



Brussels, 19.12.2016
C(2016) 8442 final

COMMISSION DECISION

of 19.12.2016

**on State aid for an investment contract for the biomass conversion of the first unit of the
Drax power plant
SA.38760 (2016/C) which the United Kingdom is planning to implement**

(Text with EEA relevance)

(Only the English version is authentic)

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<p>In the published version of this decision, some information has been omitted, pursuant to articles 24 and 25 of Council Regulation (EC) No 659/1999 of 22 March 1999 laying down detailed rules for the application of Article 93 of the EC Treaty, concerning non-disclosure of information covered by professional secrecy. The omissions are shown thus [...].</p>		<p style="text-align: center;">PUBLIC VERSION</p> <p>This document is made available for information purposes only.</p>
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THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, and in particular the first subparagraph of Article 108(2) thereof,

Having regard to the Agreement on the European Economic Area, and in particular Article 62(1)(a) thereof,

Having called on interested parties to submit their comments pursuant to the provision(s) cited above¹ and having regard to their comments,

Whereas:

1. PROCEDURE

- (1) Following pre-notification contacts, on 2 April 2015 the United Kingdom notified the Commission, pursuant to Article 108(3) of the Treaty, of support for the conversion to biomass of Unit 1 of the Drax Power Station. The Commission requested the United Kingdom to provide additional information on 20 May, 24 July and 23 October 2015. The United Kingdom provided a reply to the Commission on 26 May, 25 August and 5 November 2015.
- (2) By letter dated 5 January 2016, the Commission informed the United Kingdom that it had decided to initiate the procedure laid down in Article 108(2) of the Treaty in

¹ OJ C 46, 5.2.2016, p.21.

respect of the aid for the conversion to biomass of unit 1 of the Drax Power Station (the Opening Decision).

- (3) On 18 February 2015, the United Kingdom provided its comments on the Opening Decision to the Commission.
- (4) On 5 February 2016, the Opening Decision was published in the *Official Journal of the European Union*. The Commission also invited interested parties to submit their comments.
- (5) The Commission received comments from 49 interested parties. On 7 April 2016, it forwarded those comments to the United Kingdom, which was given the opportunity to reply. On 9 May 2016, the United Kingdom duly replied to the comments.

2. DETAILED DESCRIPTION OF THE MEASURE

2.1. The Drax biomass conversion project and beneficiary

- (6) The United Kingdom selected eight renewable energy projects under the Final Investment Decision Enabling for Renewables (FIDeR) process². Support for these selected projects will be provided on the basis of investment contracts. The notified measure concerning Unit 1 of the Drax Power Station is one of the eight projects selected under the FIDeR³.
- (7) The notified aid concerns operating aid for the electricity generated in one unit (Unit #1) of the coal fired Drax power plant converted to enable it to operate entirely on biomass. The power plant is situated in Selby, North Yorkshire in North East England and it is owned and operated by Drax Power Limited (the beneficiary), a wholly owned subsidiary of Drax Holding Limited.
- (8) Drax is a 3 960 MW coal fired power plant that started commercial operation in 1974. Under the current proposal, one of the six units in the power plant will be retrofitted to operate exclusively on biomass. Due to the characteristics of the combustion process, the plant will be able to burn only industrial grade wood pellets. The plant will provide electricity to the national power grid and the United Kingdom estimates that the project will generate 1,1 % of the United Kingdom's average annual future electricity.
- (9) According to United Kingdom's estimates, the notified project will save approximately 28,8 million tonnes of CO₂ emissions during the lifetime of the project and supply approximately 3,6 TWh of electricity per annum. The plant will provide base-load, low-carbon electricity.

² The Commission has adopted a decision on seven of the eight renewable energy projects. On 23 July 2014, a no objection decision (C(2014)5074 final) was adopted for five offshore wind project (cases State aid: SA.38758 (2014/N), SA.38759 (2014/N), SA.38761 (2014/N), SA.38763 (2014/N) and SA.38812 (2014/N) – United Kingdom Support for five Offshore Wind Farms: Walney, Dudgeon, Hornsea, BurboBank and Beatrice) (OJ C 393, 7.11.2014, p. 1 –); on 22 January 2015, a no objection decision (C(2015)168 cor) was adopted in the State aid case: SA.38796 (2014/N) - United Kingdom Teesside Dedicated CHP Biomass project (OJ C 406, 4.11.2016, p. 1) and a final no objection decision (C(2015)8441 final) was adopted in the State aid case: SA.38762 (2015/C) (2014/N) – United Kingdom, Investment Contract for Lynemouth Power Station Biomass Conversion on 1 December 2015 (decision not yet published).

³ Biomass co-firing power plants accredited under the Renewable Obligation support scheme that undergo full conversion to biomass are eligible to participate in the FIDeR process.

- (10) According to the United Kingdom's estimates, the Drax unit is designed to operate at 645 MW nominal electrical power with a mean load factor of 78 %⁴. The unit will use approximately 2,4 million dry tonnes of wood pellets a year, most of which will be imported from the south-east of the United States. The approximate breakdown of the sources of wood pellets will be as follows: (a) 60 % will be imported from the south-east of the US⁵; (b) 13 % will be imported from Brazil; (c) approximately 7 % will be purchased on the wood pellet spot market; (d) 4 % will be sourced from Europe. The remaining share of approximately 16 % will be sourced from the south-east of the US and Canada however, small volumes might also be sourced from the rest of Europe depending on availability. The Unit 1 at Drax will not be designed to comply with the applicable laws on waste incineration regulations, and therefore will not be able to burn waste wood. The measure is designed based on applicable EU-ETS rules which do not require surrendering any ETS allowances for GHG emissions from the combustion of biomass.
- (11) Table 1 shows the expected operating parameters of the Drax unit, updated by the United Kingdom following the opening of the formal investigation procedure. According to the United Kingdom, the load factor is defined as the product of the amount of time the plant is technically available to generate electricity and the time the plant is actually scheduled to generate electricity. The net load factor shown in Table 1 is obtained by multiplying a mean technical availability of 83,7 % and a gross load factor of 93,1 %⁶.

Table 1 Plant operating parameters

Operating parameters Drax unit (updated)⁷		
Fuel costs (GBP/GJ)	Thermal efficiency (%)	Mean net load factor (%)
8,18	38,6	78

2.2. National legal basis, financing and budget

- (12) The UK national legislation for the measure is the Energy Act 2013.
- (13) The total budget for the notified project is estimated at GBP 1.3 billion and the United Kingdom confirmed that no aid will be paid to the beneficiary before the commissioning date.
- (14) The aid will be paid out by a government owned counterparty, the Low Carbon Contracts Company Ltd funded through a statutory levy imposed on all licensed electricity suppliers, based on the suppliers' market share, calculated by reference to their customers' metered electricity use. Electricity suppliers will be required to meet the cost of their obligations from their own resources but will be allowed to pass on the costs to consumers as part of their overall pricing strategies.

⁴ This is the updated figure following the opening of the formal investigation procedure in February 2016. The load factor was initially estimated at 70,5 %.

⁵ The information submitted by the United Kingdom in reply to Opening Decision also clarifies the beneficiary's intended supply strategy.

⁶ The mean net load factor, before the update by the United Kingdom after the opening of the investigation procedure (70,5 %), was the product of a mean technical availability of 83,7 % and a mean gross load factor of 83,7 %.

⁷ The initial operating parameters as set out in the Opening Decision are: (a) fuel costs 8,39 (GBP/GJ); (b) thermal efficiency 38,6 %; and (c) mean net load factor 70,5 %.

2.3. The form of the aid, duration and production costs

- (15) The aid for the electricity generated by the notified project will be granted in the form of a variable premium (known as a contract for difference or CfD), calculated as the difference between a pre-fixed price (the strike price) and an estimate of the market price for electricity (the reference price). The reference price is a price based on forward wholesale market electricity prices for a given period. The beneficiary will generate revenue from selling its electricity on the market⁸, but when the average wholesale price of electricity falls below the strike price, the beneficiary will receive a top-up payment from a government owned counterparty, Low Carbon Contracts Company Ltd, (the "CfD Counterparty") for the difference. The beneficiary will, however, retain the risk of not achieving the reference price and a volume risk of not achieving its forecasted sales volumes⁹. Regardless of the commissioning date, aid payments will end on 31 March 2027.
- (16) The aid for the project is therefore determined on the basis of an administratively set strike price. The strike prices were set by the United Kingdom at such levels to ensure that the support under the FIDeR is broadly equivalent to that provided under the Renewable Obligation scheme¹⁰ in order to provide for a smooth transition between both support schemes.
- (17) For the purposes of calculating the strike price for dedicated biomass conversion plants, such as the Drax Unit, the United Kingdom took into account the ranges of levelised costs of electricity (LCOE) in the range of 105 GBP/MWh to 115 GBP/MWh. The United Kingdom explained that the level of the strike price for biomass conversion projects was calculated taking into account a range in hurdle rates¹¹ of 8,8 % to 12,7 %.
- (18) The applicable strike price for the notified project is 100 GBP/MWh (2012 Prices – indexed annually to the Consumer Price Index) and therefore below the range defined by the United Kingdom as appropriate for biomass conversion projects. The levelised costs include the financing costs of new power plants based on a 10 % discount rate for all technologies. The United Kingdom presented in detail how these costs were calculated, the sources of data used and the hurdle rates considered¹².

