

# Energy and Climate Change Committee's inquiry into Bioenergy

- A response from  
GB Railfreight



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## Chapter 1: Summary of response

1.1 Rail freight is one of the most effective ways to transport goods across the country. It is crucial to the transportation of biomass from a wide range of countries, helping to guarantee security of supply benefits and reduced price volatility. GB Railfreight (GBRf) is the only freight company with regular contracts to move biomass on the UK railway.

1.2 Over the past three years we have worked hard to investigate the potential for carrying biomass by rail and secured contracts to supply the Drax power station in Selby and the E.ON's power station in Ironbridge. As part of our work with E.ON, we shift 1.5 million tonnes of biomass per year between Liverpool Docks and the Ironbridge Power Station. As part of our contract with Drax, we move 1.5 million tonnes of biomass from the Port of Tyne to Drax power station in Selby.

1.3 GBRf welcomes this inquiry as a means to consider what conditions are needed in order to best support the growth of the biomass sector. GBRf strongly believes that the biomass industry can only be as strong as its supply chain. With this in mind, we have proposed a series of recommendations for developing the supply chain, particularly the transportation of the biofuel.

1.4 GBRf believes that:

1.4.1 *A secure rail freight market is the only practical and sustainable solution to transporting biomass to power stations. Where possible and economically viable, it should be the transportation of choice for biomass.*

1.4.2 *Government policy on electricity markets is unclear and the ability for the private sector to make substantial investments in the supply chain is difficult.* Freight Operating Companies would need to invest on average approximately £30 million per power station to provide biomass transportation. The current uncertainty around government policy on energy is leading to reluctance by investors to lend money to the rail freight operators who are hoping to enter the biomass supply chain. If this uncertainty remains and the biomass market has not suitably matured, the UK could soon enter a place where it does not have enough electricity to fulfil the daily demand for electricity. For example, policy changes such as the introduction of the carbon tax will make it uneconomic to invest in coal and soaring wholesale gas prices will ensure businesses and taxpayers cannot afford their electricity. This could serve to erode the markets which currently "power" Britain without providing a replacement.

1.4.3 *The biomass industry is under immediate threat from proposed changes to the regulation of the transportation of biomass by the Office of Rail Regulation (ORR). This could have a significantly adverse impact on the biomass industry as a whole.* GBRf has calculated that a freight specific charge for the haulage of biomass, proposed to be introduced in April 2014<sup>1</sup>,

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<sup>1</sup> See Office of Rail Regulation, *Periodic Review 2013: consultation on a freight specific charge for biomass*, February 2013. Found at: <http://www.rail-reg.gov.uk/pr13/PDF/biomass-consultation-feb-2013.pdf>.

could immediately add from £1.00 to £1.50 per tonne to the price of biomass. The proposal for the charge will, in GBRf's view, materially and adversely affect the full start-up of this fledgling UK biomass carriage market and could put in jeopardy a number of proposed biomass conversion projects.

1.5 GBRf recommends the following:

- 1.5.1 *Government should ensure that the introduction of a freight specific charge for the haulage of biomass is stalled for at least ten years.* The ORR's logic for the charge is based on what they believe the biomass market can afford to have passed on to them; however, the ORR has not considered the immaturity of the biomass market and consequently the economic returns afforded to the rail freight market.<sup>2</sup> Any decision on introducing access charges for the carriage of biomass on rail should wait until the market has matured, which GBRf considers to be at least ten years.
- 1.5.2 *The Department of Energy and Climate Change (DECC) and the Department for Transport (DfT) should discuss an inter-relationship between biomass subsidies and any potential rail freight charges.* Handling biomass is much more difficult and cost-intensive than handling coal: it is a volatile substance that can easily catch fire; there are also further environmental problems created by the dust it creates; the UK needs enough deep sea capacity in the UK to allow for capesize vessels to reach the ports; adequate deep sea capacity within UK ports is needed; and enough investment needs to be made in trains to move the imported biomass from port to power station. If it is to reach its renewable energy targets then Government support for the complete biomass process needs to be given not just to power stations but the whole supply chain. The DfT, the ORR and DECC should co-ordinate policies which ensure that an inter-relationship between the biomass subsidies, renewable policies (for instance Renewable Obligation Certificates) and any potential rail freight charge is explored in detail.
- 1.5.3 *Boosting direct rail links.* The biomass market needs adequate infrastructure and capacity to support key corridors between deep sea bulk ports and power stations. This should be done by focusing the Strategic Freight Network funding on improving connecting corridors between deep water ports with power stations which are ready to convert and consequently providing for adequate capacity.
- 1.5.4 *Regional collection points should be set up to allow for biomass to be produced in the UK.* GBRf does not have a view on whether the UK has the capabilities of producing adequate levels of biomass in order to satisfy power station demand. However, if there are sufficient levels, innovative solutions will be needed to ensure a cost-effective, efficient supply chain. GBRf suggests that regional collection points for feedstock are set up and direct rail links between these and conversion plants be created.

