

COMMISSION DECISION (EU) 2015/658**of 8 October 2014****on the aid measure SA.34947 (2013/C) (ex 2013/N) which the United Kingdom is planning to implement for support to the Hinkley Point C nuclear power station***(notified under document C(2014) 7142)***(Only the English version is authentic)****(Text with EEA relevance)**

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 those provisions ⁽¹⁾, and having regard to their comments,

Whereas:

1. PROCEDURE

- (1) Following pre-notification contacts, the United Kingdom notified measures in support of the new nuclear power station Hinkley Point C ('HPC') on 22 October 2013 by electronic notification, registered by the Commission on the same day.
- (2) The Commission opened a formal investigation on the notified measures on 18 December 2013, on the ground that it had serious doubts as to their compatibility with State aid rules.
- (3) The Commission decision to initiate the procedure ('Opening Decision') was published on the Directorate-General for Competition website on 31 January 2014, and in the *Official Journal of the European Union* on 7 March 2014. The Commission called on interested parties to submit their comments.
- (4) The UK sent its comments on the Opening Decision on 31 January 2014.
- (5) The Commission received comments from interested parties. It forwarded them to the UK, which was given the opportunity to react; its comments were received by on 13 June and 4 July 2014.

2. DESCRIPTION OF THE MEASURES**2.1. CONTRACT FOR DIFFERENCE**

- (6) The notified measure consists, first of all, of a Contract for Difference ('CfD') providing revenue support during the operational phase of HPC. The UK had initially notified an Investment Contract, which was defined as an early form of CfD. Due to the fact that negotiations went on for longer than anticipated between the UK and the company fully owning the beneficiary at the time of this decision, EDF Energy plc ('EDF'), the Investment Contract was fully replaced with a CfD. EDF is the UK subsidiary of the French electricity company Electricité de France.
- (7) The beneficiary is NNB Generation Company Limited ('NNBG'), which at the time of the decision is fully controlled by EDF. The CfD is a private law agreement between NNBG and the CfD Counterparty, Low Carbon Contracts Company Ltd. A separate agreement will be signed between the Secretary of State and the shareholders of NNBG. This separate agreement will only relate to parts of the terms of the transaction, in particular those related to potential shutdown events and gain-share mechanisms.

⁽¹⁾ OJ C 69, 7.3.2014, p. 60.

- (8) Under the CfD, NNBG will receive an amount of revenues which is determined by the sum of the wholesale market price at which it sells electricity and a difference payment corresponding to the difference between the pre-determined Strike Price ('SP') and the Reference Price ('RP') observed in the previous reference period.
- (9) When the RP is lower than the SP, the CfD Counterparty will pay the difference between the SP and the RP, ensuring that NNBG will ultimately receive relatively stable revenues, subject to its selling strategy and the amount of output it produces. Conversely, when the RP is higher than the SP, NNBG will be obliged to pay the difference to the CfD Counterparty. Also in this case, therefore, NNBG will receive relatively stable revenues.
- (10) The RP is a weighted average of wholesale prices which the UK sets for all CfD-supported operators. In the case of NNBG, the relevant RP is the Baseload Market RP, which applies to all baseload generation operators. ⁽¹⁾
- (11) In particular, the Baseload Market RP is currently set so as to use daily price data reported by the London Energy Broker's Association (LEBA) and the Nasdaq OMX Commodities exchange, in relation to the price for the purchase of electricity one season (i.e. six months) ahead of delivery, or a 'season-ahead' price. ⁽²⁾
- (12) The Baseload Market RP is calculated once per season, and immediately prior to each season, when the arithmetic mean of the daily season-ahead prices published each day of the previous season is taken. This average is weighted in order to ensure that the volume traded on each reference index is given proportionate influence.
- (13) NNBG will be obliged to maintain a predetermined minimum level of performance but is not committed to produce a predetermined output level. In particular, the plant will be expected to operate at 91 per cent load factor. If NNBG does not achieve this load factor, it would implicitly fail to achieve the level of revenues which it is expecting to receive from the project.
- (14) NNBG will receive difference payments based on its metered output up to a maximum level of output ('cap'), which will be set in the CfD. No payments will be made for the output sold on the market above the cap. The electricity produced by NNBG will be sold into the market.

2.1.1. Overall functioning of the CfD mechanism

- (15) The CfD will be concluded with the CfD Counterparty, i.e. an entity to be funded through a statutory obligation on all of the licensed suppliers collectively.
- (16) Entry into the final contract is dependent on EDF/NNBG's final investment decision, as well as an agreement of the financing arrangements (including the terms of a UK Government debt guarantee), and the parties' final approvals.
- (17) Under the CfD framework, licensed suppliers are collectively liable for any obligations arising from the contract, and the Counterparty to the contract is liable only to the extent that funds have been transferred to it from licensed suppliers, or from the UK government. Each supplier would be liable based on its share of the market, defined by metered electricity use. Under this framework, in case of non-compliance with payment obligations, the Secretary of State would designate a different counterparty, collect payments from other suppliers, or pay generators directly.

⁽¹⁾ Baseload generation is typical of plants which have the ability to produce output continuously, and can therefore be relied upon to address the core of demand at any point in time. Nuclear plants are baseload generators and are also characterised by a relatively low variable cost, hence they typically occupy the initial positions in the supply curve.

⁽²⁾ The formula employed within the CfD is as follows:

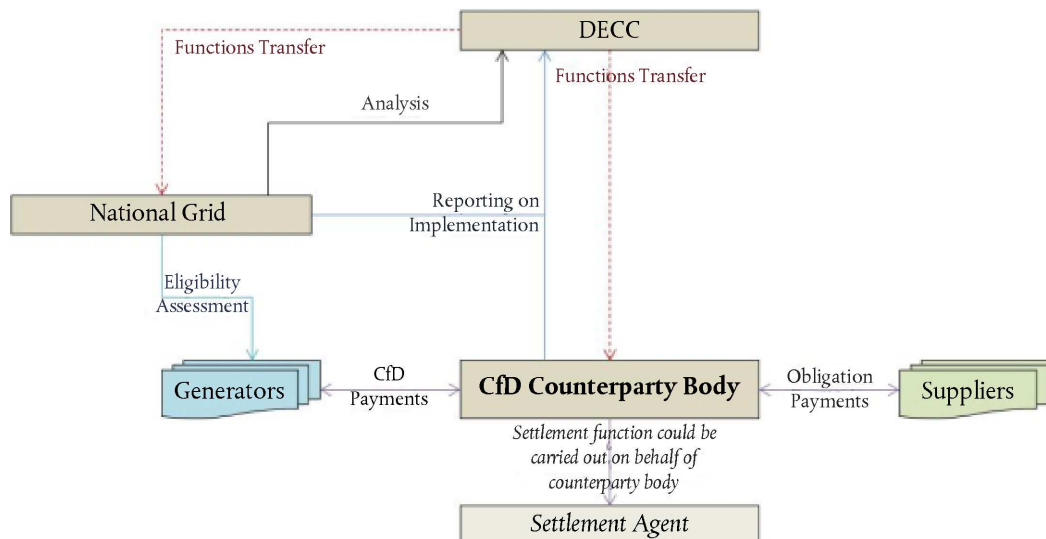
$$\sum_{i=1}^d \left(\frac{\sum_{j=1}^e (BP_{ij} \times BQ_{ij})}{\sum_{j=1}^e (BQ_{ij})} \right) \times \frac{1}{N_d}$$

where (d) is the number of trading days over the prior season, (e) is the number of sources, (BP) is the price on each day for each source, and (BQ) is the volume on each day for each source.

- (18) Separately, the Counterparty will entrust a Settlement Agent with revenue raising power (i.e. the power of collecting payments from suppliers) on the one hand, and the obligation to make payments to, and receiving payments from, generation operators on the other hand. The UK Government intends to designate a subsidiary of Elexon (i.e. the body currently acting as settlement agent in the UK, and fully owned by the UK's Transmission System Operator — 'TSO' — National Grid) as the Settlement Agent.
- (19) The Counterparty to the generation operator under the CfD will be enabled to take decisions and exercise discretion, for example by deciding that a generation operator is fulfilling its obligations, or needs to post collateral to guarantee its payments under the scheme, or waive certain requirements, depending on the specific market conditions. The UK Government intends to provide further guidance on the parameters which might limit the discretion of the Counterparty to take decisions in relation to the CfD operation.
- (20) Figure 1 explains what the respective roles are for each of the agents envisaged in the functioning of the CfD system.

Figure 1

Roles and responsibilities in the operation of the CfD



Source: UK authorities.

2.1.2. Terms of the CfD agreement

- (21) The UK and EDF have agreed the terms of the CfD. These terms will be translated into a long-form contract prior to final signature of the agreement and the Final Investment Decision by EDF.
- (22) Many of the terms agreed reflect those of the CfD for other technologies, and in particular renewable energy technologies. Such terms are public ⁽¹⁾. Other terms are specific to the CfD for HPC.
- (23) Under the terms agreed, the SP will be set at GBP 92,50 per MWh in 2012 nominal prices. If an investment decision to build the Sizewell C new nuclear power station is taken, using the same design and allowing for the opportunity to share some costs for the HPC reactors, the SP will be changed to GBP 89,50 per MWh, again in 2012 nominal terms.

⁽¹⁾ Available at the following address: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/267649/Generic_CfD_-_Terms_and_Conditions__518596495_171_.pdf

- (24) The SP will be fully indexed to the Consumer Price Index ('CPI'), as for other CfDs. The CPI adjustment will be annual with a base date of November 2011. Each year, the SP will be adjusted on the first day of the season with reference to the latest available CPI Index as published by the Office of National Statistics (ONS) for February.
- (25) The duration of the CfD will have as ultimate starting date the Target Commissioning Window for each reactor, which is [...] (*) years from the agreed Target Commissioning Date. After that date, the term of the CfD will start running regardless of whether or not the plant is operational.
- (26) The Longstop Date is the [...] anniversary of the last day of the Target Commissioning Window for the second reactor. If neither reactor has been commissioned on or before the Longstop Date, the CfD Counterparty may terminate the contract. The Longstop date may be extended for *force majeure* or connection difficulties.
- (27) There will be two 'gain-share' mechanisms. The first will be on construction costs ⁽¹⁾ and will provide that:
- (i) the first [...] of construction gain (nominal value) will be shared on a 50:50 basis with 50 per cent of the gain going to the CfD Counterparty and 50 per cent to NNBG; and
 - (ii) any construction gain in excess of [...] (nominal value) will be shared on a 75:25 basis with 75 per cent of the gain going to the CfD Counterparty and 25 per cent to NNBG.
- (28) The second gain-share arrangement is on the rate of return on equity. Two thresholds were set ⁽¹⁾:
- (29) A first threshold set at the level of forecast equity IRR level produced at the time of this decision by the latest Financial Model ⁽²⁾, or 11,4 per cent on a committed equity basis and in nominal terms. Any gain above and beyond this level would be shared by the CfD Counterparty for 30 per cent and by NNBG for 70 per cent.
- (30) A second threshold set at the higher between 13,5 per cent in nominal terms or 11,5 in real (CPI-deflated) terms, based on the same model as in point a above. Above this threshold, any gain would be shared by the CfD Counterparty for 60 per cent and by NNBG for 40 per cent.
- (31) There will be two opex reopener dates. The first will be 15 years after, and the second will be 25 years after, the date of start of the first reactor. The opex reopeners provide a way of mitigating long-term cost risks for both sides and will lead to changes in the SP in both directions. The mechanism would allow for an increase or decrease of the SP on the basis of known actual costs and revised predictions of future costs for the following operational cost line items, in each case wholly and exclusively as required for the continuing operation of the generation facility:
- (a) nuclear fuel front end refuelling;
 - (b) insurance;
 - (c) ONR fees;
 - (d) business rates;
 - (e) certain transmission charges;
 - (f) changes to the costs of Intermediate Level Waste (ILW)/spent fuel disposal due to changes to the waste transfer price under the waste transfer contract;
 - (g) changes in spent fuel management and decommissioning costs;
 - (h) operation and Maintenance costs;
 - (i) refurbishments and cash operating costs expensed through the Generator's income statement in accordance with IFRS and all capital expenditure incurred.

(*) Business Secret.

⁽¹⁾ For a detailed description of the commitment please see Annex C.

⁽²⁾ In particular, HPC IUK Model [...].

- (32) Any costs relating to matters related to the design, operation other than to a reasonable and prudent standard, availability or capacity of the generation facility, non-maintenance capital expenditure, expenditure on a new structure (not within an existing building), financing, and certain waste transfer costs will be excluded from the reopeners.
- (33) The revised cost estimates used in the opex reopeners will be based on a report prepared by NNBG and agreed by the CfD Counterparty, taking into account benchmark costs taken from other nuclear power stations using EPR technology and other nuclear power stations using pressurised water reactor technology in North America and the EU in each case operating to a reasonable and prudent standard. The SP adjustment will be calculated by reference to the top half of the benchmark costs.
- (34) The SP will be reduced (or a lump sum or series of annual payments made to the CfD Counterparty) to reflect changes in the amount of tax payable by NNBG in circumstances relating to the shareholder funding and tax structuring of NNBG. No increase will be allowed in this respect.
- (35) There will be a one-off forward-looking adjustment to the SP for Business Rates following the official reassessment by the Valuation Office after the plant operations start. Subsequent changes to Business Rates will take place through the opex reopeners.
- (36) In addition to the provision of information contemplated in the generic CfD standard terms, NNBG will be required to provide certain warranties in respect of the information contained in the data and models provided to the UK Government in respect of the costs of the project. The contract will make provision for the use of an agreed Financial Model to determine the various SP and other adjustments required by its terms.
- (37) NNBG will be protected and may recover some costs for Qualifying Changes in Law ('QCIL').
- (38) A QCIL is a Discriminatory Change in Law, a Specific Change in Law, a Specific Tax Change in Law, an Other Change in Law, or a Change in Regulatory Basis, in each case which is not foreseeable.
- (39) A Discriminatory Change in Law is a change in law the terms of which specifically (and not merely indirectly or consequentially or by virtue of the disproportionate effect of any Change in Law that is of general application) apply to the project, the generation facility or NNBG, but not otherwise.
- (40) A Specific Change in Law is a change in law the terms of which specifically (and not merely indirectly or consequentially or by virtue of the disproportionate effect of any Change in Law that is of general application) apply to nuclear generation facilities, or generation facilities subject to a CfD.
- (41) A Specific Tax Change in Law is (i) a change in, or new, tax imposed on uranium; or (ii) a change in law or HMRC practice which results in NNBG's tax treatment being less favourable than those set out in certain specific tax clearances from HMRC.
- (42) A Change in Regulatory Basis is where (i) the ONR (or successor regulator) no longer regulates the generation facility by assessment of whether a sacrifice required for risk reduction would be grossly disproportionate to the benefit that would be achieved; or (ii) the relevant Environment Agency (or successor regulator) no longer assesses a risk reduction option in respect of the generation facility as an acceptable environmental risk by reference to whether the costs of implementation are disproportionate to the environmental benefit it realises.
- (43) Compensation in respect of QCILs will only be payable once the aggregate amount of all QCIL claims exceeds GBP 50 million in 2012 nominal and indexed terms. Double recoveries will not be permitted. The SP will be adjusted once only for any particular QCIL during the remaining term of the contract, using the agreed Financial Model, or by calculating the net present value of the adjustment required.
- (44) NNBG will, subject to conditions, receive compensation in the event of a 'political' shutdown of HPC (by either a UK, EU or international competent authority) other than for certain reasons including health, nuclear safety, security, environmental, nuclear transport or nuclear safeguards (Qualifying Shutdown Event).

- (45) Compensation will also be available if the generation facility is shut down due to nuclear third party liability insurance circumstances including as a result of the UK Government not approving alternative insurance arrangements proposed by the Generator when the UK Government ought reasonably to have done and there being no other approved insurance options open to the Generator.
- (46) The Qualifying Shutdown Event protections include the right to transfer NNBG to the UK Government (and for the UK Government to call for transfer) in addition to the payment of compensation by the CfD Counterparty or the UK Government.
- (47) Termination events apply only to NNBG. It is the CfD Counterparty's decision whether to terminate the contract upon the occurrence of a matured termination event.

2.2. CREDIT GUARANTEE

- (48) The HPC project, and NNBG in particular, will not only benefit from the CfD but also from a State Credit Guarantee on the debt it issues (the 'Credit Guarantee').
- (49) Bonds to be issued will be supported by the Credit Guarantee. The latter could be seen as an insurance contract, guaranteeing the timely payment of principal and interest of qualifying debt, which could reach up to 17 billion pounds. ⁽¹⁾
- (50) The Credit Guarantee will be provided by the Infrastructure UK ('IUK'), a Unit within the UK Treasury which oversees the administration of the UK Guarantees scheme. The Credit Guarantee is a whole-business style debt platform for the long-term financing of HPC.
- (51) IUK considers that transaction has been structured in a manner that justifies a classification at a BB+/Ba1 equivalent risk category for HPC. The Guarantee fee will have a level of 295 basis points.
- (52) Under the scheme, the Bonds to be issued as part of the financing structure will be supported by a guarantee to be issued by the Lords Commissioners of the UK Treasury (the Guarantor). A construction bridge facility to be provided by commercial banks (and not guaranteed under the UK Guarantees Scheme) is also included. The remainder of the capital committed to the transaction will be provided by the shareholders. Other sources of capital may be added to the financial structure with the consent of the Guarantor.
- (53) The funding sources at the time of the decision are planned as follows:
 - (a) Base Equity of GBP [...]
 - (b) Contingent Equity of GBP [...]
 - (c) Construction Bridge Facility up to GBP [...]
 - (d) Bonds for GBP [...].
- (54) The financing structure is set-up so that the Base Equity suffers a total loss before the Bonds suffer any loss. The Contingent Equity provides additional comfort that the date on which the Guarantor is satisfied that, among other things, HPC has been commissioned and is operational and on which all required reserves are fully funded will occur ('financial completion').
- (55) The obligations of the shareholders relating to Equity will be set out in an equity contribution agreement to which the Guarantor will also be a party so that it receives undertakings in relation to the provision of the Equity.

⁽¹⁾ The issuance relates to an initial 16 billion pounds of debt and a further 1 billion pounds of debt related to the Sizewell C Adjustment under the CfD (the 'SZC Bond').

