

## Coal-to-biomass conversions: Supplementing one (climate) disaster with another?

### Which UK coal power stations are to be converted to biomass and how much wood will they be burning?

So far, Drax Power Station has been partly converted to biomass and Ironbridge Power Station has been fully converted - though Ironbridge is scheduled for closure at the end of 2015. Two other coal power plant generators have planning permission to convert and another coal-to-biomass conversion has recently been proposed. This does not include Tilbury B, which had been converted to biomass by RWE NPower but was closed in August 2013, nor does it include Rugeley Power Station whose operators also got planning permission to convert but publicly dropped those plans.

- **Drax:** Drax burns more wood than any other power station in the world. They are in the process of converting half their power station (i.e. three units out of six) to biomass, which will require pellets from up to 14.89 million tonnes of green wood a year. So far they have converted two units to biomass and they are planning to convert a third. Drax Plc has said they might even convert a fourth but with subsidies guaranteed for three units run on biomass only, a 50% conversion seems more likely. During the 12 months up to July 2014, Drax burned pellets from around 3.1 million tonnes of wood - more than any other power station in the world.
- **Ironbridge (E.On):** Both of Ironbridge's units were converted to biomass between April and October 2013, although the power station has been running at less than 15% of its capacity since then. Even at such a low capacity, Ironbridge has been burning pellets made from 1.1 million tonnes of wood a year. At full capacity, the power station would require pellets made from up to 7.88 million tonnes of green wood a year. Ironbridge is currently scheduled for closure in 2015, however E.On could put forward a planning application for continuing to run it long-term.
- **Eggborough:** The operator has permission to convert the power station to 100% biomass, although at the time permission was granted, the plan was to convert 75% of the capacity to biomass and to continue burning coal for the remaining 25%. Such a 75% conversion would require pellets made from 11.82 million tonnes a year. The power station has recently been taken over by a Czech energy company called EPH. EPH have not so far announced whether they intend to proceed with the conversion to biomass.
- **Lynemouth Power Station** (bought by RWE Npower in late 2012): The previous owners obtained planning consent to convert to 100% biomass. A full conversion would require pellets from up to 3.31 million tonnes of green wood. The government gave RWE a guarantee of long-term subsidies (i.e. a Contract for Difference) for this conversion but the European Commission is currently investigating whether this is a lawful decision, which means that the subsidies guarantee remains suspended. RWE has not yet announced whether they intend to

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go ahead with the conversion.

- **Uskmouth Power Station** (bought by SIMEC Group December 2014): This is a 383 MW power station and, according to former owners SSE, the UK's oldest and most inefficient one. SSE closed the plant around May 2014 but it was partly reopened by SIMEC Group in March 2015. SIMEC Group have announced that they want to fully convert the plant to biomass and that they also want to build a pellet plant on the site. A fully converted Uskmouth biomass power station would need to burn pellets made from at least 3 million tonnes of green wood a year.

(Note: Figures calculated on the assumption that the power stations would not run non-stop but for 7,000 hours a year.)

If all those conversions (including a 50% conversion of Drax power station but excluding Ironbridge which is to be closed) go ahead, they would burn 16.5 million tonnes of pellets made from 33 million tonnes of green wood every year. By comparison, total UK wood production is only 10 million tonnes annually.

### Where will the wood come from?

Virtually all of the wood is being and will continue to be imported. At present, most pellets imported by the UK come from British Columbia and the southern US, some from other Canadian regions, Latvia and Portugal. British Columbia and the southern US are both regions where biodiverse and carbon-rich forests are being clearcut, increasingly for wood pellets. In many cases, such forests are then converted into industrial tree plantations. In the southern US, [investigations](#) have shown that some of the wood used by pellet company Enviva (who supply Drax and have agreed to supply Ironbridge) comes from ancient trees, more than 100 years old logged in swamp forests. Pellets imported from the southern US are being made from [whole trees](#). In [British Columbia](#), the number of logging concessions/quotas has been increasing at the same time as demand for wood pellets for UK and other power stations has been rising.