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<sup>2</sup> Indeed, in the ORR's consultation paper, they state: "there is greater uncertainty than there is for other commodities about its prospect and about the impact of increases in track access charges on demand for it." See Office of Rail Regulation, *Consultation on freight specific charge for biomass*, February 2013, p.6

## Chapter 2: What contribution can biomass make towards the UK's decarbonisation and renewable energy targets? Are the Government's expectations reasonable in this regard?

2.1 The Department of Energy and Climate Change estimates that biomass could contribute 21% of the UK's target of generating 15% of the UK's energy from renewable sources by 2020. Companies such as Drax and E.ON are taking major steps in converting their units to burn biomass and have expressed intentions of becoming fully or partly biomass burning operations. We understand that several other existing power stations are considering doing likewise. Clearly, the possibility for biomass to contribute towards renewables energy targets shows promise.

2.2 Figure 1 below, taken as an extract from a Drax report<sup>3</sup>, *Biomass: the Fourth Energy Source*, shows that under the Renewables Obligation biomass has contributed more electricity than any other renewable for the entire period from 1996 to 2008. However, as Drax has highlighted in the past, a negative policy environment from 2005 onwards is hampering investment in the biomass market.

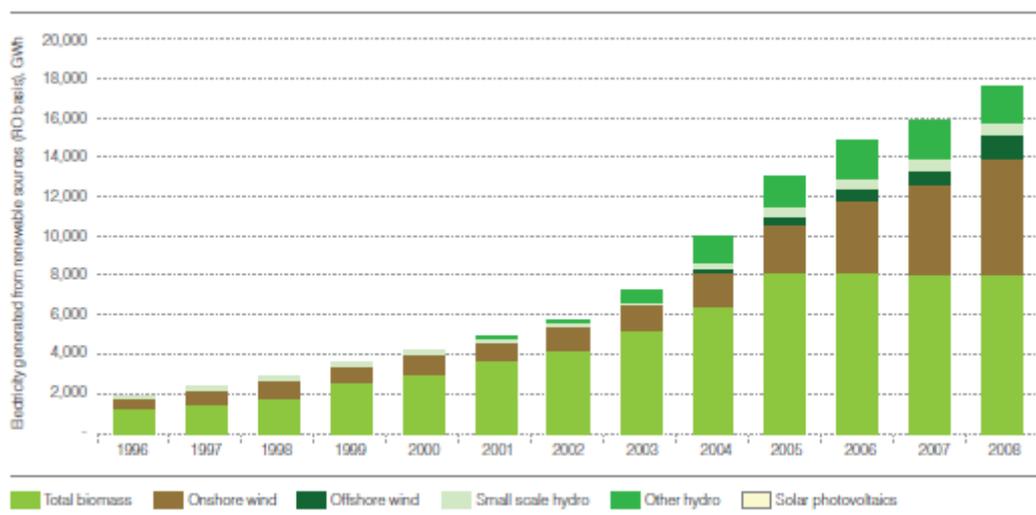


Figure 1: Digest of UK Energy Statistics, 2009. Extracted from Drax report, *Biomass: The Fourth Energy Source*.

2.3 GBRf believes that with a responsible supply chain, biomass can be fully sustainable and help the UK reach its targets. However, in the following chapters we highlight how the conditions are currently not right to create such a supply chain and provide recommendations for how to improve this.

<sup>3</sup> Drax report, *Biomass: The fourth energy source*, 2010

### Chapter 3: How well have the Government's bioenergy principles (set out in the 2012 Bioenergy Strategy) been translated into policy?

- Are genuine carbon reductions being achieved?
- Is bioenergy making a cost effective contribution to carbon emission objectives?
- Is support for bioenergy maximising the overall benefit to the economy?
- Is sufficient attention being given to potential impacts in other areas, such as food security and biodiversity?

