

# Why the UK's new Sustainability and Greenhouse Gas Standards for Biomass still allow biomass to pollute more than coal

## Briefing for MPs



### Summary:

Burning wood to generate electricity emits more carbon dioxide per megawatt-hour than burning coal (Figure 1). The UK's new mandatory biomass sustainability and greenhouse gas standards take no account of this, only requiring operators to report fossil fuel emissions from wood pellet manufacturing and transport – not combustion. The sustainability standards also do not prevent clear-felling of forests to provide biomass fuel.

### Bioenergy in the UK

Burning wood in power plants is promoted as a means of meeting the EU Renewable Energy Directive target of generating 15% of total energy from renewable sources by 2020. It has expanded more rapidly than wind, solar, and other 'renewable' energy sources since 2013, doubling every year.

### 8.3 Carbon Dioxide (CO<sub>2</sub>)

The power station emits CO<sub>2</sub> from the combustion of fuel as well as from the chemical reaction within the FGD process. The CO<sub>2</sub> emissions are calculated and verified in compliance with the requirements of the EUETS. The breakdown for 2013 for each of the major combustion and process sources is provided in Table 6. Note that emissions from biomass are counted as zero within the EUETS.

Table 6. CO<sub>2</sub> emissions 2013

	Actual CO <sub>2</sub> (t calculated)	EUETS CO <sub>2</sub> (t calculated)
Coal and Petcoke	20,089,607	20,089,607
Biomass	2,799,391	0
Propane		
FGD		
All Fuel Oils		
Total		

  

Drax generation		2013	
Coal	TWh	23.3	88%
Biomass	TWh	2.9	12%

Figure 1. Drax's data on CO<sub>2</sub> emissions from burning fossil fuels and biomass in 2013. Inset shows electricity generated by coal and biomass. Combined, these data show that the 2013 CO<sub>2</sub> emissions rate for coal at Drax was 862 kilograms per megawatt-hour (kg/MWh), while the emissions rate for biomass was 962 kg/MWh – **12% more than coal**.



Figure 2. Clear-felled forest where trees were harvested and sold to Enviva, a US supplier of wood pellets to Drax. (Original caption, Washington Post: "Little remains but stumps and puddles in what was once a bottomland hardwood forest on the banks of the Roanoke River in northeastern North Carolina. Many of the trees were turned into wood pellets for burning in power plants in Europe. Others were sold for high-value uses such as furniture.")

(Joby Warrick, *The Washington Post*, June 2, 2015. [https://www.washingtonpost.com/national/health-science/how-europes-climate-policies-have-led-to-more-trees-cut-down-in-the-us/2015/06/01/ab1a2d9e-060e-11e5-bc72-f3e16bf50bb6\\_story.html](https://www.washingtonpost.com/national/health-science/how-europes-climate-policies-have-led-to-more-trees-cut-down-in-the-us/2015/06/01/ab1a2d9e-060e-11e5-bc72-f3e16bf50bb6_story.html))

### Biomass Power Relies on Cutting Forests

More than 90% of the biomass burned in the UK is imported,<sup>1</sup> with the overwhelming majority being wood pellets manufactured from forests in the US and Canada. A significant amount of wood for pellets is sourced from biodiverse, carbon-rich native forests such as the clear-felled hardwood forest shown in Figure 2. Whole trees are cut, debarked, chipped, dried, pulverized, and extruded into pellets before being shipped across the Atlantic – an enormously energy-intensive process.

### Paid to Pollute: Lucrative Bioenergy Subsidies For Increased Emissions

Drax, the largest coal-fired station in the UK, has converted part of its capacity from coal to wood pellets. Drax burned about 1.6 million tonnes of wood pellets in 2013,<sup>2</sup> emitting about 2.8 million tonnes of CO<sub>2</sub>.<sup>3</sup> If the company completes its conversion to wood, it will burn more than 7m tons of manufactured pellets a year, representing nearly

16 million tonnes of forest wood, the overwhelming majority imported from North America. In return, Drax will receive **£637m a year in publicly funded subsidies**<sup>4</sup>.

