

6<sup>th</sup> December 2012

Dear Mr Moseley,

I am writing on behalf of Biofuelwatch to submit our objection to RWE Npower's applications (References 12/00890/OUT and 12/00891/OUT) related to the long-term conversion of Tilbury B to biomass, the extension of the lifetime of that power station (officially to around 2027 but without any proposed limits), and to the capacity increase from the current 750 MW to 860 MW.

As part of this objection I am also responding to RWE's additional comments submitted in response to other objections on 21<sup>st</sup> November 2012.

We are objecting to the application on three grounds:

- 1) Sustainability and climate impacts;
- 2) Air quality impacts;
- 3) Health and safety risks.

### **1) Sustainability and climate impacts:**

The National Planning Policy Framework stresses the importance of considering whether developments are sustainable developments, emphasising the 'environmental role' in determining sustainability, including impacts on biodiversity, prudent natural resources use and climate change mitigation (para.7).

A DECC consultation about proposed future biomass sustainability and greenhouse gas standards for the purpose of Renewable Obligation Certification has just closed and the outcome is not expected to be announced until February-April 2013. We cannot see how the possibility of compliance with such standards which are still being developed and are not finalised can be considered with regards to RWE's applications related to Phase 2 of Tilbury B conversion to biomass. We believe that it would be far more relevant to test the application against the list of greenhouse emissions which the UK Government's Bioenergy Strategy stresses should be taken into account when considering whether a particular biomass development or source is low carbon. The Bioenergy Strategy ([www.decc.gov.uk/assets/decc/11/meeting-energy-demand/bio-energy/5142-bioenergy-strategy-.pdf](http://www.decc.gov.uk/assets/decc/11/meeting-energy-demand/bio-energy/5142-bioenergy-strategy-.pdf)) emphasises the importance of taking full account of the greenhouse gas impacts of biomass, including carbon sequestration which would have happened over the next century if trees had not been cut for bioenergy, the indirect impacts of displacement and also the carbon impacts of burning wood which would otherwise have been used for durable products, thus storing rather than releasing the carbon.

RWE's application makes it clear that all of the wood will be imported – primarily from British Columbia and the southern US and, furthermore, that a substantial proportion of the wood pellets will be sourced from whole trees felled for this purpose. There is a large volume of evidence – including peer-reviewed studies – which contradicts RWE's claims that running Tilbury B on biomass (based on their own sourcing information) would reduce CO2 emissions compared to fossil fuels over the next few decades. This evidence includes:

+ An analysis of the DECC Bioenergy Strategy by Professor Timothy Searchinger, a worldwide expert in modelling full life-cycle bioenergy carbon impacts, which shows that according to DECC's own figures replacing coal with biomass sourced from whole conifer trees will result in a 49% greenhouse gas emissions increase over 40 years (1557g/KWh) and an 80% increase over 20 years (1879g/KWh)

[http://www.rspb.org.uk/Images/Searchinger\\_comments\\_on\\_bioenergy\\_strategy\\_SEPT\\_2012\\_tcm9-329780.pdf](http://www.rspb.org.uk/Images/Searchinger_comments_on_bioenergy_strategy_SEPT_2012_tcm9-329780.pdf));

+ “Carbon debt and carbon sequestration parity in forest bioenergy production”, Stephen Mitchell et al: A peer-reviewed article which compared CO<sub>2</sub> saved from replacing fossil fuels with bioenergy with the carbon which would have been sequestered by forests had trees not been logged for that bioenergy. It concludes: “*Many of our combinations of forest productivity, biomass longevity and harvesting regimes required more than 100 years to achieve C Sequestration Parity, even when the bioenergy conversion factor was set at near maximal level.*” (for Tilbury B, the conversion factor of course will be nowhere near the maximum level – it will, according to the planning documents, be only 37%) (<http://ncfp.files.wordpress.com/2012/05/carbon-debt-paper.pdf>);

+ “Using ecosystem CO<sub>2</sub> measurements to estimate the timing and magnitude of greenhouse gas mitigation potential of forest bioenergy” by Pierre Bernier and David Pare (<http://onlinelibrary.wiley.com/doi/10.1111/j.1757-1707.2012.01197.x/abstract;jsessionid=9FC6009664EEB6337DB3688B268AC1CF.d02t04>): A peer-reviewed study which, focussing on wood sourced from Canada, concludes: “*Forest bioenergy opportunities may be hindered by a long greenhouse gas (GHG) payback time*”;

+ “Large-scale bioenergy from additional harvest of forest biomass is neither sustainable nor greenhouse gas neutral”, Ernst Detlef Schulze et al (<http://onlinelibrary.wiley.com/doi/10.1111/j.1757-1707.2012.01169.x/abstract>): Another peer-reviewed study which concludes: “*Large-scale production of bioenergy from forest biomass is neither sustainable nor GHG neutral*”;

+ Biomass Supply and Carbon Accounting for Southeastern Forests, Southern Environmental Law Center in partnership with Biomass Energy Resource Center, Forest Guild and National Wildlife Federation ([www.southernenvironment.org/uploads/fck/file/biomass/biomass-carbon-study-021412-FINAL.pdf](http://www.southernenvironment.org/uploads/fck/file/biomass/biomass-carbon-study-021412-FINAL.pdf)): This report relates to biomass sourced from the Southeastern US, i.e. from one of the main sourcing regions for pellets for Tilbury B. It finds that the carbon payback time from burning wood sourced from that region will be 35-50 years for electricity generation (50 years for lower efficiency levels – and Tilbury’s projected 37% efficiency will be low).