- (56) To ensure that Equity provides the loss absorption characteristics described above, if an event of default occurs, the parties have set-up two conditions (the Base Case Condition ⁽¹⁾ and the FFS Failure Condition ⁽²⁾) which allow for the Guarantor to require that the Base Equity is accelerated, or respectively, that the Contingent Equity is accelerated, i.e. immediately provided and applied to discharge the Bonds and the amounts due to the Guarantor. This combination of provisions is intended to ensure that the Shareholders and not the Guarantor retain the principal exposure to the viability of the EPR technology until such time as there is objective evidence for confidence through the success of precedent projects such as Flamanville 3 and Taishan 1.
- (57) During the period up to the Base Case Condition being met there is a cap on the amount of debt drawn being the minimum of: the debt milestone cap for the relevant project milestone and [...] per cent of the Base Equity less development equity, i.e. GBP [...] billion. Table 1 shows a practical example on loss absorption characteristics of Equity:

Table 1

Base Case Drawdown Profile and Base Case Condition Not Met**Base Case Drawdown Profile**

GBP billion	Total Committed	Development Equity	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Cashflow												
Base Equity	9,23	1,69	—	—	—	—	—	—	2,10	2,52	2,09	0,83
Contingent Equity	8,00	N/A	—	—	—	—	—	—	—	—	—	—
Bonds	16,00	N/A	1,50	1,95	2,40	2,90	3,35	2,65	1,25	—	—	—
Balance Sheet												
Base Equity			1,69	1,69	1,69	1,69	1,69	1,69	3,79	6,31	8,39	9,23
Contingent Equity			—	—	—	—	—	—	—	—	—	—
Bonds			1,50	3,45	5,85	8,75	12,10	14,75	16,00	16,00	16,00	16,00
Memo item												
Undrawn Base Equity			7,53	7,53	7,53	7,53	7,53	7,53	5,43	2,92	0,83	—
Undrawn Committed Equity			15,53	15,53	15,53	15,53	15,53	15,53	13,43	10,92	8,83	8,00

Source: UK Base Case

⁽¹⁾ The Base Case Condition is that satisfactory evidence has been provided that Flamanville 3 has completed the trial operation period and that the requirements of the Guarantor in respect of performance during such period have been met. The Guarantor has the option to extend the date for meeting the Base Case Condition into the future by increasing the amount of Base Equity and procuring that such increase benefits from the required credit support. The Base Case Condition date cannot fall later than 31 December 2020.

⁽²⁾ The FFS Failure Condition is that:

- (a) [...];
- (b) [...]; and
- (c) [...].

Base Case Condition Not Met (by 31 December 2020)

	Total	Development Equity	2015	2016	2017	2018	2019	2020
Cashflow								
Base Equity	1,69	1,69	—	—	—	—	—	—
Contingent Equity	7,97	N/A	—	—	—	1,97	3,35	2,65
Bonds	6,87	N/A	1,50	1,95	2,40	2,90	—	—
Balance Sheet								
Base Equity			1,69	1,69	1,69	1,69	1,69	1,69
Contingent Equity			—	—	—	1,97	5,32	7,97
Bonds			1,50	3,45	5,85	6,78	6,78	6,78
Memo item								
Undrawn Base Equity			7,53	7,53	7,53	7,53	7,53	7,53
Cumulative Cap on Debt			1,50	3,43	5,85	6,78	6,78	6,78

Source: UK Base Case

Source: IUK submission of 12 September 2014.

- (58) After the Base Case Condition is satisfied, the Guarantor's principal protection during the construction period is the quantum of Contingent Equity, which can be drawn to meet cost overruns together with the project milestones limiting the amount of debt in any period.
- (59) The commitments of the shareholders in respect of Base Equity and Contingent Equity will be fully credit-supported by way of instruments including, without limitation, parent company guarantees, letters of credit or other credit support, that are acceptable to the Guarantor.
- (60) The shareholders will grant fixed ⁽¹⁾ and/or floating ⁽²⁾ security ⁽³⁾, including a qualifying floating charge ⁽⁴⁾, over all of their assets, properties and undertakings to support their obligations to NNBG and the obligations of NNBG. NNBG and the issuer of the Bonds, a newly incorporated special purpose company, will each grant comprehensive fixed and/or floating security, including a qualifying floating charge, over all their assets, properties and undertakings to support their obligations. The security will be supported by direct agreements with the contracting parties in respect of certain important contracts.

⁽¹⁾ Fixed security attaches to the relevant identified and specific asset immediately upon grant and the chargor may not dispose of the secured asset or otherwise deal with the secured asset without the beneficiary's consent.

⁽²⁾ Floating security is granted over a fluctuating class of assets, present and future, belonging to the chargor.

⁽³⁾ Security interests that give the beneficiary rights over the secured asset. A charge is a form of security interest that does not confer on the beneficiary ownership rights, nor a right of possession. Instead, a charge is an encumbrance over the secured asset which gives the beneficiary the right to resort to the asset in order to realise it towards payment of the secured debt. It confers on the beneficiary an equitable proprietary interest in the asset, giving the beneficiary the right to appropriate the asset and have the proceeds of sale applied in satisfaction of the secured debt.

⁽⁴⁾ A floating charge over all (or substantially all) of the assets of a company and which empowers the holder of such charge to appoint an administrator or an administrative receiver and which is stated to be a qualifying floating charge for the purposes of the Insolvency Act of 1986.

- (61) Due to the special nature of the transaction and the high importance of safety, enforcement of the security will take into consideration the consent of the UK safety regulator and the fact that disposal can only be made to an entity that has or will have a nuclear site licence for the HPC site.
- (62) The security granted by the shareholders, NNBG and the issuer are meant to ensure that the secured parties ⁽¹⁾:
(i) have a maximum priority over the claims of unsecured creditors of the relevant debtor in the event of that debtor's insolvency; (ii) preserve the possibility for the secured parties to dispose of the secured assets and apply the proceeds of such sale towards the satisfaction of the outstanding secured liabilities, should this represent the best way of maximising recoveries and (iii) exert maximum control in case of the insolvency of any of the chargors and achieve the management purpose of security by means of appointment of an administrative receiver over the relevant debtor's business and assets.
- (63) The Bonds will be unsecured obligations of the issuer and will not share in any security to be granted by the issuer or any other member of the HPC corporate group.
- (64) In terms of creditor ranking, the proceeds of enforcement of the security granted by NNBG will in practice be applied in the following order of priority:
- (1) Creditors preferred by law.
 - (2) Enforcement costs (i.e. costs of the security trustees and any insolvency appointee).
 - (3) FDP Creditors ⁽²⁾.
 - (4) Construction bridge providers.
 - (5) Bonds and Guarantor.
 - (6) NNBG's unsecured creditors.
 - (7) NNBG's shareholders.
- (65) This order of priority in the enforcement proceeds cannot be changed without the consent of the Guarantor.
- (66) The funding of the transaction is split into phases by reference to the achievement of milestones in the realisation of the project.
- (67) In the period after the date on which the maximum amounts of Bonds (other than an SZC Bond) has been issued, Base Equity will be provided in accordance with a schedule with Contingent Equity meeting any cost overruns relative to that schedule.
- (68) Dividends to shareholders are not allowed prior to financial completion.
- (69) The UK authorities argue that after financial completion, the Credit Guarantee continues to be protected by many structural and covenant based mitigants including significant restrictions on when dividends may be paid and a [...] month debt service reserve (which may be funded by cash, standby letters of credit or acceptable guarantees) which could amount to GBP [...] billion. Reportedly, the market standard in in project finance would be a 6 months debt service reserve.
- (70) A call on the Credit Guarantee after financial completion will, supposedly, only arise if: (a) there is a very material deviation in operating performance and consequent reduction in cash flow available for debt service from that expected; and (b) this deviation exhausts the substantial debt service reserve provided for in the structure and referred to above.
- (71) If the debt service reserve is called upon (to any extent) it must be fully replenished before any dividend payments may be made.

⁽¹⁾ The secured parties are the Guarantor, the issuer and the Secretary of State for Energy and Climate Change and the Nuclear Decommissioning Fund Company Limited.

⁽²⁾ The Secretary of State for Energy and Climate Change and The Nuclear Decommissioning Fund Company Limited in relation to the arrangements in respect of decommissioning Hinkley Point C.

- (72) The UK authorities argue that given the range of structural protections against default and the presence of trigger events and potential remedies ahead of default, the need to enforce should occur in narrow and unlikely circumstances. However, if enforcement would be necessary the circumstances are likely to be unexpected and serious, for which a fixed enforcement action will not be appropriate. IUK considered that it requires flexibility to consider its options in the light of events as they occur so that it can protect better its interests. Therefore, IUK chose to have a maximal and flexible suite of enforcement options along with discretion to determine the most appropriate manner of enforcement at the relevant time.
- (73) The Commission has been provided, for assessment, with the financing head of terms agreed to date as regards the project financing of HPC. These contain the agreement of the parties over the main terms and conditions of the financing documents, without the final form legal drafts being available as of the date of this Decision. The United Kingdom authorities declared that the rest of the terms and conditions as well as the final financing documents will contain standard clauses that any investor would seek for a similar project. As the Commission did not have the opportunity to verify this, in case the final documents amend the measure as currently presented to the Commission in any respects, they will have to be notified by the United Kingdom authorities to the Commission.

2.3. SECRETARY OF STATE AGREEMENT

- (74) The CfD provides that NNBG's investors will be entitled to compensation should the UK Government decide to shut down HPC on political grounds (and not on health, safety, security, environmental, transport or safeguards concerns). These payments would be funded in the same way that payments under CfDs are funded (i.e. through the supplier levy). The CfD will be accompanied by a Secretary of State Agreement to be concluded between the Secretary of State and the investors in NNBG.
- (75) The agreement provides that if, following a political shutdown, the Counterparty Body was to default on compensatory payments to NNBG's investors, the Secretary of State would pay the agreed compensation to the investors. The agreement does not provide for additional compensatory payments to NNBG or its investors.

3. COMMENTS FROM INTERESTED PARTIES

- (76) The Commission received a very large number of responses during the consultation on the Opening Decision, which lasted until 7 April 2014. Please see below a description of the comments relevant for the State aid assessment.
- (77) The comments from interested parties will be addressed in the relevant parts of the assessment without specific mention being made to the specific comment.
- (78) Given the number of responses, they will be described by grouping them by topic.

3.1. COMMENTS RECEIVED ON THE MEASURES AS A SERVICE OF GENERAL ECONOMIC INTEREST

- (79) One respondent agreed with the UK government that no State aid is involved in the measures, citing the evidence provided by the UK in support of their SGEI assessment.
- (80) One party argued that HPC delivers an SGEI because it provides a PSO to ensure that energy demand is met in the short, medium and long run, and that the project is being carried out in a clear and transparent manner, not resulting in an economic advantage for any of the participating companies. HPC would also improve security of supply, by reducing reliance on imported fuels and reducing the use of fossil fuels.
- (81) Among the parties opposing the UK's view that the measure does not involve State aid, one respondent observed that the measure does not comply with the Altmark criteria, because the CfD represent only the compensation for the fulfilment of a Service of General Economic Interest ('SGEI').
- (82) Several respondents observed that no other companies were able to tender for the project.

- (83) Several parties argued that the notified measure does not fall under the EU SGEI framework, since the UK failed to clearly define the public service obligation ('PSO') for which it would grant compensation, and did not comply with the conditions for the entrustment of the public service mission, as set out in Article 3(2) of Directive 2009/72/EC.
- (84) Several parties commented that the aid measures are incompatible with the Altmark criteria, whereby electricity generation would be a standard economic activity and thus nuclear energy should compete with other electricity sources in a liberalised internal electricity market; the measure lacks an objective of common interest; there appears to be no objective criterion for justifying the duration of 35 years; it treats differently nuclear power and renewable energy sources; it is based on unknown parameters and there is a lack of a cost-benefit analysis. Furthermore, the fact that nuclear power can only produce baseload electricity would make it impossible for it to be a SGEI. Finally, the potential for overcompensation would be substantial.

3.2. COMMENTS RECEIVED ON THE EXISTENCE OF AID

- (85) Several respondents argued that the measures constitute State aid as they entail bilateral agreements between the State and a company; the payments are specifically targeted to the objective of generating nuclear energy; the State budget is directly involved in the payments; and the contract provides support and special conditions for nuclear energy, which would exceed any support for renewable energy sources.
- (86) One respondent observed that the move to a maximum cap on the Waste Transfer Price, from a 'per unit' of waste payment, will involve aid and a further subsidy to new nuclear operators.

3.3. COMMENTS RECEIVED ON THE OBJECTIVES OF COMMON INTEREST, THE MARKET FAILURES AND THE NEED FOR STATE INTERVENTION

- (87) Among the positive responses, one respondent observed that nuclear power can be a major contributor to the production of low-carbon electricity and can help diversify the electricity generation sector. It also commented that while not capable of providing all of the additional capacity needed over next decades in the UK, it is likely to play a critical role in replacing retiring nuclear capacity and meeting future demand.
- (88) Several respondents argued that the UK is in a different position from other EU MSs, being an island and having a more limited potential for interconnectors. Any comparison with Finland or France would be inappropriate due to their significantly different market structure and the presence in those MSs of long-term economic agreements to support the construction of nuclear plants. Moreover, the UK would not be able to manage the intermittency of renewables by importing large amounts of power from its neighbours when renewables are not generating and dumping the problems caused by excess generation when they are. The market failings in the UK with regard to any single European electricity market will therefore always be greater than on the European mainland and will require more measures to correct them. Moreover, support to nuclear energy would increase diversification of energy supply, thereby strengthening the resilience of the UK's energy system.
- (89) One respondent pointed to specific market failure for nuclear energy, in particular its long construction time and operation lifetime leading to investment return above 30 years, well beyond 2050. Also, lessons learned from blackouts in certain MSs would show that reliance on cross-border interconnection is limited, and that no single TSO is able to guarantee interconnection capacity in the same way as capacity within the domestic meshed grid. State aid for the HPC project might be less distortive to competition compared to the introduction of other measures such as capacity markets.
- (90) One respondent argued that HPC would not be detrimental to the objective of ensuring environmental protection, as its operations will be closely scrutinised by relevant institutions, such as the Office for Nuclear Regulation. Also, HPC would be satisfying the Environmental Permitting Regulations 2010.
- (91) Several parties submitted that technologies to safely store nuclear waste currently exist.
- (92) Several parties commented that the current combination of policies is insufficient to drive investment in nuclear power, in particular since the ETS carbon price is too low; the UK's Carbon Price Floor will not drive carbon prices high enough to incentivise investment in nuclear; and the UK Guarantee Scheme is not enough on its own to support investment, since it does not address the long-term economic viability of nuclear power. Finally, the

carbon footprint of nuclear would be similar to that of wind, and well below the footprint of marine renewables, solar PV and biomass technologies.

- (93) One party argued that the UK supports renewable energy sources but that such technologies are not suitable for the provision of baseload electricity, while at the same time relying on gas would make the UK dependent on fossil fuels and subject to geo-political risk.
- (94) One respondent argued that the Commission should assess the net environmental benefit of HPC in comparison to the current energy mix in the UK. Assessed against these criteria, HPC would clearly provide a significant environmental benefit.
- (95) Several parties argued that MSs should be free to choose their own energy mix, and provide the necessary incentives without which efficient long-term private investment in low-carbon generation capacity would be held-up. The Commission would not have any remit to impinge on such decisions. Also, nuclear plants would have high upfront capital costs and low marginal operating costs, which together with the lack of correlation between operating costs and electricity market prices determines the existence of a risk which cannot be efficiently transferred to consumers without State intervention.
- (96) Several parties criticised point 337 in the Opening Decision, in particular since no investment in new nuclear power plants has taken place in the UK since the liberalisation of the energy market 20 years ago. Also, the threat of changes in government policies other political risks would make such investment difficult for private investors.
- (97) Several parties argued that capital costs account for about 75 per cent of the levelised cost of electricity (⁽¹⁾), compared to 10 to 15 per cent for unabated gas. It also observed that the cost-effective to decarbonisation under its own modelling implied a level of 50 gCO₂/kWh by 2030, compared to the current levels of around 500 gCO₂/kWh, which would be achieved at lowest cost only if new nuclear capacity achieved significant penetration rates (e.g. 11 to 18 GW). The present value benefit of a large-scale nuclear programme would be GBP 23 billion. Also, a long-term contract on nuclear would preserve efficiency in electricity dispatching, something which would be relevant for both nuclear and renewable technologies, given their low marginal cost.
- (98) One respondent submitted that failure to support the early development of a new technology such as EPR would lead to diminished investor appetite for that technology, both inside and outside the UK.
- (99) One respondent submitted that the Euratom Treaty cannot be applied independently of the current Commission policies, given that Article 40 of the Treaty would require the Commission to periodically publish targets for nuclear energy, and that the objectives of the Treaty can only be pursued in accordance with the other provisions of the Treaty.
- (100) One respondent noted that pre-liberalisation, investment in nuclear was made possible through tariff-funded projects, which eliminated investment risks.
- (101) One party said that the source of nuclear fuel is diverse and has a very high rating in respect to energy security.
- (102) One party observed that there would be no proven low-carbon baseload technologies other than nuclear which are deployable at the same capacity levels. Also, given the profile of political risk across the European Union, investors would be increasingly wary of committing extremely large capital to the new order of electricity generation. Finally, the Commission forecast of investment in new nuclear in 2027-2030 would be questionable due to uncertainty.
- (103) Several parties observed that the UK would not have a mechanism similar to the Finnish Mankala company model (a joint investment by energy generation companies and energy-intensive industries), under which the asymmetry between the risk of the upfront capital cost and the long-run instantaneous electricity price could be managed.
- (104) One party observed that most renewable technologies would have been invented by the early 1900s, making support to them less justified than support to nuclear on technology maturity grounds.

(¹) The levelised cost of electricity ('LCOE') is a measure of the cost of producing electricity across a range of technologies, which has the aim of making the comparison of these costs possible, under a number of assumptions.

- (105) Several parties commented that the reactors will not be operational until 2023 at the earliest, making the plant unable to address the security of supply challenge highlighted by the UK as a justification for the measures.
- (106) One party commented that nuclear technology does not provide security of supply, as it makes energy production dependent on imports of fissile nuclear material. Another party commented that reliance on imported fuels should be decreased to improve security of supply.
- (107) One respondent commented that the UK Government's energy policy is politically biased and limits the development of onshore wind farms and solar plants.
- (108) Several respondents commented that nuclear technology worsens security of supply, since it lacks the flexibility needed for balancing supply and demand on the grid, due to unscheduled failures, reduced capacity rates or routine maintenance. Nuclear would also be associated with unpredictable shocks which require large amounts of back-up, in contrast with the variability of wind which is described as being to a large degree predictable in advance. Finally, for the same respondents nuclear is also a poor means of cutting emissions, based on research which would show that the nuclear cycle produces between 9 and 25 times more CO₂ than wind power.
- (109) Several respondents observed that the contribution of nuclear technology to decarbonisation is not substantial, based on comparative statistics.
- (110) Several parties observed that the measure would provide no energy security, as it would not replace retiring capacity fast enough and would be reliant on uranium reserves, which may run out.
- (111) Several respondents argued that subsidies would lead to foreclosure of other, more innovative and environmentally less harmful production technologies, and that they are not justified and incompatible with the 'polluter pays principle.' Future generations would bear the costs stemming from the long-term measure.
- (112) Several respondents wished to emphasise that a number of Member States ('MSs'), and in particular Germany, Austria, Ireland, Italy and others, would be against nuclear energy, and that other MSs, such as Portugal, Denmark, Estonia or Greece would not have nuclear energy, hence there could not be a common objective in relation to nuclear energy.
- (113) Several respondents observed that a technology which needs subsidies for 60 years and is exempted from all direct and indirect costs it induces, as well as requiring a 35-year guaranteed contract, cannot be seen as a viable one.
- (114) One party argued that there is no satisfactory way to address the need to dispose of radioactive waste.
- (115) One respondent submitted that the UK is favouring new nuclear energy excessively, by accommodating the many uncertainties around disposal and providing certainty to investors.
- (116) Several respondents criticised the risk assessment carried out by the UK, stating that it failed to conceive or capture the cascade of unexpected 'beyond design-base' accidents that occurred in Fukushima and other major nuclear accidents. It also criticised the claims that for the very worst reasonably foreseeable accident/incident at HPC (including terrorist attack), the maximum rate of release in the form of a containment bypass would not exceed 0,03 per cent of the reactor core inventory per day.
- (117) Several respondents observed that it was unclear whether the UK had taken into account the development of new technologies that improve the flexibility of the power grid (e.g. dynamic pricing, contracts for interruptible load or a dynamic load limiter in industry, aggregation of services and demand optimisation of households).
- (118) One respondent criticised the importance the UK places on baseload electricity generation, given the changes that are happening in the energy sector, which would make it questionable whether, by the mid-2020s, baseload will still be as relevant as it is today. In particular, system flexibility would become increasingly important.
- (119) Several parties observed that HPC would not be a first of a kind ('FOAK') plant, but rather a fifth or sixth of a kind, given the plants in Finland and France, and the two more which have been built in China. Moreover, similar reactors were ordered without granting State aid in Finland and France.
- (120) One party argued that the solar industry would have the capability to deliver the same amount of electricity every year as is expected to be produced by HPC and at a comparable cost, and that offshore wind could be cheaper than nuclear by 2020 or not long after.

