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biofuelwatch

#AXEDRAX : WHY DRAX NEEDS TO HAVE ITS SUBSIDIES STOPPED, AND BE SHUT DOWN

Drax is the largest coal-fired power station and the single greatest emitter of carbon in the UK.

Now it is also the biggest biomass power station in the world. Since 2015, it has burned more wood annually than the UK produces in total in a year.

In return for trashing forests and digging up communities, Drax is receiving massive subsidies when it should have been closed down years ago. Drax is cashing in on almost £2 million in subsidies every single day. Meanwhile, subsidies for genuinely renewable and low carbon onshore wind and solar power are being slashed across the UK.

DRAX'S (PARTIAL) BIOMASS CONVERSION

The power station consists of six units and Drax has converted three of them to burn only wood pellets, with plans to convert a fourth in 2018. In 2017, Drax burned 6.8 million tonnes of pellets[1] made from around 13.6 million tonnes of green wood. By comparison, the UK's total annual wood production is only 10.8 million tonnes[2].

Drax also burned 2.7 million tonnes of coal in 2017, putting it in the top two UK coal burners, along with Aberthaw Power Station. While Drax has claimed to support the government's proposal to phase out 'unabated' coal being burnt in power stations by 2025, its statements on the topic are filled with caveats such as:

"We support this move subject to an appropriate alternative technology being in place."[3]

See below for more on Drax's interests in gas-fired power.

Since 2015, Drax has been burning more wood than the UK produces every year.

Drax shouldn't be burning coal or biomass because of the huge impacts both have on communities, the environment, and the climate. Drax must be closed down instead. Without subsidies, Drax would be operating at a loss and would likely have to shut down.

THE IMPACTS OF DRAX'S BIOMASS BURNING

Burning wood for electricity is no less disastrous for the climate than burning coal. Per unit of electricity, biomass emits more CO_2 from smokestacks than burning coal does[4]. Biomass supporters claim that this CO_2 should be ignored because it will be absorbed by newly planted trees. In 2017, Drax reported that it released 18.06 million tonnes of CO_2 into the atmosphere, but 11.77 million tonnes of those emissions could be ignored because they came from biomass, rather than coal[5]. But trees take decades to grow and minutes to burn. Clearcut forests may never be able or allowed to regrow. And when biodiverse forests are being clearcut and replaced with monoculture tree plantations (as is common in Drax's main wood sourcing region, the southern US), carbon is irreversibly lost to the atmosphere.

The real purpose behind Drax's biomass conversion is to keep this old, dirty power station alive for longer and to cash in on massive public subsidies. Far from replacing coal, Drax's partial conversion to biomass allows the power station to continue burning it.

In 2015, Drax was estimated to burn nearly one third of all globally traded wood pellets[6]. Most of the pellets burned at Drax (59%) are imported from the southern US, followed by imports from Canada and from the Baltic States[7]. Drax aims to self supply 30% of the pellets it burns, rather than relying on buying from other companies, through three pellet plants it owns in the southern US. In 2017, Drax produced 822,000 tonnes of pellets – which it will need to increase on if it wants to realise its dream of self-supplying 30%.

Wood pellets from clearcut wetland forests in the southern US

Drax is by far the biggest customer of the controversial US pellet producer Enviva. Enviva has come under heavy criticism from US environmental NGOs for sourcing wood from clearcut coastal wetland forests[8], 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[9].

Wetland hardwood forests in the southern US are amongst the most biodiverse forest and aquatic ecosystems worldwide outside the tropics[10]. Just 20%

A cleared area of wetland hardwood forest in the southern US. Southern Environmental Law Centre.

of the vast hardwood wetlands forests once found in the region remain, and only 10% are protected[11]. Enviva and Drax have built pellet mills within a sourcing area which includes mature hardwood forests and biodiversity hotspots[12].