3.1 The UK's commitment to an ambitious renewables target makes a powerful case for biomass to become an increasingly significant part of our future energy mix. The accompanying policy framework must facilitate this.

3.2 GBRf welcomes the recent commitments which DECC has shown to developing the biomass market. However, this display of support is not being filtered into other policy and regulatory areas. There are mixed signals coming from the transport regulator, which puts a question mark over whether Government is truly committed to biomass.

3.3 Recent proposals being put forward by the ORR threaten to produce policy in direct conflict with DECC's principles. The regulator is proposing to introduce a freight specific charge on the transportation of biomass by rail.<sup>4</sup> GBRf believes that such changes, set to be introduced in April 2014, would add £1 to £1.50 per tonne to the price of biomass. With a lower density than coal, biomass is already more costly to transport: proportionately it needs two wagons for every one of coal.

3.4 GBRf's view is that an increase in the transportation of biomass by road is not the only likely effect of higher access charges. It is also likely to lead to some potential biomass projects being abandoned. Government has confirmed that the Renewable Obligation biomass subsidy levels do not take account of the charge.<sup>5</sup> Unless the rail freight sector absorbs the charge itself and does not pass it on to biomass customers, the biomass sector would need to be subsidy free and profitable at the start date of the introduction of any freight specific charge. GBRf considers this highly unlikely.

3.5 This policy seemingly stands in direct conflict with Principle 3: "support for bioenergy should aim to maximise the overall benefits and minimise costs across the economy."

3.6 GBRf recommends that the introduction of charges be stalled for at least ten years to ensure that the biomass market is allowed time to develop. During this time, and the DfT and the ORR must co-ordinate policy with DECC to ensure that the inter-relationship between biomass subsidies and any potential rail freight charge is explored in detail in advance of any decision being taken.

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<sup>4</sup> The ORR consulted on this charge at the beginning of 2013. The consultation has since closed and the ORR intends to announce the access charge level in October 2013. Please note that this contradicts ORR's previous plans to not introduce an access charge on biomass until Control Period 6. See Office of Rail Regulation, *Consultation on freight specific charge for biomass*, February 2013.

<sup>5</sup> See House of Lords, *Railways: Freight Charges*, 25<sup>th</sup> March 2013.

## Chapter 4: What challenges are there to scaling up the use of biomass in the UK (i.e. regulation, feedstocks, sustainability, supply chain and financing)?

4.1 In a 2012 report, Deloitte identified five key challenges for biomass developers: regulation, feedstock, sustainability, supply chain, and financing.<sup>6</sup> GBRf's interest in this area specifically relates to the supply chain. We believe that the biomass market cannot reach its full potential if an efficient, cost-effective and sustainable supply chain is not built from the early stages.

4.2 Where possible, rail freight should be the transporter of choice for the biomass lifecycle. This is beginning to be the case for delivery of biomass from port to power station, however it also has potential to be the case for the feedstock delivery process. Rail freight has a number of benefits, including the following:

4.2.1 Environmental: Whilst biomass transportation could move to roads, each biomass train is equivalent to 40 lorries on the road (see Figure 2), meaning a significant increase in congestion as the biomass market grows. Using average capacity factors, trucks consume more than twice as much fuel per ktonne as rail.<sup>7</sup> And switching from road to rail reduces CO2 emissions by 70% per tonne moved.<sup>8</sup>

4.2.2 Economic: Rail freight plays a crucial role in taking traffic off the roads. INRIX suggests that congestion on the roads currently costs the UK economy £4.3 billion per annum.<sup>9</sup> If road freight is used to transport biomass, this figure will only worsen. The ORR states that rail generates benefits in terms of reduced road congestion equivalent to 28 pence per HGV mile avoided.<sup>10</sup>

4.3 Whilst there are some elements already in place to assist the rail freight industry in its delivery of biomass, the level of capital required to invest in the full conversion of infrastructure from coal transportation to biomass transportation is still very significant. In particular, there are serious gaps in the availability of funding to do so and existing rail corridors do not offer enough capacity. There are a number of ways in which the rail freight sector can be supported:

4.3.1 Boosting direct rail links: If the infrastructure is to be there to transport biomass, Government needs to act decisively at an early stage to boost direct rail links between the point of biomass collection and a conversion plant. This should be done by focusing the recently announced Strategic Freight Network funding on improving connecting corridors between deep water ports with power stations which are ready to convert and consequently providing for adequate capacity.

