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**Subject: State Aid SA.38760 (2016/C) (ex 2015/N) – United Kingdom
Investment Contract for Biomass Conversion of the first unit of the
Drax power plant**

Sir,

The Commission wishes to inform the United Kingdom that, having examined the information supplied by your authorities on the measure referred to above, it has decided to initiate the procedure laid down in Article 108(2) of the Treaty on the Functioning of the European Union.

I. PROCEDURE

1. Following pre-notification contacts, on 2 April 2015 the United Kingdom notified a planned support measure for the conversion to biomass of the 1st Unit of the Drax power plant. The Commission requested additional information on 20 May, 24 July and 23 October 2015 and the United Kingdom submitted such information on 26 May, 25 August and 5 November 2015.

II. DESCRIPTION OF THE MEASURE

Background and objectives of the notified project

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2. As a transitory measure in restructuring its support for renewable energy, the United Kingdom organised a tender process and selected eight advanced renewable projects under the Final Investment Decision Enabling for Renewables (FIDeR) process¹. Support for these selected projects will be provided on the basis of Investment Contracts. The conversion to biomass of the 1st Unit of the Drax Power Plant is part of the eight projects selected under FIDeR.
3. The selection process was designed as an open process. The budget for this process was constrained and not all projects that met the minimum threshold evaluation criteria were able to receive Investment Contracts. Of the 57 projects that applied, 26 passed the first phase of the selection process, based on the qualification criteria established by the United Kingdom².
4. In the second phase of the selection process, 16 applicants from the four technology groups were selected, as they met the required minimum threshold evaluation criteria³. The projects meeting the minimum threshold evaluation criteria were ranked for each technology, and they were further subject to an affordability assessment and down-selection methodology, allowing the United Kingdom to select only the projects for which there was a budget available.
5. The United Kingdom wished to ensure that the selection process would provide support to a variety of technologies. It therefore allocated Investment Contracts to the top quartile of projects which met the minimum threshold evaluation criteria within each of the technology types for which there was at least one project remaining in the process.
6. At the end of the selection process, eight projects were awarded Investment Contracts. According to the United Kingdom, the eight selected projects will contribute over 4.5 GW of low carbon electricity capacity to the United Kingdom's energy mix and reduce CO₂ emissions by 10 Mt CO₂ per year compared to fossil fuel power generation. The proposed projects will generate about 15 TWh of electricity, corresponding to 14% of the renewable electricity the United Kingdom expects to develop by 2020, helping the United Kingdom to meet its 2020 renewable energy

¹ The Commission adopted a decision on seven of these eight projects. On 23 July 2014 a no objection decision was adopted for five offshore wind project (cases SA.38758, SA.38759, SA.38761, SA.38763 and SA.38812; C(2014) 5074 final; JOCE C/393/2014) and on 22 January 2015 a no objection decision was adopted for the Teesside CHP biomass project (SA.38796, decision not yet published). On 01 December 2015 the Commission adopted a final positive decision on the Lynemouth project (SA.38762), after having opened the formal investigation procedure on 02 February 2015.

² Only projects eligible for support under the Renewable Obligation scheme that however had not actually been accredited under that regime, could participate. Furthermore the applicants needed to demonstrate that their projects would start generating electricity by 31 March 2019 and would not be carried out or would be significantly delayed without an Investment Contract. They had to be located in the United Kingdom (although the process was open to developers from other Member States) and needed to have a capacity of 50 MW or greater (or in the case of offshore projects, 100 MW or greater). See the decision on case SA.35565 (OJ C 167, 13.6.2013, p.5).

³ The evaluation criteria related to the project deliverability and its impact on industry development, with particular focus on whether a project was likely to support industries associated with the generation of electricity from renewable sources and whether it contributed to the development of the supply chain and the reduction of the cost of renewable generation over the long term.

target, reduce CO₂ emissions, and will contribute to meeting the United Kingdom's security of supply and diversity of supply objectives by ensuring that a range of technologies contribute to the United Kingdom energy mix.

Beneficiary

7. The notified aid measure concerns the conversion of one of the six coal fired units of the Drax power station (Unit #1) to operate entirely on biomass. The power plant is situated in Selby in the North Yorkshire. The power plant is 100% owned by Drax Holdings Limited. The ultimate parent company in the Drax corporate group is Drax Group plc, a company listed on the Main Market of the London Stock Exchange.
8. Drax is a coal and biomass fired power station consisting of six units with total generating capacity of 3 960 MW. The plant started commercial operation in 1974, firing only coal. Under the current proposal, one of the six generation units 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 commissioning of the Unit #1 was originally foreseen by February 2016. The plant will provide electricity to the national power grid.
9. The beneficiary successfully converted a first unit (Unit #2) to operate on biomass and commissioned it in April 2013. A second unit (Unit #3) was also converted to biomass and was commissioned in October 2014. For both Units support is received under the Renewable Obligation Scheme⁴ and will continue to be received aid until 31 March 2027.
10. According to the United Kingdom, the Unit #1 is designed to operate at 645 MW nominal electrical power output with a mean net load factor of 70.5%. The unit will use approximately 2.4 million dry tonnes of wood pellets a year. The plant conversion will not be designed to be compliant with the waste incineration regulations, and therefore will not be able to burn waste wood.
11. Overall, the unit's generation is estimated to account for approximately 1.1% of the average annual future electricity generation in the United Kingdom⁵.
12. Wood pellets used in the Drax plant will have to satisfy the United Kingdom sustainability criteria including a minimum of 60% greenhouse gas savings against the average fossil grid intensity in the Union (i.e. against the Union coal and gas average, measured using the methodology set out in the Renewable Energy Directive⁶). These criteria will be reinforced to a minimum of 72% greenhouse gas savings from April 2020, and then to a minimum of 75% savings from April 2025.

