.



Loblolly pine plantation in the Southern USA, Photo: Dogwood Alliance

Drax admits that most of its wood pellets from the region are made from whole trees, not residues. It claims that most of those pellets come from ‘low grade roundwood’ and ‘thinnings’. This is partly true for pellets made from pine plane plantation wood – but logging of hardwood forests virtually always involves clearcutting. And forestry companies routinely classify the majority of trees as ‘low-grade’ simply because they are not of exactly the right size and straightness for sawmills.

## WOOD PELLETS FROM OTHER REGIONS – BRITISH COLUMBIA AND BALTIC STATES:

In *British Columbia*, where most of Canada's pellet plant capacity is located, ancient forests are being logged on a vast scale. Insect infestations – which are natural in such forests, if exacerbated by climate change – are being used as one excuse to clearcut large tracts of forests which would otherwise recover and continue to provide habitat for wildlife as well as sequestering carbon. Wildfires are escalating because of a combination of climate change and destructive logging. Timber companies then go in to 'salvage log', i.e. clear out all remaining wood. This has been shown to deprive soils of nutrients and prevent the forest regeneration that would naturally happen.

The provincial government continues handing out logging permits in intact oldgrowth forests. According to research by the Canadian conservation NGO Wilderness Committee in 2019, the British Columbian government had granted 314 new licenses, extending over 16,000 hectares, located in southern mountain caribou habitat, in just five months. Oldgrowth forest logging is continuing apace across the region.



Wood pile remaining next to Meadowbank pellet plant during maintenance operations, Photo: Mary Booth, Partnership for Policy Integrity



Logging site near Pinnacle Pellets' Meadowbank plant, British Columbia, Photo: Mary Booth, Partnership for Policy Integrity



In 2021 Drax shareholders voted to acquire Canadian Pinnacle Pellets, the world's third largest wood pellet company with most of its operations based in British Colombia. Pinnacle uses whole trees as well as so-called 'residues', thus boosting timber companies' profits from ancient forest logging and legitimising clearfelling. Investigations by Stand.earth show that most of Pinnacle's Pinnacle's seven wood pellet facility "haul zones" in British Columbia overlap with vital primary forests and habitat of threatened species including caribou. In 2020, investigations by Stand.earth and Conservation North revealed that roundwood from mature trees is being sourced by Pinnacle Pellets.

British Columbia has already seen the great majority of its primary and old growth forests logged, and very few of its remaining primary forests and sensitive forest habitats are legally protected. The growing wood pellet industry for export, including to the UK, poses a serious threat to those forests.

One of the five biggest timber companies responsible for large-scale clearcutting is Tolko Industries. Tolko works in close partnership with Pinnacle Pellets, with joint investments in pellet facilities and co-location of sawmills with pellet plants.

The UK is Canada's largest market for wood pellets, taking around 1,578,000 metric tonnes annually. About a third of the pellet industry is in the boreal forest, the world's largest intact forest, which is an essential carbon sink and critical habitat for caribou and other species. Furthermore, all logging in Canada takes place on Indigenous land. According to Stand.earth:

"Important legal precedents outline inherent Indigenous rights and title, but colonial governments have largely left these issues unresolved, and are continuing to expedite resource extraction projects."

Forestry is struggling economically in British Colombia, and the provincial government is currently leaning on pellet exports to keep the industry going. As sawmills close, pellet mills lose their key source of fibre and will rely increasingly on whole tree inputs. Stand.earth's report confirms that Pinnacle Pellets routinely uses whole trees.



In the Baltic States, Drax buys pellets from Graanul Invest, Europe's largest and the world's second largest pellet producer. Graanul Invest is an Estonian company with pellet mills in Latvia, Estonia and Lithuania. A report by Estonian Fund for Nature and Latvian Ornithological Society shows that the demand for wood in Estonia and Latvia has been rising steeply, resulting in significantly more trees being cut down. In Estonia, the amount of wood taken from forests rose three times from 2009 to 2018, and in Latvia, more logging took place in 2019 than at any time since 2000. 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.





*"Regrowth" after clearcutting near Ebavere plant, Photo: Biofuelwatch*

Between 2001 and 2015, Estonia lost 205,000 hectares of tree cover. The Nature Conservation Commission of the Estonian Academy of Sciences has warned: “Today’s forest management as a whole is unsustainable in its present trend, does not guarantee biodiversity conservation, takes little account of ecosystem services and therefore needs to change.”5 Yet the government wants to see annual logging rates increased further still. These forests also have social and cultural importance, having served as a haven for pagans and political renegades throughout repeated invasions of Christianity and Soviet communism. The UK (primarily Drax) is the largest importer of Estonian wood pellets, followed by the Netherlands and Denmark.