4.3.3 Rail freight rolling stock: Rail freight wagons to transport biomass are unique and specially designed. Rail freight companies will require approximately £30 million of investment in rail freight rolling stock for each power station that converts. With this in

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<sup>6</sup> Deloitte, *Knock on Wood – Is biomass the answer to 2020?*, November 2012.

<sup>7</sup> Limatel, *Biomass: Strategic Issues in Supply Chain Logistics*.

<sup>8</sup> Office of Rail Regulation, *Consultation on Biomass Access Charge*, February 2012.

<sup>9</sup> Telegraph, Traffic congestion costs UK economy £4.3bn a year, 10<sup>th</sup> December 2012.

<sup>10</sup> Rail generates benefits in terms of reduced road congestion, equivalent to 28 pence per HGV mile avoided. See Office of Rail Regulation, *Consultation on freight specific charge for biomass*, February 2013, p.5.

mind, Government's indecision and inconsistency with biomass policy, as well as uncertainty over sustainability levels, has discouraged investment to date. GBRf suggests that DECC and DfT co-ordinate their policies to ensure an inter-relationship between biomass subsidies and track access charges. Such agreements would also provide clear economic incentives to encourage key players to invest in identifying innovative production and transportation techniques to allow for even greater carbon benefits to be found.

4.3.4 Access charges: As previously stated, an access charge for biomass is a major threat to the rail freight industry and consequently the biomass industry. See Chapter 3 for recommendations.

4.4 There are also other ways to support the wider supply chain:

4.4.1 Production facilities: These will need to be built and financed in areas where there is a large scale biomass product from the timber industry, namely the USA and other major timber producing areas around the world.

4.4.2 Shipping: Shipping needs to be in large ships. However, these have limited docking capacity in UK ports and in consequence, port capacity may become constrained if the biomass market continues to grow.

4.4.3 Handling facilities at ports: This is a very complicated procedure. Investment is being made. However, this pattern needs to be continued.

## **Chapter 5: To what extent will the UK be able to provide its own biomass and how much is likely to be imported?**

5.1 The European Climate Foundation highlighted that a substantial amount of biomass fuel would need to be imported in order to meet EU targets.<sup>11</sup> If this is to be the case, we reiterate the need for financial security and confidence as we proceed with investing in biomass and the suggestion that a Government Guarantee might be the method for doing so. See Chapter 4 for other suitable support measures in assisting importation.

5.3 If the UK is to be in a place to produce its own biomass, innovative solutions will need to be developed to ensure a suitable supply chain. GBRf recommends that regional collection points are set up and direct rail links between the point of biomass collection and a conversion plant be created in order that transport costs are minimised.

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<sup>11</sup>Joint report by European Climate Foundation, Sodra, Sveaskog and Vattenfall, Biomass for heat and power: Opportunity and economics, 2010. See: [http://www.europeanclimate.org/documents/Biomass\\_report\\_-\\_Final.pdf](http://www.europeanclimate.org/documents/Biomass_report_-_Final.pdf).

## **Chapter 6: What factors will have to be addressed to ensure that biomass is sustainable and to what extent is it possible to assess the sustainability of imported biomass?**

6.1 Transportation plays a crucial role in ensuring that the biomass market is sustainable<sup>12</sup> and the mode of transport is crucial to ensuring sustainability.<sup>13</sup> The rail sector has strong environmental credentials and should be viewed as the transporter of choice in order to help the UK meet its carbon reduction targets (see 4.2.1).

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<sup>12</sup> Graham Backhouse, Commercial Manager at Drax said: “Our commitment to reducing the carbon footprint of our electricity generation through the use of sustainable biomass extends to the transportation of this renewable fuel source. With a focus on moving biomass by rail we are able to make a meaningful saving in emissions of CO<sub>2</sub>”. See [http://www.truckandtrack.com/news\\_item.php?wnID=2271](http://www.truckandtrack.com/news_item.php?wnID=2271).

<sup>13</sup> In their Bioenergy Strategy, DECC said “the energy and mass density of the feedstock, distance transported and mode of transport all influence the energy, carbon and economic cost, with road transport over large distances (eg.400km) and shipping from distance sources (eg. 5000km) having particularly large energy and carbon impacts.” DECC, UK Bioenergy Strategy, April 2012, p.23.