An investigation[13] by US conservation groups Dogwood Alliance and NRDC (Natural Resources Defense Council) in December 2014 shows how an Enviva pellet mill in North Carolina is sourcing wood directly from clearcut wetland forests. Pellets from that mill are being burned by Drax.

Enviva and Drax claim that they are only using 'residues', but in fact the majority of the wood from clearcuts commonly goes towards wood pellets – and it is unlikely that forest owners would be clearfelling entire forests without this demand. US groups have submitted a complaint against Enviva's 'misleading claims' to the US financial regulator[14].

Wood pellets from pine plantations in the southern US

A proportion of Drax's wood pellets is sourced from monoculture pine plantations in the southern US. Such plantations are being rapidly expanded across the region, at the expense of biodiverse native forests. Environmental campaigners from Dogwood Alliance visited Drax's pellet mill in Massachusetts in 2015. They wrote:

> ***"Orderly rows as far as they eye can see like a cornfield, regular spraying of fertilizers and herbicides, and plantations are so quiet because they're almost devoid of wildlife. Before they can grow into majestic trees, the heavy machinery chops them down like mowing a lawn. This is the commodification of nature and our forests. We chop down our native forests (in this case likely natural pine or mixed pine/hardwood forests) and destroy all the value these forests contained, replacing them with rows and rows of monoculture tree crops. Loblolly, slash and sand pine have replaced the dozens of species that used to call this region home."[15]***

A pine plantation.

THE IMPACTS OF DRAX'S COAL BURNING

Even when Drax's 50% conversion to biomass was almost complete, Drax still burned 6 million tonnes of coal in 2015. Thanks to low electricity prices, that figure fell to 2.7 million tonnes in 2017, but that still makes Drax the UK's biggest coal burner. During 2017, 31% of Drax's coal came from opencast mines in the UK, with the rest coming from the US (42%), Colombia (14%) and Russia (13%)[16].

Burning coal emits more carbon than other types of fossil fuels. But coal is also responsible for severe environmental, social and public health impacts that are connected with mining. Key impacts are shown in detail in a 2016 report by Coal Action Network[17], and the impacts of Russian coal imports are illustrated in a joint report by Coal Action Network and Fern called "Slow Death in Siberia"[18].

In Colombia, villages have been evicted to make way for opencast coal mines, including the Cerrejón mine,one of the world's largest. The establishment of opencast coal mines in Colombia has been associated with militarisation and serious human rights abuses, including disappearances, massacres and assassinations. Today, more villages are facing eviction, freshwater is being polluted and depleted, and indigenous communities are going hungry as their food sovereignty is destroyed. Human rights abuses in Colombia due to conflict between communities and coal mining companies, have been extensively documented by many organisations over many years[19].

Opencast coal mining – whether in the UK or elsewhere – has severe impacts on the local environment and landscapes, and on air quality and public health, due to the toxic coal dust. It also pollutes freshwater with toxins such as arsenic, chromium,and lead. In Scotland and elsewhere, companies are simply abandoning opencast mines when they are no longer profitable, without restoring the land, leaving a legacy of long-term pollution and environmental destruction behind.

An opencast coal mine in the Kuzbass region of Russia, where entire villages are being destroyed for coal mining. In 2017 13% of Drax's coal came from Russia. Photo Coal Action Network.

During 2017, Drax 'earned' £729 million in renewable electricity subsidies[20]. That's almost £2 million every day. Renewable electricity subsidies are financed through a surcharge on electricity bills. Drax relies on subsidies to keep going, its subsidies being larger than its gross profits. The company's 2016 Annual Report admits to a "reduction in profitability year on year", and the company admitted having made a net loss in 2017.

Clearly, Drax could not operate without biomass subsidies, and in future, Drax will be getting even more. On top of all of this, the Government has also awarded Drax a £90 million in Capacity Market Payments for burning coal in 2017-22[21]. Drax could win similar annual coal subsidies until 2025.