In June 2020, the daily Telegraph reported that Drax is also sourcing wood pellets from the Arkhangelsk region in Russia, where the climatic conditions mean trees grow slowly and could take up to 150 years to grow back. 7,300 tonnes of pellets were supplied to Drax in 2019 by a company called ULK. Shockingly, logging such ancient forests in Russia is certified by the Forestry Stewardship Council as well as the Sustainable Biomass Program (on whose board Drax CEO Will Gardiner sits alongside representatives from Enviva and Pinnacle Pellets).



*Logging close to Graanul Invest’s Ebavere pellet plant, Estonia, Photo: Biofuelwatch*




## DRAX'S SUBSIDIES

During 2020, Drax 'earned' £831.8 million in renewable electricity subsidies.6 That's £2.27 million every day. Renewable electricity subsidies are financed through a surcharge on electricity bills. Drax receives two different types of those subsidies: Renewable Obligation Certificates (ROCs) and one Contract for Difference (CfD), with ROCs making up the larger part of what the company is receiving. Together Drax's biomass subsidies exceed its gross profits, which means that the company couldn't keep operating the power station without them.

Redirecting the huge amount of biomass subsidies which Drax receives could create a windfall for genuinely low-carbon renewable energy and make an important contribution to reducing the UK's greenhouse gas emissions. Sadly, Government policy in recent years has seen subsidies for onshore wind and solar power as well as for energy efficiency and conservation slashed





## DRAX'S CLAIMS ABOUT "GOING CARBON NEGATIVE"

At the UN Climate Conference in Madrid in 2019, Drax announced its ambition to become the world's first carbon-negative company by 2030. It would do so by capturing up to 16 million tonnes of CO2 a year from its biomass units, which is more than those units emit in total right now. This process is called Bioenergy with Carbon Capture and Storage (BECCS). Drax added that this would require the right "policy and investment framework" – presumably more direct or indirect subsidies.

In 2018, Drax partnered with a small start-up company called C-Capture to trial capturing one tonne of CO2 a day from biomass burning. The plan was to sell that small amount of CO2 to pubs in order to "keep fizz" in beer – hardly a form of 'storage'. In 2019, Government granted C-Capture £5 million to extend this trial to capturing 100 tonnes/day. So far, C-Capture and Drax are still trying to capture just one tonne daily, all of which is being released again right away. The Government has granted another £500,000 to a different startup (Fuel Cell Energy) for a "study to assess the feasibility of building a second carbon capture pilot at Drax Power Station", with the aim of supplying CO2 to greenhouses (again, not actually storing any). However, this study does not even involve trying to capture any carbon dioxide at all.





Finally, Drax has partnered with the Norwegian energy company Equinor (formerly Statoil) and National Grid Ventures to try and attract government funding for a "Zero Carbon Humber" Hub to develop hydrogen production as well as storage of captured carbon dioxide.

However, there are reasons to doubt that Drax has any viable plans to capture carbon from biomass burning: neither C-Capture nor Fuel Cell Energy have any prior experience in carbon capture. C-Capture is trialling a novel type of solvent, instead of ones widely used and tested. Experts in carbon capture, based in Norway, are due to test this solvent later this year – so far it has not been externally validated. A recent peer-reviewed article by researchers linked to C-Capture states that the new solvent is capable of capturing CO2 particularly if used in conjunction with different chemical – amines – which the company has made clear is not what they are doing at Drax power station. It further concludes that: "performance in an industrial-scale capture system is uncertain and will be the subject of future studies." Clearly, this technology is a very long way off being scalable.

This raises the question whether Drax might be using the discourse about BECCS to attract long-term biomass subsidies (beyond 2027 when the current ones run out) on the pretext that their power station is 'capture ready'. This is, for example, how Scottish Power retained Scottish Government support for its Longannet coal power station for many years, until forced to close it for economic reasons. It is how several energy companies pushed plans for new coal power stations several years ago, plans which were successfully stopped by climate campaigners in the UK but were sadly successful in the Netherlands. There, at least one new coal power station was approved explicitly with the promise that carbon capture would be trialled and could be retrofitted to the whole plants. It has never captured a gram of CO2.

1. Total UK wood production in 2020 was 10.8 million tonnes: https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/ At a 2:1 tonnes conversion, Drax burned equivalent of 14.74 million tonnes of green wood (very conservative figure!). It generated 13.4 TWh of electricity from burning wood in 2019: drax.com/wp-content/uploads/2020/03/Drax_AR2019_Web.pdf. The UK's final energy demand that year was 142.7 million toe, which is 1,659.6 TWh (gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes).
2. Figures from Drax's annual report.
3. See here for info on UK timber.
4. For more info on biomass and CO2 emissions, see our biomass basics page or this list of scientific studies, or check out PFPI's webpage on biomass and the climate.
5. The figure is based on sattelite data from the University of Maryland. Tree cover loss includes trees lost through clearfelling. See here.
6. As shown in Drax's Annual Report, those biomass subsidies are made up of £489.5 million Renewable Obligation Certificates 'earned' in 2020, plus £342.3 million from the Contract for Differencefor one of the biomass units.