⁴ The scheme was originally approved by the Commission Decision of 28 February 2001 in case N504/2000 and subsequently amended several times. In its current form, the scheme was approved by the Commission in its Decision of 2 April 2013 in case SA.35565 (OJ C 167, 13.6.2013, p.5). Some specific elements were afterwards approved for Northern Ireland (case SA.36084) and Scotland (case SA.37453).

⁵ Calculated as the proportion of electricity generated by the project as a percentage of the total amount of electricity generated in the United Kingdom.

⁶ 2009/28/EC (OJ L 140 of 5.6.2009)

The United Kingdom sustainability criteria also contain provisions to protect biodiversity and avoid unsustainable practices⁷.

13. According to the United Kingdom estimates, the project will save approximately 28.8 million tons of CO₂ over the lifetime of the investment contract and supply an average of about 3.6 TWh of electricity per year. The plant will operate at base-load thus providing schedulable low-carbon energy in an increasingly intermittent non-fossil energy mix.
14. The beneficiary plans to procure the required amount of wood pellets mainly via long term offtake contracts. The biomass feedstock required by Unit #1 would predominantly come from new pellet plant developments.
15. Approximately 60% to 80% of the wood pellets required by Drax will be imported from the US South East. Approximately 16% will be imported from South America. The remaining part will come from other geographical areas (Canada and Europe). In order to hedge supply risk, the beneficiary plans to source 100 000 tonnes per year (or slightly more than 4% of the wood pellets required) on the spot market.
16. Table 1 shows the expected operating parameters of the Drax Unit #1. According to the United Kingdom, the net load factor is the product of the amount of time the plant is technically available to generate electricity (subtracting, for example, the time required for maintenance or repair) and the time the plant is actually scheduled to generate based on the wholesale electricity price (this is sometimes referred to as the gross load factor or simply the load factor). The net load factor shown in Table 1 is the product of a mean technical availability of 83.7% and a mean gross load factor of 84.1%.

Table 1 – Plant operating parameters

<i>Fuel cost (£/GJ)</i>	<i>Thermal efficiency (%)</i>	<i>Mean net load factor (%)</i>
8.39	38.6	70.5

Source: United Kingdom.

National legal basis

17. The national legal basis is the Energy Act 2013.

Financing: budget, aid intensity and duration

18. The total budget for this UK project is estimated at £ 1.3 billion.
19. The final investment decision will be taken only after the Commission adopts a decision on the compatibility of the aid. No aid will be paid to the beneficiary before the commissioning date.

⁷ On 29 August 2014, the UK Government published the CFD Standard Terms and Conditions (available at <https://www.gov.uk/government/publications/contracts-for-difference-standard-terms-and-conditions>), which included the CFD sustainability provisions that have been incorporated into all biomass Investment Contracts.

20. Regardless of the commissioning date, payments through the Investment Contract will end on 31 March 2027.
21. The aid will be funded through a statutory levy imposed on all licensed electricity suppliers, based on the suppliers' market share, defined by metered electricity use. Suppliers will have to meet their obligations from their own resources but will be free to pass the costs on to consumers as part of their overall pricing strategies.

Form of aid level of support and return on investment

22. The notified aid is granted based on Contract for Difference ("CfD") and takes the form of a variable premium calculated as the difference payment between a pre-fixed price (the strike price) and a measure of the market price for electricity (the reference price). The beneficiary will earn money from selling its electricity into the market, but when the average wholesale price of electricity is below the strike price, the beneficiary will receive a top-up payment from a UK Government-owned counterparty (Low Carbon Contracts Company Ltd - the "CfD Counterparty") for the difference. The beneficiary will however retain the risks of not achieving the reference price and a volume risk of not achieving the forecasted sales volumes.
23. When the reference price exceeds the strike price, the CfD mechanism requires the beneficiary to pay the difference between the reference price and the strike price to the CfD Counterparty. According to the United Kingdom, this ensures that the beneficiary is not overcompensated.
24. The reference price is a price based on forward wholesale market electricity prices in a given period. The generator is however not obliged to sell in the forward market but can for example sell in the day-ahead market. This ensures that the generator participates actively in the electricity market by seeking to obtain the best price for the electricity it generated.
25. The support to the biomass project is therefore determined on the basis of an administratively set strike price. Strike prices were set at such levels that the support under the FIDeR is broadly equivalent to that provided under the current Renewable Obligation scheme, in order to smoothen the transition between the support schemes.
26. For the calculation of strike prices for dedicated biomass conversion plants (applicable to the Drax plant), the United Kingdom in particular considered the ranges of levelised costs presented in table 2 below. The United Kingdom explained that the level of the strike price for biomass conversion projects was calculated considering a range of 8.8% - 12.7%⁸ for hurdle rates, on a pre-tax real basis.