+ Managing BC’s forests for a cooler planet, Ben Parfitt, report supported by David Suzuki Foundation, Sierra Club, Canadian Center for Policy Alternatives and others ([http://www.davidsuzuki.org/publications/downloads/2010/ccpa\\_bc\\_managingforests.pdf](http://www.davidsuzuki.org/publications/downloads/2010/ccpa_bc_managingforests.pdf)): This report shows that salvage logging after beetle infestation (a major source of pellets for Tilbury B, according to the planning documents) is bad for the climate: Forest sites in British Columbia where up to 90% of trees have been killed by beetles quickly regain carbon if they are allowed to regenerate naturally without logging, sequestering the carbon in new growth. On the other hand, a salvage-logged site that had been beetle infested was found to still be releasing rather than sequestering carbon after ten years.

+ Mountain pine beetle and forest carbon feedback to climate change, W.A. Kurz et al ([www.nature.com/nature/journal/v452/n7190/abs/nature06777.html](http://www.nature.com/nature/journal/v452/n7190/abs/nature06777.html)): This peer-reviewed study suggests that salvage logging of Mountain pine beetle infested forests in British Columbia will remove over 50 million tonnes of carbon over and above carbon losses attributable to the infestation itself;

+ Opinion of the European Environment Agency Scientific Committee on Greenhouse Gas Accounting in Relation to Bioenergy (<http://www.eea.europa.eu/about-us/governance/scientific->

[committee/sc-opinions/opinions-on-scientific-issues](#)): This opinion includes a critique of many of the claims made by RWE. For example, it states:

*“Clearing or cutting forests for bioenergy crops releases large stores of carbon into the atmosphere and may reduce ongoing carbon sequestration if the forest would otherwise continue to grow. Regrowing forests or planting bioenergy crops will absorb carbon that offsets the emissions from their combustion over time, but it may take decades for this carbon absorption to reach the level of the lost carbon storage and foregone carbon sequestration of the forest...Merely keeping carbon stocks stable ignores the additional carbon sequestration that would occur in the absence of wood harvest for bioenergy (the counterfactual) and therefore does not make bioenergy carbon neutral.<sup>7</sup> For this reason, sustainable forestry in the traditional sense does not necessarily mean that bioenergy produced from a forest is carbon neutral”.*

From RWE’s planning documents, especially from their response to objections dated 21<sup>st</sup> November, it appears that they are basing contradictory claims about a very short carbon debt or ‘carbon payback time’ on apparently unpublished figures obtained by two PhD students funded by RWE themselves. According to those unpublished ‘findings’ they conclude that in the case of biomass from whole trees from the Southeastern US, the carbon payback time will be less than two years, or 18 years if one was to look only at single stands, not the larger area. RWE also claim, again without any evidence (and indeed contrary to scientific evidence), that salvage logging of beetle infested trees in British Columbia incurs climate benefit. Given the complete lack of evidence for RWE’s claims and the fact that they contradict a large and growing volume of studies, many of them peer-reviewed, we believe that their claims about carbon benefits must not be accepted.

RWE’s further claim that wood pellet production in British Columbia does not result in additional logging and that, in the Southeastern US, there is a large surplus of plantation wood due to a decline in the pulp and paper industry. Those claims, too, are contradicted by evidence.

Evidence presented by Greenpeace Canada shows that in British Columbia, new regulations to increase the production of pellets and woodchips for energy involve an 85% increase in annual timber harvesting

([http://www.greenpeace.org/canada/Global/canada/report/2011/10/ForestBiomess\\_Eng.pdf](http://www.greenpeace.org/canada/Global/canada/report/2011/10/ForestBiomess_Eng.pdf)). Far from being ‘guaranteed’ sustainable, as RWE claim, logging in British Columbia continues to involve the destruction of highly biodiverse and carbon rich, including oldgrowth forests (see for example <http://www.sierraclub.bc.ca/media-centre/press-clips/bc2019s-endangered-forests>). Indeed, the Wood Pellet Association of Canada has stated that they regard sourcing from newly logged oldgrowth forests as being vital to the Canadian pellet industry (<http://library.constantcontact.com/download/get/file/1102670662980-86/2012-10-07+Quebec+Sustainability+Trip.pdf>).

