



#AXEDRAX FOR THE CLIMATE, FORESTS, AND COMMUNITIES!

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Drax Power Station. Photo Greenpeace

Drax's portfolio covers three types of dirty energy: Biomass, coal and gas.

Drax Power Station is the UK's single greatest emitter of carbon dioxide, and the world's largest wood burner. While Drax is phasing out coal burning, it wants to regain its status as the UK's biggest fossil fuel burner by planning to build the UK's largest ever gas power capacity.

Through acquisitions, the company currently owns four existing gas power stations with a total capacity of 2 gigawatts. It holds planning consents for four more. The giant gas power capacity at its main Yorkshire site was approved by the Government in October 2019. The environmental law organisation ClientEarth is challenging this decision in the Court of Appeal.

In return for trashing forests and fuelling climate change, Drax is receiving massive subsidies. In 2019, Drax cashed in on £2.36 million in subsidies every single day, of which £2.61 million were renewable energy subsidies for burning wood, and the remainder for burning coal. 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 much more than the UK's entire annual wood production, to meet only 0.81% of the country's total final energy demand.¹ In an attempt to secure further public money when its current subsidies run out in 2027, Drax is now trying to promote itself as "carbon negative" through its forays into bioenergy with carbon capture and storage (BECCS), a dangerous false solution to the climate crisis.

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 2019, Drax burned 7.05 million tonnes of pellets made from at least 14.1 million tonnes of green wood.² By comparison, the UK’s total annual wood production was just 11.6 million tonnes.³

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. Biomass supporters claim that this CO₂ should be ignored because it will be absorbed by newly

planted trees. In 2019, Drax reported that its biomass power station units released 12.8 million tonnes of CO₂ into the atmosphere (in addition to 2.05 million tonnes from coal). 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’.”⁴



Wood pellets being taken from Peel Port, Liverpool, to Drax. Photo Katy Brown.

DRAX'S PELLET SOURCING

In 2019, 65% of the pellets burned by Drax were imported from the Southeastern US. In addition to those 4.6 million tonnes, Drax also burned 1.1 million tonnes from Canada and 773,811 tonnes from the Baltic States, as well as smaller quantities from Portugal, Russia and Brazil.

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.⁵

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.

Three US conservation NGOs have documented evidence about Enviva's practices, showing how Enviva pellet mills are sourcing wood directly from clearcut wetland forests.⁶

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.⁷ Just 20% of the vast hardwood wetlands forests once found in the region remain, and only 10% are protected.⁸



Clearcut, North Carolina. Photo Southern Environmental Law Centre.

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 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 pellets plant capacity is located,⁹ 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.¹⁰

The provincial government continues handing out logging permits in intact oldgrowth forests. According to research by the Canadian NGO Wilderness Committee in 2019, the British



Logs being taken to an Enviva pellet mill, North Carolina. Photo Dogwood Alliance.



Logging site near Pinnacle Pellets's Meadowbank pellet mill in British Columbia. Photo Mary Booth.



Log pile near Pinnacle Pellets's Meadowbank pellet mill in British Columbia. Photo Mary Booth.

Columbian government had granted 314 new licenses, extending over 16,000 hectares, located in southern mountain caribou habitat, in just five months. Oldgrowth forests logging is continuing apace across the region.¹¹

One of the five biggest timber companies responsible for large-scale clearcutting is Tolko Industries. Tolko works in close partnership with Pinnacle Pellets, one of Drax's main suppliers, with joint investments in pellet facilities and co-location of sawmills with pellet plants. Pinnacle uses whole trees as well as so-called 'residues', thus boosting timber companies' profits from ancient forest logging.

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 report¹² 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.

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.*"¹³ Yet the government wants to see annual logging rates increased further still.

In June 2020, the *Daily Telegraph* reported¹⁴ 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 Council¹⁵ as well as the Sustainable Biomass Program (on whose board Drax CEO Will Gardiner sits alongside representatives from Enviva and Pinnacle Pellets).¹⁶

Clearcut on the E263 road between Imavere and Kaesukonna in Jarva County, Estonia.



DRAX'S SUBSIDIES

During 2019, Drax 'earned' £789.5 million in renewable electricity subsidies. That's £2.1 million every day.¹⁷ 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.

On top of all of this, also in 2019, Drax received a one-off £72 million in subsidies for burning coal, via the Capacity Market scheme.

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 GAS INVESTMENTS AND PLANS

Following its takeover of Scottish Power assets at the start of 2019, Drax owns four gas power stations with a combined capacity of more than 2 gigawatts (Damhead Creek, Rye House, Shoreham, Blackburn). It also holds planning consents for four new gas power plants: Hirwaun Power Station near Merthyr Tydfil, Progress Power Station in Mid Suffolk, and Abergelli Power Station, north of Swansea, and Millbrook Power Station in Bedfordshire. Unlike the existing ones, those four, if built, would be operated during peak demand only, and, altogether, will be equivalent to one 224-Megawatt power plant operating all year round.