⁸ All these elements have been published by the United Kingdom in the document "Electricity Generation Costs", available on <https://www.gov.uk/government/publications/electricity-generation-costs>.

Table 2 - Levelised costs estimates for projects commissioning in 2014 and 2016 in £/MWh (2012 prices)

<i>Technology</i>	<i>2014</i>	<i>2016</i>
Biomass conversion	106-116	105-115

Source: United Kingdom.

27. The ‘levelised costs’ are the average costs over the lifetime of a power plant per MWh of electricity generated (a standardised measure of the net present value of lifetime costs divided by generation for a generic plant under each technology). They reflect the costs of building a generic plant for each technology, while potential revenue streams are not considered. Levelised costs estimates are highly sensitive to the underlying data and assumptions used, including those on capital costs, fuel and carbon costs, operating costs, conversion efficiency, operating profile, load factor and discount rates. Some of these uncertainties are captured through the use of ranges around key estimates (e.g. for capex and fuel costs).
28. The levelised costs include the financing costs of new power plants based on a 10% discount rate for all technologies.
29. The calculation of the strike price is based on a range of factors, including technology specific factors (such as capital and operating costs, financing costs as well as any building constraints), market conditions (such as wholesale prices and the discount which generators face when signing a power purchase agreement) and policy considerations (such as the specific contract design, choices about technology mix and meeting the ambition for renewable electricity).
30. The strike price for a particular technology is different from the levelised costs of the respective technology, due to the factors indicated above, but also for a number of other reasons:
- some costs are not included in the levelised costs (e.g. those related to the generator’s share of transmission losses);
 - contract length: the levelised costs are defined over the operating life of a project. If the CfD contract length is shorter than the operating life and wholesale prices and capacity market revenue post-contract are lower than the levelised costs then, all other things being equal, the strike price must be increased above the levelised costs to compensate for this; and
 - other revenues that generators may receive.
31. The key assumptions used for the calculation of strike prices - including for levelised costs, fossil fuel prices, effective tax rates, Power Purchase Agreement discounts and maximum build assumptions - are listed in the United Kingdom Government’s levelised costs report⁹ and the reports from the Department of Energy and Climate Change¹⁰. In particular, the wholesale price of electricity is assumed to be approximately £ 55 £/MWh in real terms increasing to 65 £/MWh in 2020.

⁹ ‘Electricity Generation Costs December 2013’ DECC (2013), available at <https://www.gov.uk/government/publications/electricity-generation-costs>

¹⁰ Available at <https://www.gov.uk/government/publications/electricity-market-reform-delivery-plan>

32. The applicable strike price for this project is 100 £/MWh (2012 Prices – indexed annually to Consumer Price Index).
33. The Internal Rate of Return (IRR) for the project is estimated at 4.7% on a real, pre-tax basis. As explained in recital 20 above, the proposed investment contract will end on 31 March 2027. After this date, the United Kingdom expects the plant to close as it is expected not to be economically viable thereafter. Based on a financial analysis, the United Kingdom argues that the levelised costs of the electricity produced by the biomass plant will be higher than the wholesale price of electricity.
34. The United Kingdom carried out a sensitivity analysis of the IRR with respect to key input parameters: fuel costs, thermal efficiency and load factor. The results are summarized in Table 3. Table 3 shows the ranges of fuel costs and load factor corresponding to a variation of plus or minus 5% from the central value as well as the resultant IRR (the central values are the ones shown in Table 1).
35. The data in Table 3 give an indication of the IRR sensitivity to input parameters, but are not necessarily indicative of the likely values for these parameters.

Table 3 – Real pre-tax IRR as a function of input parameters.

BIOMASS FUEL COSTS	+5%	Central (+0%)	-5%
Fuel Cost (£/GJ, 2012mv)	8.57	8.40	8.23
<i>IRR (pre-tax real)</i>	<i>1.3%</i>	<i>4.7%</i>	<i>7.8%</i>

THERMAL EFFICIENCY	-5%	Central (+0%)	+5%
Mean Net Input Efficiency (LHV)	36.7%	38.6%	40.5%
<i>IRR (pre-tax real)</i>	<i>0%</i>	<i>4.7%</i>	<i>11.5%</i>

LOAD FACTOR	-5%	Central (+0%)	+5%
Mean Net Load Factor	67%	71%	74%
<i>IRR (pre-tax real)</i>	<i>2.7%</i>	<i>4.7%</i>	<i>6.6%</i>

All parameters	+(-) 5%	Central (+0%)	+(-) 5%
Fuel Cost (£/GJ, 2012mv)	8.57	8.40	8.23
Mean Net Input Efficiency (LHV)	36.7%	38.6%	40.5%
Mean Net Load Factor	67%	71%	74%
<i>IRR (pre-tax, real)</i>	<i>0%</i>	<i>4.7%</i>	<i>15.6%</i>

Transparency

36. 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 signed¹¹.