⁸ The United Kingdom clarified that the modified condition on the absence of incentives to generate at negative prices introduced for the general CfD scheme (SA.36196) does not apply to the notified project.

⁹ For more information on the CfD remuneration mechanism, see recitals (17) to (31) of the Commission decision of 23 July 2014 in State aid case: SA.36196 (2014/N) United Kingdom Electricity Market Reform - Contract for Difference for Renewables (C(2014) 5079 final). (OJ C 393, 7.11.2014, p. 1).

¹⁰ The renewable obligation scheme was originally approved by the Commission Decision of 28 February 2001 in State aid case N 504/2000 – United Kingdom - Renewables Obligation and Capital Grants for Renewable Technologies C(2001)3267 fin (OJ C 30, 2.2.2002, p. 14) and subsequently amended several times. In its current form, the renewable obligation scheme was approved by the Commission in its Decision of 2 April 2013 in State aid case SA.35565 (2013/N) – United Kingdom Amendments to the Renewables Obligation (RO) scheme (OJ C 167, 13.6.2013, p.5). Some specific elements were afterwards approved for Northern Ireland in State aid case SA.36084 (13/N) Renewables Obligation in Northern Ireland (OJ C 167, 13.6.2013, p. 1) and Scotland in State aid case SA.37453 (2014/N) Amendment to SA.35565 — Renewables Obligation (RO) scheme) (OJ C 172, 6.6.2014, p. 1).

¹¹ The hurdle rate is defined as the minimum rate of return needed to implement a project of this kind.

¹² All these elements have been published by the UK authorities in the document "Electricity Generation Costs", available on <https://www.gov.uk/government/publications/electricity-generation-costs>.

- (19) The key assumptions used for the calculation of strike prices, including for levelised costs, fossil fuel prices, effective tax rates and maximum build assumptions are listed in the government's levelised cost report¹³ and the reports from the Department of Energy and Climate Change¹⁴. For this purpose, the wholesale price of electricity is assumed to be approximately 55 GBP/MWh in real terms increasing to 65 GBP/MWh in 2020. Based on this strike price, and the initial operating parameters¹⁵, the Internal Rate of Return (IRR) for the notified project was estimated at 4,7 % on a real, pre-tax basis.

2.4. Cumulation

- (20) The United Kingdom clarified that projects that have been awarded FIDeR contracts will be not eligible to receive a support for the same electricity generation under the new CfD support scheme. Moreover, no project receiving payments under FIDeR contracts will be eligible to receive renewable obligation certificates for the same electricity generation. Finally, renewable generation that receives support through an investment contract will not be eligible to participate in the capacity market or receive investment aid during the term of the investment contract.
- (21) Based on the rules described in recital (20), the United Kingdom confirmed that neither the beneficiary nor any of its direct or indirect stakeholders has received, been granted or applied for any other support from the United Kingdom or from any other Member State.

2.5. Use and availability of biomass

- (22) As explained in recital (8), the Drax unit will only be able to burn wood pellets. Wood pellets used in the Drax unit will be required to satisfy the United Kingdom sustainability criteria including a minimum of 60 % greenhouse gas savings¹⁶ against the average fossil grid intensity in the Union, namely, against the coal and gas average in the Union. These targets will be increased to a minimum of 72 % greenhouse gas saving from April 2020 and then further to a minimum of 75 % saving from April 2025. The sustainability criteria also contain provisions to protect biodiversity and avoid unsustainable practices¹⁷.
- (23) Global demand for wood pellets was estimated at 25 million tonnes¹⁸ per annum in 2014 and 17 million in 2012¹⁹. Demand in the Union is higher than production which means that wood pellets are imported into the Union. Net imports of wood pellets in the Union in 2012 were estimated at 4 million tonnes per annum and it is expected to increase to approximately 5,3 million tonnes per annum in 2014²⁰.

¹³ 'Electricity Generation Costs December 2013' DECC (2013),

www.gov.uk/government/publications/electricity-generation-costs.

¹⁴ www.gov.uk/government/publications/electricity-market-reform-delivery-plan.

¹⁵ See footnote 4 of recital (10).

¹⁶ Emissions from biomass would be calculated on a life cycle basis.

¹⁷ For more information, see: www.gov.uk/government/consultations/ensuring-biomass-affordability-and-value-for-money-under-the-renewables-obligation.

¹⁸ Unless otherwise specified, the unit of tonnes always refers to oven dry metric tonnes.

¹⁹ RISI Global Pellet Demand Outlook: www.risiinfo.com/product/2015-global-pellet-demand-outlook-study/.

²⁰ AEBIOM Annual Report 2015.

- (24) Approximately 18,8 million tonnes of wood pellet were consumed in the Union²¹ in 2014. Of these 18,8 million tonnes, approximately 7,8 million tonnes are used for energy production in industry. With 4,7 million tonnes consumed in 2014, the United Kingdom is the largest user of wood pellets in industry.

2.6. Transparency

- (25) With regard to reporting and transparency, the United Kingdom indicated that all the investment contracts awarded through the FIDeR process have been published online in the form in which they were concluded²².

2.7. The decision to initiate the formal investigation

- (26) On 5 January 2016, the Commission decided to initiate the formal investigation procedure regarding the compatibility of the notified aid with the internal market, in particular in view of the proportionality of the aid and the risk of market distortion.

- (27) More specifically, the Commission concluded that the risk of overcompensation could not be excluded due to uncertainties in the assumptions and based on a sensitivity calculation provided by the United Kingdom to estimate the impact on the IRR by changes in the plant average thermal efficiency, load factor and fuel cost. If the thermal efficiency and the load factor were to increase by 5 % and fuel costs to decrease by 5 %, the IRR (on pre-tax real basis) would increase from the estimated 4,7 % to over 15,6 %. The Commission therefore expressed doubts on the absence of overcompensation.

- (28) The Commission also expressed concerns that the amount of wood pellets required to operate the Drax unit entirely on biomass would lead to undue negative effects on other participants on the wood pellet market. The Drax biomass conversion project would consume approximately 9 % of the global wood pellet production and 16 % of the consumption in the Union, based on 2012 figures. The Commission expressed doubts that the market could accommodate such an increase in demand without undue market distortions.

- (29) The Commission further noted that wood biomass, as raw material, has different uses. The increased demand for wood pellets might also lead to distortions in the wood fibre market affecting other industries, such as the pulp and paper or board manufacturing. Given the size of the Drax biomass conversion project, the Commission could not, with sufficient certainty, exclude the existence of undue market distortions in the raw material market (i.e., the wood fibre market).

3. COMMENTS FROM INTERESTED PARTIES

- (30) Following the opening decision, the Commission received 49 comments from stakeholders. The Commission also received comments from trade unions and Members of Parliaments, both from the European Parliament and the UK Parliament, which supported the Drax biomass conversion project, highlighting the economic and social importance of the notified project. Also, the Governor of Mississippi expressed his support for the notified project citing the benefits of the wood pellet

²¹ AEBIOM Statistical Report 2015.

²² www.gov.uk/government/publications/final-investment-decision-fid-enabling-for-renewables-investment-contracts. Following publication of the investment contract, the United Kingdom lowered the strike price from 105 GBP/MWh to 100 GBP/MWh. In this respect, the investment contracts published online do not reflect their final version.

industry for that State. Letters supporting the notified project were also received from various companies in different sectors, such as in the manufacture of railway freight wagons, forestry industry and the wood pellet industry²³.

- (31) In total 33 stakeholders²⁴ submitted comments emphasising the positive impact of the Drax biomass conversion project and the limited risk of distortions in the wood fibre market that the notified project would entail. The observations covered various topics including, among others: the availability and sustainability of biomass; the economic impact of the notified project, the role of biomass energy in achieving the renewable targets laid down in the Renewable Energy Directive, the plant's estimated operating parameters and the logistics of the fuel supply.
- (32) Several associations of industrial wood pellets producers highlighted the environmental benefits of bioenergy and the sustainability of wood pellets produced in the US. They emphasised that biomass has an important role to play in reducing greenhouse gas emissions.
- (33) The European Pellet Council pointed out in its comments that the demand for wood pellets would not lead to undue distortions in the wood pellet market and for other users of biomass. They provided data showing that an estimated increase in wood pellet demand by six million tonnes between 2013 and 2015 did not lead to significant price increases, but rather showed that prices had been falling since 2014. They also emphasised the insignificance (2,4 %) of removals of wood fibre for wood pellets compared to removals of wood fibre for other industries. In addition, they pointed out, inter alia, with reference to a study²⁵, that the increase in wood pellet demand is smaller than the decline in demand from the pulp market.
- (34) The consultant, Forest2Market, submitted a report to the Commission²⁶ prepared in order to quantify and contextualise the manufacturing, wood supply and price trends which have occurred in the south-east of the US, prior to and since the emergence of the wood pellet industry. They found that the impact of export wood pellet mills on forest inventory and wood fibre prices in the south of the US was minimal and that wood pellet mills exporting to the Union, by themselves, do not drive price changes or changes to forest inventory and management.
- (35) Forest2Market estimated that the additional exports of wood pellets to the European Union represent 1 % of the total pulpwood inventory of the southern part of the US and 0,3 % of the total US inventory. Furthermore, wood fibre prices would probably have increased without the increased demand from the markets for wood pellets in the Union. Among the factors affecting the price of wood fibres, Forest2Markets identified the following elements: (a) a decline in the production of sawmill residual chips, due to the housing market crash, which has resulted in an increased demand

²³ For instance, the Davis Group and TANAC.