Most alarmingly, in October 2019, the Secretary of State granted Drax planning consent for replacing its coal power units (to be mothballed by 2022) with a massive 3.6-Gigawatt new gas



Demonstration outside Drax's AGM, 2019.

capacity, far larger than any gas power plant ever built in this country, and three times the size of the coal units being replaced. It would be 2.7 times bigger than the UK's largest gas power station today, West Burton.¹⁸

89 environmental organisations, 75 of them from the UK, have signed an Open Letter against those plans,¹⁹ and over 95,000 people have signed a similar petition.²⁰ The Government approved the application despite the Planning Inspector (who had overseen a Public Inquiry) having recommended against it. The environmental law organisation ClientEarth has lodged a Judicial Review challenge of this decision, which will be decided by the Court of Appeal;²¹ however, Drax will need to attract investment and significant new subsidies in order for the project to go ahead.



Power Beyond Borders anti-gas power demonstration, 2019. Photo Diane More

DRAX'S CLAIMS ABOUT "GOING CARBON NEGATIVE"

At last year's UN Climate Conference in Madrid, Drax announced its ambition to become the world's first carbon-negative company by 2030.²² 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.²³ The plan was to sell that small amount of CO₂ to pubs in order to 'keep fizz' in beer – hardly a form of 'storage'.²⁴ 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 against right away.²⁵ 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).²⁶ However, this study does not even involve trying to capture any carbon dioxide at all. Finally, Drax is letting Mitsubishi test different carbon capture equipment on some of the flue gases from a biomass unit. Mitsubishi is trying to capture just 300kg of CO₂ per day, all of which will, again, be released straight into the atmosphere.²⁷

In order to attract more government grants, Drax has partnered with a consortium of companies including the Norwegian energy company Equinor (formerly Statoil) and National Grid for a "Zero Carbon Humber" Hub to develop hydrogen production as well as storage of captured carbon dioxide.²⁸

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.²⁹ A recent peer-reviewed article by researchers linked to C-Capture³⁰ 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.³¹ 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. No information about the very small trial by Mitsubishi has been published, but Mitsubishi has its own carbon capture plans elsewhere, and any tests on Drax’s flue gases may well be focussed on those future applications outside the UK.³²

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 its power station is ‘capture ready’. This is, for example, how Scottish Power retained government support for its Longannet coal power station for many years, until forced to close it for economic reasons.³³ It is how several energy companies pushed plans for new coal power stations several years ago - plans which were successfully stopped by 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.³⁴ It has never captured a gram of CO₂.

HOW WE CAN #AXEDRAX AND HOW YOU CAN HELP

Drax’s 2019 Annual Report confirms that the company’s survival depends heavily on long-term subsidies for biomass, and on the company’s ability to combine a large biomass with a large fossil fuel portfolio.

We need your help to stop this!

- If you are UK constituent, go to the Cut Carbon Not Forests website for a message to send to you MP calling for the subsidies Drax relies on to be redirected to cleaner and lower carbon renewable energy.
- If you are part of an activist group, community group, public health group, trade union or NGO, please ask them to sign an Open Letter calling for subsidies for biomass electricity (on which Drax depends) to be redirected to genuinely low-carbon, clean renewable energy.
- Sign up to our announcement list to find out about future protests and e-alerts against Drax’s biomass subsidies and activities.



- Contact us on biofuelwatch@gmail.com to find out how else you can get involved in building the campaign to #AxeDrax.
- Share resources from our website among your networks.