¹¹ Available on the website <https://www.gov.uk/government/publications/final-investment-decision-fid-enabling-for-renewables-investment-contracts>

Cumulation

37. The United Kingdom clarified that the projects that have been awarded Investment Contracts will be unable to receive a CfD for the same electricity generation under the new support scheme. Moreover, no project receiving payments under Investment Contracts will be able to receive Renewable Obligation Certificates for the same electricity generation. Finally, renewable generation that receives support through an Investment Contract will not be able to participate in the Capacity Market or receive investment aid during the term of the Investment Contract.
38. The beneficiary will receive a £ 50 million loan and a guarantee from the UK Green Investment Bank PLC to finance this project¹². The United Kingdom confirmed that both the loan and the guarantee were made on commercial terms and at commercial market rates prevalent in the market at the time, and they have not affected the beneficiary's IRR or equity returns.
39. Based on the above principles, 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 for this project.

Use and availability of biomass

40. According to the information provided by the United Kingdom, globally there is an estimated annual surplus of total wood raw materials of approximately 100 million oven dry tonnes and the estimates predict that there will be about 50 million oven dry tonnes surplus until 2025¹³. Demand in Europe is higher than production which means wood pellets are imported into the Union. Net imports of wood pellets into the Union in 2011 was estimated at 3.2 million tonnes per year and increased to about 4 million tonnes per year in 2012.
41. The global trade of wood chips was estimated at 22 million tonnes per year in 2011. The global wood pellet consumption was estimated at 22.4 to 24.5 million tonnes¹⁴ in 2012, of which approximately 15.1 million tonnes were consumed in the Union. The Member States consuming most wood pellets in power plants are the United Kingdom (1.3 million tonnes, in 2013)¹⁵, Belgium (1.3 million tonnes), Netherlands (1.2 million tonnes), Denmark (1 million tonnes) and Sweden (1 million tonnes).
42. Figure 1 gives indications of the production, consumption and production capacity of wood pellets in EU27 from 2005 to 2012.

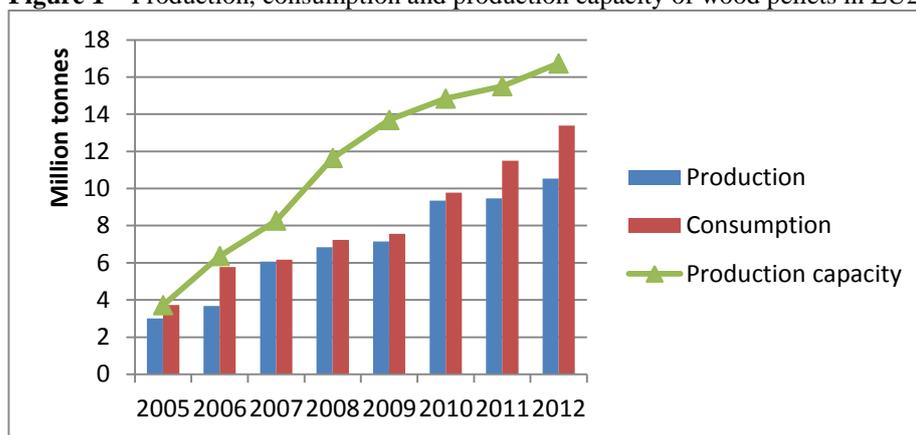
¹² The UK confirmed that the Guarantee Scheme is designed to be consistent with the Commission's Guarantee Notice to ensure the absence of State aid.

¹³ Pöyry, "*Drax Biomass Sourcing Strategy – Due Diligence Report*", 30 October 2012

¹⁴ AEBIOM European Bioenergy Outlook 2013.

¹⁵ AEBIOM European Bioenergy Outlook 2013.

Figure 1 – Production, consumption and production capacity of wood pellets in EU27



Source: AEBIOM European Bioenergy Outlook 2013.