These figures do not include subsidies that Drax's pellet plants have been given in the US. Nor do they include a £50 million public loan guarantee granted by the Treasury, which states that the taxpayer will have to pay up if Drax defaults on a private loan of that amount, or its £50 million loan from the Green Investment Bank (see below).

Subsidising genuinely low-carbon, renewable energy such as sustainable wind and solar power makes a lot of sense. Using clean energy subsidies to pay for a power station that burns millions of tonnes of imported wood, pellets from clearcut biodiverse forests, and millions of tonnes of coal, is unacceptable! To make matters worse, the Government has been slashing support for onshore wind and solar power.

AxeDrax protest 2016. Photo Jenny Sheppard

DRAX'S INTERESTS IN GAS

In 2018, Drax is proposing to substantially rebuild its two remaining coal-burning units (slated for closure by 2025) to run on gas instead[22]. This news has come at around the same time as the UK government's coal phase out announcement[23]. If Drax's full proposal goes ahead, the rebuilt units would have a capacity of 3.6 GW - that's over twice the capacity of West Burton Power Station, the UK's largest gas-fired power station to date. For more information on this potential development, see our briefing on Drax's gas plans[24], and watch the Biofuelwatch website for further updates.

In February 2017, Drax acquired Opus Energy and the interests in four new gas power stations[25]. Each power station would have a capacity of 299 MW but would only be allowed to operate for 1,500 hours a year. This means that the combined capacity of the four plants would be equivalent to that of one 224 MW gas power station operating full-time. Two of the power stations already have planning consent: Hirwaun Power Station in Aberdare, near Merthyr Tydfil, and Progress Power Station at Eye Airfield Industrial Estate, Mid Suffolk. Full planning applications are pending for the other two: Abergelli Power station north of Swansea and Millbrook Power Station at Rookery Pit near Stewartby, Bedfordshire. The power stations will use Open Gas Cycle Turbines, which will make them less efficient than many other gas power stations, which use Combined Cycle Gas Turbines.

Investing in this infrastructure will lock us in to decades more fossil fuel use at a time when we urgently need to be reducing our carbon emissions.

Drax has repeatedly stated that it relies on future Capacity Market subsidies in order to build and operate those plants and to enact the rebuilding of Units 5 and 6 to run on gas[26]. This would take further public money that could be spent on demand reduction and on genuine renewables and spen it on more fossil fuel infrastructure instead.

AxeDrax AGM demonstration, April 2017, York

DRAX'S IMPACTS ON LOCAL AIR QUALITY

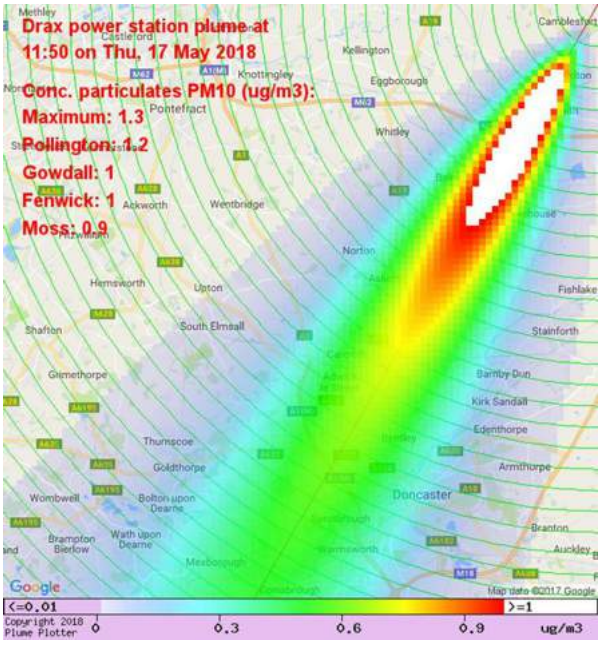
A Freedom of Information request to the Environment Agency in 2017 revealed that PM_{10} particulate pollution from Drax had more than doubled since the power station began its conversion to biomass[27]. Drax's annual emissions of PM_{10} are now equivalent to an extra 3 million diesel cars on the road.