- (121) One party argued that the UK Government's own figures would show that new nuclear was not necessary, contrary to several documents and speeches which would incorrectly assert that electricity demand may double or even triple against the Government's own research regarding long-term electricity demand and regarding capacity needs up to 2025.

3.4. COMMENTS RECEIVED ON THE APPROPRIATENESS AND THE INCENTIVE EFFECT OF THE MEASURES

- (122) Among the positive responses, several respondents observed that nuclear power can be a major contributor to the production of low-carbon electricity and can help diversify the electricity generation sector. They also commented that while not capable of providing all of the additional capacity needed over next decades in the UK, it is likely to play a critical role in replacing retiring nuclear capacity and meeting future demand.
- (123) Several respondents argued that without government intervention, private investment would focus only on short-term returns, which would make new nuclear impossible.
- (124) One respondent argued that without aid, operators would have no incentive to invest in new nuclear plants, and that the successful accomplishment of the first project would significantly reduce the cost of new projects. It also argued that the third generation reactors cannot be compared with existing plants, and that without a long-term time horizon of price stability it would be impossible to have private investment in nuclear energy.
- (125) Several respondents claimed that the UK nuclear new build programme would result in significant employment benefits to the UK and to Europe.
- (126) Several respondents observed that the aid would enable a highly specialised, skilled work force to maintain their skills and develop new techniques, something which would be vital also for decommissioning the nuclear reactors in operation today. They also commented on the positive impact which the aid would provide to the supply chain operators.
- (127) Several respondents pointed out that UK businesses would strongly favour a diverse energy mix, and that they would support in particular nuclear, wind, and hydropower. The UK programme would bring more a stable investment environment for businesses, especially large electricity users.
- (128) Several respondents observed that the proposed mechanism, as compared to the green certificate system that is currently used exclusively for renewable energies, has the advantage of limiting overcompensation.
- (129) Several parties observed that the State has an obligation to incentivise investors' diversification decisions, since liberalised markets cannot internalise the benefits of a MS' security of supply.
- (130) One party criticised the Commission's view that CfDs eliminate most market risks, since feed-in tariffs are widely used in many Member States to support renewable energy sources, and there would be no ground for the different treatment of nuclear power.
- (131) Several respondents argued that nuclear technology would not be environmentally friendly, would not be renewable but finite, and would be extremely expensive despite being a mature technology with no learning effect.

3.5. COMMENTS RECEIVED ON THE PROPORTIONALITY OF THE MEASURES

- (132) One party commented that the CfD mechanism mitigates risk while still exposing NNBG to basic risk, and preventing overcompensation because payments are only made when the RP is below the Strike Price. Also, the equity gain-share arrangement would limit overcompensation and NNBG would not be guaranteed a fixed level of revenues or profits. Finally, the CfD would stabilise prices, leading to a better investment environment.
- (133) Several parties argued that the SP should be compared to that of other low-carbon technologies and not to the costs of gas plants, and consider future price levels rather than current ones.

- (134) Several parties commented that the CfD for HPC would last for 35 years, whereas contracts for renewable energy sources only for shorter durations and typically not for longer than 15 years. However, the nuclear station would operate for 60 years, while renewable installations for 20-25 years, resulting in a lower subsidy proportion of the operating life. CfDs would protect the UK from having to pay for higher construction costs.
- (135) One party provided a cost assessment suggesting scope for costs to fall significantly after the first plant, down to GBP 60-75 per MWh by 2030. It also argued that the SP of the notified measure would fall within the range suggested by its analysis, i.e. GBP 85 to 100 per MWh.
- (136) Several parties suggested that only a small number of technologies, none of which can provide for significant quantities of electricity in the future, are at present considered cheaper.
- (137) Several parties observed that when the full system costs of renewable energy sources are taken into account, nuclear power would be a much cheaper option at the SP notified by the UK.
- (138) One party argued that a Commission decision to exclude nuclear projects from using CfD-type mechanisms could have significant potential impacts on NDA's ability to implement a solution for dealing with the UK's civil plutonium. It also submitted that the burden to tax payer of waste-related costs is minimal/remote, because the UK government.
- (139) Several respondents commented that investment aid is not deducted from operating aid.
- (140) One respondent commented that all agreements, and any modifications to them which impact on the funding, or the practical arrangements concerning decommissioning, waste and spent fuel management and disposal, must be open for public information and Parliamentary scrutiny. It also commented that key information on cost modelling has not been made public.
- (141) Several parties voiced concerns that the UK might be granting additional aid to NNBG, including in the form of a regime that limits liability of nuclear operators. Some parties also considered that technologies alternative to nuclear would bear full liability, while nuclear technology would enjoy a limited liability regime.
- (142) Another type of support which was indicated as potentially being excluded from the notified aid would be the underestimation of the cost of the management and disposal of nuclear waste under the Waste Transfer Contract into which the UK intends to oblige new nuclear operators to enter. Similarly, some parties commented that the alleged lack of full account of decommissioning costs would breach the 'polluter pays principle.'
- (143) One respondent voiced concerns over potential cost overruns, based on the experience with the European Pressurised Reactor ('EPR') models in Finland and France.
- (144) Financial support to existing nuclear operators in the UK would already be provided through a number of financial instruments, including limitations on liabilities, underwriting of commercial risks, subsidies for nuclear waste disposal costs and subsidies towards ant-terrorist costs.
- (145) Several parties commented that the aid will result in economic risk being transferred from the undertaking to taxpayers and a lock-in which will increase energy prices for the next 35 years.
- (146) Several parties argued that the SP is too high, with HPC being the most expensive power station ever built. Distortions would lead to additional costs.
- (147) One party commented that the proportionality assessment cannot be conclusive until the gain-share and cost re-opening provisions are fully notified.
- (148) One party offered that the SP would be more than what Germany pays for its onshore wind energy.
- (149) One party commented that it would be fair to assume that there is no reasonable expectation that the costs of the EPR would significantly decline if supported and that the said reactor would not qualify as an emerging technology.

- (150) Several parties argued that several emergent renewable energy technologies may prove much more cost-effective than HPC, and that a recent report by Carbon Connect ⁽¹⁾ estimates that returns to EDF and other investors in HPC would be much higher than for other projects, with expected equity returns at around 19 to 21 per cent, higher than expected equity returns on Private Finance Initiative projects. Also, if the cost of full insurance against nuclear disasters were taken into account, the economic case for nuclear power compared to other low-carbon sources would be substantially weakened. Finally, a recent report by the UK House of Commons Committee of Public Accounts and Nuclear Decommissioning Authority would point to nuclear legacy costs of over GBP 2,5 billion a year, or 42 per cent of DECC's total budget.
- (151) Several parties argued that there was a reasonable suspicion of overcompensation.
- (152) One party calculated that if the SP over 35 years is converted to an equivalent 15-year SP, it would be of approximately GBP 117 per MWh in 2012 real terms, or more than 20 per cent higher than onshore wind and 10 to 15 per cent higher than biomass conversions. Also, one could assume that onshore wind costs would have decreased further by 2023 due to increased levels of deployment, making the difference even more notable.
- (153) Several parties commented that prices for alternative technologies, and renewable ones in particular, would likely fall in the future, resulting in relative overcompensation of the HPC project.
- (154) One party submitted that the UK would not have gone out to the market seeking equivalent capacity or output for the same time period. In France and Finland the prices of nuclear-produced electricity are in the range of EUR 45 to 50 per MWh. Financial analyst reports would indicate that EDF would make an annual equity IRR of between 25 and 35 per cent. Finally, CfDs would make it easier for nuclear to achieve the RP than for renewable energy sources, and a combination of the Carbon Price Floor and the Capacity Market would support investment in new nuclear.

3.6. COMMENTS RECEIVED ON POTENTIAL DISTORTIONS TO COMPETITION AND TRADE BETWEEN MEMBER STATES

- (155) Among the positive responses, several parties argued that the measure would result in no significant effect on competition or trade between MSs because it would not significantly impact on consumer welfare and would not lead to higher retail prices. Also, NNBG would be exposed to market forces and incentives to compete in wholesale electricity market.
- (156) Several parties argued that a level playing field should be established between all low-carbon technologies, hence subsidies to new nuclear would be consistent with current support policies for renewable energy sources. Several parties argued that technological neutrality should be preserved, hence nuclear technology should not be discriminated against.
- (157) Several parties observed that the measures could not crowd out investment in renewable energy sources, since they too are supported by CfDs. Some parties further argued that the aid would to the contrary act as a catalyst for new investment in energy generation technologies.
- (158) One party observed that HPC is expected to have installed capacity just over 3 GW, whereas the UK market as a whole would soon reach 80 GW. In this light, the market distortion of the aid would not be significant (e.g. 4 per cent).
- (159) Several parties observed that gains from alternatives to new nuclear would not be capable of providing a high enough level of capacity to be considered as viable options. In particular, gains from demand-side response cannot be considered certain, energy efficiency would require additional policies, and interconnection would provide a key contribution to efficient resource utilisation, but the main obstacles to it would be political and regulatory.
- (160) Several respondents argued that the measures would distort competition. This would happen by crowding out alternative technologies, and in particular by discriminating against, or displacing, investment in renewable technologies. There would also be distortions to trade in the internal market, as importers would not be able to compete against the subsidised price of nuclear energy, which would lead to artificial surpluses in other MSs.
- (161) One respondent pointed out that the aid would distort competition between existing nuclear plants and new nuclear plants, as the latter receive operating aid while the former do not. Another party commented that technological neutrality needed to be preserved, hence nuclear energy should not be discriminated against.

⁽¹⁾ Leveque F and Robertson A, Future Electricity Series Part 3: Power from Nuclear, Carbon Connect, Policy Connect, London, 2014.

- (162) One party observed that nuclear subsidies would be likely to reduce the size of the available market for renewable energy technologies to participate in, and increase the difficulty of establishing new renewable generation capacity across the EU.
- (163) One party criticised the Expert Study by Prof. Green and Dr Staffell, in particular because their methodology would be inappropriate to run welfare analyses or distortion assessments; their assumptions would be inappropriate to deal with the existence of financial market failures; the assumption of WACC exogeneity would have no justification; and the study would ignore learning, carbon externalities, diversity of supply, and market power.
- (164) One party commented that the aid would make the imbalance between the full cost of other energy technologies and nuclear technology to the detriment of consumers and tax amounts considerably larger. Also EDF would achieve a dominant position in the GB energy market, in particular if an extension in the economic life of existing nuclear plants were granted.
- (165) One party submitted that paying CfDs differences by metered output could create distortions to the market, since generators could even sell electricity at negative prices and rely on the CfD to earn positive revenue.
- (166) One party argued that the scale of the aid would undermine investment in future interconnectors, including interconnectors between Scotland and Iceland (geothermal electricity) and between England and Nordic countries (geothermal, wind, tidal electricity).

3.7. COMMENTS RECEIVED ON THE CREDIT GUARANTEE

- (167) Several respondents commented that overcompensation could not be excluded given that the aid package includes a Credit Guarantee in addition to the CfD.

3.8. OTHER COMMENTS RECEIVED

- (168) Several respondents referred to wild hogs which in March 2013 would have contained large amount of radiation, 27 years after the Chernobyl accident. Several respondents asked for a second consultation to be carried out, when the notified measure would be finalised.
- (169) Several respondents pointed out that the UK government would have promised that there would be no public subsidy for nuclear in their pre-election manifesto.
- (170) One party observed that the UK would continue to rely on what it calls successful completion of processes connected with new build but would ignore the significant uncertainties over siting, establishing and operating a geological disposal facility in order to make plans and determine its costs. It also criticised the current UK proposals on management and disposal of nuclear waste.

4. COMMENTS RECEIVED FROM THE UNITED KINGDOM

- (171) The UK sent its response to the Opening Decision on 31 January 2014. The UK's response provided several analyses, including the following ones:
 - (a) modelling work by DECC and analysis of counterfactual scenarios;
 - (b) a report by Oxera on market failures, proportionality and potential distortions of competition;
 - (c) a study by Pöyry on potential distortions to the internal market and alternatives to new nuclear;
 - (d) a report by Redpoint on the evolution of the UK electricity sector;
 - (e) a description of the Cost Discovery and Verification process, which involved KPMG and LeighFisher;
 - (f) a report by KPMG on potential distortions to competition
 - (g) benchmarking work on the rate of return

- (172) In its response, the UK broadly reiterates the same position that it set out in the notification. In particular, new nuclear would be an important part of the UK's energy mix, which would help achieve a decarbonised, secure and diverse electricity supply at an affordable cost.
- (173) The UK's arguments will be outlined in more detail below.

4.1. COMMENTS RECEIVED ON THE EXISTENCE OF STATE AID AND SGEI

- (174) The UK maintained that the notified measure does not constitute aid, under the Altmark criteria for the CfD and under the Guarantee Notice ⁽¹⁾ for the guarantee. Alternatively, the UK continued to consider that the aid would be compatible under the SGEI Framework. ⁽²⁾ Failing this, the aid would be compatible under Article 107(3)(c) TFEU.
- (175) Regarding the first Altmark condition, i.e. the existence of a service of general economic interest ('SGEI'), the UK authorities claim that the construction of HPC within a specified time schedule and its operation within the framework of the CfD constitutes an SGEI in order to achieve the UK Government's general interest objectives.
- (176) The UK authorities clarify the definition of the SGEI. The SGEI allegedly consists of ensuring the investment in new generation nuclear capacity to be delivered within a specific time-frame. Reportedly, no private investor operating under current market conditions would invest in a new generation nuclear plant within the time-frame specified in the CfD. The UK authorities claim that there are important market failures as regards the construction of new nuclear which justify the set-up of the SGEI.
- (177) According to the UK authorities, the Electricity Directive ⁽³⁾ recognises that the public service obligations under Article 3(2) may take into account the need to provide capacity on a long-term basis to ensure security of supply. Supposedly, there is no reason to limit this basis to public service obligations in relation to the provision of reserve generation capacity. Allegedly, HPC will contribute to the UK's long-term planning for security of supply by providing significant generation capacity on a long-term basis as envisaged by Article 3(2) of the Electricity Directive, namely for the 35 year term when the difference payments will be paid under the CfD. The fact that the coming online of HPC may not be sufficiently timely to address potentially low levels of capacity before 2020 would not be determinative in light of the long-term as opposed to short-term orientation of the general interest objective. Supposedly, fact that the UK may face capacity constraints before the HPC plant is active does not undermine the rationale for the project. Moreover, without further intervention, the UK would continue to face capacity constraints throughout the 2020s and beyond and would need to design an energy mix to meet those challenges on a continual basis.
- (178) Allegedly, by contributing significantly towards the UK's security of supply of low-carbon electricity on a long-term basis, the investment in new nuclear generation capacity to be delivered and operated within a specific time-frame and its operation within the framework of the CfD is directed towards achieving a general or public interest that is capable of being designated an SGEI. According to the UK Government, new baseload capacity and in particular nuclear projects will not be provided by undertakings operating under normal market conditions in a timescale sufficient to meet the UK's general interest objectives.
- (179) The UK authorities put forward that the CfD is to be viewed as imposing specific public service obligations on NNBG. The precise definition and compulsory nature of the public service obligation under the SGEI stem from the combination of stringent clauses designed to ensure that NNBG will meet the specified time-frame and the fact that once NNBG is engaged in the construction there will be 'no way out' in light of the extremely high sunk costs which it will incur.
- (180) As regards the second Altmark condition, the UK authorities claim that the parameters for the calculation of the RP and the potential adjustments to the SP have been agreed in principle and will be set out in the CfD in an objective and transparent manner before it enters into force.

⁽¹⁾ Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees (OJ C 155, 20.6.2008, p. 10).

⁽²⁾ Communication from the Commission on the European Union framework for State aid in the form of public service compensation (OJ C 8, 11.1.2012, p. 15).

⁽³⁾ Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC (OJ L 211, 14.8.2009, p. 55).

- (181) As regards the third Altmark condition, the UK authorities claim that pursuant to the case-law, in light of the discretion enjoyed by a Member State in defining an SGEI mission and the conditions for its implementation, the scope of control by the Commission as regards the necessity and proportionality of the compensation for the purposes of the third Altmark condition is also limited to that of manifest error ⁽¹⁾. The UK authorities consider that the measure is proportionate and that the CfD mechanism automatically minimises the level of State support since the difference payment is only paid when the market RP is below the SP and a reverse payment is made when the market RP is above the SP. The CfD will contain a number of safeguards against over-compensation.
- (182) With reference to the fourth Altmark condition, the UK authorities consider that this criterion is designed to ensure that the compensation granted for the provision of an SGEI corresponds to what would be normal market consideration for such a service. Supposedly, in the case at hand, the lack of an existing adequate benchmark should not render the fourth Altmark condition incapable of application. The Commission should, allegedly, assess the existence of an advantage by reference to the objective and verifiable elements which are available in this case. The UK authorities consider that the Cost Discovery and Verification work that has been carried out by external advisers in order to ensure that NNBG's cost estimates for providing the SGEI are reasonable should suffice for the fourth Altmark condition to be considered met.
- (183) As regards the Credit Guarantee it is the opinion of the UK authorities that it will not confer an advantage on an undertaking since it will be offered on commercial terms in accordance with the market economy investor principle ('MEIP'). The UK Government considers the Credit Guarantee and the terms of the CfD serve different purposes. The purpose of the CfD would be to provide a long term contractual arrangement to reduce uncertainty in wholesale market prices subject to the performance of the underlying asset. The Credit Guarantee, as with commercial Credit Guarantees from financial insurers, would facilitate wider access to the long-term debt capital markets. The pricing and approval of the Credit Guarantee critically depends on the risk within the whole underlying project including the terms of the CfD. However, the reverse would not be true: the presence of a guarantee reallocates the risk profile between debt investors and the guarantor rather than altering the project risk profile. The UK Government does not consider that the project company would receive any additional support from the combination of a CfD and a Credit Guarantee.
- (184) As regards the Secretary of State agreement on compensation for political shut down, the UK claims that all CfDs will include provisions on compensation for the investors in the case of a 'qualifying shutdown event', for example a change in law that permanently shuts down the whole facility (depending on the technology) or a refusal by the UK Government to consent to any restart of the facility after a specified period after shutdown. The direct agreement between the Secretary of State and NNBG's investors is an additional and separate agreement intended to function as a back stop to the qualifying shutdown event provisions. The agreement ensures that if, following a political shutdown, the Counterparty Body was to default on compensatory payments to NNBG's investors, the Secretary of State would pay the agreed compensation to the investors. It does not provide for additional compensatory payments to NNBG or its investors.
- (185) The UK authorities further argue that the agreement was necessary as nuclear energy bears special risks in regard to political shutdown.
- (186) The UK authorities claim that it is not their intention for every CfD Agreement to be accompanied by a Secretary of State agreement as this should be addressed on a case by case basis for each project. However, they allege that, it is possible that the rationale for a direct agreement might apply to other projects, including to other technologies – specifically where they are particularly large, controversial; and/or have similar arrangements relating to decommissioning.
- (187) According to the UK authorities, the compensation payments would be effectively intended to reinstate NNBG's investors to their initial position and should not be regarded as State aid.
- (188) The UK authorities further claim that if the measure does involve State aid it would be compatible with the internal market under the SGEI Framework.
- (189) Allegedly, the investment in new generation nuclear capacity to be delivered and operated within a specified time-frame and its operation within the framework of the Investment Contract for a difference payment period of 35 years constitutes an SGEI. Moreover, the CfD arrangements have the necessary elements for an entrustment act and set out the relevant public service obligations and the compensation levels.