Complaints

43. The Commission received complaints regarding the proposed project from 3 companies situated in the US: a client represented by the law firm Steptoe and Johnson and two US based pulpwood users. These companies, except one US pulpwood user, claim that although the manufacturing sites concerned are located in the United States, semi-finished materials are exported to Europe. Therefore, potential market distortion might affect operations in Europe. The third complainant does not provide information on this issue.
44. The three complainants argue that the Drax project will distort competition in the local raw material market (the pulpwood market in the US South East). More in detail, one complainant claims that the raw materials required by the project are used as inputs in its own industrial process. Due to the large size of the project and the fact that most pellets will be imported from the US South East, the subsidy would risk distorting competition for raw materials.
45. To substantiate their claims, the company represented by Steptoe and Johnson submitted data on wood pellet exports and raw material prices in the US South East, both showing an increase in recent years. According to the data submitted, the price of pine pulpwood in the US South East increased by 25% between 2011 and 2014 and the price of hardwood pulpwood by 53%. According to the complaint, the increase in wood pellet production caused the price increase.
46. Moreover, the same company submitted that the conversion project would lead to unsustainable environmental practices noting that planting commercial trees in the US South East has been declining for 3 decades. Combined with increased pellet production, this might lead to negative forest grow rates in the region, unsustainable environmental practices and loss of biodiversity. The greenhouse gases (GHG) emissions reductions obtained by burning imported wood pellets and the soundness of the United Kingdom sustainability criteria for biomass were also disputed.
47. In their submissions, the two biomass users provided similar arguments. One complainant claims that subsidies are diverting US forest fibre stock from traditional

consumers; that the primary fibre stock utilized for pellets is pulpwood and not residual fibres and that subsidies risk compromising the regional sustainability of the US forest. Similarly, the other complainant claims that the bioenergy policies are impacting the US forest system, creating economically and environmentally unsustainable business models.

III. ASSESSMENT OF THE MEASURE

Existence of State aid

48. A measure constitutes State aid within the meaning of Article 107 (1) TFEU 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 or the production of certain goods [...] in so far as it affects trade between Member States".
49. The beneficiary will receive the variable premium from the CfD Counterparty, which is Government owned, for each MWh of the electricity generated by the notified project. The notified measure favours the generation of electricity from renewable sources by the selected beneficiary. Electricity is widely traded between Member States. The notified measure is therefore assumed to affect competition on the electricity market and affect trade between the Member States. Moreover, the plant will compete for biomass fuel in the raw material market.
50. The Commission concludes that the notified measure constitutes State aid in the meaning of Article 107(1) of the Treaty¹⁶.

Legality of the aid

51. Based on the information provided by the UK, the Commission notes that no final investment decision has been taken. No payments will be made before State aid approval is obtained. Therefore the United Kingdom has fulfilled its obligations under Article 108(3) TFEU.

Compatibility of the aid

52. The Commission notes that the notified measure aims at promoting the generation of electricity from renewable 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)¹⁷. The Commission has therefore assessed the notified measure based on the general compatibility provisions of the EEAG (set out in its section 3.2) and based on the specific compatibility criteria for operating aid granted for electricity from renewable energy sources (section 3.3.2.1 EEAG).

¹⁶ See also the decisions for cases SA.38758, SA.38759, SA.38761, SA.38763 and SA.38812; C(2014)5074 final; JOCE C/393/2014 and cases SA.38796 and SA.38762 (decisions not yet published) which benefit from a similar CfD aid.

¹⁷ OJ C 200 of 28.06.2014.

Objective of common interest

53. The notified aid measure aims to help the United Kingdom to reach the renewable energy targets and the CO₂ reduction objectives set by the EU as part of its EU 2020 strategy¹⁸. As described in recital 13 above, according to estimates from the United Kingdom, the plant is expected to generate yearly about 3.6 TWh of renewable electricity saving 28.8 million tons of CO₂ during the lifetime of the project. Therefore, in line with paragraphs 30, 31 and 33 (a) EEAG, the United Kingdom explicitly provided the expected CO₂ savings and renewable electricity expected from the project. The Commission is of the view that the notified aid measure is aimed at an objective of common interest in accordance with Article 107(3)(c) of the Treaty.

Need for state aid and appropriate instrument

54. In paragraph 107 EEAG the Commission acknowledges that "*under certain conditions State aid can be an appropriate instrument to contribute to the achievement of the EU objectives and related national targets*". In paragraphs 38, 107 and 115 EEAG, the Commission notes that the market failures (i.e. the failure to include externalities generated by the use of fossil fuels in the price of energy) may not be sufficiently addressed by the existing policy framework.
55. The UK provided a detailed financial analysis illustrating the costs of the project. Based on this analysis, the Commission notes that without the aid the notified project would not be financially viable (see table 2 and recital 33 above), as the costs for generating electricity would be higher than the income from the sale of the electricity thus generated.
56. According to paragraph 116 EEAG, in order to allow Member States to achieve their targets in line with the EU 2020 objectives, the Commission presumes the appropriateness of aid to energy from renewable sources provided all other conditions are met. The Commission in its decision on cases SA.36196¹⁹ and SA.38762²⁰ concluded that the CfD is an appropriate instrument for reaching the objective of common interest.
57. Consequently, the Commission considers that the aid for the notified project is necessary and that it is granted by means of an appropriate instrument to address the objective of common interest.

Incentive effect

58. With reference to paragraphs 49 and 58 EEAG, the Commission notes that the levelised costs of electricity from biomass plants illustrated in table 2 are well above the expected electricity market price²¹. The UK authorities have provided a financial

¹⁸ See Directives: 2009/28/EC (OJ L 140 of 5.6.2009) and 2003/87/EC (OJ L 275 of 25.10.2003) and Communication COM/2011/0885 final.