In the Southern US, the expansion of tree plantations, such as those from which RWE’s Georgia Biomass sources its pellets, has historically been, and continues to be, at the expense of biodiverse native forests. This has been confirmed in US Government reports (e.g. [http://www.srs.fs.usda.gov/futures/reports/draft/summary\\_report.pdf](http://www.srs.fs.usda.gov/futures/reports/draft/summary_report.pdf)). RWE claim that there is a recession in the demand for pulp and paper leading to surplus wood being available. Although the global pulp and paper industry declined very temporarily around 2009, it has been growing again for two years, with annual growth forecast to triple in 2013 (<http://www.risiinfo.com/blogs/Whats-in-store-for-the-world-paper-industry-in-2013.html>). The most crucial issue for the pulp and paper industry in the southern US is competition from the bioenergy industry, not lack of demand.

In summary, there is clear evidence that the impacts which the massive new demand for pellets from British Columbia and the southern US created by Tilbury B conversion will have in terms of

carbon emissions as well as biodiversity impacts will be severely negative. We therefore hope that the application will be rejected on grounds of sustainability.

## **2) Air quality impacts:**

We note the large number of AQMAs in both Thurrock Council and Gravesham Borough Council. Two of those are close to Tilbury B and thus likely to be impacted long term should RWE's applications be approved rather than Tilbury B being closed down: One of them is Calcutta Road, Tilbury where we understand an AQMA was recently declared because NO<sub>2</sub> concentrations in 2010 exceeded the Air Quality Strategy Objective. This is also the closest continuous monitoring site to Tilbury B. The other is Northfleet Industrial Estate in Gravesham AQMA, declared because of high PM<sub>10</sub> levels.

We note with concern that no monitoring for PM<sub>10</sub> or PM<sub>2.5</sub> appears to have been undertaken in or near Tilbury or East Tilbury, i.e. in any of the places most affected by Tilbury B within Thurrock Council's area. Without accurate background figures for particulates, we cannot see how future levels can be adequately predicted.

If this application was rejected then Tilbury B would have to be closed down. Although RWE state that they will invest in improvements to their NO<sub>2</sub> and particular mitigation technology and thus reduce their present levels of air pollution, the alternative to their applications would not be ongoing higher levels of pollution – it would be the removal of a significant source of air pollution in the area. We would further point out that RWE's statement that NO<sub>x</sub> emissions have declined since conversion to biomass does not say that they have declined proportional to the amount of electricity produced. Clearly, Tilbury B has been either closed or working at a small fraction of its capacity for most of 2012, following the fire in February, so total annual emissions will have been down for that reason alone. Conversion from coal to biomass in general has not been shown to reduce particulate emissions nor to be guaranteed to reduce NO<sub>x</sub> emissions, which can even be increased. With regards to co-firing, as a report published by the International Energy Agency sums up the comparison between coal and biomass firing in terms of NO<sub>x</sub>:

*"NO<sub>x</sub> may increase, decrease, or remain the same, depending on fuel, firing conditions, and operating conditions."* ([http://ieabcc.nl/publications/paper\\_cofiring.pdf](http://ieabcc.nl/publications/paper_cofiring.pdf))

A European Commission briefing confirms:

*"Research results on NO<sub>x</sub> formation in co-firing are somewhat contradictory. Some research groups claim that NO<sub>x</sub> levels decrease when biomass is mixed with coal. Some results show just the opposite. NO<sub>x</sub> formation is a complex process. What is certain is that the combustion process is affected by a number of factors."*

([http://ec.europa.eu/energy/renewables/studies/doc/bioenergy/2003\\_cofiring\\_eu\\_bionet.pdf](http://ec.europa.eu/energy/renewables/studies/doc/bioenergy/2003_cofiring_eu_bionet.pdf))

Furthermore, we are deeply concerned that RWE's claims related to the quantities of feedstock required are a serious underestimate and that they may well require to burn far more, i.e. 3.9 million rather than 2.7 million tonnes of pellets a year. RWE's claim that they do not expect the power station to run at anywhere near full capacity most of the time because of maintenance and 'unforeseen shutdowns'. However, the applications include a capacity increase from a current 750 MW to 860 MW. It is commonly assumed for power stations to run 8000 hours a year. We believe that the worst case scenario must be considered in an Air Quality Assessment and that is the scenario of Tilbury running at full capacity for 8000 hours a year and thus burning 3.9 million tonnes

of pellets. We believe that a new Air Quality Assessment should be required, based on that worst case scenario.

### **3) Health and Safety:**

The major fire at Tilbury B in February this year was one of a long and fast growing list of explosions and fires linked to wood pellets worldwide. At least 75 such incidents have been reported in just four years (<http://www.pt-raps.co.uk/Pellet-fires-wood-dust-fires-2008-2012.pdf>). RWE concede in the applications that the risk of dust explosions and ignitions is far higher from wood pellets than from coal. Just last month, there was another explosion linked to wood pellets at a coal power station in the Netherlands which co-fires substantial amounts of biomass (<http://www.clickgreen.org.uk/news/international-news/123720-huge-explosion-rips-through-europe%5Cs-first-biomass-power-plant.html>). The risk of fires and explosions associated with Tilbury B would affect not just the power station itself but also the entire biomass storage and handling areas around Tilbury B.

Please can you confirm that our objection has been recorded. Many thanks.

Best regards,

Almuth Ernsting  
Biofuelwatch