

The bonfire of insanity: Woodland is shipped 3,800 miles and burned in Drax power station. It belches out more CO2 than coal at a huge cost YOU pay for... and all for a cleaner, greener Britain!

- Drax Power Station in Yorkshire is switching from coal to biomass pellets
- The wood for the pellets is transported from North Carolina, U.S.
- Drax is swapping to pellets as it is deemed 'carbon neutral'

By [David Rose](#)

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On a perfect spring day in the coastal forest of North Carolina I hike along a nature trail – a thread of dry gravel between the pools of the Roanoke river backwaters. A glistening otter dives for lunch just a few feet away.

Majestic trees soar straight and tall, their roots sunk deep in the swampland: maples, sweetgums and several kinds of oak. A pileated woodpecker – the world's largest species, with a wingspan of almost 2 ft – whistles as it flutters across the canopy. There the leaves are starting to bud, 100 ft above the ground.

INCREDIBLE JOURNEY: HOW PRECIOUS U.S. FORESTS KEEP OUR LIGHTS ON

1 Seen from the air, a huge scar where acres of timeless American wetland forest were 'clear cut' and their trees partly turned into power-station wood-pellet fuel.

2 A handful of the wood pellets produced from the vast pile of tree trunks delivered to the Ahoskie factory. They will be burnt as 'biomass' fuel at Drax. By 2016, the power station will need seven million tons per year.

3 The pellets' 3,800-mile journey from North Carolina to Immingham and Hull, and on by train to Drax power station.

4 Part of the huge Drax power plant, whose wood-pellet fuel is officially classed as 'carbon-neutral'.

But North Carolina's 'bottomland' forest is being cut down in swathes, and much of it pulped and turned into wood pellets – so Britain can keep its lights on.

The UK is committed by law to a radical shift to renewable energy. By 2020, the proportion of Britain's electricity generated from 'renewable' sources is supposed to almost triple to 30 per cent, with more than a third of that from what is called 'biomass'.

The only large-scale way to do this is by burning wood, man's oldest fuel – because EU rules have determined it is 'carbon-neutral'.



So our biggest power station, the leviathan Drax plant near Selby in North Yorkshire, is switching from dirty, non-renewable coal. Biomass is far more expensive, but the consumer helps the process by paying subsidies via levies on energy bills.

That's where North Carolina's forests come in. They are being reduced to pellets in a gargantuan pulping process at local factories, then shipped across the Atlantic from a purpose-built dock at Chesapeake Port, just across the state line in Virginia.

Old s-coal: Drax Power station, near Selby, Yorkshire, when it was still using non-renewable coal.

Those pellets are burnt by the billion at Drax. Each year, says Drax's head of environment, Nigel Burdett, Drax buys more than a million metric tons of pellets from US firm Enviva, around two thirds of its total output. Most of them come not from fast-growing pine, but mixed, deciduous hardwood.

Drax and Enviva insist this practice is 'sustainable'. But though it is entirely driven by the desire to curb greenhouse gas emissions, a broad alliance of US and international environmentalists argue it is increasing, not reducing them.

In fact, Burdett admits, Drax's wood-fuelled furnaces actually produce three per cent more carbon dioxide (CO₂) than coal – and well over twice as much as gas: 870g per megawatt hour (MW/hr) is belched out by wood, compared to just 400g for gas.

Then there's the extra CO₂ produced by manufacturing the pellets and transporting them 3,800 miles. According to Burdett, when all that is taken into account, using biomass for generating power produces 20 per cent more greenhouse gas emissions than coal.

And meanwhile, say the environmentalists, the forest's precious wildlife habitat is being placed in jeopardy.

Drax concedes that 'when biomass is burned, carbon dioxide is released into the atmosphere'. Its defence is that trees – unlike coal or gas – are renewable because they can grow again, and that when they do, they

will neutralise the carbon in the atmosphere by ‘breathing’ it in – or in technical parlance, ‘sequestering’ it.

So Drax claims that burning wood ‘significantly reduces greenhouse gas emissions compared with coal-fired generation’ – by as much, Burdett says, as 80 per cent.

These claims are questionable. For one thing, some trees in the ‘bottomland’ woods can take more than 100 years to regrow. But for Drax, this argument has proven beneficial and lucrative.