²⁴ Shaw Resources; CANFOR; FIBRECO; Pinnacle; Smart Green Shipping; Astec; European Pellet Council; Pacific bioenergy; Georgia Biomass; Hancock Group; Onex; DB Cargo; Fram; Enviva; Renewable Energy Association; Highland Pellets; Forest2Market; CM Biomass Partners; Westervelt Renewable Energy; Weyerhaeuser; AEBIOM; FEDNAV; SGSF; Evolution Markets; USIPA; Scotia Atlantic; Drax; Beasley Forest Products; Cosan; NAFO; WPAC; Port of Tyne; American Forest Foundation.

²⁵ Forest2Market; Wood Supply Market Trends in the US South 1995 – 2015: www.theusipa.org/Documents/USSouthWoodSupplyTrends.pdf.

²⁶ Forest2Market; Wood Supply Market Trends in the US South 1995 – 2015: www.theusipa.org/Documents/USSouthWoodSupplyTrends.pdf.

for pulpwood; (b) strong deviations from average long-term precipitation patterns; and (c) land ownership changes.

- (36) Forest2Market also provided data on the forestry inventory. According to that data, the average supply of residues between 2007 and 2014 was 21 % less than the supply between 2000 and 2006, causing pine residual prices to increase by 12,5 % and hardwood residual prices to increase by 10,7 %, when comparing averages over those two periods. According to Forest2Market, this demonstrates the impact of the reduced availability of sawmill residues on wood prices.
- (37) The biomass trader, Evolution Markets, provided information on the wood pellet spot market. According to Evolution Markets, the wood pellet spot market had experienced some volatility during the preceding 24 months, but the spot price for industrial wood pellets hit historic lows in 2016. The wood pellet spot market is also very illiquid and the volume of wood pellets traded under spot market conditions remains low when compared to the volume traded under long term contracts. According to Evolution Markets, although spot pricing is currently cheaper than long term contracts, sourcing sufficient volumes to supply even half of the Drax unit consumption requirement would be extremely difficult.
- (38) Other stakeholders supporting the Drax biomass conversion project submitted arguments similar to those referred to in recitals (33) to (37). Several parties²⁷ argued that wood pellet mills will use mainly residues and low quality wood fibres. Some of these stakeholders²⁸ claim that the wood pellet industry has the lowest capability to pay for wood fibres and that competition with traditional industries will therefore be limited.
- (39) Other stakeholders²⁹ claimed that the wood pellet industry uses only a small part of the total wood inventory in the south-east of the US. Therefore, the wood pellet industry alone does not drive the dynamics of the forestry industry in the south-east of the US and has no or little effect on prices. As a result, there is no compelling evidence to support the argument that the market for the export of wood pellets has led to the closure of paper or packaging mills³⁰.
- (40) Certain stakeholders³¹ argued that the long term contracts needed to secure the supply chain of the Drax biomass conversion unit are more expensive than wood pellets from on the spot market, which is not liquid enough to supply a project of this size. The US Industrial Wood Pellet Association (USIPA) submitted that there is only limited trade of both wood fibre and wood products between the US and the European Union. Therefore, the possibilities for undue distortions are limited.
- (41) According to several stakeholders, the demand from the wood pellet industry is beneficial for the forestry industry affected by the decline of traditional industries³². It should, therefore, not be considered as unduly distortive. The Westervelt company

²⁷ Canfor Pacific Bioenergy; Pinnacle; Onex; FRAM Renewable Fuels; Georgia Biomass; Hancock Natural Resources; Enviva; Highlands Pellets; USIPA and Weyerhaeuser.

²⁸ Highlands Pellets; Drax; Weyerhaeuser; CM biomass partners.

²⁹ Enviva; NAFO; Drax; Astec; Baesley; Drax; AEBIOM and REA.

³⁰ Baesley; Astec citing a report from Forest2Market; FRAM Renewable Fuels; NAFO.

³¹ Hancock Natural Resources Group; US pellet industry and Highlands Pellets.

³² Pinnacle; Onex; Scotia Atlantic biomass; Georgia Biomass; Westervelt Renewable Energy; American Forest Foundation; Drax; Weyerhaeuser; Southern Group of State Foresters; CM biomass partners and Smart Green shipping alliance.

submitted a report from Forest Research³³ that assessed the risk of indirect wood use change (IWUC)³⁴ That report concluded that the risk of IWUC in the south-east of the US is small, as significant biomass surpluses are expected to persist and new wood pellet mills have a limited capability to pay for wood compared with currently installed processing capacity

- (42) The International Trade Administration (ITA) of the US Department of Commerce supplied trade data on US exports of wood pellets. The ITA did not draw any conclusions from the data, but pointed to a blog post of the US Department of Agriculture Chief Economist highlighting the positive economic impacts of wood pellets production.
- (43) Three stakeholders argued that the support for the Drax biomass conversion project would lead to overcompensation and market distortions in the wood fibre market. Renewable Energy Systems Ltd (RES) claimed that the operating parameters of the Drax plant were underestimated, and it specifically referred to the net load factor. It recommended the introduction of a claw back clause and a cap on the number of MWh receiving aid. RES also indicated that a competitive bidding process could have reduced the strike price.
- (44) Fern submitted comments on behalf of seven organisations³⁵ which indicated that low estimates used for the load factor and high estimates for the fuel costs will result in overcompensation. Moreover, those comments pointed out that, due to its large size, the Drax biomass conversion project might distort the wood fibre market. These submissions also contested the CO₂ savings claims by the notified project.
- (45) In addition, Fern pointed out, quoting data from the consultant RISI, that from 2011 to 2015 prices in the south of the US increased by 27 % for softwood and by 56 % for hardwood. The submission by Fern quoted a market analysis by the independent consultant FORISK³⁶. This analysis assumed that global wood fibre demand from industrial wood pellets would increase from 10,6 to 25 million tonnes per annum in the period from 2014 to 2019 and the analysis did not take into account the effect of saw mill residues. It subsequently made the finding that the stumpage prices³⁷ in the south-east of the US could increase by 30 % to 40 %.
- (46) In a separate submission, Biofuelwatch reiterated that the support for the Drax biomass conversion project would lead to overcompensation due to an underestimated load factor and overestimated fuel costs. That submission also claimed that, due to its size, the notified project would distort the market in the south-east of the US, and in South America where Drax would source approximately 16 % of its fuel, citing the risk of land-grabs from poorly regulated operations in South America.

³³ The risk of indirect wood use change (May 2014):

https://ec.europa.eu/energy/sites/ener/files/2014_biomass_forest_research_report_.pdf.

³⁴ The risk that wood pellet production for large scale electricity and heat generation will push other users of the same biomass raw material out of the market.

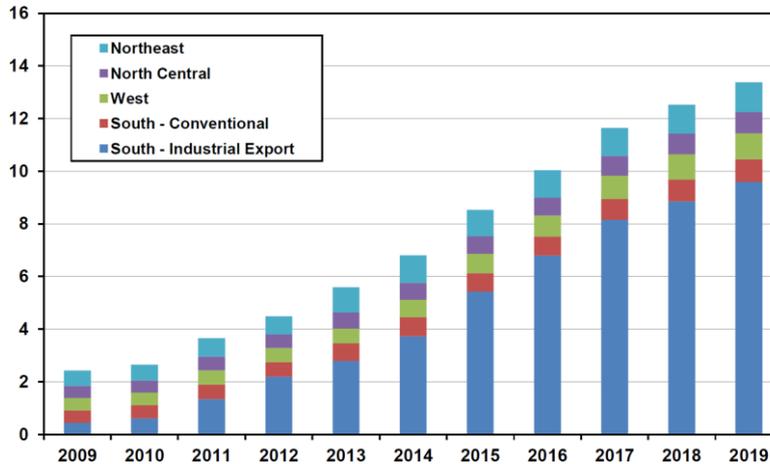
³⁵ Biofuelwatch; Dogwood Alliance; BirdLife; European Environmental Bureau; FERN; NRDC and Southern Environmental Law Center.