⁽¹⁾ Case T-17/02 *Fred Olsen v Commission* [2005] ECR II-2031, paragraph 216 and Case T-289/03 *BUPA and others v Commission* [2008] ECR II-81, paragraphs 166 and 220.

- (190) Allegedly, as the entrustment period of 35 years (representing the difference payment period) is shorter than the full period of depreciation for HPC of 60 years, the duration of the entrustment period is justified given the SGEI in question.
- (191) As regards public procurement requirements, UK Government argues that the Commission ought to assume regularity in the selection and negotiation process unless the investigation shows that the process was flawed. The UK considers the public procurement rules in Directive 2004/17/EC of the European Parliament and of the Council ⁽¹⁾ or Directive 2004/18/EC of the European Parliament and of the Council ⁽²⁾ on the award of public works, supply and service contracts would not be applicable to the measure at hand, as it does not involve any procurement of supply, works or services for the benefit of the UK Government or any state body within the meaning of these directives. Allegedly, for the same reasons, the UK Government considers Article 8 of the Electricity Directive would not be applicable to the Notified Measure. Nevertheless, the UK authorities state that the procedures followed to date by the UK Government when identifying suitable investors under the EMR programme have been based on a clear, transparent and non-discriminatory framework, equivalent to a tendering procedure in terms of transparency and non-discrimination. Moreover, allegedly, the detailed conditions of a contract like the one concerning HPC must be individually negotiated in order to reflect the characteristics of the specific investment.
- (192) As regards discrimination, reportedly, were the UK Government to entrust the same SGEI for new nuclear electricity generation capacity to another undertaking, it would ensure that the same methodology would be used to calculate the RP and the SP. However the exact conditions of each investment contract may vary due to the unique product characteristics. Nevertheless, such possible variations would be objectively motivated and would not constitute discrimination.
- (193) As regard the requirements concerning the compensation, the UK authorities allege that the SP has been calculated on the basis of NNBG's projected construction and operating costs, including a non-guaranteed reasonable profit, with NNBG's costs having been substantiated and independently verified.
- (194) The UK authorities consider that no additional requirements would be necessary as regards the measure as it does not fall in any of the cases provided by the SGEI Framework and, there are, allegedly, no grounds for concluding that the measure will result in serious distortions of competition in the internal market, or affect trade between Member States to such an extent. Reportedly, similar services are not being provided in competition with the SGEI, nor are they expected to be provided by the private sector in the near future. Allegedly, the Commission has acknowledged in a previous decision that public support in favour of the electricity sector in a geographically isolated country (Ireland), with limited interconnection with other energy networks, has limited effect on trade and is not contrary to the interest of the Community ⁽³⁾. The same would allegedly apply to the UK electricity sector.
- (195) Additional comments in the submission of the UK authorities:
- (i) The UK authorities make clear in several parts of their submission that the aim of the measure is to incentivise or unlock investments into low-carbon generation, in particular into new nuclear.
 - (ii) The HPC CfD has been designed to enable barriers to the project to be tackled as efficiently as possible, including some protection against certain risks, most notably around the uncertainty over future electricity prices.
 - (iii) There are many ways in which NNBG's costs may be higher than expected or its revenues may be lower than expected (for example if it does not achieve planned levels of generation or if its realised prices for the sale of electricity are lower than the market RP).
 - (iv) NNBG will be free to sell its electricity into the market either on a spot or contract basis. There is no requirement that NNBG sells only into the spot market.

4.2. COMMENTS RECEIVED ON THE OBJECTIVES OF COMMON INTEREST

- (196) The UK claims that it pursues the common EU objectives of decarbonisation, security of supply and diversity of supply at the lowest cost, and that it faces, like other MSs, a challenge in achieving them.

⁽¹⁾ Directive 2004/17/EC of the European Parliament and of the Council of 31 March 2004 coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors (OJ L 134, 30.4.2004, p. 1).

⁽²⁾ Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts (OJ L 134, 30.4.2004, p. 114).

⁽³⁾ See Commission Decision dated 30 October 2001, State aid n° N 6/A/2001 — Ireland C(2001)3265 fin, recital 56.

- (197) The UK observes that energy efficiency, demand side response, interconnection and improved functioning of balancing markets are important but cannot achieve those objectives on their own, despite the fact that they are being deployed. At the same time, the UK claims that competence to determine the energy mix belongs to MSs, and that it has decided that nuclear should be part of its energy mix.
- (198) Nuclear would help achieve decarbonisation as it is a low-carbon technology, and the UK's assessment would show that it is an element within the most cost-effective pathway to decarbonisation, together with renewable energy sources and CCS-equipped generation plants.
- (199) Relying on other technologies only would be risky. In particular, the UK estimates that in the absence of nuclear it would need either 14 GW of onshore wind, 11 GW of offshore wind or 5 GW of CCGT plants ⁽¹⁾ on top of existing or currently planned capacity to meet demand in the same timescale.
- (200) The UK also believes that a diverse generation mix is required in order to have a reliable and balanced electricity system.
- (201) Finally, the UK states that its policy on nuclear energy is consistent with the pursuit of an objective of common interest under the Euratom Treaty.

4.3. COMMENTS RECEIVED ON THE MARKET FAILURES AND THE NEED FOR STATE INTERVENTION

- (202) The UK claims that there are a combination of market failures affecting electricity generation, low-carbon generation more specifically, and new nuclear generation in particular.
- (203) In particular, the UK submits the following market failures which would be characteristic of electricity markets in general:
- (a) Residual carbon externality. Current policies (including the Emission Trading Scheme ('ETS') due to its low level of carbon allowance price) would not provide sufficient long-term certainty or strong enough price signals to internalise fully the negative externality characterising electricity production (i.e. the simultaneous production of carbon emissions), thereby making it difficult to facilitate new nuclear investments;
 - (b) Positive externalities leading to under-provision of security and diversity of supply by the market. Availability of electricity would have public good features, leading to incorrect pricing of scarcity and ultimately 'missing money' — i.e. under-provision of generation and security of supply. This is because private investment decisions in electricity generation takes into account neither the social costs of potential outages nor the impact of generation availability on the network and on other users of the network, hence the risks and benefits of individual technologies would not be aligned with the social optimum, with gas being naturally hedged and all other technologies being penalised, ultimately leading to lower diversity of supply;
 - (c) Insufficient incentives to achieve the learning benefits of deploying new and immature technologies. This would lead to an under-provision of investment in FOAK and new technologies; and
 - (d) Financial market failures which restrict the funds available to energy infrastructure projects. There would be no project finance available for nuclear energy generation, since risk transfer markets would be incomplete and there would be no instruments to hedge against these risks. Long-term contracts for electricity supply would be on shorter time horizons compared to investment levels, while price volatility would be very large and long-term price forecasts would be subject to a high degree of uncertainty.
- (204) The UK also submits that certain additional market failures exist in particular for nuclear energy and exacerbate barriers to investment in this technology:
- (e) exposure to political risk; and
 - (f) unhedged exposure to electricity price risk, which would be a more acute version of the broader market failure highlighted under point d above due to the extremely high levels of investment needed in nuclear energy generation.

⁽¹⁾ Combined Cycle Gas Turbines, or CCGT, is a modern energy generation gas technology.

- (205) The UK observes that these market failures are not purely theoretical, as would be proven by the fact that no investment in new nuclear power stations has taken place in the UK since market liberalisation.
- (206) The UK states that modelling work referred to in the Opening Decision, and in particular the Redpoint and the UK Department for Energy and Climate Change ('DECC') forecasts, which indicated that new nuclear would come online by 2027 or 2030, is not reliable.
- (207) The UK has updated its modelling with more recent data, which would point to new nuclear coming forward on a commercial basis in 2032 at the earliest, and possibly not before 2050. The UK stresses that modelling work necessarily simplifies reality and cannot take account of all the risks and uncertainties facing investors in the real world.
- (208) The UK concludes that relying on market forces alone would imply running the risk of postponing the contribution of new nuclear to achieving the UK objectives for several years and at a potentially higher cost. Even short delays of three to four years would impose a welfare loss which the UK estimates at up to GBP 30 billion.
- (209) Finally, the UK disputes that other projects in similar markets would be deployed without some level of State intervention or support.

4.4. COMMENTS RECEIVED ON THE APPROPRIATENESS AND THE INCENTIVE EFFECT OF THE MEASURES

- (210) In its response to the Opening Decision, the UK maintains its view that the CfD is the most appropriate instrument to bring forward investment in new low-carbon generation, and in new nuclear in particular.
- (211) The CfD would remove the inability to share efficiently, or transfer, price volatility risk due to incomplete risk transfer markets and the lack of adequate market-based hedging instruments. CfDs would mitigate against the risk of unhedged wholesale price volatility by reducing uncertainty over the sale price of the electricity generated which NNBG will receive. In so doing, the CfD provides confidence that an acceptable level of return will be realised post-investment.
- (212) The UK observes that the CfD would address the market failures highlighted at a lower cost to consumers compared to alternative mechanisms such as a standard feed-in premium, since it caps price levels and thus reduces state support when wholesale prices are higher than the SP. Whereas a fixed feed-in premium regime would pay the same amount for each unit of electricity regardless of the wholesale price level, CfDs would mitigate the risk of overcompensation in high wholesale price scenarios.
- (213) The UK also emphasises that the CfD would be a market-based instrument, given that it requires the beneficiary to sell into the market at the prevailing wholesale prices. It therefore would retain commercial incentives on NNBG to sell its electricity consistent with standard market functioning. In particular, if NNBG were to deviate from the RP, for example by selling electricity at below the RP, it would lower its revenues since the difference payment will be calculated based on the RP. Beneficiaries would still be subject to some degree of competitive pressure from other market participants.
- (214) The UK Government also maintains the view that the combination of the CfD and the Credit Guarantee is the appropriate instrument.
- (215) In the UK's view, a Credit Guarantee on its own would not reduce investors' uncertainty about future wholesale prices, which the UK considers would lead to the need for higher support levels, hence higher costs to consumers. The Credit Guarantee would be aimed at addressing difficulties in raising debt in the capital markets at the substantial levels required by investment in new nuclear.
- (216) The Credit Guarantee would not offer additional protection to equity holders from the project risks compared to what the market would be likely to offer, and hence does not address the need to find equity investors. Investors would not be prepared to commit very large sums of money, as both equity and contingent equity, without the revenue certainty provided by a CfD.
- (217) Finally, the UK observed that the HPC project was the only nuclear project in the UK at an appropriate stage for discussions, hence it would have been impractical to set up a genuine competitive process.

4.5. COMMENTS RECEIVED ON THE PROPORTIONALITY OF THE MEASURES

- (218) In its response the UK maintained its view that the SP was set at the minimum level possible to incentivise the investment sought, and on the basis of a rigorous cost discovery and verification process, an assessment of the level of returns that would be reasonable for investors to seek in relation to the HPC project, and a challenging set of negotiations with EDF.
- (219) The UK claimed that, under the CfD, investors in HPC retain substantial risks, in particular construction cost risks but also some operating risks and volume risk on availability. Investors would bear the risk of construction costs overruns and delays, as the CfD remuneration will only start when electricity is sold, i.e. when the plant is operational. Should NNBG not construct the plant within the pre-determined target commissioning windows, it would also run the risk of the shortening of the CfD duration, which is calculated from that date. If construction were not completed by the long stop date, the UK would have the right to terminate the CfD unilaterally.
- (220) Moreover, the Credit Guarantee would still require investors to contribute significant equity to the project and to cover cost overruns, with equity left unprotected by the guarantee in relation to such risks.
- (221) The SP level would have been calculated by reference to NNBG's expected costs for the project, allowing for a reasonable profit. However, the UK submits that costs may be higher or revenues lower than expected, which would expose NNBG to profit risks.
- (222) The UK observes that the CfD protects against overcompensation, given that when wholesale market prices are higher than the SP generators will make a payment to suppliers. It also points to further safeguards against overcompensation, in the form of the construction and equity gain-shares, which would ensure that any upside for NNBG would be shared with suppliers and ultimately consumers, while at the same time leaving sufficient incentives for NNBG to seek to realise those upsides. However any downside would be borne solely by NNBG.
- (223) The UK maintains that future adjustments to the SP, such as those following a QCIL and the opex reopeners, would apply only in limited and pre-determined circumstances and relate to selected costs. Opex reopeners would also function as a limit on overcompensation, as the SP would be adjusted downwards if those costs turned out to be lower than estimated.
- (224) The UK reiterates its view that the guarantee will be provided on commercial terms, hence it would not involve State aid.

4.6. COMMENTS RECEIVED ON THE POTENTIAL FOR DISTORTIONS TO COMPETITION AND TRADE BETWEEN MEMBER STATES

- (225) The UK maintained that the CfD has no significant effect on competition and trade between MSs, and provided reports by KPMG, Oxera and Pöyry in support of its claim.
- (226) The CfD instrument would minimise any distortion to competition between generators by preserving NNBG's exposure to market forces and incentives on it to compete in the wholesale electricity market. NNBG would not be guaranteed to achieve the RP and would have to sell its output competing for the best possible price, facing the same incentives as other market participants.
- (227) The UK claimed that the CfD does not give rise to any significant distortion of competition, as NNBG or EDF would be unlikely to have the incentive or the ability to engage in a strategy to influence the RP according to which difference payments are calculated. If NNBG were to try to strategically reduce the RP, it would deviate from its risk minimising strategy, i.e. seeking to realise the RP. The UK also questions whether there would be benefits to NNBG in the upstream market, or to NNBG or EDF in the downstream retail markets, from engaging in such a strategy. The UK mentioned that regulators under the UK and EU regulatory regimes, would also prevent NNBG to act strategically and influence the RP.
- (228) The CfD would also not reduce consumer welfare or lead to higher retail prices, and it would actually make it less likely that supplier might pass on only cost increases since it stabilises wholesale prices.

- (229) The UK claimed to remain committed to interconnection, and that the CfD would not have any significant impact on interconnector flows and incentives to invest in interconnectors, since these would be driven by price differentials between the UK and other markets.
- (230) The Pöyry's analysis would indicate that HPC will have a limited impact on price differentials between the UK and those neighbouring markets which are currently connected to the UK via interconnectors, hence the project would not distort trade between MSs.
- (231) The UK also considered that the small reduction in retail prices which might be caused by the deployment of HPC would not substantively change incentives for energy efficiency, and that the potential energy savings offered by alternatives to new nuclear, such as demand-side response or energy efficiency, would not be not high enough to be considered a realistic option.

5. COMMENTS RECEIVED FROM EDF

- (232) EDF, jointly with EDF S.A. and NNBG, submitted its response on 7 April 2014. In its response, EDF provides substantial additional evidence and analysis in support of their argument that none of the doubts raised by the Commission in its Opening Decision would not be founded.
- (233) The main arguments provided by EDF will be briefly described below, again grouped by the principles of State aid assessment.
- (234) EDF claims that the CfD meets the Altmark criteria and thus the measure does not constitute State aid under Article 107(1) TFEU.
- (235) As regards the first Altmark criterion, they argue that the HPC SGEI does not encompass the provision of baseload electricity by NNBG. Rather, the SGEI consists in investing in a new generation nuclear plant to be delivered within a specific time-frame. The concerns expressed by the Commission as to whether the provision of baseload electricity may be regarded as a SGEI are not, therefore, relevant.
- (236) HPC is allegedly necessary to address the objectives of decarbonisation, security/diversity of supply and energy affordability.
- (237) As regards the three last Altmark criteria, allegedly NNBG will not derive any advantage from the measure. The parameters for calculating the compensation will be set out in the CfD. Overcompensation is avoided by way of several methods and, in particular, by way of the formal cost discovery and verification process that was undertaken before the SP was determined. Moreover, reportedly, the detailed analysis of the financial parameters of the HPC CfD carried out by the UK Government should address any concerns that the level of compensation is based on an analysis of the costs which a typical undertaking, well run and adequately provided with the necessary means would have incurred.
- (238) In relation to the Credit Guarantee, EDF claims that it does not entail State aid as it meets the MEIP.
- (239) As regards the Secretary of State agreement concerning the risk of political shut down EDF claims that the provisions dealing with the risk of political shutdown do not constitute aid.
- (240) According to EDF, the general principles underpinning UK and EU law give rise to a right to compensation where there has been deprivation of a property right. These general principles apply to all market operators, although certain routes to make compensation claims are available only to market operators from EU Member States or from States which are members of the Energy Charter Treaty. The relevant provisions of the CfD allegedly give contractual certainty to the operation of the general principles. On this basis, EDF concludes that the agreement cannot qualify as State aid.

5.1. COMMENTS RECEIVED ON THE OBJECTIVES OF COMMON INTEREST

- (241) EDF maintained that the UK would need around 60 GW of new generation capacity to come onto the system between 2021 and 2030 in order to address the energy gap deriving from the closure of existing fossil fuel and nuclear power stations. According to EDF, this gap would not be addressable by increases in interconnection and energy efficiency alone, but would require the construction of a significant amount of new generating capacity.

- (242) EDF noted that modelling by DECC would show that generation adequacy issues will arise in the early 2020s, and that HPC, which is expected to start generating in 2023, would contribute to addressing that energy gap.
- (243) EDF observed that the new capacity will mainly have to be low-carbon to deliver decarbonisation targets which are consistent with the Commission's Energy Roadmap 2050 ⁽¹⁾. New nuclear would be a critical component in the cost effective decarbonisation of the electricity sector.
- (244) Finally, HPC would also assist in the goal of achieving further diversification of energy supplies by limiting European reliance on gas imports from outside the EU. This would be consistent with the right of the UK to exercise its discretion under Article 194 TFEU to include nuclear in the future energy mix, together with other forms of low-carbon generation.
- (245) This strategic decision would also be consistent with the Euratom Treaty.