PM_{10} are tiny particles less than 10 microns in length, and are dangerous because their small size means they can travel deep inside your body, in some cases entering your bloodstream and organs. They are linked to a wide range of health problems including cancer, heart disease and neurological problems. However, they are poorly monitored nationwide and legal limits in England and Wales are 2.5 times the limit recommended by the World Health Organisation.

The investigation also found air quality monitoring around Drax to be inadequate, with not a single monitoring station in the so-called "Megawatt Valley", the area south and west of Selby which, until recently, had three fully operational power stations (Drax, Eggborough and Ferrybridge). There is no monitoring of particulates within 9 miles of Drax, and none within 20 miles in its 'plume' (the area to the northeast of the power station, where most of its emissions go).

Air quality in general in the UK is dangerously poor, and legislation around it is confusing. Much of the responsibility of air quality monitoring is placed upon local governments which, with increasingly restricted budgets, often cannot carry out adequate monitoring.

As Drax is the first UK power station to undergo this conversion to run on wood pellets, and the world's largest burner of biomass, more rigorous monitoring of its impacts on local air quality and the health of the local population would seem like a good idea.



For real time info on where Drax is polluting right now, check out http://plumeplotter.com/drax/

Drax's plans for Bioenergy with Carbon Capture and Storage

In 2018, Drax announced a pilot scheme for Bioenergy with Carbon Capture and Storage (BECCS)[28]. BECCS is being proposed as a 'carbon negative' technology to reduce the amount of CO_2 in the atmosphere by burning biomass and capturing and sequestering the carbon released. So far, no BECCS plant has been built anywhere in the world. Drax has partnered with technology company C-Capture, which has had funding from the UK government and Shell. The project involves a feasibility study, possibly to be followed by a small carbon capture pilot project. There are no plans to capture carbon on a larger scale from Drax power station.

While this scheme looks relatively insignificant, anything that promotes BECCS as a solution to climate change could have negative consequences for forests and the climate. Drax's scheme is a distracting greenwash at best; if BECCS was adopted on a large scale, huge swathes of forests would have to be converted to plantations, biodiversity would suffer and we would keep on emitting carbon by burning trees. The forests being burnt at Drax are exactly the ecosystems we should be preserving to capture carbon. The best way to avert climate through energy use is to stop using carbon-emitting technologies such as coal and biomass.

OTHER COAL TO BIOMASS CONVERSIONS

Lynemouth Power Station. Alan Murray-Rust.

Drax is currently the only UK power station that has been partially converted to biomass. RWE and E.On previously converted Tilbury B and Ironbridge Power Station from coal to wood pellets, but both plants have closed down, following major fires.

However, Lynemouth Power Station is also currently being converted to burning wood pellets. It had previously closed down, so once again, conversion to biomass won't replace coal burning. Lynemouth Power Station was originally owned by Rio Tinto Alcan, then to RWE. In 2015, RWE sold it to a Czech energy company, Energetický a průmyslový holding (EPH). As a briefing by the climate NGO Sandbag shows[29], EPH is a privately-owned company without shareholders, which is buying some of the most controversial 'assets' from other energy companies, such as coal mines and coal power stations.

EPH has entered into a sourcing agreement with Enviva, to supply up to 800,000 tonnes of wood pellets to Lynemouth Power Station[30]. Lynemouth is expected to burn up to 1.7 million tonnes of pellets a year, made from 3.1 million tonnes of wood.

Uskmouth coal fired power station in South Wales, was mothballed in April 2017 amid claims that it would soon reopen to be run on pellets made from mixed waste that would otherwise go to landfill. Biofuelwatch believes these claims are not credible, and that Uskmouth owners SIMEC Atlantis may be masking plans to convert the site to run entirely on wood pellets made from virgin wood[31].

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