³⁶ "How can global demand for wood pellets affect local timber markets in the U.S. South?" Forisk Consulting, May 2015: www.forisk.com/blog/2015/06/02/how-can-global-demand-for-wood-pellets-affect-local-timber-markets-in-the-u-s-south/.

³⁷ Namely, the price paid for the right to harvest trees.

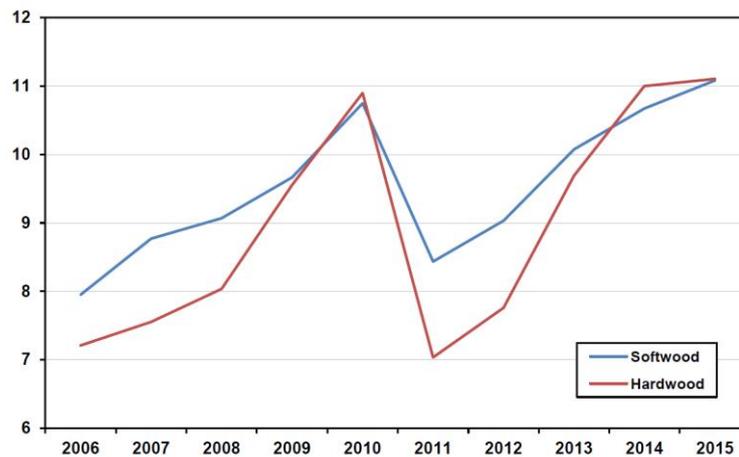
- (47) Three stakeholders³⁸ supported the view that the Drax biomass conversion project may distort competition in the raw material market for wood fibre. AFPA provided estimates of wood pellet production and exports in the south-east of the US based on a study by the independent consultant RISI. Wood pellet exports to the European Union increased from 1,8 to 4,5 million tonnes per annum during the period from 2012 to 2015. According to projections by RISI, exports could further increase to 10,6 million tonnes per annum in 2019. Figure 1 shows the estimated US wood pellet production.

Figure 1: Estimated US wood pellet production (million short tonnes; source, RISI).



- (48) According to AFPA, the increase in wood pellet production is already causing an increase in stumpage prices in the south-east of the US. Figure 2 shows the pulpwood stumpage prices in the south-east of the US for the period from 2006 to 2015 submitted by AFPA.

Figure 2: US SE pulpwood stumpage prices (\$/cord, source RISI).



- (49) The RISI study also contains a detailed breakdown of the costs of producing wood pellets in the south-east of the US³⁹ and exporting them to the United Kingdom. On

³⁸ Graphic Package International Inc. – GPII; American Forest & Paper Association – AFPA and Westrock.

³⁹ During the period from 2009 to 2015, the average price for imports of wood pellet into the United Kingdom was 194 USD/tonne (175 USD/tonne at CIF). The average overseas transport cost (including freight, loading and haulage to the port) amounted to 46 USD/tonne over the same period. When mill profits are taken into account, wood cost (harvested, at the gate of the pellet mill) was, on

the basis of these data, RISI estimated the beneficiary's maximum ability to pay for wood fibres under a CfD contract. A power plant receiving a CfD strike price of 105 GBP/MWh would be able to pay up to USD 275 per tonne of wood pellets. Accounting for transportation, production and harvest, this amounts to USD 57,9 per tonne of stumpage, which would be more than 4,7 times the average stumpage price. Therefore, the beneficiary would be able to out price other users of wood fibres.

- (50) In addition, RISI estimated that the composition of wood pellets from the south of the US is composed of 64 % softwood pulpwood, 12 % of hardwood pulpwood, 12 % of mill residuals and 12 % of forest biomass, that is to say, forest residues or harvest residues material that is too small or of poor quality to be used for pulp. Therefore, the wood pellets would be largely made from material that other industries are also using.
- (51) Similarly, Graphic Package International Inc. (GPII) reported that the wood used for manufacturing wood pellets in the south-east of the US are mainly pulpwood sized roundwood and mills residues, with forest residue accounting for only a small fraction of the total wood required of less than 20 %. Wood fibre consumption in the south of the US, by the forest products industry is projected to increase from 170 million dry metric tonnes in 2014 to 182 million tonnes in 2019, that is to say, a growth of approximately 1,4 % per annum.
- (52) GPII also added that the increased use of wood fibre by the wood pellet industry is increasing the stumpage price in the south-east of the US, citing data from the consultant, Forest2Market. GPII reported that pine pulpwood stumpage prices in the south of the US increased on average by 11 % in 2013 and by 10 % in 2014.
- (53) GPII provided maps with existing and planned wood pellet plants located near two of their paperboard mills. While some pulp, paper and wood products mills shut down in the area concerned, the wood pellet plants represent more than the number of pulp, paper and wood products mills that have been shut down. GPII, therefore, claims that these wood pellet mills create additional distortions.
- (54) Finally, GPII also submitted a study⁴⁰ financed by the US Department of Agriculture (USDA) on the impact of wood pellet exports on wood fibre prices in the south-east of the US. According to that report, for the period from 2016 to 2017, 40 million green short tonnes (GST), equal to 16,9 dry metric tonnes, will be used for bioenergy in the south of the US, including 8,4 million tonnes of wood pellets. As a result, the economic model Drax Power Limited suggests that stumpage prices for some types of wood, that is to say, pine non-sawtimber, could more than double.
- (55) Westrock, citing the RISI study, also remarked that the share of forest biomass residues in wood pellets from the south of the US would not exceed 12 %. Based on the RISI study, Westrock also claimed that wood fibre consumption by wood pellet producers is forecasted to increase by 14 % annually up to 2019. Over the same period, total wood fibre supply is projected to increase by only 2,0 % annually. This would potentially significantly increase the stumpage price to the disadvantage of the traditional wood industries.

average, 34% of the import price. According to the same report, the cost of harvesting and transport to the mill amount to USD 22 per Green Short Tonne (GST, equivalent to USD 49,3 per dry, metric tonne).

⁴⁰ Karen Lee Abt, Robert C. Abt, Christopher S. Galik, and Kenneth E. Skogn. 2014. "Effect of Policies on Pellet Production and Forests in the U.S. South": www.srs.fs.usda.gov/pubs/47281.

4. COMMENTS FROM THE UNITED KINGDOM

- (56) In reply to the decision to open a formal investigation, the United Kingdom provided updated information on the operating parameters of the Drax biomass conversion unit. The mean load factor was increased from 70,5 % to 78 %. The United Kingdom explained that the estimated availability of the Drax plant reflects experience gained in a similar unit converted to biomass and was backed up by independent advice. However, the United Kingdom increased the time that the plant is scheduled to operate, if technically available, to 93,3 % of the available time in a year from 84,1 %. This was the result of eliminating the low gross load factors that were included in view of potential fuel supply constraints. That elimination reflects the increased level of confidence in being able to contract sufficient supplies of wood pellets and in managing the risk of being left with excess biomass at the end of the plant lifetime.
- (57) In addition, the United Kingdom reviewed the estimate for the thermal efficiency of the Drax biomass conversion, confirming the previous estimate of 38,6 % thermal efficiency, as it reflects the experience in biomass conversion projects supported by independent advice received by Drax.
- (58) The United Kingdom also provided an updated breakdown of fuel supply costs. The average fuel costs are now estimated at 8,18 GBP/GJ, down from 8,40⁴¹ GBP/GJ. The new fuel costs estimate reflects the additional wood pellet contracts, optimisation of some fuel-related costs and changes in macroeconomic variables. In particular, the United Kingdom notes that the spot market for wood pellets is not liquid enough to be relied upon by large biomass conversion plants.
- (59) Prices based on long-term wood pellet supply contracts are usually higher than the spot price. In the updated submission, the fuel costs are now based on the weighted average of the existing long-term contracts, which account for approximately 77 % of the wood pellet requirements, long-term contracts yet to be finalised which account for approximately 15 % of wood pellet requirements, and estimated spot prices, which account for 7 % of wood pellet requirements. Fuel handling costs, such as UK port costs, UK rail costs, storage, sustainability costs, risk hedging and foreign exchange, are estimated to amount to 1,49 GBP/GJ. Biomass wood pellet costs delivered to the UK port would, therefore, amount to [...] GBP/GJ less [...] GBP/GJ which equals [...] GBP/GJ. This would reflect wood pellet costs of 181 USD per tonne (including costs of insurance and freight (CIF)). The United Kingdom also explained that this price is in line with costs reported by US suppliers that is in the range of 6,27 GBP/GJ to 8,24 GBP/GJ (as estimated by independent consultant, Ricardo Energy & Environment).
- (60) The United Kingdom emphasised that the estimates for the operating parameters of the Drax plant are robust, as they were verified by independent experts⁴². Furthermore, the United Kingdom noted that the three operating parameters are not correlated. Therefore, large simultaneous variations in the profit-increasing direction over a period of 20 years are unlikely.