¹⁹ OJ C 393 of 7.11.2014.

²⁰ Still to be published.

²¹ The market price is assumed to be approximately £ 55MWh in real terms as described in recital 31 above.

analysis to demonstrate that, without aid, the IRR of the notified project would be negative because, as stated in recital 33 above, the operating costs are expected to be higher than the forecasted revenues from the sale of electricity. In such a situation, market players would not want to invest in the biomass project. The aid therefore changes the beneficiary's behaviour. The United Kingdom confirmed that the beneficiary was required to submit applications and that this was submitted before work on the project has started (in line with paragraph 51 EEAG).

59. Therefore, the Commission is of the preliminary view that the aid for the notified project has an incentive effect.

Proportionality

60. According to paragraph 69 EEAG, environmental aid is considered to be proportionate if the aid amount per beneficiary is limited to the minimum needed to achieve the environmental protection objective aimed for.

61. As laid down in paragraph 124 EEAG, the aid is provided in the form of a variable premium on top of the reference price for electricity. This premium consists in the difference between the strike price (the level of revenues calculated as necessary for biomass conversion projects to reach an acceptable rate of return) and the reference price of electricity.

62. The Commission notes that the project was selected by means of a bidding process. However, the aid amount (strike price) was set administratively. In the bidding process, the project was therefore not evaluated on the basis of price.

63. The Commission verified the compliance of the notified measure specifically taking into account section 3.3.2.1 EEAG (Operating aid for electricity from renewable energy sources). The Commission notes that the beneficiary will sell the electricity produced directly in the market, as required by paragraph 124 EEAG. The Commission further notes that the Investment Contract is already signed and will become binding on the UK once the measure is approved by the Commission. The aid is granted as a variable premium until 2027 and not exceeding the depreciation period of the investment. The United Kingdom confirmed that the plant will be subject to the same conditions as approved by the Commission in case SA.36196 for balancing responsibilities and the absence of incentives to generate at negative prices.

64. The aid granted to the notified project will not be cumulated with any other aid. Moreover, the United Kingdom confirmed that neither the beneficiary nor any of its direct or indirect stakeholders has received any other support from the United Kingdom or from any other Member State in relation to the notified project.

65. The United Kingdom provided levelised costs calculations for typical biomass conversion projects on the basis of a 10% discount rate. The United Kingdom showed that for a typical biomass conversion project the levelised costs (LCOE) are above 105 £/MWh. For the notified project the strike price is 100 £/MWh. The United Kingdom explained that the level of the strike price for biomass conversion projects

was calculated considering a range in hurdle rates of 8.8% - 12.7% on a pre-tax real basis. Such rates would be consistent with the ones previously approved by the Commission for biomass projects in the UK.²² Furthermore, the United Kingdom confirmed that aid will only be granted until the investment is depreciated according to normal accounting rule.

66. Table 4 below presents the levelised costs and the expected IRR for the notified project, as well as the general estimates of the United Kingdom for this technology.

Table 4 – Summary of the levelised costs and IRR details for the notified project

DECC generic levelised costs range Range: 105- 115 £/MWh Central scenario: 109 £/MWh	DECC generic pre-tax real IRR range Range: 8.8-12.7% Central scenario: 10.9%	DECC generic post-tax nominal IRR range Range: 8.7-11.8% Central scenario: 10.3%
Project levelised cost	Project pre-tax real IRR	Project post-tax nominal IRR
99 £/MWh	4.7%	4%

Source: United Kingdom.

67. The Commission considers the LCOE calculation appropriate as was already confirmed in previous decisions²³ to demonstrate that the 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) does not exceed the LCOE (see paragraph 131 EEAG). In line with paragraphs 84 and 85 EEAG, the Commission will verify whether the aid amount exceeds the minimum necessary to make the aided project sufficiently profitable.

68. Calculations show that the IRR is significantly affected by the initial assumptions used in the financial calculations. Based on the sensitivity analysis provided by the United Kingdom and shown in recital 34 and Table 3 above, if the thermal efficiency and the net load factor were to increase by 5% and fuel costs to decrease by 5%, the IRR would increase from 4.7% to over 15.6% on pre-tax real basis. The Commission notes that uncertainties in the assumptions used in the costs calculation might result in changes to the IRR, so as to lead to potential overcompensation.

69. The United Kingdom acknowledges that the strike price would make it profitable for the plant to operate almost irrespective of the actual electricity wholesale price as the strike price is very likely to almost always exceed the operating costs²⁴. In these conditions, the plant should operate whenever technically available. However, in the central scenario (see recital 16 above), the plant is scheduled to run only 84.1% of the time it is technically available. According to the data submitted by the United Kingdom, the gross load factor is expected to be less than 65% during 5 years of operation while availability is expected to be lower than 73% during 3 years.

²² See for instance the Renewable Obligation scheme – SA.35565, OJ C 167, 13.6.2013, p.5.