Only a few years ago, as a coal-only plant, Drax was Europe’s largest greenhouse gas emitter, and was often targeted by green activists. Now it boasts of its ‘environmental leadership position’, saying it is the biggest renewable energy plant in the world.



It also gets guaranteed profits from the Government’s green energy subsidies. Last year, these amounted to £62.5 million, paid by levies on consumers’ bills. This is set to triple by 2016 as Drax increases its biomass capacity.

In the longer term, the Government has decreed that customers will pay £105 per MW/hr for Drax’s biomass electricity – £10 more than for onshore wind energy, and £15 more than for power from the controversial new nuclear plant to be built at Hinkley Point in Somerset.

New times: Onshore wind farm turbines next to Drax Power Station, which is now switching to renewable biomass wood pellets instead of coal.

The current ‘normal’ market electricity price is just £50 per MW/hr.

Mr Burdett admitted: ‘Our whole business case is built on subsidy, like the rest of the renewable energy industry. We are simply responding to Government policy.’

Company spokesman Matt Willey added: ‘We’re a power company. We’ve been told to take coal out of the equation. What would you have us do – build a dirty great windfarm?’
Meanwhile, there are other costs, less easily quantifiable.

‘These are some of our most valuable forests,’ said my trail companion, Derb Carter, director of the Southern Environmental Law Centre in Chapel Hill, North Carolina.

‘Your government’s Department for Energy and Climate Change claims what’s happening is sustainable, and carbon neutral. But it’s not. What you’re actually doing is wrecking the environment in the name of saving the planet.

After our hike through the forest, Mr Carter and I drove to a nearby airfield, where we boarded a plane. From 2,000ft up, the forest spread beneath us. Soon, however, we reached an oblong wedge, an open wound in the landscape.

It was a recent 'clear cut' where every tree had been removed, leaving only mud, water and a few stumps. Clear cuts are the standard means of harvesting these forests, and this one covered about 35 acres.

Enviva yesterday confirmed that some of its wood was turned into pellets for Drax.

In the next 10 minutes, we flew over at least a dozen such holes in the tree cover. Finally a looming smokestack appeared up ahead: Enviva's pellet plant at Ahoskie.

To one side lay the material that provides the plant's input: a huge, circular pile of logs: tens of thousands of them, each perhaps 30 or 40ft long.

In the middle was a heavy-duty crane. It swivelled round and grabbed bunches of the logs as if they were matchsticks, to feed them into the plant's machines.

Later, we inspected the plant on the ground. It's clear that many of the logs are not branches, but trunks: as Carter observed, they displayed the distinctive flaring which swampland trees often have at their base.

Here the story becomes murky. At Drax, Burdett said that in making pellets, Enviva used only 'thinnings, branches, bentwood . . . we are left with the rubbish, the residue from existing forestry operations. It's a waste or by-products industry.'



He insisted: 'We don't actually chop whole trees down.'

But looking at the plant at Ahoskie, Carter said: 'I just don't get this claim that Drax doesn't use whole trees. Most of what you're seeing here is whole trees.'

Pressed by The Mail on Sunday, Enviva yesterday admitted it does use whole trees in its pellet process. But according to spokeswoman Elizabeth Woodworth, it only pulps those deemed 'unsuitable for sawmilling because of small size, disease or other defects'.

Not so green: By using pellets, Drax produce three per cent more carbon dioxide than coal, not including the CO₂ produced by manufacturing the pellets and transporting them 3,800 miles.

She claimed such trees, no more than 26 inches in diameter, make up a quarter of the wood processed at Ahoskie. Another 35 per cent comes from limbs and the top parts of trunks whose lower sections went to saw mills. To put it another way: 60 per cent of the wood cut by the loggers who supply Enviva is turned into pellets.

The firm, she added, was 'committed to sustainable forestry... replacing coal with sustainably produced wood pellets reduces lifecycle emissions of carbon dioxide by 74 to 90 per cent.'

How fast do these forests, once cut, really regrow?

Clear-cut wetlands cannot be replanted. They will start to sprout again naturally quite quickly, but according to Clayton Altizer of the North Carolina forest service: 'For bottomland sites, these types of forests are typically on a 60 to 100-year cycle of growth depending on the soil fertility.' Other experts say it could easily take more than 100 years.