5.2. COMMENTS RECEIVED ON THE NEED FOR STATE INTERVENTION AND MARKET FAILURES

- (246) EDF submitted that the market alone could not deliver these common objectives, as the investments required represent twice as much investment which was delivered in the two decades after privatisation in 1990.
- (247) In particular, a combination of residual market failures would arise in relation to electricity generation and nuclear energy in particular. A report by Compass Lexecon was submitted to further elaborate on these market failures ⁽²⁾:
- (a) Carbon emission market failure, as carbon emissions would not be adequately priced under the ETS and the Carbon Price Floor would not be sufficient given political risk that rates will be lowered in the future.
 - (b) Security and diversity of supply market failures, due to the fact that the social benefits from security and diversity would not be adequately valued by investors. Investments in large scale generation assets would not be made based on anticipated returns in the highest price periods, given their unpredictability, leading to 'missing money' problem and a lack of diversity in the energy mix.
 - (c) Incomplete risk transfer markets, given that there would be no certainty that wholesale electricity prices will be correlated with the fixed costs of low-carbon generators. The resulting price volatility risk would not be a failure in and of its own, but it becomes one if risks could be transferred, shared or pooled in an efficient way, which current market conditions would not allow.
 - (d) Political and 'hold-up' risks, due to the considerable political and regulatory risks that may significantly affect the returns that investors can make from the project, exposing investors in new nuclear to a potential 'hold-up' problem, i.e. the risk that having made the investment investors would be prevented by government action from realising a return from it.
 - (e) Financing risks, due to constraints arising in current financial market conditions, where lenders would be risk-averse in relation to new nuclear.

- (248) EDF concludes from the arguments above that State aid is necessary to deliver the objectives of common interest.

5.3. COMMENTS RECEIVED ON THE APPROPRIATENESS AND THE INCENTIVE EFFECT OF THE MEASURES

- (249) EDF considered that the public invitation issued by the UK in December 2011 to developers of new low-carbon capacity to enter into discussions with DECC about potential investment contracts, where NNBG was the only developer of a new nuclear power station responding, would make the negotiation process followed by the parties adequate. The UK would have completed significant due diligence on the project through a cost discovery and verification process lasting 18 months.

⁽¹⁾ COM(2011) 885 final, Energy Roadmap 2050, p. 6.

⁽²⁾ Compass Lexecon, Economic analysis of the Contract for Difference for Hinkley Point C, 14 April 2014.

- (250) Also, the CfD would not insulate NNBG from market risks. NNBG would continue to sell electricity into the wholesale market. The difference payment would represent a fair amount calculated on the basis of the costs of the project. NNBG would be incentivised to sell its output into the market in order to achieve the RP and would take the risk that it is unable to do so or is unable to generate as much electricity as planned.
- (251) In addition, NNBG would retain substantial risks including construction risks, operating risks, financial risks and waste and decommissioning risks. Cost overruns would not be transferred to consumers and would be borne by NNBG.
- (252) Finally, the CfD would be an appropriate instrument as it would provide a long-term contract offering price stability, while at the same time being more cost effective than feed-in premium instruments with a fixed premium. Also, the combination of the CfD and the Credit Guarantee would be necessary, since the CfD would address HPC's project risk, while the guarantee would facilitate NNBG's access to credit, while being provided on commercial terms.
- (253) EDF submitted that investment in new nuclear generation in general, and HPC in particular, would not be realised without the CfD and the Credit Guarantee, and welcomed the Commission's preliminary finding that the incentive effect of the notified measure is plausible.

5.4. COMMENTS RECEIVED ON THE PROPORTIONALITY OF THE MEASURES

- (254) EDF submitted that difference payments would not exceed the level necessary to render the HPC project sufficiently profitable. The target internal rate of return ('IRR') of [9,75 to 10,25] per cent would be in line with the investment criteria of the EDF group and appropriate given the risks involved in the project, as well as in line with the returns accorded to other CfD beneficiaries.
- (255) EDF considered that the 35-year duration of the CfD would be the minimum required to enable the project to be financed. Any reduction would lead to changes in the debt financing structure, the profile of the funding arrangements for decommissioning and the level of revenue and political risk.
- (256) Finally, EDF submitted that the CfD would contain contractual mechanisms designed to prevent NNBG and its investors from being overcompensated, in particular as gain-share clauses.

5.5. COMMENTS RECEIVED ON THE POTENTIAL FOR DISTORTIONS TO COMPETITION AND TRADE BETWEEN MEMBER STATES

- (257) EDF considered that the CfD would not crowd out private investment in other forms of generation capacity, including renewables, due to the relatively small proportion of the capacity commissioned.
- (258) Any displacement of new fossil fuel generation investment would in EDF's view only achieve the measure's intended objectives of common interest. In the absence of HPC, the UK may increase the level of support for other low-carbon technologies, but EDF considered that such a scenario would be less efficient, as such technologies are a more costly and more uncertain way to meet the UK's decarbonisation targets.
- (259) The impact on interconnection capacity would also be limited, since HPC would not affect investment incentives for interconnector projects, would not reduce investment in demand-side response, which would be primarily driven by the structure of tariffs, nor would it reduce investment in energy efficiency, which would rely largely on specific grants and financing support.
- (260) EDF also posited that the CfD would not provide an advantage to EDF or NNBG which is unavailable to other power generators. Competitors could apply for a CfD, and the CfD would not remove NNBG's incentive to take efficient dispatch and cost-reducing decisions.
- (261) Finally, the CfD would not provide NNBG with the ability and the incentive to manipulate the RP or foreclose EDF's competitors, given that the reference market would be very liquid and NNBG's seasonal output would account for only a small proportion of the volumes traded. Also, CfDs would provide safeguards against any distortion of the RP. Foreclosing competitors' access to HPC's baseload capacity would not be acceptable to NNBG's shareholders other than EDF, nor would it be acceptable to the UK as guarantor under the Credit Guarantee or to the lenders to the project.

6. RESPONSE OF THE UNITED KINGDOM TO THE COMMENTS SUBMITTED BY INTERESTED PARTIES

- (262) The UK sent its response to the comments by interested parties on 13 June and 4 July 2014.
- (263) Overall, the UK found that the majority of comments were positive, and that the vast majority of the issues raised had already been addressed in its prior submissions. The main arguments provided by the UK in response to the key concerns raised by interested parties will be highlighted below. Only the responses to the most relevant comments in relation to the State aid assessment will be highlighted.

6.1. EXISTENCE OF AID AND SGEI

- (264) The UK reiterated its view that Member States have a wide margin of discretion in defining an activity as SGEI. Supposedly, Article 8 of the Electricity Directive would not be applicable to the notified measure.
- (265) The UK also considered that even in the absence of a formal tendering process, it widely advertised the opportunity for developers to come forward to discuss the Investment Contracts or early CfDs for low-carbon generation.
- (266) In relation to the Credit Guarantee, the UK continued to argue the absence of aid as it would be provided on market terms and would be available to other projects as well. The UK argues that the IUK guarantee scheme is open to large investment projects in UK, including investments in renewable energy projects as well as nuclear projects.
- (267) As regards the compensation, the UK authorities claim that the SP has been set on the basis of: (i) a rigorous Cost Discovery & Verification process to assess the costs of the HPC project conducted with support from external financial and technical advisers; (ii) a thorough assessment of the level of returns that would be reasonable for investors to seek in relation to the HPC project through benchmarking against other similar projects; and (iii) a challenging set of negotiations that were underpinned by an analysis on the upper level of the SP that the UK Government considered appropriate for HPC comparing it also with the costs of other forms of electricity. The UK Government also conducted a value-for-money assessment which allowed it to conclude that: (i) the return on investment for the HPC Project was fair and would not overcompensate NNBG; (ii) the SP was cost-competitive with low carbon and unabated gas generation; and (iii) overall HPC would bring net social benefits and meet the affordability constraints of the UK Government.
- (268) With reference to the Secretary of State Agreement, the UK authorities argue that the reason for this additional agreement is that the operation of nuclear power stations is particularly susceptible to changes in political support for nuclear power. In such circumstances, the Secretary of State has committed to paying compensation (if the payment is not made by the CfD Counterparty) in order to put NNBG's investors in the same position as if the political shutdown had not occurred.
- (269) The UK states that the Secretary of State Agreement does not restrict the UK Government's ability to close nuclear plants. Reportedly, the CfD combined with the Secretary of State Agreement would recognise the continuing ability of the UK Government to do so precisely because it would provide for compensation to be paid were HPC to be closed for political reasons. The UK authorities claim that it would not be possible for the current UK Government to commit future governments to keep nuclear power stations open.

6.2. OBJECTIVES OF COMMON INTEREST

- (270) In relation to the comment that the Euratom Treaty cannot provide a common objective except where the Commission policy expressly endorses it, the UK remarked that the Euratom Treaty continues to form part of the constitutional arrangement of the EU and has not been abrogated, and that there would be no basis to claim that Commission policies towards nuclear could affect the meaning or the interpretation of the Treaty, which cannot be unilaterally altered by the Commission.
- (271) The UK disagreed with comments questioning the contribution of nuclear energy to decarbonisation and comments that suggested nuclear energy had a negative impact on the environment. Nuclear energy would be a recognised form of low-carbon energy generation contributing to decarbonisation. In particular, the contribution of HPC to decarbonisation objectives would have been accepted by the Commission in the context of the consultation process provided for under Articles 41 to 43 of the Euratom Treaty.

- (272) Nuclear would provide a stable source of baseload capacity, hence contributing to security of supply in a more predictable way than intermittent generation technologies.

6.3. MARKET FAILURES AND NEED FOR STATE INTERVENTION

- (273) The UK disagreed with comments suggesting that the market would deliver investment in new nuclear in the absence of aid. In contrast, it agreed with comments suggesting that nuclear generation was prone to several market failures that prevent the market from achieving an efficient level of decarbonisation and security of supply without State intervention. The three main market failures that affect investment incentives into nuclear generation are: (1) decarbonisation market failure; (2) security and diversity of supply market failure; and (3) financial markets imperfections (incomplete risk transfer markets, and hold-up).
- (274) The UK reiterated that EPR is a new technology and that there has been no investment in nuclear energy in the UK for 30 years. Other new nuclear projects would receive State support in other countries. Without State support, no EPR plant would have been commissioned in the UK.
- (275) The UK also reiterated that other mechanisms would be insufficient to meet the common objectives. CfD-supported operators cannot participate in the Capacity Market, and the impact of the Carbon Price Floor on carbon emission prices would be insufficient to support investment in new nuclear.

6.4. APPROPRIATE OF THE INSTRUMENT AND INCENTIVE EFFECT

- (276) The UK does not believe that CfDs for nuclear are more advantageous than those for renewable energy sources, as they would contain additional clauses which are more stringent (e.g. gain-share arrangements). Also, and an issue which overlaps with the proportionality of the measure, its duration could not be qualified as excessive as it must be considered the shortest possible duration which would bring forward the investment.
- (277) The measure would provide an incentive effect, among other things by incentivising NNBG to construct the plant prior to receiving any compensation.

6.5. PROPORTIONALITY OF THE MEASURES

- (278) The UK reiterated the arguments in support of its view that the measures are proportionate. Equity returns at the level suggested by some comments would not be realistic, and the gain-share mechanism would prevent overcompensation as soon as the 15 per cent threshold is reached.
- (279) EDF would not be in a position to have market power or make windfall profits at the end of the CfD, due to the closure of its existing nuclear plants prior to new nuclear, the entry of new low-carbon plants, and the entry of other nuclear operators.
- (280) The prices of nuclear energy at the wholesale level in Finland and France would not be an appropriate benchmark, due to the specific conditions of those MSs, in particular the fact that in France the price is reflective of existing plants the investment into which would have been largely amortised.
- (281) The UK also believes that costs for prudent waste and decommissioning have been factored into the analysis underpinning the business case, based on their plan to provide a permanent storage facility and associated services for the management and disposal of nuclear waste.

6.6. DISTORTIONS TO COMPETITION AND TRADE BETWEEN MEMBER STATES

- (282) The UK submitted that the market distortions highlighted by interested parties would not arise as a result of the aid. NNBG and EDF would not be able to manipulate the RP, and EDF would not have market power or a dominant position in UK electricity markets.
- (283) The UK reiterated that HPC would not have a negative impact on investments in new interconnection capacity, and that it intends to expand such capacity. Also, electricity produced by HPC can be exported, thus supporting investments in new interconnectors.

- (284) The aid would not have a negative impact on other low-carbon sources, given that they are also supported by the UK, and there is no discrimination against renewable technologies. The aid would actually support investment in a broad range of energy initiatives.

6.7. OTHER COMMENTS

- (285) The UK responded on the issue of the costs of liability, decommissioning and waste management, and in particular that the treatment of these costs would not involve the provision of further State support.
- (286) In particular, the liability regime for nuclear incidents under the Nuclear Installations Act 1965 would not give rise to State aid, since the UK would not provide to NNBG security in respect of its obligations for nuclear incidents. Under sections 16 and 18 of the Nuclear Installations Act 1965, liability for nuclear incidents is imposed on both operators and the State, with the former being liable up to a certain amount and the latter being liable from that amount up to a further amount.
- (287) In addition, the UK reiterated that the arrangements for limited operator and State liability implement Articles 6 and 7 of the Paris Convention and Articles 2 and 3 of the Brussels Convention, hence they would arise out of international law obligations, which would have been endorsed by the EU, and in particular by the Commission recommendations 65/42/Euratom and 66/22/Euratom.

7. EXISTENCE OF STATE AID

7.1. STATE AID WITHIN THE MEANING OF ARTICLE 107(1) OF THE TREATY

- (288) State aid is defined in Article 107(1) of the Treaty as any aid 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.

7.2. THE OPENING DECISION

- (289) The UK claimed in their notification that the notified measure did not constitute aid according to Art 107(1) TFEU, in particular, since the intervention did not confer an advantage to an undertaking based on the 'Altmark' criteria ⁽¹⁾.
- (290) The Commission noted in the Opening Decision that nuclear technology has and can generally be considered a viable commercial activity. Moreover, due to the timeline for the construction of HPC, the Commission considered that it is unlikely that it will be able to address, once built, the security of supply issues envisaged to be faced in the United Kingdom in 2020. The Commission further expressed doubts as to the fact that NNBG had been entrusted with specific public service obligations to discharge.
- (291) The Commission also expressed doubts whether the conditions imposed on NNBG could be viewed as public service obligations or that NNBG would be entrusted with a SGEl.
- (292) As a series of essential elements regarding the compensation had not been established yet and were to be subject to further negotiation, the Commission found, in the Opening Decision, that it was not yet in a position to verify that the negotiated parameters would be established in an objective and transparent manner so as to avoid conferring an economic advantage which could favour the recipient undertaking over competing undertakings.
- (293) As regards the possibility of overcompensation, the Commission noted that at the time of the Opening Decision it was not possible to assess whether NNBG would pay a commercial rate on the guarantee and raised a series of doubts in regard to whether the CfD mechanism allowed for overcompensation.
- (294) The Commission further expressed doubts in the Opening Decision that the level of profit used to set the SP corresponds to the rate of return of a typical company considering whether or not to provide the SGEl for the whole duration of the period of entrustment, taking into account the level of risk.

⁽¹⁾ Case C-280/00, *Altmark Trans GmbH and Regierungspräsidium Magdeburg v Nahverkehrsgesellschaft Altmark GmbH*, paragraphs 87 to 93. The 'Altmark' criteria have been set out by the Court of Justice to clarify under what circumstances a compensation provided by a public authority for the performance of a Service of General Economic Interest ('SGEI') qualifies as State aid under Article 107(1) TFEU.

- (295) As regards the Secretary of State agreement, the Commission wondered if this could be qualified as State aid.

7.3. THE CONTRACT FOR DIFFERENCE: EXISTENCE OF AN ADVANTAGE

- (296) The Commission notes that the CfD protects NNBG from any price volatility in the electricity market as it receives always the pre-defined SP when selling at prices that are below this level. This ensures a steady stream of revenues for NNBG for the first 35 years of the operation of HPC that other operators not benefiting from a CfD do not receive. Therefore, the Commission considers that the CfD entails a selective advantage to NNBG.
- (297) The United Kingdom authorities consider that the notified measures do not entail an advantage to NNBG as they would meet the 'Altmark' criteria.
- (298) The Court of Justice has set out the 'Altmark' criteria to clarify under what circumstances a compensation provided by a public authority for the performance of a Service of General Economic Interest ('SGEI') qualifies as State aid under Art 107(1) TFEU ⁽¹⁾.
- (299) In particular, the Court stated that four criteria must all be met for compensation provided for a SGEI not to constitute State aid. Those conditions are cumulative, and are as follows.
- (300) The recipient undertaking must actually have public service obligations to discharge and the obligations must be clearly defined;
- (301) The parameters on the basis of which the compensation is calculated must be established in advance in an objective and transparent manner, to avoid it conferring an economic advantage which may favour the recipient undertaking over competing undertakings;
- (302) The compensation cannot exceed what is necessary to cover all or part of the costs incurred in the discharge of public service obligations, taking into account the relevant receipts and a reasonable profit for discharging those obligations; and
- (303) Where the undertaking which is to discharge public service obligations, in a specific case, is not chosen pursuant to a public procurement procedure which would allow for the selection of the tenderer capable of providing those services at the least cost to the community, the level of compensation needed must be determined on the basis of an analysis of the costs which a typical undertaking, well run and adequately provided with the necessary means, would have incurred in discharging those obligations, taking into account the relevant receipts and a reasonable profit for discharging the obligations.
- (304) The Commission has further clarified the conditions under which public service compensation is to be regarded as State aid in its Communication on the application of the European Union State aid rules to compensation granted for the provision of services of general economic interest ('the SGEI Compensation Communication') ⁽²⁾.

7.4. EXISTENCE OF AN SGEI

- (305) The UK believes that the first criterion is met, in particular since the service to be provided by NNBG would be clearly defined and would not be provided by the market. The SGEI allegedly consists of ensuring the investment in new generation nuclear capacity to be delivered within a specific time-frame.
- (306) As regards defining an SGEI, the case-law has found that '[i]t must be made clear that in [EU] law and for the purposes of applying the [FEU] Treaty competition rules, there is no clear and precise regulatory definition of the concept of an SGEI mission and no established legal concept definitively fixing the conditions that must be satisfied before a Member State can properly invoke the existence and protection of an SGEI mission, either within the meaning of the first Altmark condition or within the meaning of Article [106(2) TFEU]' ⁽³⁾. In the absence of specific EU rules, Member States have a wide margin of discretion in defining the existence of an

⁽¹⁾ Case C-280/00, *Altmark Trans GmbH and Regierungspräsidium Magdeburg v Nahverkehrsgesellschaft Altmark GmbH*, paragraphs 87 to 93.

⁽²⁾ Communication from the Commission on the application of the European Union State aid rules to compensation granted for the provision of services of general economic interest (2012/C 8/02) (OJ C 8, 11.1.2012, p. 4).

⁽³⁾ Case T-289/03, *BUPA v Commission* [2008] ECR II-81, paragraph 165.

SGEI. However, there are limits to this discretion. Thus, even though the Commission has no competence to prescribe which exact type of service may qualify as SGEI and which may not, it can — in principle — find that a Member State committed a manifest error⁽¹⁾ of appreciation in the qualification of a service as SGEI. A Member State cannot, for example, attach public service obligations to services that are already provided or can be provided satisfactorily and under conditions consistent with the public interest, as defined by the State, by undertakings operating under normal market conditions.