²³ See for example the decision for cases SA.38758, SA.38759, SA.38761, SA.38763 and SA.38812; C(2014) 5074 final; JOCE C/393/2014 and the decisions for cases SA.38796 and SA.38762 (decisions not yet published).

²⁴ This would be expected at times of positive electricity market prices.

70. According to the United Kingdom, the 83.7% availability is due to planned maintenance while the 84.1% gross load factor is due to problems related to procuring the required volumes of wood pellets. For example, the beneficiary cites the risk that unplanned outages in the last 2 years of operation could result in large quantities of unused supplies at the moment the unit ceases operation.
71. The price assumed for wood pellets in Table 1 (8.39 £/GJ or approximately 229 \$/over dry tonne) is higher than the current spot price and higher than the price for other biomass projects in the UK²⁵. The 90 day cif ARA Index for industrial wood pellets is currently approximately 160 \$/tonne or 5.8 £/GJ. As described in recital 14 above, the amount of pellets required by Drax cannot be procured on the spot market. Rather, due to the quantities involved, the pellet supply will be largely secured by long term contracts. Therefore, the price for pellets procured via long term contracts might be higher than the price on the spot market due to tight supply markets.
72. The United Kingdom submitted pellet supply contracts justifying the prices reported in the notification. The Commission notes that the supply contracts so far in place do not cover the entire supply required for the whole duration of the project. If the market surplus as assumed by the United Kingdom persists (as described in recital 40 above), future market prices might be lower than the fuel price assumed in the central scenario presented in Table 1²⁶.
73. Based on the foregoing considerations, the Commission has doubts that the amount of operating aid for the notified project will be limited to what would be necessary to allow the project to reach a reasonable rate of return.

Undue distortion of competition and trade, balancing test

Electricity market

74. According to paragraph 90 EEAG, the Commission considers that aid for environmental purposes will by its very nature tend to favour environmentally friendly products (solid biomass meeting UK sustainability criteria, see recital 12 above) and technologies at the expense of other, more polluting ones. Furthermore, the effect of the aid will in principle not be viewed as an undue distortion of competition since it is inherently linked to its very objective.
75. The Commission notes that the project will convert a coal power plant into a biomass plant that depends on actual production for receiving its support. The converted plant therefore has an incentive to operate as a base-load plant as the plant's operation will take into account the support it receives instead of a plant that can be dispatched.
76. In this respect, the Commission notes that the share of electricity generated from renewable energy sources in 2013 amounted to 5.1% (the target for the UK is set at

²⁵ See for example the price of the wood pellets assumed for the Teesside (SA.38796) and Lynemouth (SA.38762) projects.

²⁶ Conversely, in case of scarcity, Drax would be able to command higher prices than competitors for the required raw materials.

15% for 2020). The Commission further notes that the beneficiary represents a small fraction of the United Kingdom electricity market. As mentioned in recital 11 above, the Drax unit will amount to 1.1% of the installed electricity generation capacity in the United Kingdom. Moreover, the project consists of retrofitting an already existing coal power plant.

77. Therefore, with reference to paragraphs 94 – 96 EEAG, the Commission considers that the notified 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 (provided all other conditions are met).

Wood pellets and raw material market

78. However²⁷, the Commission considers that the amount of wood pellets required to operate Unit #1 of Drax entirely on biomass – approximately 2.4 million tonnes/year, as explained in recital 10 above – is large and comes in addition to the existing demand. Also, the plant will require wood pellets complying with well-defined specifications and cannot be fired by waste wood or wood chips. The market for such pellets is considerably smaller than for other types of bioenergy.
79. The Drax conversion project would consume a quantity of pellets representing approximately 16% of the European consumption of wood pellets in 2012 and approximately 9% of the world production in 2014. To accommodate for Drax supply, imports into the EU would have to increase by approximately 50% compared to 2012 levels. This additional demand for the Drax conversion project will add to the existing demand and also to the demand for wood pellets expected from the Lynemouth conversion project²⁸.
80. The Commission acknowledges that the production capacity of wood pellets is growing rapidly and that the wood pellet market should be considered a global market for assessing the market distortions. However, in view of the size of the conversion project, and the already approved Lynemouth project (see footnote 28), the Commission has doubts that the global wood pellets market can fully accommodate the required demand increase resulting from the Drax project in the timeframe without undue market and trade distortions in the EU.
81. Wood biomass is used by a wide variety of companies in the EU for different uses. However, only certain wood species and assortments are suitable for producing industrial grade wood pellets.
82. Depending on conditions in the local market, the increased demand for wood pellets may lead to distortions in the raw material market (wood fibre) affecting other uses (such as pulp and paper or board manufacturing). For economic reasons, raw materials used by the wood pellet industry can normally be only transported over

²⁷ The Commission also carried out an additional assessment for State aid to the Lynemouth (SA.38762).