⁴¹ Fuel costs were reported at 8,39 GBP/GJ in the notification by the United Kingdom of April 2015, and then updated to 8,40 GBP/GJ in the additional information submitted in August 2015.

⁴² The United Kingdom submitted a report from Ricardo Energy&Environment.

- (61) According to the United Kingdom, these developments significantly affected the profitability of the Drax biomass conversion project. The estimated IRR is now [4-12] % on a real, pre-tax basis, based on robust parameters and within the hurdle rates.
- (62) The United Kingdom confirmed that the beneficiary will not source wood fibre from old growth forests. In line with the requirements of the United Kingdom Timber Standard regulation, wood will be taken only from working forests which are sustainably and actively managed.
- (63) Regarding the intention of the beneficiary to procure wood pellets from South America, the United Kingdom clarified that the material sourced from Brazil will come from a single company based in the southern State of Rio Grande do Sul. Some of the surplus wood fibre will be used to make wood pellets. The material to be sourced will be either certified by the Forest Stewardship Council (FSC) Forest Management system or certified as FSC Controlled Wood and the wood pellet company has FSC Chain of Custody certification. The United Kingdom confirmed that the company and its operations have been independently audited to ensure that it meets the United Kingdom's sustainability and legal requirements for biomass.
- (64) In response to AFPA data on the composition of wood pellets, the United Kingdom explained that wood fibre derived from forestry practices makes up slightly more than 80 % of US wood pellet mill input material. The United Kingdom notes that this figure is in line with the data reported by RISI when using comparable definitions for the different types of wood.
- (65) The United Kingdom also provided data on the relative size of the US wood pellet industry. According to an analysis by Forest2Market⁴³, forest inventory in the south of the US increased by nearly 1,2 billion tonnes between 2000 and 2014. The wood pellet export industry in that area grew from zero to 3,6 million tonnes between 2008 and 2014. This represents 0,3 % of the total pine pulpwood inventory in the south of the US and 0,09 % of total pine inventory, that is to say, pulpwood and sawtimber.
- (66) The wood fibre requirement of 2,4 million tonnes of wood pellets by the Drax biomass conversion unit represented 0,2 % of the total hardwood pulpwood inventory and 0,06 % of total hardwood inventory namely pulpwood and sawtimber. Total wood fibres removals, for all consumers, in the south of the US in 2014 were 250,2 million tonnes, or 3,3 % of the total forestry inventory.
- (67) Regarding the location of wood pellet mills (see submission GPII), the United Kingdom submits that new wood pellet mills will need to be located in areas where they would not be required to compete directly with other wood raw materials users to secure financing for the construction of these plants. Referring to a report by the consultant, Forest2market⁴⁴, the United Kingdom submits that the location of wood pellet mills depends on a number of factors such as vacated demand, economic development incentives, tax abatements, fibre supply and price, proximity to fibre supply and proximity to rail infrastructure serving a deep water port. The report shows that 61 % of wood pellet mills in the south of the US are located more than 30 miles from a competitor. The same report also found that all the wood pellet mills

⁴³ <http://biomassmagazine.com/articles/13137/export-industryundefineds-impacts-on-southern-forests-markets>.

⁴⁴ www.usendowment.org/images/Forests2Market_Pellet_Report_11.2015.pdf.

surveyed are located within 65 miles of a competitor. According to the report, this is common practice also for other wood fibre users that, historically, have not operated in the absence of any other competition. At the same time, 72 % of exports from the wood pellet mills surveyed by Forest2Markets are located within 65 miles of a closed facility indicating that exports from wood pellet mills are located in proximity to closed sites.

- (68) Addressing the studies by FORISK and USDA which link the increased use of biomass with increased stumpage price, the United Kingdom suggested that the projections concerning wood pellet production are overestimated. For example, the USDA study submitted by GPII assumes a demand of over 40 million GST of wood fibre in the southern costal part of the US by 2017, up from around 20 million GST in 2015. This would result in around 18 million tonnes of wood pellets being produced by 2017 in the southern costal part of the US alone. This is considerably higher than the estimates provided by FORISK of 11,6 million tonnes by 2019. Moreover, other factors such as the increased availability of residues are not taken into account.
- (69) Regarding the claims concerning the beneficiary ability to pay for wood fibre, the United Kingdom notes that the estimates provided by RISI do not take into account the updated strike price of 100 GBP/MWh instead than 105 GBP/MWh and some extra fuel related costs. The updated average fuel costs for Unit 1 are 8,18 GBP/GJ. The biomass pellet costs amount to [...] GBP/GJ, while other fuel related costs, namely costs for port utilisation, rail transport, storage, sustainability certification, hedging and currency exchange, amount to [...] GBP/GJ (see recital (51) above). The United Kingdom considers that this figure is within the price range of US wood pellet suppliers estimated by independent consultant, Ricardo Energy & Environment at between 6,27 – 8,24 GBP/GJ.
- (70) The United Kingdom submitted that other factors, including a reduced supply of sawmilling residues following the housing market crash, contributed to the recent increase in recorded stumpage prices. To substantiate this point, the United Kingdom claimed that there was no visible correlation between the change in the stumpage prices for pine or hardwood and the presence of significant wood pellet production.
- (71) The United Kingdom also claimed that the trade volumes for industrial wood from the US to the European Union are limited. In 2013, from a total production of approximately 270 million green tonnes of industrial roundwood, the US exported to the European continent approximately 3,3 million green tonnes⁴⁵. By comparison, in 2013 the European Union imported approximately 31 million green tonnes of roundwood and 15 million green tonnes of woodchip and sawdust, predominantly from other European countries. There is therefore limited reliance on non-energy raw materials traded from the US to the European Union.

5. ASSESSMENT OF THE MEASURE

- (72) A measure constitutes State aid within the meaning of Article 107(1) of the Treaty if it is "granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings

⁴⁵ Consisting of 0,25 million green tonnes of chips and sawdust; nearly 2 million green tonnes of woodpulp, about 0,97 million green tonnes of industrial roundwood, and 0,056 million green tonnes of sawlogs.

or the production of certain goods [...] in so far as it affects trade between Member States".

- (73) As set out in the Opening Decision, the beneficiary (Drax Power Limited) will receive operating aid in the form of a variable premium from a government-owned CfD counterparty for the electricity generated by the converted unit. The measure favours the generation of electricity from renewable energy sources (in this case biomass) by the selected beneficiary. Electricity is widely traded between Member States. The notified measure may therefore distort competition on the electricity market and affect trade between the Member States. In addition, the plant will also compete for biomass fuel in the raw material market as, due to a lack of sufficient local forestry resources, the majority of the wood pellets required to fuel the Drax unit will be imported from abroad (see recital (11) above).
- (74) The Commission concludes that the notified measure constitutes State aid within the meaning of Article 107(1) of the Treaty⁴⁶.

5.1. Legality of the aid

- (75) On the basis of the information provided by the United Kingdom, the Commission notes that no final investment decision has yet been taken and that no payments will be made before State aid approval has been obtained. The Commission considers therefore that the United Kingdom has fulfilled its obligations under Article 108(3) of the Treaty.

5.2. Compatibility of the aid

- (76) The Commission notes that the notified measure aims at promoting the generation of electricity from renewable energy sources, namely from solid biomass. The notified measure falls within the scope of the Guidelines on State aid for environmental protection and energy 2014-2020 (EEAG)⁴⁷. The Commission has therefore assessed the notified measure in accordance with the general compatibility provisions, set out in Section 3.2 of the EEAG and in accordance with the specific compatibility criteria for operating aid granted for electricity from renewable energy sources, set out in Section 3.3.2.1 of the EEAG.

5.2.1. Objective of common interest

- (77) As concluded in the Opening Decision, the Commission notes that the aim of the notified aid measure is to help the United Kingdom achieve the renewable energy targets⁴⁸ and the CO₂ reduction objectives set by the Union as part of its EU 2020 strategy⁴⁹. As described in recital (9), and in accordance with paragraphs 30, 31 and

⁴⁶ See also the Commission Decisions in cases SA.38758 (2014/N), SA.38759 (2014/N), SA.38761 (2014/N), SA.38763 (2014/N) and SA.38812 (2014/N); C(2014)5074 final; OJ C 393, 7.11.2014, p. 1) and cases SA.38796 (2014/N); SA.387962 (2015/C)(2014/N) (decision not yet published) which benefit from a similar CfD aid.

⁴⁷ OJ C 200, 28.6.2014, p. 1.

⁴⁸ The United Kingdom has a target of 15% of energy requirements to be produced from renewable resources and the renewable energy share in 2013 amounted to 5,1% (2013) – (SWD (2015)117 final).

