

March 15, 2017

Re: Concerns about UK Bioenergy Policy

Dear Secretary of State, Mr. Hurd and Mr. Norman,

We, the undersigned scientists, write to express our concern that UK policies subsidizing biomass energy are accelerating forest harvesting internationally and hindering efforts to combat climate change. We understand you are currently formulating the UK's Energy Policies and Industrial Strategy, and we accordingly urge you to reduce threats to forests and the climate by ending subsidies for large-scale biomass electricity.

To prevent dangerous global temperature rise, climate modeling indicates the need for negative emissions.¹ Staying below a 2 C temperature rise will likely require expanding forests, not cutting and burning wood for energy. Yet bioenergy incentives in the UK are now driving forest harvesting internationally as the UK imports millions of tonnes of woody biomass from the USA, Canada, Estonia, Germany, Latvia, Poland, Portugal, and South Africa.² Wood pellet manufacturing has increased steeply. In the Southern USA, existing and under-construction pellet manufacturing facilities are on track to consume 20.3 million tonnes of wood per year, with proposed facilities accounting for another 18.7 million tonnes.³ For the approximately 80 percent of pellets intended for export, industry data show almost 70 percent of feedstock is "pulpwood," meaning tree boles and large branches, while just 1.25 percent is from logging residues and around 30 percent is from mill residues.⁴ It is thus not the case, as is sometimes represented, that pellets exported from the US are predominantly made from "waste" wood.

As highlighted in the recently released Chatham House report,⁵ even though burning wood pellets for electricity emits more carbon dioxide per megawatt-hour than burning coal,⁶ the UK's greenhouse gas accounting protocol ignores these emissions, assuming emissions are offset as forests regrow. However, to the extent that such regrowth occurs (and companies using and

¹ Fuss, S., et al. 2014. Betting on Negative Emissions. *Nature Climate Change* 4, 850–853.
doi:10.1038/nclimate2392

² The UK's Ofgem biomass profiling data (at <https://www.ofgem.gov.uk/publications-and-updates/biomass-sustainability-dataset-2014-15>) show that for FY 2014/2015, wood pellets and other woody biomass were imported to the UK from Canada, Estonia, Germany, Latvia, Poland, Portugal, South Africa, and the USA.

³ Not all these facilities will be built, however.

⁴ Ofgem data.

⁵ Chatham House. *The Impacts of the Demand for Woody Biomass for Power and Heat on Climate and Forests*. February 23, 2017. <https://www.chathamhouse.org/publication/impacts-demand-woody-biomass-power-and-heat-climate-and-forests>

⁶ Data from Drax, the largest bioenergy plant in the UK, show that in 2013, the facility emitted 20,089,607 tonnes of CO₂ from coal and generated 23.3 terawatt-hours of electricity, for an emission rate of 862 kg/MWh. Emissions from biomass were 2,799,391 tonnes CO₂ and generation was 2.9 terawatt-hours, for an emission rate of 965 kg/MWh. Since then, Drax has completed conversion of three of its six units to full-time operation on biomass. Emissions numbers from Drax Annual Review of Environmental Performance, 2013 at page 8 (<http://www.pfpi.net/wp-content/uploads/2016/12/Environmental-Performance-Review-2013.pdf>); generation numbers from Drax's biomass supply document for 2013-2014, at page 2 (<http://www.pfpi.net/wp-content/uploads/2016/12/biomass-supply-report-2014.pdf>).

manufacturing biomass fuels are in no way required to guarantee forest regrowth) the decades to centuries this takes undermines efforts to reduce atmospheric carbon dioxide concentration now.

Subsidies for “carbon neutral” biomass have supported several new biomass plants and coal-to-biomass conversions in the UK and the EU, the largest being the 3,960 MW Drax plant in Yorkshire. Drax burned 5.9 million tonnes of biomass in 2015, the majority provided by wood pellets imported from the US and Canada.⁷ Drax has converted half its generating capacity to biomass, meaning the facility now emits as much or more carbon as previously, but is only required to purchase half as many carbon allowances. Direct emissions are only part of total carbon impact, however, because carbon is also emitted from wood and fossil fuels burned during pellet manufacturing and transport, below-ground tree biomass killed during forest harvesting, and soil disturbance. Beyond these direct emissions, foregone sequestration – the reduction in carbon sequestration capacity in forests cut for fuel – also increases atmospheric carbon loading.