- (307) The CfD as a means for providing State aid as part of UK's Electricity Market Reform ('EMR') has been confirmed by the Commission in several instances⁽²⁾. The Commission considered that a CfD is an appropriate means of granting State aid for electricity generation that was approved as compatible with the internal market in accordance with Article 107(3)(c). Therefore, there would be no reason for the Commission to distance itself for the assessment performed therein and consider that support to electricity production by way of a CfD could be subject to an SGEI.
- (308) On numerous occasions, in their submission, the UK authorities mention that the aim of the measure is to incentivise or unlock investments into low-carbon generation, in particular new nuclear. This policy aim is commensurate with a common interest objective for which State Aid can be granted rather than with the entrustment of an SGEI.
- (309) The HPC CfD has been especially designed to enable barriers to the project to be tackled as efficiently as possible, including some protection against certain risks, most notably around the uncertainty over future electricity prices. This approach is consistent with the provision of State Aid under Article 107(3)(c) TFEU and would not constitute a SGEI.
- (310) When discussing whether public procurement rules apply to the project, the UK authorities admit that the measure does not involve any procurement of supply, works or services for the benefit of the UK Government, which contradicts their claim that the measure constitutes an SGEI.
- (311) The first Altmark criterion also requires that the undertaking has a public service obligation to discharge. Accordingly, in order to comply with the Altmark case-law, a public service assignment is necessary that defines the obligations of the undertakings in question and of the authority⁽³⁾.
- (312) As regards the compulsory nature of the public service obligation in the case at hand, the UK seems to argue that they are ensured by the combination of stringent clauses designed to ensure that NNBG will meet the specified time-frame and the fact that once NNBG is engaged in the construction there will be 'no way out' in light of the extremely high sunk costs which it will incur. Indeed the CfD seems to provide a series of such stringent clauses incentivising NNBG to perform its obligations according to the contract and allowing the UK authorities to terminate the contract if certain obligations are not performed. Moreover, the nature of the project does entail extremely high sunk costs which will most likely discourage the abandonment of the project. However, despite the special nature of the project, the contractual provisions are typical contractual obligations that any contractual parties would try to include in a similar deal, rather than a public service obligation imposed by the UK authorities. NNBG is actually not obliged to build the nuclear plant, nor is it obliged to build it by a certain date. The UK authorities cannot enforce any obligation in this respect; they can only terminate the contract.
- (313) Moreover, there is no obligation imposed on HPC to produce electricity, to produce a certain amount of electricity or to make that electricity available on the market. Indeed, under the CfD, HPC will have high incentives to produce as much electricity as possible to increase its gains, but it is not obliged to do so. As regards the selling of electricity, HPC is allowed to sell either on the spot market or by way of bilateral contracts meaning that it is neither obliged, nor incentivised to provide the electricity to the public.
- (314) The Commission considers that these conditions cannot be viewed as public service obligations or as demonstrating that NNBG is entrusted with a SGEI.
- (315) Therefore, the Commission concludes that the first Altmark criterion is not met as ensuring the investment in new generation nuclear capacity to be delivered within a specific time-frame does not constitute a genuine SGEI and NNBG is not entrusted with public service obligations by the United Kingdom.

⁽¹⁾ T-17/02, *Olsen v Commission*, paragraph 216; confirmed in C-320/05P *Olsen v Commission*.

⁽²⁾ See SA.36196, SA.38812, SA.38763, SA.38761, SA.38759 and SA.38758.

⁽³⁾ SGEI Communication, point 51.

7.5. CONCLUSION OF THE ASSESSMENT UNDER ART 107(1) TFEU BASED ON THE 'ALTMARK' CRITERIA

- (316) As the Altmark criteria are cumulative and as the first criterion is not met, the Commission does not consider it necessary to assess the rest of the criteria. On the basis of the arguments set out in Sections 7.1 to 7.5 above, the 'Altmark' test is not fulfilled for the measure. Therefore the Commission considers that the measures will provide NNBG with a selective advantage.

7.6. EXISTENCE OF AID WITHIN THE MEANING OF ARTICLE 107(1) OF THE TFEU: COMPENSATION IN CASE OF POLITICAL SHUTDOWN (SECRETARY OF STATE AGREEMENT)

- (317) The UK intends to grant compensation to NNBG in case the HPC plant were to be shut down for reasons not directly imputable to its operations, and in particular due to changes in government policy.
- (318) The UK does not seem to consider this indemnification as aid.
- (319) The UK claims that all CfDs will include provisions on compensation for the investors in the case of a 'qualifying shutdown event', for example a change in law that permanently shuts down the whole facility (depending on the technology) or a refusal by the UK Government to consent to any restart of the facility after a specified period after shutdown. The direct agreement between the Secretary of State and NNBG's investors is an additional and separate agreement intended to function as a back stop to the qualifying shutdown event provisions necessary due to the special situation of nuclear energy and the higher risks of political shutdown.
- (320) According to EDF, the general principles underpinning UK and EU law give rise to a right to compensation where there has been deprivation of a property right. These general principles apply to all market operators, although certain routes to make compensation claims are available only to market operators from EU Member States or from States which are members of the Energy Charter Treaty.
- (321) Indeed all CfDs appear to include provisions regarding a qualifying shutdown event, but they will not all benefit from a special separate Secretary of State agreement. The Commission acknowledges that it could be argued that nuclear energy might incur higher risks of political shutdown than other technologies; however other nuclear power plants in the UK appear not to benefit from similar Secretary of State agreements.
- (322) Indeed as EDF claims, the general principles underpinning UK and EU law give rise to a right to compensation where there has been deprivation of a property right, however, a special agreement safeguarding a certain company from such risk in a specific manner appears to relieve such company of any spent fees and time lost in the enforcement of its rights deriving from general principles under UK and EU law in court or out of court. Underpinning a legal right with a specific contractual right appears to bring an advantage to the entity enjoying such right especially since it appears to be the only one in this situation.
- (323) Therefore, the Commission considers that the Secretary of State Agreement entails certain selective advantages to NNBG.

7.7. CFD AND SECRETARY OF STATE AGREEMENT: STATE RESOURCES AND IMPUTABILITY TO THE STATE

- (324) The Secretary of State Agreement is concluded with a public authority and engages the liability of this public authority. Any advantages deriving from it derive from State resources.
- (325) As the CfD is due to the State, the advantage under the CfD is imputable to the State.
- (326) For advantages to be capable of being categorised as aid within the meaning of Article 107 TFEU, they must be granted directly or indirectly through State resources. This means that both advantages which are granted directly by the State and those granted by a public or private body designated or established by the State are included in the concept of State resources within the meaning of Article 107(1) TFEU ⁽¹⁾. In this sense, Article 107(1) TFEU covers all the financial means by which the public authorities may actually support undertakings, irrespective of whether or not those means are permanent assets of the public sector ⁽²⁾. Therefore, even if the sums

⁽¹⁾ Case 76/78 *Steinike & Weinlig v Germany* [1977] ECR 595, paragraph 21; Case C-379/98 *PreussenElektra* [2001] ECR I-2099, paragraph 58.

⁽²⁾ Case C-677/11 *Doux Elevage*, not yet published, paragraph 34, Case T-139/09 *France v Commission*, not yet published, paragraph 36.

corresponding to the measure in question are not permanently held by the Treasury, the fact that they constantly remain under public control, and are therefore available to the competent national authorities, is sufficient for them to be categorised as State resources ⁽¹⁾.

- (327) The UK authorities do not contest that the CfD is financed from resources under the control of the State.
- (328) The Commission considers, based on the elements explained below, that the advantage granted under the CfD will be financed by a public or private body designated by the State.
- (329) The CfD will be funded through a levy on suppliers and under such circumstances it must be concluded that any advantages paid under the CfD are imputable to the State and are also financed from resources under the control of the State.
- (330) First, the SP and the levy will be established by the State.
- (331) Second, the Counterparty will in principle be a government-owned private company and will in any event be designated by the State. The counterparty's articles cannot be amended without the Secretary of State's consent.
- (332) Third, the Counterparty designated by the State will administer the payment scheme, which includes the collection of the levy from suppliers and the collection of payments from generators when the market price is higher than the SP. It will also include payments to generators and payments to suppliers in certain cases.
- (333) Fourth, the Counterparty will be provided with revenue-raising power in the Energy Bill to enable it to collect from suppliers the funds required to make payments to CfD generators and a certain number of mechanisms will be put in place by the State to ensure certainty of payments to CfD generators in the event of a supplier not paying. These mechanisms will include the obligation for suppliers to provide collaterals, an insolvency reserve fund and the designation of a Supplier of Last Resort. The insolvency reserve fund would provide the counterparty with funding to cover a defaulting supplier's levy payments for the period from its collateral being exhausted until a replacement supplier is appointed under the Supplier of Last Resort mechanism governed by Ofgem.
- (334) Fifth, the Counterparty will report to the State on the implementation. In this connection, it is intended that the counterparty will be governed by a framework document, setting out amongst other things the relationship between the counterparty and the State, the operating principles of the counterparty, matters reserved for the shareholder, the counterparty's roles and responsibilities, management and financial responsibilities, and reporting and monitoring requirements. It will also set out the parameters within which the counterparty is to fulfil its functions in relation to CfDs.
- (335) On the basis of those elements, it can be concluded that the advantage provided under the CfD will be financed through contributions imposed by the State and managed and apportioned in accordance with the provisions of the legislation by an entity designated by the State and controlled by the State.

7.8. THE CREDIT GUARANTEE: EXISTENCE OF AN ADVANTAGE FUNDED THROUGH STATE RESOURCES AND IMPUTABLE TO THE STATE

- (336) The UK Government considers that the Credit Guarantee and the terms of the CfD serve different purposes. The pricing and approval of the Credit Guarantee depend critically on the risk within the whole underlying project including the terms of the CfD. However, the reverse would not be true: the presence of a guarantee reallocates the risk profile between debt investors and the guarantor rather than altering the project risk profile. The UK Government does not consider that the project company would receive any additional support from the combination of a CfD and a Credit Guarantee.
- (337) Nevertheless, the interventions of the State related to HPC have to be considered together as a single aid measure due to the amount of debt required for the project that could not be obtained without State intervention, the timing of the State interventions that happen concomitantly and the link between the rating of NNBG, the pricing of the Guarantee and the provisions of the CfD. The CfD, the Secretary of State Agreement and the Credit Guarantee, are different in terms of means, but are part of the same investment decision of the UK authorities and have the same aim, to incentivise and allow the investment into new nuclear power. The three measures are interlinked, all being necessary for the construction of HPC.

⁽¹⁾ Case C-262/12, *Vent de Colère*, not yet published, paragraph 21.

- (338) The Credit Guarantee is the backbone of the financing of the project which has an unparalleled value. The existence of the Credit Guarantee is also essential for the project to attract outside credit. There are no examples of similar guarantees for similar projects on the market as none are being provided. Given the unprecedented nature of the project, of the financing and of the Guarantee for which there are no precisely comparable benchmarks, even if it were to consider that the remuneration minimises the support, the Commission considers that the price paid by NNBG for the Credit Guarantee cannot be considered a market price, since the market does not and would not provide a similar facility.
- (339) The Credit Guarantee is offered by a public body of the United Kingdom and entails the resources of the United Kingdom. Therefore, the Commission considers that the Credit Guarantee by the UK on NNBG's debt involves State aid.

7.9. DISTORTION OF COMPETITION AND EFFECT ON TRADE

- (340) The CfD, the Secretary of State Agreement and the Credit Guarantee have the potential to distort competition and affect trade between Member States. The Commission notes in this respect that the generation and supply of electrical power is liberalised. As in this case, the notified measures will enable the development of a large level of capacity which might otherwise have been the object of private investment by other market operators using alternative technologies, from either the UK or from other Member States, the notified measures can affect trade between Member States and distort competition.
- (341) The Commission considers that the aid measures could potentially distort investment decisions and displace alternative investments. As EDF is already active on the United Kingdom generation market, the aid has the potential to distort downstream market functioning. The aid could also lead to potential reductions in wholesale market liquidity.

7.10. GENERAL CONCLUSION ON THE EXISTENCE OF AID

- (342) The Commission therefore concludes that the CfD, the Secretary of State Agreement and the Credit Guarantee as different measures pertaining to one State intervention, involve State aid within the meaning of Art 107(1) TFEU.

8. ASSESSMENT OF THE MEASURE UNDER ARTICLE 106(2) TFEU

- (343) The Commission has explained how it would interpret Art 106(2) TFEU, when assessing a notified measure which involves State aid and the provision of a SGEI, in its Communication on the European Union framework for State aid in the form of public service compensation ('the SGEI Framework') ⁽¹⁾. The Commission has concluded above in recital (315) that the notified measure does not entail the provision of a genuine SGEI which is an essential condition for an assessment of the measure under Article 106(2) TFEU. Therefore, the Commission does not consider it necessary to assess the rest of the requirements provided by the SGEI Framework for it to conclude that the notified measure cannot be found compatible with the internal market on the basis of the requirements of Article 106(2) TFEU.

9. ASSESSMENT OF THE MEASURE AID UNDER ARTICLE 107(3)(c) TFEU

- (344) As a preliminary remark, the Commission notes that measures involving operating aid are in principle incompatible under Article 107(3)(c) ⁽²⁾. However the notified measures, and in particular the CfD, is equivalent to investment aid, for the reasons explained below.
- (345) The aim of the measures, and in particular of the CfD, is to allow NNBG to commit to invest in the construction of the HPC plant. The CfD effectively provides a risk-hedging instrument in the form of price stabiliser, offering revenue stability and certainty for a long enough period of time so as to make it possible for NNBG to invest the vast amounts of funds necessary to build the HPC plant.

⁽¹⁾ Communication from the Commission on the European Union framework for State aid in the form of public service compensation (2012/C 8/03) (OJ C 8, 11.1.2012, p. 15).

⁽²⁾ See the first paragraph of Section 8.1 in the Opening Decision.

- (346) Indeed, the HPC plant incurs more substantial risks during the construction phase and less during the operating phase. The extensive duration of the operation of HPC calls for support measures taking this into account. From the perspective of this particular type of project, the Commission considers that the aid measure is in fact equivalent to the provision of investment aid that takes into account the characteristics and risk profile of the project and, thus, minimises the necessary amount of aid and the additional measures essential to incentivise the investment. From a financial modelling point of view, the Net Present Value of the SP payments can be thought of as the equivalent of a lump sum payment which allows NNBG to cover construction costs.
- (347) The Commission therefore concludes that in this specific instance, due to the peculiarity of the project, the aid has the characteristic of investment aid and its compatibility will be assessed accordingly. The specific competitive distortions caused by the aid will be assessed in Section 9.6.

9.1. COMPATIBILITY WITH EXISTING MARKET REGULATION

- (348) The Commission has considered the issue of whether the measures are compatible with existing internal market regulations.
- (349) In particular, some interested parties have raised the concern that the aid may infringe on Article 8 of the Electricity Directive. Some respondents also questioned that the measures comply with EU public procurement rules ⁽¹⁾.
- (350) The Commission considers that the two issues are to some extent linked. In particular, the public procurement rules enshrined in Directive 2004/17/EC and Directive 2004/18/EC are not applicable to the measure at hand, as it does not involve any procurement of supply, works or services.
- (351) Directives 2004/17/EC and 2004/18/EC apply to the acquisition, by means of a public contract, of works, supplies or services by one or more contracting authorities or entities from economic operators chosen by those contracting authorities or entities, whether or not the works, supplies or services are intended for a public purpose. This implies, amongst other aspects, the conclusion of a contract which provides for mutually binding obligations where the execution of the works, supplies or services are subject to specific requirements defined by the contracting authority or the contracting entity and which are legally enforceable.
- (352) By contrast, State acts such as authorisations or licences, whereby the MS or a public authority thereof establishes the conditions for the exercise of an economic activity, including a condition to carry out a given operation, granted, normally, on request of the economic operator and not on the initiative of the contracting authority or the contracting entity and where the economic operator remains free to withdraw from the provision of works or services, do not qualify as procurement.
- (353) Likewise, the mere financing, in particular through grants, of an activity, which is frequently linked to the obligation to reimburse the amounts received where they are not used for the purposes intended, does not fall under the scope of the aforementioned Directives.
- (354) On the basis of the available information it is not possible to conclude that the CfD concerns the acquisition of any works, services or supplies and thus qualify as public contracts or concessions.
- (355) First, the CfD does not establish any specific requirements on the supply, to the contracting authority or to third parties, of any type of services, goods or works. Those contracts only involve a general commitment, by NNBG, to invest in, build and operate the HPC plant. Furthermore, as explained in recital 315 above, the Commission finds that the service provided does not qualify as a service of general economic interest.
- (356) Secondly, the contracts do not cater for mutually binding obligations which could be enforceable before a Court. To the contrary, the contracts contains only deadlines relating to the construction phase of the nuclear reactors, at each of which NNBG runs the risk of seeing the contract terminated (see recital 219 above).
- (357) Thirdly, there is no selectivity on the number of economic operators that can enter into a CfD other than those resulting from the limited number of sites available for the construction of nuclear power stations. As UK authorities have highlighted, the system remains open to all potential interested parties.

⁽¹⁾ In particular, compliance with the rules set out in Directives 2004/17/EC and 2004/18/EC was put in question.

(358) The Commission therefore concludes that the CfD for HPC establishes the conditions for the exercise of the activity of electricity generation through use of nuclear technology, and does not qualify as a public contract or a procurement activity.

(359) Even if one were to argue that Article 8 of the Electricity Directive applies to the notified measure, the Commission believes that there is no breach of it.

Article 8 of the Electricity Directive does not prescribe the use of a tendering procedure, establishing that equivalent procedures in terms of transparency and non-discrimination, and on the basis of published criteria, can be used. The UK has set out a public call for interest to identify suitable investors in nuclear energy.

(360) In particular, DECC published a call for expressions of interest for potential investors in projects meeting the required characteristics, as described in the published document, in December 2011 ⁽¹⁾.

(361) The Operational Framework for CfDs and the Energy Bill were subsequently published on 29 November 2012 ⁽²⁾. The Operational Framework provided clarity on how the CfD is intended to support investment in low-carbon electricity generation. It set out proposals on how developers can apply for a CfD, the terms on which these contracts will be issued, and the supporting institutional framework.

(362) The only nuclear generation company that responded to the invitation, and with a new nuclear project sufficiently advanced to be considered eligible to commence discussions, was NNBG, which by letter dated 22 March 2012 submitted its eligibility criteria. The project was confirmed as eligible in DECC's reply on 22 May 2012.

(363) The UK confirmed in July 2012 that it had held discussions with new nuclear developers other than NNBG ⁽³⁾. Following internal UK Government approval, formal negotiations began with NNBG on 15 February 2013 on the potential terms of an Investment Contract.

(364) The Commission concludes that the selection procedure used by the UK to identify a suitable CfD contractor for new nuclear investments was based on a clear, transparent and non-discriminatory framework, which can be considered equivalent to a tendering procedure in terms of transparency and non-discrimination.

(365) Therefore, it is not necessary to establish whether a potential violation of internal market regulations would make the aid incompatible.

9.2. OBJECTIVES OF COMMON INTEREST

(366) In the Opening Decision, the Commission questioned three of the common objectives put forward by the UK, i.e. diversification, security of supply, and decarbonisation.