Claims that burning wood “reduces” emissions by upwards of 80% from coal rely on excluding combustion emissions from wood, while emissions from coal *are* counted. Drax’s own data show that burning wood emits more CO<sub>2</sub> than burning coal (Figure 1). However, CO<sub>2</sub> from biomass combustion is reported as zero under the EU emissions trading system (EUTS), an accounting convention that is reflected in the UK sustainability standards.

Biomass power plants represent an even bigger climate impact beyond their uncounted stack emissions. A 2014 DECC report shows that if *all* the carbon impacts associated with biomass are counted, particularly carbon sequestration that's lost by cutting down trees that would otherwise keep growing, the greenhouse gas impact of bioenergy is **up to three times greater than coal.**<sup>5</sup> Yet, the UK sustainability standards ignore all these emissions, granting hundreds of millions of pounds per year in subsidies.

### **The Sustainability Standards Undermine Government Policy Goals**

The goal of the December 2015 sustainability standards is to protect forests and ensure that biomass delivers '*genuine carbon reductions*' over fossil fuels, but they fail in both respects.

#### **The Sustainability Standards Don't Protect Forests**

The sustainability standards allow pellets to comply with the “land criteria” as long as long as the source isn't a “primary” forest<sup>6</sup> – meaning having no signs of human disturbance, such as logging. However, the US has almost no primary forests – almost all have been cut at some time in the last 200 years. Thus, under these criteria, almost any forest can be clear-cut for pellet manufacture, even hardwood forests with trees that are over 100 years old, and the wood is still considered “sustainable.”

#### **The Sustainability Standards Don't Reduce Emissions**

The 2012 UK Government Bioenergy Strategy states: “Policies that support bioenergy should deliver *genuine carbon reductions that help meet UK carbon emissions objectives to 2050 and beyond. This assessment should look – to the best degree possible – at carbon impacts for the whole system, including indirect impacts such as ILUC [Indirect Land Use Change], where appropriate, and any changes to carbon stores.” The carbon accounting methodology used in the Standards does not ensure '*genuine carbon reductions*' because it only requires harvesting, processing and transport emissions be counted and allows changes in “carbon stores” on the land to go up the smokestack uncounted.*

The exponential growth of bioenergy now underway, driven by misguided policy and subsidy, backed by inadequate sustainability standards and erroneous carbon accounting, makes this industry dangerously unsustainable now and in the future. These latest sustainability standards, inadequate, unenforced and unenforceable, do nothing to address this.

### **MP's who want to reduce power sector emissions must END BIOENERGY SUBSIDIES NOW.**

- Write to the Minister for Energy and Climate Change, Amber Rudd, to demand the end to subsidies for this expensive and unsustainable industry.
- Ask Parliamentary questions about bioenergy sustainability, cost, greenhouse gas emissions.
- Read Biofuelwatch policy recommendations.
- Urge the Energy and Climate Change select committee to hold an inquiry into Bioenergy and Biomass electricity.

For more detailed briefing on the Sustainability Standards visit [www.biofuelwatch.org.uk/2016/uk-biomass-standards-briefing/](http://www.biofuelwatch.org.uk/2016/uk-biomass-standards-briefing/)

<sup>1</sup> OFGEM biomass sustainability data, fiscal year 2013/2014

<sup>2</sup> Drax's biomass supply report for 2013 and 2014 is located at <http://www.drax.com/media/56583/biomass-supply-report-2014.pdf>

<sup>3</sup> Drax Annual Review of Environmental Performance, 2013. At <http://www.drax.com/media/56551/Environmental-Performance-Review-2013.pdf>

<sup>4</sup> <http://www.biofuelwatch.org.uk/axedrax-campaign/#4>

<sup>5</sup> Stephenson, A.L., and MacKay, D.J.C. 2014. Scenarios for assessing the greenhouse gas impacts and energy input requirements of using North American woody biomass for electricity generation in the UK. Department of Energy & Climate Change, London, UK. At [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/349024/BEAC\\_Report\\_290814.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349024/BEAC_Report_290814.pdf).

<sup>6</sup> [https://www.ofgem.gov.uk/sites/default/files/docs/ro\\_sustainability\\_criteria\\_guidance\\_esw.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/ro_sustainability_criteria_guidance_esw.pdf), page 162