REFERENCES

1. Total UK wood production in 2019 was 11.1 million tonnes (<https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/>). At a 2:1 tonne conversion, Drax burned equivalent of 14.1 million tonnes of green wood. It generated 13.4 TWh of electricity from burning wood in 2019 ([drax.com/wp-content/uploads/2020/03/Drax_AR2019_Web.pdf](https://www.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](https://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes))
2. [drax.com/wp-content/uploads/2020/03/Drax_AR2019_Web.pdf](https://www.drax.com/wp-content/uploads/2020/03/Drax_AR2019_Web.pdf)
3. [forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2019/uk-grown-timber/](https://www.forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2019/uk-grown-timber/)
4. [dropbox.com/s/l8sx5bl0h02x395/UPDATE%20800%20signatures_Scientist%20Letter%20on%20EU%20Forest%20Biomass.pdf?dl=0](https://www.dropbox.com/s/l8sx5bl0h02x395/UPDATE%20800%20signatures_Scientist%20Letter%20on%20EU%20Forest%20Biomass.pdf?dl=0)
5. [southernenvironment.org/uploads/publications/Biomass_Factsheet_0719_F_Pgs.pdf](https://www.southernenvironment.org/uploads/publications/Biomass_Factsheet_0719_F_Pgs.pdf)
6. [dogwoodalliance.org/wp-content/uploads/2019/07/Biomass-Investigation-Booklet-2019.pdf](https://www.dogwoodalliance.org/wp-content/uploads/2019/07/Biomass-Investigation-Booklet-2019.pdf)
7. [cepf.net/stories/announcing-worlds-36th-biodiversity-hotspot-north-american-coastal-plain](https://www.cepf.net/stories/announcing-worlds-36th-biodiversity-hotspot-north-american-coastal-plain)
8. [nrdc.org/sites/default/files/southeast-biomass-exports-FS.pdf](https://www.nrdc.org/sites/default/files/southeast-biomass-exports-FS.pdf), <https://www.biofuelwatch.org.uk/2018/pellets-introduction/>
9. [biomassmagazine.com/plants/listplants/pellet/Canada/](https://www.biomassmagazine.com/plants/listplants/pellet/Canada/)
10. [ubyssey.ca/science/wildfire-recovery-replanting-trees-versus-allowing-vegetation-to-re-grow/](https://www.ubyssey.ca/science/wildfire-recovery-replanting-trees-versus-allowing-vegetation-to-re-grow/)
11. [ancientforestalliance.org/international-day-of-forests-2019/](https://www.ancientforestalliance.org/international-day-of-forests-2019/) and [ancientforestalliance.org/recent-news/](https://www.ancientforestalliance.org/recent-news/)
12. <https://elfond.ee/biomassreport>
13. The figure is based on satellite data from the University of Maryland. Tree cover loss includes trees lost through clearfelling. See: [globalforestwatch.org/map/8/58.41/25.30/ALL/grayscale/loss,forestgain?tab=analysis-tab&begin=2001-01-01&end=2017-01-01&threshold=30&dont_analyze=true](https://www.globalforestwatch.org/map/8/58.41/25.30/ALL/grayscale/loss,forestgain?tab=analysis-tab&begin=2001-01-01&end=2017-01-01&threshold=30&dont_analyze=true)
14. <https://www.telegraph.co.uk/news/2020/06/15/emissions-renewable-biomass-should-taxed-report-says/>
15. <https://www.fsc-watch.com/2014/08/12/guest-post-how-fsc-is-helping-to-greenwash-the-destruction-of-us-forests-for-european-power-stations/>
16. <https://www.dogwoodalliance.org/2017/06/a-smokescreen-for-forest-destruction/> and [https://sbp-cert.org/about-us/how-we-operate/governance-and-people/sbp-board/](https://www.sbp-cert.org/about-us/how-we-operate/governance-and-people/sbp-board/)
17. As shown in Drax's Annual Report, those biomass subsidies are made up of 527.8 m Renewable Obligation Certificates 'earned' in 2019, plus £261.7 from the Contract for Difference for one of the biomass units.

18. biofuelwatch.org.uk/2018/drax-repower-open-letter/
19. biofuelwatch.org.uk/2018/draxs-new-gas-plans/
20. change.org/p/greg-clarke-stop-wrecking-our-climate-ditch-plans-to-build-the-uk-s-biggest-gas-plant
21. <https://www.ftbchambers.co.uk/news/court-appeal-grants-permission-drax-challenge>
22. [drax.com/press_release/drax-sets-world-first-ambition-to-become-carbon-negative-by-2030/](https://www.drax.com/press_release/drax-sets-world-first-ambition-to-become-carbon-negative-by-2030/)
23. https://www.drax.com/press_release/world-first-co2-beccs-ccus/
24. https://www.drax.com/press_release/drax-help-keep-fizz-drinks-sector/
25. <https://www.chemistryworld.com/3010037.article>
26. https://www.drax.com/press_release/drax-secures-500000-innovative-fuel-cell-carbon-capture-study/
27. https://www.drax.com/press_release/negative-emissions-pioneer-drax-and-leading-global-carbon-capture-company-mitsubishi-heavy-industries-group-announce-new-beccs-pilot/
28. <https://www.zerocarbonhumber.co.uk/the-vision/>
29. <https://www.sintef.no/en/latest-news/c-capture-to-work-with-sintef-in-norway-to-validate-its-carbon-capture-technology/>
30. <https://www.sciencedirect.com/science/article/abs/pii/S1750583619300222>
31. <https://www.c-capture.co.uk/wp/wp-content/uploads/energy-industry-times.pdf>
32. <https://www.mhi.com/products/engineering/co2plants.html>
33. See for example <https://www.thecourier.co.uk/news/local/fife/204635/scottish-governments-green-energy-vision/>
34. E.g. [https://www.gem.wiki/Maasvlakte_Power_Station_\(E.ON\)](https://www.gem.wiki/Maasvlakte_Power_Station_(E.ON))