²⁸ The Commission approved State aid to the Lynemouth biomass conversion project on 1 December 2015 (SA.38762), for which the amount of wood pellets required were estimated at 5.5% of the 2014 global wood pellet market.

limited distances. Manufacturing plants of semi-finished pulpwood products source wood supply from within an average distance of approximately 100 km to 150 km (called the catchment radius of the plant).

83. The wood pellets required by Drax are expected to be imported mainly (60-80%) from the US South East and approximately 16% from South America where pellet production has been growing rapidly²⁹. Competition distortions in the market for raw materials could therefore result, in particular in the US South East. The volumes required for the Drax project are still significant as according to some estimates³⁰ the Drax conversion project would require approximately half of the total amount of pellets produced in the US South East in 2014.
84. Therefore, based on the information available at this stage, the Commission cannot exclude with sufficient certainty the existence of undue distortions on the raw material markets and trade.
85. The measure will favour the generation of electricity from renewable sources to replace electricity generated from coal. Therefore, the measure will contribute to the EU's renewable energy targets.
86. However, when assessing the overall effect of the aid, the Commission has to take into account the potential negative effects of the measure, including the proportionality of the aid and the potential distortive effect on competition and trade.
87. In view of the doubts on proportionality and the risk of competition and trade distortions, as described above, at this stage, the Commission has doubts as to whether the expected environmental benefit of the measure will outweigh the potential negative effects on other market participants.

Transparency

88. According to paragraph 104 EEAG, Member States have the obligation to ensure the transparency of the aid granted, by publishing certain information on a comprehensive State aid website. In line with paragraph 106 EEAG, Member States are requested to comply with this obligation as of 1 July 2016.
89. The Commission notes that the United Kingdom is committed to ensure the transparency of the aid granted to the notified project and indicated that all the Investment Contracts awarded through the FIDeR process have been published online in the form in which they were signed.

Other aspects – Compliance with Articles 30 and 110 TFEU

90. In the context of the decision on CfD for Renewables (SA.36196) and the decision regarding FIDeR aid to the five offshore wind projects (SA.38758, SA.38759,

²⁹ US pellet production tripled during 2012-2013.

³⁰ See for example, 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".

SA.38761, SA.38763 and SA.38812), the Teesside CHP biomass plant (SA.38796) and the Lynemouth biomass conversion project (SA.38762), the United Kingdom has committed that it will adjust the way in which electricity suppliers' liabilities for CfD payments are calculated so that eligible renewable electricity generated in EU Member States outside Great Britain and supplied to customers in Great Britain is not counted towards suppliers' markets shares.

91. The United Kingdom will ensure that no CfD payments are made before this exemption is in place, or if this is not possible the United Kingdom will put in place a mechanism to reimburse suppliers for any imported eligible renewable electricity supplied before the exemption comes into effect but after CfD payments have started to be made.
92. The above commitment will also apply to the notified measure.
93. In the light of the above commitment, the Commission considers that the financing mechanism of the notified aid measure should not introduce any restrictions contrary to Article 30 or Article 110 TFEU.

Conclusion with regard to the compatibility of the notified measure

94. In light of the concerns regarding proportionality of the aid and distortions of competition and trade on the secondary upstream markets (wood pellets and raw material), the Commission has, at this stage, doubts about the compatibility of the measure with the internal market.

IV. CONCLUSION

The Commission has at this stage doubts as to the compatibility of the aid for the conversion to biomass of the first Unit of the Drax power plant with the internal market. In particular, the Commission doubts that the aid is limited to the minimum necessary and that the distortions of competition on upstream biomass market are not too significant. In accordance with Article 4(4) of Regulation (EC) No 659/1999 the Commission has decided to open the formal investigation procedure, thereby inviting the United Kingdom to submit its comments.

In the light of the foregoing considerations, the Commission, acting under the procedure laid down in Article 108(2) of the Treaty on the Functioning of the European Union, requests the United Kingdom to submit its comments and to provide all such information as may help to assess the measure, within one month of the date of receipt of this letter. It requests your authorities to forward a copy of this letter to the potential recipient of the aid immediately.

The Commission wishes to remind the United Kingdom that Article 108(3) of the Treaty on the Functioning of the European Union has suspensory effect, and would draw your attention to Article 14 of Council Regulation (EC) No 659/1999, which provides that all unlawful aid may be recovered from the recipient.

The Commission warns the United Kingdom that it will inform interested parties by publishing this letter and a meaningful summary of it in the Official Journal of the European Union. It will also inform interested parties in the EFTA countries which

are signatories to the EEA Agreement, by publication of a notice in the EEA Supplement to the Official Journal of the European Union and will inform the EFTA Surveillance Authority by sending a copy of this letter. All such interested parties will be invited to submit their comments within one month of the date of such publication.

If this letter 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 this letter. Your request specifying the relevant information should be sent by registered letter or fax to:

European Commission
Directorate-General for Competition
State Aid Registry
B-1049 BRUSSELS
Fax no: + 32-2-296.12.42
Stateaidgreffe@ec.europa.eu

Yours faithfully,
For the Commission

Margrethe VESTAGER
Member of the Commission