(367) The Opening Decision recognised that security of supply qualifies as a common objective, but was unsure of whether in this particular case the aid measure would help solving the problem as there seems to be mismatch between the predicted shortfall in demand and the moment when HPC would be available. Also, it was unclear to the Commission whether alternative technologies might address the need of new energy capacity.

(368) Finally, diversification was considered an important aspect of security of supply, but not one which could be recognised as an objective of common interest on its own merit.

(369) The Commission however accepted that the measure was in line with the Euratom Treaty.

⁽¹⁾ DECC, Planning our electric future, December 2011. See in particular Annex B. Available at the following address: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48253/3884-planning-electric-future-technical-update.pdf

⁽²⁾ DECC, Annex A: Feed-in Tariff with Contracts for Difference Operational Framework, 29 November 2012. Documents available at the following addresses: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/66554/7077-electricity-market-reform-annex-a.pdf and <http://services.parliament.uk/bills/2012-13/energy.html>

⁽³⁾ See document available at the following address: <https://www.gov.uk/government/publications/purchase-of-horizon-nuclear-power-meetings-between-ond-and-hitachi-ltd-foi-request-12-1718>

- (370) As recognised in past Commission decisions ⁽¹⁾, the Euratom Treaty aims at creating the ‘conditions necessary for the development of a powerful nuclear industry which will provide extensive energy sources’. This objective is further reiterated in Article 1 of the Euratom Treaty, which establishes that ‘it shall be the task of the Community to contribute to the raising of the standard of living in the Member States (...) by creating the conditions necessary for the speedy establishment and growth of nuclear industries’.
- (371) On this basis, the Euratom Treaty establishes the Euratom Community, foreseeing the necessary instruments and attribution of responsibilities to achieve these objectives. The Commission must ensure that the provisions of this Treaty are applied.
- (372) Article 2(c) of the Euratom Treaty provides that Member States shall ‘facilitate investment and ensure, particularly by encouraging ventures on the part of undertakings, the establishment of the basic installations necessary for the development of nuclear energy in the Community’. Article 40 of the same Treaty envisages the Community publishing of illustrative programmes ‘to stimulate investment, indicating production targets’.
- (373) Based on the Commission assessment, the measure contributes to long-term security of supply, in particular based on capacity forecasts and the role which HPC’s supply of electricity will play when it is expected to start operating.
- (374) The Commission therefore finds that aid measures aimed at promoting nuclear energy pursue an objective of common interest and, at the same time, can deliver a contribution to the objectives of diversification and security of supply.

9.3. MARKET FAILURES AND NEED FOR STATE INTERVENTION

- (375) In its Opening Decision, the Commission questioned the view that nuclear energy necessarily suffers from a market failure.
- (376) The Commission referred in particular to the existence of other instruments aimed at decarbonisation (such as the ETS), and to the apparent commercial viability of nuclear energy. The Commission also mentioned that if a market failure were to exist, it might be related to barriers to raising the level of funds necessary due to the massive costs involved, which would seem to be adequately addressed by the provision of a Credit Guarantee without the need for other instruments.
- (377) The Commission assessed the issue of potential market failures looking at the evidence provided by the respondents and carrying out extensive economic analysis ⁽²⁾.
- (378) There is merit in UK’s claims that a residual market failure exists in carbon emissions in the long run since there are no long-term price signals for carbon and a lack of a sufficiently precise and stable regulatory framework for carbon reductions in the long term. This argument justifies some sort of government intervention to foster low-carbon generation, which includes nuclear.
- (379) In addition, the arguments that the security of electricity supply is not adequately priced in, and that private investment decisions in electricity generation may remain below the social optimum, seem to have merit.
- (380) However these two potential market failures do not appear to justify investment specifically in nuclear generation, but more broadly investment in low-carbon generation and remedies to internalise the positive externality of electricity availability, respectively. The latter market failure is addressed specifically by the creation of a capacity mechanism. The Commission approved the UK’s measure on a capacity market in its decision of 23 July 2014 ⁽³⁾.
- (381) There are however two market failures which are more relevant specifically to nuclear energy.

⁽¹⁾ See for example the Commission Decision 2005/407/EC of 22 September 2004 on the State aid which the United Kingdom is planning to implement for British Energy plc (OJ L 142, 6.6.2005, p. 26).

⁽²⁾ The particular situation of the UK electricity sector is undergoing is described in Section 2.1 of the Opening Decision.

⁽³⁾ See press release at the following address: http://europa.eu/rapid/press-release_IP-14-865_en.htm

- (382) First, investment in nuclear energy is subject to significant risk given the combination of high upfront capital costs, long construction times and a long period of operation to recover the investment costs. The lack of market-based financial instruments, as well as other types of contracts, to hedge against such substantial risk constitutes a market failure which is specific to few technologies among which nuclear energy. The instruments currently available from the market do not provide time horizons in excess of 10 or 15 years, either in the form of long-term contracts or as risk-hedging instruments.
- (383) In particular, nuclear energy production has extremely long and complex life cycles, unlike most other energy infrastructure and indeed unlike most infrastructure investments in general. It normally takes 8 to 10 years to construct a nuclear power plant, with costs to be incurred before any revenues are generated and with risks borne only by the investor. The 60-year operational life is characterised by the generation of revenues, but these are based on an uncertain evolution of wholesale prices. The ensuing decommissioning period can last forty years, with funds to be set aside for the shutdown of the installation. Finally, high-level nuclear waste storage and treatment is typically carried out on site before transfer to a repository, where waste is expected to be stored for thousands of years.
- (384) Second, there is the risk of (predominantly political) 'hold-up' once the investment is made and the investor is in a weaker bargaining position. Given the controversial nature of nuclear technology, successive governments can take different views on its desirability, which can compound uncertainty for private investors. The Commission is not convinced that this issue may qualify as a market failure, but it recognises that it can be a factor in making investment in new nuclear more difficult, in particular given the long timelines needed for constructing, operating and decommissioning nuclear power plants.
- (385) These issues are unique to nuclear technology. All technologies can in principle suffer from a political 'hold-up', however given the longer time horizon and the greater investment size, nuclear projects can be expected to suffer more. And the impossibility of adequately sharing the risks stemming from the high investment through market instruments impacts disproportionately more on nuclear than on other technologies.
- (386) The Commission also considered the question of whether investment in new nuclear would come forward in the absence of aid. The modelling work undertaken used a variety of counterfactual scenarios with different assumptions on fossil fuel prices and on the policy landscape that may prevail in the absence of a CfD for new nuclear⁽¹⁾. While the UK maintains that modelling in and of itself, and in particular over such long time horizons, can only provide useful indications based on the necessary simplification of real-world dynamics, the Commission believes that such modelling work can be helpful in informing its view on key aspects of the assessment
- (387) In a scenario in which CfDs are available to renewable and CCS technologies but not to nuclear, private investment in new nuclear does not become economic in the model until 2046. In a scenario where no CfDs are deployed and the Capacity Market is put in place, using DECC's central fossil fuel price assumptions, private investment initiatives in new nuclear do not come forward until 2037. Under high fossil fuel prices, new nuclear investment decisions come forward in 2032 and under low fossil fuel prices and flat carbon prices they do not come forward at all before the end of the modelling horizon in 2049.
- (388) Eight further scenarios were modelled, each of which was then further modified in up to eight variants. A summary of the key results from a selection of the scenarios can be found in Table 9 in the Annex.
- (389) The key finding of the modelling work undertaken is that there is significant uncertainty around the issue of whether private investment in new nuclear would take place in the absence of State aid, with dates ranging from the early 2030s to not earlier than 2049. Also, the provision of CfDs for new nuclear appears to be welfare-improving for society as a whole and for consumers specifically, except if decarbonisation targets are dismissed and fossil fuel prices are low.

⁽¹⁾ The Commission required DECC to run sensitivity analyses using their forecast model and carefully assessed input and output for each of the scenarios. DECC's Dynamic Dispatch Model (DDM) is an integrated power market model covering Great Britain's ('GB') power market over the medium to long term. It simulates electricity dispatch from GB power generators and investment decisions in generating capacity from 2010 through to 2049, based on the estimation of electricity demand and supply on a half-hourly basis. Investment decisions are based on projected revenue and cash flow allowing for policy impacts and changes in the generation mix. The DDM therefore enables comparative analysis of the impact of different policy decisions on generation, capacity, costs, prices, security of supply and carbon emissions.

- (390) The analysis undertaken by the Commission confirms that there is high uncertainty over the question of whether the market would deliver investment in new nuclear within a realistic time-frame. While the evidence provided and the analysis carried out are not conclusive, they indicate with a reasonably high level of confidence, and within the inevitable constraints which forecasts over this time horizon impose, that purely commercial investment in new nuclear would not come forward in time for addressing the energy policy needs the UK is facing in the absence of State aid.
- (391) Moreover, alternative mechanisms are insufficient to incentivise investment in new nuclear. Neither the Carbon Price Floor, nor the Capacity Market, is sufficient to generate investments into nuclear energy. In particular, nuclear operators can be eligible to participate in the Capacity Market only when they renounce other forms of support, including a CfD or a Credit Guarantee and the Capacity Market provides for a term that would be too short to ensure investment into nuclear energy. The Carbon Price Floor does not provide sufficient certainty on future wholesale prices to investment of the size and the duration of new nuclear to proceed. Based on the modelling work undertaken, other forms of support would not be enough to secure investment in new nuclear in a realistic time horizon and as needed by the UK. Neither of the support measures tackles the high uncertainty of wholesale prices and the lack of possibility to hedge and conclude long terms agreements.
- (392) For the reasons highlighted above, and to the extent that investment in new nuclear aims at the objective of common EU interest highlighted in Section 9.2 above, the Commission therefore concludes that the proposed State aid measures are necessary, on the basis of this specific type of new nuclear investment and on the basis of the State and functioning of financial markets observable in the UK at the time of this decision.

9.4. APPROPRIATE INSTRUMENTS AND INCENTIVE EFFECT

- (393) In its Opening Decision the Commission questioned whether the CfD could be considered an appropriate instrument for delivering State aid, since it removes the price signal and interferes with the current market design, whereby electricity generation is a competitive market and investment takes place on the basis of prospective revenues derived from the sale of electricity at the wholesale level.
- (394) The Commission also questioned the duration of the measure, and the fact that it provides protection of revenues to the extent that it eliminates the price risk, something which is further reinforced when the CfD is deployed in conjunction with a Credit Guarantee. Finally, the Commission raised doubts on the lack of an open and transparent tendering process, which among other things violated technological neutrality by allowing private negotiations between the UK and EDF on a project based on a specific technology.
- (395) The UK's arguments in support of the CfD are linked to the main market failures highlighted in Section 9.3 above, mainly the inability of private investors to share efficiently, or transfer, price volatility risk due to incomplete risk transfer markets in the current circumstances.
- (396) To the extent that such long-term capital market failures are present, the provision of a Credit Guarantee would not be sufficient on its own to bring forward investment in new nuclear as it only addresses the need to obtain debt for the project, but does not address the specific issues that nuclear energy entails such as the particular risks deriving from its construction and long and complex life cycle. The Credit Guarantee allows the investor to raise debt, while the CfD allows the investor to commit equity to the project. Even more, the Credit Guarantee is itself based on the existence of the CfD and intrinsically linked to it as the project rating takes into account the existence of the CfD. Only the guaranteed revenues of the CfD could compensate for the long term risk profile of the project.
- (397) The Commission has already accepted in its decision of 23 July 2014 that CfDs can be an appropriate instrument to support low-carbon technologies and in particular renewable technologies ⁽¹⁾.
- (398) The CfD openly addresses the need to provide price stability and predictability over the project's and the equity's rates of return, which are particularly important for investments of this size and duration and are therefore essential to allow the investment. In this sense, the CfD addresses the main market failures identified above.

⁽¹⁾ See press release at the following address: http://europa.eu/rapid/press-release_IP-14-866_en.htm

- (399) The additional terms which are specific to the CfD for HPC and the Secretary of State Agreement, and in particular the compensations granted in case of political or legislative forms of discriminatory penalisation of nuclear technology, address the additional risks which might be considered to be specific to nuclear, i.e. the possibility of investment hold-ups due to changes in the legislative framework, for example due to political reasons.
- (400) Given the objective of the aid measures, i.e. pursuing an investment in nuclear energy, the Commission considers that an open tender where more electricity generating technologies would participate would not have been appropriate, given the time-frame required by the UK.
- (401) Following the open call for interest launched by the United Kingdom, only EDF came forward with an investment proposal. The UK has provided evidence ⁽¹⁾ that no other project was ready to compete with HPC at the time of the negotiations with EDF. Given the specificities of nuclear technology, pre-commitment costs are substantial and a limited number of operators has the knowledge and financial strength to undertake investments of the size of HPC. The UK explained that they would have preferred to have competitive tension among bidders, but that there were no other firm offers for new nuclear.
- (402) The Commission recognises that nuclear energy is in general in a different situation than other technologies in terms of the requirements investors have to meet. There are simply no comparable projects to a nuclear power plant in terms of the investment lifetime and size. The HPC project is very peculiar. It is an infrastructure project of almost unprecedented scale, in energy as well as any other sector. Therefore, the Commission acknowledges that a tendering process in the case at hand would not have provided meaningful results given the constraints of the project.
- (403) The Commission also believes that the provision of the CfD for new nuclear investment does not discriminate excessively against other technologies and is not more favourable to new nuclear than it is for other technologies. Indeed other technologies can be similarly supported by CfDs, with the same type of instrument being used, except for adaptations which can be considered necessary for the differences in technologies (such as the Secretary of State agreements or the opex re-openers).
- (404) Moreover, the intermittent nature of many renewables technologies does not allow them to be a suitable alternative to a baseload technology such as nuclear energy. As explained in recital 199 above, the replacement of the capacity that is expected to be covered by the HPC project corresponds to 14 GW of onshore wind or 11G W of offshore wind capacity, which is unrealistic to be provided in the same time-frame.
- (405) Also, the CfD for new nuclear does not discriminate against existing nuclear plants, which do not need to be provided with incentives to be built and which were built under different circumstances than today e.g. before market liberalisation.
- (406) Within the limits of this specific case and project, therefore, the Commission concludes that the CfD, in combination with the Credit Guarantee and the Secretary of State Agreement, as structured in the notified measures, are appropriate instruments to provide aid and offer an adequate incentive effect to the beneficiary.

9.5. PROPORTIONALITY

- (407) In the Opening Decision the Commission questioned whether the rate of return is proportionate, given the combination of CfD and Credit Guarantee and other risk-mitigating elements of the measure, which seems to be compatible with substantially lower rates of return than those granted to NNBG due to lower risk. In particular, the CfD by design essentially eliminates market price risk, while the measure aims to protect the investor from several events by providing compensation.
- (408) The Opening Decision also raised doubts as regards the potentially high rate of return, and the possibility for the beneficiary to reap windfall profits if assumptions prove wrong.
- (409) There are three main concerns in the UK's intended measure in relation to proportionality which are relevant for the assessment by the Commission.

⁽¹⁾ In particular, the UK has provided the call for interest in the Investment Contract, which was open to all prospective investors, but to which only EDF responded.

- (410) First, the rate of return envisaged was considered high, so as not to be able to exclude overcompensation, when taking into account the combination of CfD and Guarantee as notified. In particular, once the plant is built, it may be considered to operate effectively as a regulated asset for the duration of the CfD, with a relatively stable revenue stream.
- (411) Second, the CfD disconnects the rate of return from the aid amount. The SP can be set at a level which allows NNBG to cover costs and make a reasonable profit, but this does not determine the amount of aid which will ultimately be disbursed and which is also a function of wholesale prices. This creates the need to interpret the test of overcompensation as a test on the rate of return, rather than referring to the absolute level of aid.
- (412) Third, there is no certainty that any higher than expected gains made after construction will benefit customers, reducing the rate of return to the minimum and maximising overall welfare.
- (413) The sections below will look at these issues for the Credit Guarantee and the CfD and rate of return, before drawing final conclusions on the overall package.

9.5.1. The Credit Guarantee

- (414) The bonds to be issued by the issuer will be supported by the Credit Guarantee as described in Section 2.2 above.
- (415) The Commission evaluated the initial Credit Guarantee methodology used by IUK. According to this methodology, the fee would be the average of three indicators at the time of a Commercial Close for the overall financing but would be subject to a minimum of 225 basis points. The UK submitted that as of the end of 21 August 2014, the Credit Guarantee fee rate would have been set at 250 basis points (as the average of 263, 243 and 245, respectively) ⁽¹⁾.
- (416) In the absence of directly observed market rates for (sufficient) Credit Guarantees securing similar types of risk, it is necessary to rely on alternative approaches to establish a guarantee fee rate at market terms. A first approach is the so-called expected loss approach. This approach links the company's business plan to its capital structure under different scenarios resulting in a likelihood of default. Alternatively, one can benchmark the Guarantee to market prices of comparable instruments with similar credit risk.
- (417) Based on the submissions of the UK and its own analysis, the Commission established that there were serious grounds for believing that the initially proposed minimum Guarantee fee rate (225 basis points) and the rate as of 26 August 2014 (250 basis points) were below market rates. This conclusion was based on two lines of enquiry: first, the methodologies used to determine the fee; and second, the rating proposed by the UK for the Guarantee facility.

9.5.1.1 The Guarantee fee rate methodologies

- (418) In the absence of market prices for similar instruments, the Commission has been presented with two approaches to assess the Guarantee fee rate.
- (419) The first approach is the so-called pricing benchmark approach, which is outlined in more detail in the HM Treasury responses from 26 August, 5 September, 12 September and 19 September 2014. The starting point of the analysis is the credit score with a rating equivalent BB+/Ba1 during construction. The IUK believes that as a result of the protections for debt built into the financing agreements the HPC project should be able to achieve a rating equivalent to BB+/Ba1 during the construction period ⁽²⁾.
- (420) According to Annex B (Benchmark information), which gives an overview of each set of benchmarks, the fee rate varies between 243 basis points (using corporate debt benchmarks) and 263 basis points (using project finance bank loans).

⁽¹⁾ See HM Treasury submission of 5 September 2014.

⁽²⁾ In particular, HM Treasury outlines three sets of benchmarks: Recent limited recourse project finance bank loans (low carbon energy); Corporate debt (rated BB+) spreads as at 21 August 2014; and Mean 10-year Credit Default Swaps and iTraxx Europe XOver (BB+ area).

- (421) IUK also presented average CDS spreads of seven BB+ entities included in the iTraxx Europe XOver index (10-year maturity) ⁽¹⁾, including 60 constituents that are intended to be borderline investment grade but include entities ranging from BBB (with negative outlook) to CCC. The average spread of the seven BB+ names was calculated to be around 250 basis points at the date the information was presented to the Commission. The IUK considered this a confirmation that the guarantee fee rate should be 250 basis points if it would have been calculated on the respective date.
- (422) However it is unclear whether these indexes cannot be fully considered reference points for the Credit Guarantee for HPC. While the iTraxx Europe XOver could be used as a starting point to derive a guarantee fee rate for Hinkley Point C, the companies selected for the index are only the 'better' speculative grade companies; the maturity of the index is 10 years, which is inconsistent with the HPC facility; and there is a wide range of individual CDS spreads reflecting differences in credit quality.
- (423) The Commission was therefore not fully convinced of IUK's assessment, due to both the limited number of project finance benchmarks and the selection criteria cast doubt on the benchmark analysis. Table 16 in Annex B gives an overview of project finance benchmarks.
- (424) The second approach is the expected loss approach. A full blown expected loss approach links the business model with the capital structure under different scenarios and derives probabilities of default and corresponding recovery rates for each year of the project, with the probabilities of default reflecting the likelihood of the company not being able to repay either interest or principal payments. However, this is not what was done for this project. Instead, the model presents the net present value of the Guarantee under what is being considered a punitive scenario ⁽²⁾.
- (425) Assuming a 250 basis points guarantee fee rate and the above input assumptions, the proxy model of the expected loss approach shows a positive net present value of the Guarantee.
- (426) The Commission was also not fully convinced about the results of this second approach. In particular, the model does not link the business plan with probabilities of default. Instead, the probabilities of default are imposed and taken as input for the NPV calculations.
- (427) As a result, the Commission took the view that these methodologies could be used to inform its assessment, but could not fully justify the proposed fee rate of 250 basis points.