⁴⁹ See Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable resources and amending and subsequently appealing Directive 2001/77/EC (OJ L 140, 5.6.2009, p.16) and Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (OJ L 275,25.10.2003, p.32) and also the Communication from the Commission to the European Parliament, the European Economic

33(a) of the EEAG, the United Kingdom explicitly estimated the CO₂ savings and renewable electricity generation capacity expected from the notified project. The Commission concludes that the notified aid measure is aimed at an objective of common interest in accordance with Article 107(3)(c) of the Treaty.

- (78) A number of environmental organisations raised concerns about the environmental effects of the notified project. The United Kingdom confirmed that the notified aid will only be granted to biomass, as defined in paragraph 19(6) of the EEAG. The Commission recalls that the notified aid will help the United Kingdom to reach the Union climate and energy targets for 2020. In addition, the Commission notes that the wood pellets to be used by the Drax biomass conversion plant will be required to satisfy the United Kingdom's own sustainability criteria, including minimum CO₂ savings calculated on a life cycle basis. The United Kingdom's sustainability criteria also contain provisions to avoid other negative environmental effects, such as loss of biodiversity.

5.2.2. *Need for State intervention, incentive effect and appropriateness of the aid*

- (79) The Commission concluded in its Opening Decision that the notified aid is necessary, that it has an incentive effect and that it is an appropriate instrument. In particular, with reference to paragraphs 38, 107, 115 of the EEAG, the Commission notes that the market failures, namely the failure to fully include all externalities generated by the use of fossil fuels in the price of energy, are not sufficiently addressed by the existing policy framework and that in the absence of the operating aid under assessment in this Decision, the biomass conversion project would not be financially viable.
- (80) With reference to paragraphs 49 and 58 of the EEAG, the United Kingdom showed that the LCOE generated in the Drax converted unit are well above the expected electricity market price and they also provided a financial analysis demonstrating that without the aid under assessment, the IRR of the notified project would be negative. In such a situation, market players would not want to invest in the Drax biomass conversion project. The notified aid therefore would change the beneficiary's behaviour. The United Kingdom confirmed that the beneficiary was required to submit applications and that these applications were submitted before work on the notified project commenced, in compliance with paragraph 51 of the EEAG.
- (81) With reference to paragraphs 40 and 116 of the EEAG, the United Kingdom showed that the notified aid is an appropriate instrument. As explained in the Opening Decision, the LCOE are above the expected electricity market price and the expected IRR, without State aid, would be negative. In order to address the lack of sufficient revenues to fund the conversion to biomass of a unit at the Drax plant, the United Kingdom intends to grant State aid, that is particularly targeted and that addresses the needs of the project without exceeding the hurdle rate. The notified project was selected among several others for the purpose of achieving the Union renewable energy targets⁵⁰, through the award of operating aid in the form of a CfD. The Commission in its decision in case SA.36196 (2014/N), United Kingdom Electricity Market Reform - Contract for Difference for Renewables C(2014) 5079 final⁵¹,

and Social Committee and Committee of the Regions of 15.12.2011 on the Energy Roadmap 2050 (COM/2011/0885 final).

⁵⁰ See recital 6 of this Decision.

⁵¹ OJ C 393, 7.11.2014, p. 1.

concluded that the CfD is an appropriate instrument for realising the objective of common interest.

- (82) Therefore, the Commission concludes that the aid for the notified project is necessary, that it has an incentive effect and that it is granted by means of an appropriate instrument.

5.2.3. *Proportionality*

- (83) The Commission recalls that the LCOE for such biomass projects, based on a rate of return of 10 %, was calculated by the United Kingdom as being at least 105 GBP/MWh⁵². The Commission considers the LCOE appropriate for this type of project as the cost has already been confirmed in previous decisions⁵³. The United Kingdom demonstrated that the notified aid per unit of energy does not exceed the difference between the LCOE and the expected market price of electricity, as the strike price, reflecting the market price plus the premium, set at 100 GBP/MWh does not exceed the LCOE⁵⁴. Furthermore, the United Kingdom confirmed that the notified aid will continue to be granted until the investment is depreciated according to normal accounting rules and that the notified aid will not be cumulated with any other aid.
- (84) The hurdle rate for the notified project is between 8,8 % and 12,7 % on a real, pre-tax basis⁵⁵ and this was accepted by the Commission in its Opening Decision. It was in line with the rates previously approved by the Commission for biomass projects in the United Kingdom⁵⁶. The Commission will assess in this Decision whether the IRR of the project is respecting the hurdle rate.
- (85) In the Opening Decision, the Commission expressed doubts that the State aid would not lead to overcompensation based on a sensitivity analysis provided by the United Kingdom⁵⁷. The IRR, on pre-tax real basis, would have increased from the estimated 4,7 % to over 15,6 % if the thermal efficiency and the load factor were to increase by 5 % and fuel costs were to decrease by 5 %. The Commission noted the uncertainties in those assumptions and in particular the reduced load factor during some years of operation, due to logistic concerns with the supply of wood pellets, and the level of the fuel costs (since supply contracts did not cover the entire supply requirements of the biomass unit).
- (86) Following the Opening Decision, the United Kingdom submitted updated information about the notified project and in particular it reviewed and updated the operating parameters. On the basis of that updated information the IRR for the

⁵² See recital (17).

⁵³ See, for example, the decision for cases SA.38758 (2014/N), SA.38759 (2014/N), SA.38761 (2014/N), SA.38763 (2014/N) and SA.38812 (2014/N) - United Kingdom Support for five Offshore Wind Farms: Walney, Dudgeon, Hornsea, Burbo Bank and Beatrice - C(2014) 5074 final, (OJ C, 393, 7.11.2014, p. 1); and the decision for cases SA.38796 (2014/N) - United Kingdom Teesside Dedicated CHP Biomass project (OJ C 406, 4.11.2016, p. 1); and the decision of 1 December 2015 in case SA.38762 (2015/C) (2014/N) – United Kingdom, Investment Contract for Lynemouth Power Station Biomass Conversion (decision not yet published).

⁵⁴ See recitals (26) to (29) of the Opening Decision for more information on the LCOE of the notified project.

⁵⁵ See recital (17).

⁵⁶ See, for instance, State aid case: SA.37453 (2014/N) Amendment to SA.35565 — Renewables Obligation (RO) scheme (OJ C 172, 6.6.2014, p. 1).

⁵⁷ See recital (27).

notified project is now approximately [4-12] % on a pre-tax real basis which is in line with the hurdle rate.

- (87) As described in recital (11), the United Kingdom eliminated the low gross load factors that had been included and increased the mean net load factor from 71 % to 78 % following the Opening Decision. The United Kingdom substantiated the new load factor on the basis of a comparison with other similar plants. The Commission notes that the increase is larger than was assumed in the sensitivity analysis and that the estimated load factor of 78 % is now in line with what was observed in comparable plants⁵⁸.
- (88) The revision of the load factor also addresses concerns submitted by third parties about the calculation of the low load factor⁵⁹. RES Ltd advised that a competitive bidding process could have resulted in a lower aid amount being required based on the general experience with bidding processes⁶⁰. The Commission notes that a competitive bidding process is not required and that the current measure does not lead to overcompensation.
- (89) With regard to the fuel costs, as stated in the Opening Decision, the Commission recognises that the wood pellet supply for the notified project is largely procured by long term contracts where prices may be higher than the spot prices. However, the Commission noted that there were still uncertainties as the existing supply contracts at the date of adoption of the Opening Decision did not cover the entire supply required for the notified project.
- (90) The United Kingdom explained in detail the fuel costs of sufficient supplies of wood pellets and updated their fuel costs estimates. The fuel costs were reduced from 8,40 USD/GJ to 8,18 USD/GJ, beyond the 5 % sensitivity analysis of 8,23 USD/GJ. The United Kingdom submitted that the fuel costs estimates are now based on more long term contracts addressing most of the wood pellet requirements as well as estimates for future supply contracts and future spot prices⁶¹.
- (91) The documentation provided by the United Kingdom included also a detailed breakdown of the main cost elements in the Drax biomass conversion unit's supply chain including fuel related costs such as port utilisation, rail transport, storage, sustainability certification, hedging and currency exchange. According to the opinion of independent experts, also submitted by the United Kingdom, the average fuel costs estimated for the Drax biomass conversion unit are within the price range of US wood pellet suppliers⁶². The updated fuels costs reflect a wood pellet price (CIF) of 181 USD per tonne which is also in line with the estimate by RISI⁶³.
- (92) In order to substantiate the thermal efficiency claim, the United Kingdom provided data demonstrating that the thermal efficiency of this type of biomass conversion project could increase by approximately 38 % to 39 %. The Commission notes that no specific doubts were raised in this respect in the Opening Decision and it

⁵⁸ For instance, see the Commission approved a mean net load factor of 77% for the Lynemouth plant in case SA.38762 (2015/C) (2014/N) – United Kingdom, Investment Contract for Lynemouth Power Station Biomass Conversion (decision not yet published).

⁵⁹ See recital (44).

⁶⁰ See recital (43).

⁶¹ See recital (59).

⁶² See recital (59).