That means it will be a long time before all the carbon emitted from Drax can be re-absorbed. For decades, the amount of CO₂ in the atmosphere will be higher than it would have been if Drax still burnt only coal.

Drax's Nigel Burdett yesterday admitted he did not know how long a North Carolina clear-cut bottomland swathe would take to regrow, but insisted this simply doesn't matter. What counted, he said, was not the areas which had been cut, but the whole region from which the pellets were sourced.

Drax's website implies unmistakably that biomass deserves its 'carbon neutral' status because the wood cut for pellets regrows. But Mr Burdett said: 'The rate at which it re-grows is irrelevant. The crucial issue is how much there is across the whole catchment area.'

He said that in North Carolina, as in other southern states, more wood is growing than being cut so the 'sustainable' claim is justified.

There is an obvious objection to this: the forests would be growing still faster, and absorbing more CO₂, if they weren't being cut down.



Burdett's argument gets short shrift from conservationists.

Danna Smith, director of North Carolina's Dogwood Alliance, said the pellet industry increases the pressure to 'over-harvest' forests, as landowners know they have a guaranteed market for material which they could not otherwise sell: 'It adds to the value they get from clear-cutting.'

The pellets are supposedly a step in reducing CO₂ emissions, but have, in fact, made it worse.

Moreover, she added, if this incentive did not exist, they would wait until the smaller trees were big enough to cut for furniture and construction – and all that time, they would be absorbing carbon.

A recent study showed that bigger, older trees absorb more CO₂ than saplings. As for Drax's claim that what counts is regrowth across the region, 'that just doesn't capture what's happening around the mills where they're sourcing the wood'.

According to a study by a team of academics, published in December by Carter's law centre, Enviva's operations in North Carolina 'pose high risks to wildlife and biodiversity, especially birds'.

The Roanoke wetlands are home to several rare or endangered species: the World Wildlife Fund said in a report that the forests constitute 'some of the most biologically important habitats in North America' and constitute a 'critical/endangered resource'.

Meanwhile, in North Yorkshire, the sheer scale of Drax's biomass operation is hard to take in at first sight. Wood pellets are so much less dense than coal, so Drax has had to commission the world's biggest freight wagons to move them by rail from the docks at Hull, Immingham and Port of Tyne. Each car is more than 60ft high, and the 25-car trains are half a mile long. On arrival, the pellets are stored in three of the world's largest domes, each 300ft high – built by lining colossal inflated polyurethane balloons with concrete. Inside one of them, not yet in use, the echo is impressive. Light filters in through slits in the roof, like a giant version of the Pantheon church in Rome.

To date, only one of Drax's six turbine 'units' has been converted from coal to biomass: another two are set to follow suit in the next two years. Eventually, the firm says, its 3.6 gigawatt capacity – about five per cent of the UK total – will be 'predominantly' biomass, burning seven million tons of pellets a year.

From the domes, the pellets are carried along a 30ft-wide conveyor belt into a milling plant where they are ground to powder. This is burnt in the furnaces, blown down into them by deafening industrial fans.

All this has required an investment of £700 million. Thanks to the green subsidies, this will soon be paid off. Even if all Britain's forests were devoted to Drax, they could not keep its furnaces going. 'We need areas with lots of wood, a reliable supply chain,' Mr Burdett said.

As well as Enviva, Drax buys wood from other firms such as Georgia Biomass, which supplies mainly pine. It is building new pellet-making plants in Mississippi and Louisiana.

Last month, the Department of Energy and Climate Change issued new rules on biomass sourcing, and will insist on strict monitoring to ensure there really is 'sustainability'.

In North Carolina, this will not be easy: as Carter points out, there is very little local regulation. But wouldn't a much more effective and cheaper way of cutting emissions be to shut down Drax altogether, and replace it with clean new gas plants – which need no subsidy at all?

Mr Burdett said: 'We develop our business plan in light of what the Government wants – not what might be nice.'

Read more: <http://www.dailymail.co.uk/news/article-2581887/The-bonfire-insanity-Woodland-shipped-3-800-miles-burned-Drax-power-station-It-belches-CO2-coal-huge-cost-YOU-pay-cleaner-greener-Britain.html>