[Information obtained by Biofuelwatch through a Freedom of Information request](#) shows that, for technical reasons, the only type of biomass that can be burned in converted coal power station units is pellets made from wood from slow-growing trees and with little bark. Other types of biomass - such as straw, miscanthus, eucalyptus and other fast growing trees - corrode the boilers. The same problem significantly limits the amount of forestry/sawmill residues that can be used: [Sawmill offcuts, for example, are high in bark](#) and therefore cannot be burned in such power stations. [Note that this restriction only applies to converted Pulverised Fuel coal power stations. All UK coal power stations are Pulverised Fuel ones but the power station which E.On is planning to convert in southern France is not.]

As a result of the massive new demand for wood from northern forests for bioenergy, industrial tree plantations are set to expand much further in countries such as Brazil and South Africa, to produce the wood for paper that would previously have come from North America or Europe. This will mean more land-grabbing, less food sovereignty and food security and, directly or indirectly, more destruction of tropical forests.

### Climate impacts:

Power stations burning wood emit around 50% more carbon than ones burning coal.<sup>1</sup> Companies and policy makers ignore this carbon, claiming that new trees will grow back and absorb the carbon emitted from cutting down and burning mature ones. Yet it tends to take decades – 70 years for UK conifers – before that can happen. And when forests are destroyed and turned into monoculture plantations, much of that carbon will simply stay in the atmosphere. Such a carbon spike is a disaster at a time when scientists have shown that emissions must be reduced rapidly if we want to have any hope of avoiding the worst impacts of climate change.

### Local impacts:

Burning biomass in power stations causes similar levels of air pollution as coal burning overall. It emits less sulphur dioxide (SO<sub>2</sub>) but more very fine particulates (PM 2.5, which pose a particularly serious risk of lung and heart disease and for which there is no safe level, according to the World Health Organisation) and more harmful Volatile Organic Compounds. By far the main air quality concern, however, is that biomass conversions will allow power stations which would otherwise be shut down to operate for decades to come. Communities such as those in Newport, next to Uskmouth Power

### What is behind the UK's coal-to-biomass conversions:

There are two reasons why big energy companies are investing in such conversions in the UK:

Firstly, they have been able to persuade the Government to grant generous subsidies, paid currently as Renewable Obligation Certificates and for future conversions as 'strike prices'. Drax can expect around £660 million in subsidies a year if they convert to 50% biomass.

Secondly, the coal power stations that are being or may be converted emit more sulphur dioxide (SO<sub>2</sub>) than EU regulations permit now or than will be permitted under the EU's Industrial Emissions Directive (which comes into force 2016). Burning biomass is a way for companies to reduce SO<sub>2</sub> emissions from coal power stations whilst cashing in on lucrative subsidies - without investing in expensive SO<sub>2</sub> scrubbers.

Biomass conversion thus allows energy companies to keep their old, polluting power stations running for much longer, rather than having to shut them down or invest in highly expensive technology for reducing SO<sub>2</sub>. And by converting to biomass, they will cash in on hundreds of millions or even billions of pounds of public subsidies every year.

### A replacement for coal - or a way of keeping old, polluting power stations running for longer?

Energy companies are not investing in biomass conversions because they want to burn less coal. Drax has been granted subsidies (Capacity Market Payments) for burning coal, too. Without the conversions, several large coal power stations, including Drax, would have to be closed down soon – biomass is thus not an alternative to coal but to closing down power stations. In fact, partial biomass conversion is likely to allow some to also burn coal for much longer than they would otherwise have been able to. And Uskmouth coal power station was already shut and has now been recommissioned (still burning coal) on the grounds that there are long-term plans to convert it to biomass. Stopping the conversions would reduce the UK's old, inefficient, polluting and high-carbon power station capacity, and thus create real incentives to cut energy use and invest in genuine renewable energy.

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<sup>1</sup> This figure is not contested – it is confirmed for example in permitting details for biomass power stations by the US Environmental Protection Agency. See <http://www.pfpi.net/carbon-emissions>