⁶³ See footnote 39 of this Decision.

considers that the efficiency rate is in line with the typical efficiency rates observed in comparable plants⁶⁴.

- (93) Finally, the IRR for the notified project has changed as a consequence of a number of factors including the loss of approximately one year of aid as the proposed investment contract will end on 31 March 2027 irrespective of the start date of the measure and also due to unfavourable foreign exchange rate developments. This IRR is, therefore, higher than the value of 4,7 % estimated in the original notification to the Commission. The difference is due to the revised estimates of the plant's operating parameters.
- (94) In light of the matters referred to above, the Commission concludes that the estimated IRR of the notified project is based on sound estimates of the plant's costs and operating parameters. Furthermore, the estimated IRR is within the range of hurdle rates required for this type of project. Therefore, the aid does not lead to overcompensation and is proportionate to reach the objective of common interest.

5.2.4. *Avoidance of undue negative effects on competition and trade*

- (95) In assessing the compatibility of a State aid measure, the Commission must establish that "the negative effects of the aid measure in terms of distortions of competition and impact on trade between Member States must be limited and outweighed by the positive effects in terms of contribution to the objective of common interest"⁶⁵.
- (96) With reference to paragraphs 94, 95 and 96 of the EEAG, the Commission finds that the notified measure does not lead to manifestly negative effects, as the aid is proportionate and does not purely lead to a relocation of the activity without an environmental effect. The aid will assist in the conversion of the Drax unit from coal to biomass, increasing the share of renewable energy in the United Kingdom⁶⁶.
- (97) In order to assess the negative effects of the aid measure, the Commission focused on the distortions resulting from the foreseeable impact the aid would have on competition in the product markets affected and on the location of the economic activity⁶⁷.

5.2.4.1. Negative effects on the electricity market

- (98) As the aid is granted for the production of electricity from renewable energy sources, the affected product market is the electricity market. With reference to paragraph 89 EEAG, the Commission identifies two main potential distortions caused by aid, namely product market distortions and location effects.
- (99) With reference to paragraph 101 of the EEAG, the Commission notes that the project consists of retrofitting a unit in an existing coal fired power plant. As the project converts an existing plant it will not add to the beneficiary generation capacity on the power market. Therefore, the measure will not increase the beneficiary's share of the generation market.
- (100) Moreover, the Commission recalls that the electrical generation capacity of the Drax biomass conversion unit corresponds approximately to 1,1 % of the United

⁶⁴ See for instance Commission decision SA.38762 (2014/N).

⁶⁵ See paragraph 88 of the EEAG.

⁶⁶ See recital (9).

⁶⁷ See paragraph 97 of the EEAG.

Kingdom's electricity generation market. Therefore, the measure will not have the negative effect of enhancing the beneficiary's market power.

- (101) With reference to paragraphs 94 – 96 EEAG, the Commission considers that the project does not involve a relocation of the activity, and it would also not have a significant impact on competition in the United Kingdom electricity generation market. Therefore, the Commission concludes that the measure would not have any significant impact on competition in the electricity market. Furthermore, the notified aid – due to the interconnectivity level of the United Kingdom – will not adversely affect the trading conditions within the Internal Electricity Market.
- (102) In its Opening Decision, the Commission expressed doubts as to whether the notified project distorts competition in the wood pellet market and further upstream in the raw material market to an extent contrary to the common interest. In view of the specific characteristics of this individually notified project, the Commission extended the analysis to indirect effects on the input markets being here secondary markets (see below).

5.2.4.2. Negative effects on the wood pellet market

- (103) The Commission firstly notes that the Drax unit at hand will only be able to use industrial-grade wood pellets as an input fuel. While some plants may be able to partially substitute wood pellets for other fuels, it is not expected that the Drax unit will be able to substitute wood pellets for other products in view of its design. Therefore for the purpose of analysing further the scale of distortion of competition and trade of the operating aid granted to electricity generated by the retrofitted Drax unit, the industrial wood pellet market constitutes the appropriate product market.
- (104) The Commission, as in the Opening Decision, concludes, based on the trade flows, the volume of the imports into the Union and market growth in recent years that, for assessing the market distortions, the wood pellet market is not limited to a single Member State or to the European Union but should be considered a global market. This is confirmed by the large volume of wood pellets imported from overseas to supply the Drax unit and in line with the conclusion reached in case SA.38762 (2014/N).
- (105) The Commission notes that the majority of the wood pellet supply is currently bought under individually negotiated long term contracts. Moreover, market barriers for new production facilities appear to be low. The recent increase in wood pellet production capacity both in the south-east of the US and in the Union⁶⁸ supports this observation as well as the conclusion of long term contracts by Drax to secure the supply for the unit.
- (106) Having regard to past trends, it is also noted that the spot price in the south-east of the US, the anticipated principal source of wood pellets for the notified project, did not change significantly when imports into the Union from that region increased. This is also supported by data submitted by the European Pellet Council⁶⁹
- (107) The conversion of the Drax unit will create 2,4 million tonnes of additional wood pellet demand. This is equivalent to 12,8 % of the total wood pellet consumption in

⁶⁸ AEBIOM Statistical Report "2013 European Bioenergy Outlook": www.aebiom.org/2013-european-bioenergy-outlook-aebiom-statistical-report/.

⁶⁹ See recital (33).

the Union in 2014⁷⁰. However, annual consumption in the Union increased almost 25 %, or by 3,7 million tonnes, from 2012 to 2014. In addition, the wood pellet production capacity in the south-east of the US increased rapidly and is envisaged to increase also in the future⁷¹.

- (108) No indication has emerged from the formal investigation procedure to suggest that the wood pellet market will not be able to expand at similar rates in the coming years to accommodate an increase in demand from the Drax project.

5.2.4.3. Negative effects in the raw material market

- (109) The Commission noted in the recitals (81) to (84) of the Opening Decision that increased demand for wood pellets can lead to further distortions in the raw material market, which is the wood fibre market.

- (110) For economic reasons, manufacturing plants of semi-finished pulpwood products source their wood supply from within an average distance of approximately 100 km to 150 km, referred to as the catchment radius of the plant. For this reason wood fibres are a local product while pellets are transported over long distances and have a global market. As a result, in order to assess the notified measure's impact on competition and trade, it is necessary to determine from which local market the wood pellets will or are likely to be sourced.

- (111) As explained in recital (10), compared to the Opening Decision, the Drax unit has clarified its fuel supply and will source 60 % of its total wood fibre requirements from the US; approximately 13 % of its fuel requirements will be sourced from Brazil; 7 % of its fuel requirements will be purchased on the spot market; approximately 4 % of its fuel requirements will be sourced from the Baltic States in Europe; approximately 15 % of its fuel requirements will be purchased from merchants, located in the south-east of the US. The remainder of the fuel requirements will be sourced from Canada and potentially from other Member States. This implies that approximately 100 000 dry tonnes per annum will be sourced from other Member States through long term contracts. This would amount to approximately 0,7 % of the 2014 Union wood pellet production which had been estimated at 13,5 million tonnes⁷².

- (112) The Commission notes that most of the wood pellets are sourced from outside the Union and the market for raw materials is local. The effects of increased wood pellets demand on the raw material markets will thus take place to a great extent outside the European Union. It is therefore unlikely that the notified project will affect raw material market prices in the Union.

- (113) As the majority of the wood pellet supply for the project will be imported from the south-east of the US, the focus of potential market distortions in the raw material wood fibre market is in that region⁷³.

⁷⁰ AEBIOM Statistical Report "2015 European Bioenergy Outlook": www.aebiom.org/library/statistical-reports/statistical-report-2015/.

⁷¹ See Figure 1.

⁷² See footnote 21.

⁷³ Regarding the wood pellets sourced from Brazil and the risk of irregular operation in South America, the Commission notes that all pellets will be source by a single, well established plantation that is FSC certified (see recital (63)).