As noted in a report published by the UK’s own Department of Energy and Climate Change,⁸ reducing forest stocks releases carbon to the atmosphere, a factor the report said must be considered “if we wish to understand the true GHG intensities of different bioenergy feedstocks and technologies.” Because the UK’s biomass policy does not consider changes in forest carbon, it does not measure up to the standard of the UK’s 2012 Bioenergy Policy, which states that biomass energy “should deliver genuine carbon reductions.”⁹

Biomass energy is costly to UK bill-payers. Drax alone received subsidies worth nearly one and a quarter million pounds *per day* for its use of biomass in 2015,¹⁰ and will receive more going forward as the EU has recently approved Drax’s existing conversion of a third unit from coal to biomass.¹¹ Total UK subsidies for dedicated and co-fired biomass electricity¹² were over £807

⁷ Drax’s 2015 Annual Report shows the total amount of biomass burned at page 17, at <https://drax.cdnist.com/wp-content/uploads/2016/09/2015-Annual-Report-and-Accounts-for-the-year-ended-31-December-20151.pdf>. The sources and types of biomass burned in the UK are tracked by Ofgem, with data available at <https://www.ofgem.gov.uk/publications-and-updates/biomass-sustainability-dataset-2014-15>.

⁸ 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

⁹ UK Bioenergy Strategy, 2012. UK Department of Transport, Department of Energy and Climate Change, and Department for Environment, Food, and Rural Affairs. At page 6, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48337/5142-bioenergy-strategy.pdf

¹⁰ Drax’s Annual Report shows the company received £451.8 million in renewable energy subsidies in 2015. At <https://drax.cdnist.com/wp-content/uploads/2016/09/2015-Annual-Report-and-Accounts-for-the-year-ended-31-December-20151.pdf>, page 35.

¹¹ European commission approves Drax biomass subsidy. The Guardian, Dec. 19, 2016. At <https://www.theguardian.com/environment/2016/dec/19/power-station-shares-jump-ec-approves-wood-burning-subsidies-coal-switch>.

¹² Data on ROC allocation from The Renewable Energy Foundation, at <http://ref.org.uk/generators/group/index.php?group=yr>. The figure of £807 million excludes ROCs granted for

million in 2015, and will increase as new bioenergy facilities are brought online, including the coal-to-biomass conversion at the 420 MW Lynmouth plant and the new 299 MW Teesside facility. Over the period for which subsidies are promised, this amounts to many billions of pounds – even as the UK government is cutting subsidies for wind and solar power that generate truly zero-emissions power.

An EU-commissioned report¹³ has reported that natural forests logged for biomass in the US are being converted to plantations, reducing biodiversity and causing “significant” losses of carbon. The report further acknowledges that “logging residues are not a significant feedstock for industrial wood pellets” and estimates that hundreds of thousands of hectares of whole trees are being harvested for pellet manufacture. Nevertheless, while the EU recently proposed slight revisions to its biomass policies for 2020 onward,¹⁴ it has not proposed to reform accounting for biogenic carbon or take other meaningful steps to reduce forest harvesting for biomass.

The failure of the EU to act increases the urgency that the UK abandon the EU’s profoundly flawed approach to biomass. We accordingly urge the UK government to reform carbon accounting for bioenergy to appropriately weight current, measurable bioenergy carbon emissions over unsecured and hypothetical forest regrowth, and to end subsidies for large-scale wood-fueled bioenergy that injures forests and the climate. These bold steps would mark the UK as a climate and conservation leader, and save billions in public funds.

Thank you for your consideration.

Sincerely,

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waste burning, sewage gas, anaerobic digestion, and gasification. Average 2015 ROC price calculated as £42.69, from <http://www.epowerauctions.co.uk/erocrecord.htm>.

¹³ Kittler, B. et al. 2016. Environmental implications of increased reliance of the EU on biomass from the South East US. European Commission, December 2015. At <http://bit.ly/2i5WySH>.

¹⁴ The EU’s revised Renewable Energy Directive is at http://ec.europa.eu/energy/sites/ener/files/documents/1_en_act_part1_v7_1.pdf. The biomass policy still does not count emissions if biomass is sourced from forests unless there is a permanent change in land-use, for instance if a forest is cut and the land is put into agriculture.

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