- (114) The majority of the submissions received during formal investigation procedure support the view that industrial wood pellets from the south-east of the US will be mainly composed of wood fibre derived from forestry practices. The Commission notes that up to 2019 the estimated growth of the wood pellet industry (of approximately 14 % per annum⁷⁴) is much higher than that of the traditional forestry industry which is estimated at approximately 1,4 % per annum⁷⁵. However, due to the low share of wood pellet manufactures in the wood fibre market⁷⁶, the total removal would increase at a compound rate of less than 1,8 % per annum until 2019. On the basis of estimates submitted by Westrock, the total wood fibre supply is projected to increase by 2,0 % annually and therefore less than the estimated growth. The impact resulting from the support to the Drax unit is therefore expected to be limited.
- (115) According to the data submitted by the United Kingdom⁷⁷ the amount of raw material required by the Drax unit, namely 2,4 million tonnes per annum, will be less than 1 % of the total removals from forests in the south of the US in 2014 which was approximately 250 million tonnes. In turn, this is only a small fraction of the total forestry inventory. Even taking into account the additional requirements from other biomass projects, such as the Lynemouth project, these low percentages do not give strong indications of undue distortions in the raw material market.
- (116) Fern et al. and GPII submitted market modelling studies showing an increase in stumpage price caused by an increase in wood pellet production. For example, according to the FORISK study, an increase in global industrial wood pellet demand from 10,6 million tonnes per annum in 2014 to 25 million tonnes in 2019, ignoring the effect of saw mill residues, could increase stumpage prices in the south-east of the US by 30 % to 40 %⁷⁸. According to the USDA report submitted by GPII, increasing production of biomass for bioenergy to 16,9 million tonnes by 2016 could more than double the prices of some types of wood, namely pine non-sawtimber⁷⁹.
- (117) However, as submitted by the United Kingdom⁸⁰, the demand for wood pellets used as an input for these studies does not reflect the demand from the Drax biomass conversion project, but rather overall estimates and overall demand. In addition, the overall demand as estimated in the USDA study is lower than in more recent studies. For instance, the USDA study estimates that approximately 13 million tonnes of wood would be used for bioenergy in the south-east of the US in 2015 and this is higher than what was reported by RISI, which was less than 8 million tonnes for the same year. In addition, the alleged price increase from all estimated demand would also be limited in time according to the USDA report as forestry inventory responses to such demand increase.
- (118) A number of third parties submitted that the increase in wood pellet production has already lead to an increase in stumpage prices in the south-east of the US. For example, GPII cites data from the consultants Forest2Market to support the claim that pine pulpwood stumpage prices in the south of the US increased on average by

⁷⁴ See recital (55).

⁷⁵ See recital (51).

⁷⁶ See recital (65).

⁷⁷ See recital (65).

⁷⁸ See recital (45).

⁷⁹ See recital (54).

⁸⁰ See recital (68).

11 % in 2013 and by 10 % in 2014. Fern at al. reported that, from 2011 to 2015, prices in the southern US have increased by 27 % for softwood and by 56 % for hardwood. AFPA have also made similar claims⁸¹.

- (119) The Commission notes in that respect that, over a longer term the average stumpage price is not outside the historical range⁸². Moreover, the submission by Forest2Market⁸³ concluded that several factors have contributed to the observed price increase. In particular Forest2Market cited a decline in production of sawmill residues, weather-related events and land ownership changes which it stated are contributing factors. Forest2Market concluded that "it is likely that wood fibre prices would have increased without incremental demand from export pellet markets..."⁸⁴. The fact that stumpage prices increased over time seems therefore to be the result of several market developments.
- (120) With regard to the claims made as to the beneficiary's ability to pay for fibre⁸⁵ the Commission notes that the reviewed and reduced fuel costs⁸⁶ result in a wood pellet price of USD 181 per tonne CIF. This is equivalent to the wood pellet price CIF reported by RISI⁸⁷
- (121) Regarding the location of wood pellet mills, the Commission notes the finding that export wood pellet mills currently in operation in the south-east of the US are generally located within a 65 mile radius of one another and predominantly within a radius of between 30 and 65 miles⁸⁸. Therefore, the catchment area of such wood pellet mills will overlap with that of other competing industries. However, the Commission notes that the vast majority of such export wood pellets mills are located within 65 miles of a closed wood processing facility. In addition, it was clarified that several considerations are taken into account in order to determine the location of a wood pellet mill. According to the report quoted by the United Kingdom⁸⁹, the majority of pulp and paper mills that closed in the region south-east of the US did so before 2010 thereby showing little correlation with the growth of the wood pellet industry⁹⁰.
- (122) Finally, the Poyry report⁹¹ looked at the risk of unfair competition for wood fibres between the wood pellet industry and traditional industries using wood fibres. The report did not only take into account the wood pellet demand stemming from the supported Drax biomass conversion unit but also from other plants, including the plant at Lynemouth. The report concluded that the existing and planned wood pellet mill capacity in the south-east of the US should be sufficient to address the increase in the wood pellet demand and that the risk of IWUC should be small.

⁸¹ See Figure 2 in recital (48).

⁸² See Figure 2 in recital (48).

⁸³ See recital (34).

⁸⁴ Forest2Market; Wood Supply Market Trends in the US South 1995 – 2015: www.theusipa.org/Documents/USSouthWoodSupplyTrends.pdf.

⁸⁵ See recital (49).

⁸⁶ See recital (69).

⁸⁷ See footnote 39.

⁸⁸ See recital (67).

⁸⁹ See recital (67)

⁹⁰ See figure 1 in recital (47).

⁹¹ See recital (41).

(123) It should therefore be concluded that the notified measure is not expected to lead to undue distortions in the raw material market. In particular, the Commission notes that the local distortions in the market, to the extent they would occur, are taking place in the south-east of the US and that therefore they would have a limited effect, if any, on trade between Member States. In this respect, it is also recalled that the notified aid would be granted for the production of electricity from solid biomass and that any effects of the aid on the raw material market would be indirect.

5.2.4.4. Balancing test

(124) As set out in paragraph 97 of the EEAG, for State aid measures that are well targeted to the market failure they aim to address, the risk that the aid will unduly distort competition is more limited. The Commission notes that the notified aid is directly aimed at achieving the Union climate and energy targets for 2020 in a proportionate and appropriate way. Therefore the risk of undue distortions of competition in the electricity market is also more limited as explained in Section 5.2.4.1. As set out in Section 5.2.4.2, the Commission did not find undue distortions in the affected product wood pellet market, nor in the upstream raw material market. The Commission recalls that the potential distortions in the raw material market do not arise directly from the operating aid, but from the increased demand for wood pellets as a fuel for electricity generation. Furthermore, the effects on the raw material market are indirect compared to the distortions in the wood pellet market.

(125) In addition, the Commission is required to assess whether the measure distorts or threatens to distort competition insofar as it affects trade between Member States. The effects in the raw material market are local and mostly take place outside the Union as the majority of the wood pellets for Drax unit will be imported from outside Europe (see recital (10)). Therefore, the Commission notes that any effect on trade between Member States arising from an increased stumpage price in the south-east of the US would, in any case, be limited.

(126) The Commission concludes from the above that the negative effects of the notified aid to the electricity generated in the Drax biomass conversion project, in terms of distortions of competition and impact on trade between Member States on the electricity market but also on the secondary markets, are limited and are outweighed by the positive effects in terms of the contribution to the objective of common interest, namely the production of energy from renewable sources and reduction of CO₂ emissions in electricity generation, so that the overall balance is positive.

5.2.5. *Other aspects – compliance with Articles 30 and 110 TFEU*

(127) In the context of the decision in the case SA.36196 (2014/N) on CfD for renewables, the decision in the cases SA.38758 (2014/N), SA.38759 (2014/N), SA.38761 (2014/N), SA.38763 (2014/N) and SA.38812 (2014/N) regarding FIDeR aid to five offshore wind projects, and the cases SA.38762(2015/C)(2014/N) and SA.38796(2014/N) relating to the Lynemouth and Teesside biomass projects, the United Kingdom has committed to adjusting the way in which the electricity suppliers' liabilities for CfD payments are calculated to ensure that eligible renewable electricity generated in the European Union outside the United Kingdom and supplied to customers within the United Kingdom is not taken into account as part of those suppliers' market shares.

- (128) The United Kingdom will ensure that no CfD payments are made before this adjustment is in place, or if this is not possible, that the United Kingdom will put in place a mechanism to reimburse electricity suppliers for any imported eligible renewable electricity supplied before the exemption comes into effect but after CfD payments have started to be made.
- (129) The commitment by the United Kingdom referred to in recital (127) will also apply to the notified measure. In the light of this commitment, the Commission considers that the financing mechanism of the notified aid measure should not introduce any discrimination contrary to Article 30 or Article 110 of the Treaty.
- (130) In light of the matters mentioned above, the Commission considers that the aid measure in support of the Drax biomass conversion unit notified by the United Kingdom on 15 April 2015 pursues an objective of common interest in a necessary and proportionate way in accordance with the EEAG and that it is therefore compatible with the internal market within the meaning of Article 107(3)(c) of the Treaty,

HAS ADOPTED THIS DECISION:

Article 1

The State aid notified by the United Kingdom on 2 April 2015 which that Member State is planning to implement in favour of Drax Power Limited in support of a grant for biomass conversion of the Unit 1 of the Drax power plant is compatible with the internal market within the meaning of Article 107(3)(c) of the Treaty.

Article 2

This Decision is addressed to the United Kingdom of Great Britain and Northern Ireland.

If the decision contains confidential information which should not be published, please inform the Commission within fifteen working days of the date of receipt. If the Commission does not receive a reasoned request by that deadline, you will be deemed to agree to publication of the full text of the decision. Your request specifying the relevant information should be sent by registered letter or fax to:

European Commission
Directorate-General Competition
State Aid Greffe
B-1049 Brussels
Fax: +32 2 296 12 42
Stateaidgreffe@ec.europa.eu

Done at Brussels, 19.12.2016

For the Commission
Margrethe VESTAGER
Member of the Commission