9.5.1.2 Uncertainty around internal BB+/Ba1 rating

- (428) The two approaches outlined above are needed to determine both the fee and the credit score of the facility. Ratings can be used to compare different parameters of financial instruments, including their riskiness and, crucially, their pricing.
- (429) The IUK believes a rating equivalent to BB+/Ba1 can be achieved on this project. The indicated rating is neither an external rating nor a score supported by a credit report.
- (430) However the Commission assessed that the rating of BB+ could only be taken as a reference point, due to the uncertainties surrounding the rating of such a complex facility.

⁽¹⁾ IUK's submission of 26 August 2014.

⁽²⁾ In particular, the punitive scenario made the following assumptions in terms of annual default probabilities and recovery rates:

- loss given default in years 1-6 is zero as, if the Base Case Condition is not satisfied by December 2020, full debt repayment occurs with 100 per cent recovery,
- no default assumed to occur in years 7 to 10 as there is no principal repayment obligation, and all interest during construction (including guarantee fees) will be covered either within the Base Equity amount or by Base and/or Contingent Equity,
- 14-year construction phase (including 4 year delay) and 30 years of operation phase,
- cumulative default probability of 10 per cent during 4-year construction delay (0 per cent in years 11 and 12 and 5 per cent in years 13 and 14) and a 100 per cent loss given default,
- 5,6 per cent probability of default in any given year of operations. This is assumed constant at 5,6 per cent to match average rates for non-US power projects.

- (431) One of the key uncertainties is that the project is subject to significant interest rate risk. As Bonds will be issued in the first seven years of the construction phase, there is significant uncertainty around the gilt rate at issuance ⁽¹⁾. The UK Government bonds (gilts) yields for 10-, 20- and 30-year maturities show that we are at historically low levels (see Graph 1 in Annex B). The Bank of England's projections of the gilt rates (the forward rate curves) point to an increase in expected gilt rates.
- (432) A second uncertainty is given by the different potential maturities of the HPC-related Bonds, as opposed to the benchmarks provided. In particular, the tenor of the guaranteed debt is anticipated to have a weighted average life (WAL) of 27,4 years, with bond tenors ranging from 8 to 41 years. The UK Guarantee will be in place until the final maturity which is up to 41 years from Financial Close. The benchmark analysis, however, focuses on instruments with maturities up to 10-15 years mostly because of availability of pricing benchmarks up to that point. IUK has been advised by bond underwriters that the spread curve is flat and often inverted between 10- and 30-year tenors.
- (433) The Commission therefore did not accept that IUK's proposed rating was sufficiently supported by the evidence. The Commission decided to take the proposed rating as a reference point only, which again led to the conclusion that the proposed fee of 250 basis points as initially notified could not be considered fully justified.

9.5.2. The level of the SP and the resulting rate of return

- (434) As discussed in the Opening Decision, the notified version of the Financial Model (version 5.1) showed a [9,75 to 10,25] per cent project rate of return in post-tax, nominal terms, based on a SP of GBP 92,50 per MWh. This would have been reduced by GBP 3 per MWh (or a lump sum payment with equivalent value in NPV terms) if a decision to build a subsequent new nuclear power station at Sizewell C had been agreed, on the basis that EDF would be able to share the FOAK costs (in particular design and engineering) of the EPR reactors across the two plants.
- (435) The UK argued consistently that a target rate of return for NNBG of around 10 per cent (post-tax, nominal) would be reasonable, including through comparing rates for offshore wind and other comparator projects.
- (436) In the course of the Commission's investigation several further updates of the Financial Model have been submitted, taking into account updates in modelling assumptions and the anticipated financing structure of the project.

9.5.2.1 The Financial Model and scenario analysis

- (437) The UK reviewed EDF's Financial Model and relied upon it to capture the rate of return of the project. The Commission reviewed the Financial Model and carried out extensive sensitivity checks to derive key financial metrics for the HPC project.
- (438) To establish that the rate of return of [9,75 to 10,25] per cent (post-tax nominal) was not excessive, the UK submitted a consultant report prepared by KPMG considering five methods to assess the appropriate level of return to NNBG in relation to HPC. These methods and the corresponding derived range of returns are summarised in Annex A Table 4.
- (439) The report provided post-tax nominal rates of return in the range of 6 per cent – 14,5 per cent. UK argued that the projects initially estimated rate of return of [9,75 to 10,25] per cent was at a reasonable level within this range.
- (440) The Commission expressed three main reservations regarding the analysis presented by the UK and its advisors related to the allowable rate of return ⁽²⁾.

⁽¹⁾ As shown in the HM Treasury responses of 19 September 2014, the probability of a 1,5 per cent increase associated with 20-30 years bond tenors is approximately 17 to 20 per cent. As shown in the HM Treasury responses of 12 September 2014 (Annex B — IUK Sensitivity Analysis), an increase in the gilt curve of 1,5 per cent during the time of bond issuance (*ceteris paribus*) will draw down equity by GBP [...] billion (Model version 19.7).

⁽²⁾ These are summarised in the e-mail sent by DG COMP to UK DECC on 9 September 2014, 15:43, 'CfD for HPC — Note on Rate of Return'.

- (441) First, KPMG's methodology seemed to largely ignore the significant difference between risk in the construction and operational phases of the project. Second, the Commission questioned to what extent the proposed benchmarks were comparable to the HPC project in terms of risk level and structure, gearing and surrounding support measures such as guarantees and other safeguards. Third, the Commission expressed doubts about the Credit Guarantee fee being set at market terms. A guarantee fee set below market levels would affect the cost of debt of the project and with that the validity of comparisons with various rate of return benchmarks, insofar those benchmarks are based on non-subsidised cost of debt.
- (442) The Commission therefore carried out various sensitivity checks using a subsequent update of the Financial Model (version 9.8) ⁽¹⁾.
- (443) Given that the bulk of the risk appears to relate to the construction phase, the Commission tested scenarios in which these risks are taken into account by changing project nominal cash flows (post-cash taxes) compared to the baseline by a certain percentage throughout the construction phase ⁽²⁾. Discounting was carried out using rates commensurate to risks faced in the operational phase, given that the power plant was built. The results are presented in Annex A, Table 5.
- (444) The Commission further enquired to what extent risks were taken into account in the cash-flows in various versions of the Financial Model presented. In particular, the Commission reviewed the 'Cost Discovery & Verification — Evaluation Report (October 2013)' submitted by DECC to assess to what extent risks, uncertainties and contingencies were included in the cash flows of the submitted Financial Model.
- (445) The Cost Discovery and Verification (CD&V) review has been undertaken by DECC on the NNBG Cost Estimate for the HPC project based on the EDF/Areva design for an EPR nuclear reactor. The CD&V report performed multiple benchmarking exercises. It included a benchmarking of estimated HPC cost data against publicly available cost data and found that 'the range of benchmark capital cost estimates appears to be GBP 10 billion to GBP 18 billion, with a mid-range cost of less than GBP 13 billion'.
- (446) The Commission also reviewed NNBG's report 'TESLA4 Estimate — Volume 2 — Financial Risk Assessment (construction costs)' ⁽³⁾ ('TESLA4'). Based on the risk analysis performed internally by NNBG, the report presented an estimated probability distribution for the total outturn cost for the HPC project for the base date November 2014, as displayed in Annex A, Table 3.
- (447) Based on its review of CD&V as well as TESLA4, the Commission estimated that total outturn costs of approximately GBP [...] billion (in 2010 terms) are likely to lie at the upper range of the probable cost. This conclusion informed the Commission assessment of the rate of return of the project, both in terms of project IRR and in terms of equity IRR.
- (448) The Financial Model distinguishes between a measure of equity IRR calculated on 'drawn basis' and one calculated on a 'committed basis.' In the model, the equity IRR (drawn basis) is calculated based on drawn equity amounts, and excluding costs related to the provision of contingent equity.
- (449) Table 6 (Annex A) reveals that in the 'NNBG base case' scenario with the Credit Guarantee set at 250 basis points, the project is expected to yield [11,5 – 12,0] per cent equity IRR (post-tax nominal, committed).

9.5.2.2 Benchmarking the rates of return

- (450) The latest Financial Model of the HPC project assessed by the Commission ⁽⁴⁾ revealed a project IRR of [9,25 – 9,75] per cent and an equity IRR of [11,5 – 12,0] per cent. These two rates of return correspond to the same financial outcome and are internally consistent.

⁽¹⁾ This version constituted an update to the notified Financial Model, with further updates to follow. In particular, version 21.10 (of 29 August 2014) shows a project IRR of [...] per cent and equity IRR of [...] per cent (post-tax nominal) on a drawn basis and [...] per cent on a committed basis. Version 21 corresponds to NNBG's baseline scenario and compared to version 5.1 includes several updates related to construction schedule, the impact of financing arrangements, and macroeconomic parameters.

⁽²⁾ In particular, the Commission assumed these changes in cash flows occur in the period between 1 January 2017 to 30 June 2023. In this period project nominal cashflows (post cash taxes) are negative in version 9.8 of the Financial Model.

⁽³⁾ NNBG Document No HPC-NNBGPCP-XX-000-EST-000069, of 27 June 2014.

⁽⁴⁾ HPC IUK Model version 21.10, delivered to the Commission on 19 September 2014.

- (451) To make reasoned statements on whether the project and equity rate of return emerging from EDF's Financial Model for HPC are appropriate or not, it is necessary assess the risks involved, i.e. the project risks (for the project IRR) and risks faced by equity holders (for the equity IRR). For this purpose, the Commission took into account several benchmarks, which need to be considered in light of the: (i) risks involved; (ii) gearing; (iii) cost of debt; (iv) investment horizon; (v) investment size; (vi) the presence or absence of revenue protection; (vii) the presence or absence of gain-share mechanisms; and (viii) the presence or absence of contingent equity.
- (452) In addition to the benchmark rates of return compiled by KPMG for the Notification of the case (see recital 435 and Annex A, Table 4), the UK and NNBG submitted several further benchmarks to substantiate that the foreseen rate of return was appropriate. These benchmarks related primarily to recent infrastructure transactions, other nuclear generation projects, other generation projects, regulated businesses and recent regulated settlements ⁽¹⁾. They are displayed in Annex A, Table 3, and Table 10 to Table 14.
- (453) The Commission also assessed publicly available information on cost of capital estimates for similar companies, as displayed in Annex A, Table 15. It finally considered the cost scenarios and attached probabilities summarised in Annex A, Table 6 ⁽²⁾, to establish whether construction costs were adequately modelled and the degree of risk which characterised the project.
- (454) Based on the available evidence and the assessment carried out, the Commission considered that the project IRR of [9,25 – 9,75] per cent post-tax nominal of the HPC project is within the range of comparable rates of return, given the assessment of risks and surrounding parameters ⁽³⁾.
- (455) However the Commission also considered that return on equity may in this particular case be a superior way to assess potential overcompensation, as it is a measure of the direct financial gain of shareholders, as opposed to a measure of return on the project overall.
- (456) A project IRR reveals the rate of return which the project is estimated to produce, taking account of the entire capital structure which is used to fund the project. In particular, a project IRR typically takes account of both equity provided by shareholders and debt provided by lenders. The cost of equity is normally higher than the cost of debt, since shareholders expect a higher return on the capital they commit than lenders require, reflecting the different levels of risk involved. Shareholders face a higher risk when committing to provide funds, given that they may lose all or part of those funds if the project does not perform as expected. On the other hand, lenders normally face a risk of the debtor defaulting on its payments, and typically enjoy a level of protection even in those events.
- (457) The project IRR therefore averages out the cost of the underlying elements of capital within the overall financing structure. Depending on the proportion of debt raised to equity (the gearing ratio), and on the terms of the debt, the project IRR will vary together with the equity IRR. The two should normally be expected to evolve along parallel lines, subject to the gearing ratio and the debt being market conform.
- (458) The uniqueness and riskiness of the project justify the project IRR of [9,25 – 9,75] per cent. However the Commission was concerned that the equity IRR, which was estimated at [11,5 – 12,0] per cent in the latest Financial Model and on the basis of the proposed Guarantee fee of 250 basis points, may have evolved substantially, in particular after the construction, when debt costs can be expected to decrease significantly. For a project of the size of HPC, even small changes in return percentages might imply vast differences in absolute levels of equity compensation, which raise concerns in terms of potential overcompensation benefiting shareholders in NNBG.

9.5.3. Assessment and conclusions on the proportionality of the measures

- (459) The Commission undertook an in-depth assessment of the proportionality of the combined impact of both the Guarantee fee and the rate of return of the project, based on the approach outlined in Sections 9.5.1 and 9.5.2 above.

⁽¹⁾ The Commission did not take into account benchmarks where the source of information could not be reliably retraced. The Commission also received several reported realised equity IRRs for projects subject to *ex ante* rate of return regulation. While the Commission took note of these *ex post* benchmarks and considered them informative, it put in its assessment more weight on *ex ante* determined admissible rates of return. The Commission considers that *ex ante* rates of return determined by regulators approximate better the true hurdle rate of the regulated entities. Also, permissible rates of return are often set as a minimum which regulated entities can achieve. It is then natural that *ex post* realised rates of returns turn out higher than the *ex ante* determined value.

⁽²⁾ A similar view emerges from assessing the scenarios provided in Table 8.

⁽³⁾ In particular, [...].

- (460) As a preliminary point, the Commission notes that any other aid which might be provided to existing or new nuclear plants and which is not part of the notified package of measures must be notified by the UK and would need to be assessed individually. This is in particular true for aid provided in relation to the costs linked to liability, decommissioning or waste.
- (461) The Commission notes that the Financial Model for HPC already includes cost items for expenditures related to management and disposal of waste, liability fees, and decommissioning. In this regard, the project as notified already covers the relevant costs for these activities, as estimated at the time of this decision. The Commission expects any element of further aid which is not included in the notified measures to be notified separately, and notes that the UK has entered into discussions with the Commission on potential State aid involved in its plans to construct a permanent geological disposal facility and to oblige all new nuclear operators to enter into a Waste Contract ⁽¹⁾.
- (462) In the Section below the Commission will present its conclusions on the proportionality of the Guarantee fee and the rate of return of the project.

9.5.3.1 *Assessment and conclusions on the Credit Guarantee fee*

- (463) Based on the conditions attached to the measures as notified by the UK, the Commission accepted that pricing a facility such as the Credit Guarantee for HPC was a difficult task, given the time horizon and the complexity of the project, but it also considered that, taking into account the available evidence and the arguments set out in Section 9.5.1, the initially proposed minimum Guarantee fee rate (225 basis points) and the rate implied by the UK methodology (250 basis points) were likely to be below market rates.
- (464) The Commission takes the view that IUK's choice of an appropriate level of Guarantee fee, which is adequately reflective of the risks entailed in providing such Guarantee, should take into account the use of both of the approaches to the calculation of the fee which are described in Section 9.5.1.1.
- (465) The Commission concludes that it is not possible to accept the specific rating initially proposed by the UK, i.e. BB+/Ba1, to rate the Guarantee facility. However, based on the benchmarks provided by IUK and the two methodologies used (i.e. pricing benchmark and expected loss approach, as described in Section 9.5.1.1), the Commission takes the view that a credit score in the (major) BB/Ba rating category can be considered appropriate for this facility.
- (466) In particular, this rating is consistent with the range of debt service coverage ratios ('DSCR') which characterises the facility. This is a measure of the extent to which the beneficiary can pay back outstanding Bonds (in terms of both principal and interest payments). A level below 1 means that the debtor would default, and thus the Guarantee would need to be triggered.
- (467) For NNBG, the Commission was presented with evidence that the minimum DSCR in financially stressful scenarios goes down to a level consistent with a BB rating (i.e. 1.2 to 1.4), and in some more optimistic scenarios it is consistently above that level. The Base Case scenario is characterised by a minimum DSCR of [...].
- (468) The broad rating of BB is also consistent with the relatively strong requirements in terms of Base and Contingent Equity which are imposed on the shareholders of NNBG (see recital 54 and *infra*). The equity requirements provide a buffer protecting the Guarantor against default, which in turn reinforces the rating.
- (469) As discussed in Section 9.5.1.2, a fee of 250 basis points can be considered too low for a facility within the broad BB/Ba rating category. The Commission therefore considered that the Guarantee fee needs to be adjusted to a higher level, consistent with this rating range.
- (470) To accommodate the Commission's concerns of under-pricing of risk, the Guarantee fee rate was adjusted to a level of 295 basis points, or 45 basis points higher than initially determined by IUK. This will be referred to as the adjusted Guarantee fee rate in the remainder of this decision.

⁽¹⁾ See the pricing methodology of the Waste Contract, available at the following address: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42629/3798-waste-transfer-pricing-methodology.pdf

- (471) The rate of 295 basis points can be compared to the rate of 291 basis points, which corresponds to the average of 102 European corporate CDS in the BB category (as of 9 September 2014). The Commission considers that the median value of 286 basis points for the same category, adjusted upwards to reflect the maturity effect discussed in Section 9.5.1.2, also represents a relevant benchmark for the assessment and justifies the adjusted Guarantee fee rate.
- (472) The adjusted Guarantee fee rate takes into account the Commission's concerns about the project's credit worthiness, the exceptionally long maturity of the bonds to be issued as well as the uncertainty of the gilt rate at bond issuance. It corresponds to a commercial rate reflecting the level of risk of this project, also taking into account the degree of risk which the Guarantor will incur.
- (473) In particular, the Commission was able to review part of the financing head of terms agreed to date as regards the project financing of HPC. Upon review, the Commission was able to assess the extent to which equity suffers loss before the Guarantor suffers any loss.
- (474) On the basis of this assessment the Commission concludes that, at least, up to the moment the Base Case Condition is met, the Guarantor will incur limited risks. Afterwards, there are a series of safeguards set-up that limit the risks of the Guarantor. The Commission also acknowledges the flexibility the Guarantor has in case of enforcement which appears suitable for the special nature of the project and its specific safety requirements.
- (475) The adjusted Guarantee fee and the methodology underpinning it effectively provide an approximation of a hypothetical market rate for a facility which is not offered by the market. In particular, the new level of the fee avoids an undue transfer of risk from the equity holders to the Guarantor, and attempts to approximate financial facilities comparable to market initiatives in the BB/Ba rating category.
- (476) The Commission finds that the adjusted Guarantee fee therefore limits aid to the minimum, and therefore is deemed to be proportionate.
- (477) Once the Guarantee fee rate had been set reflecting market prices for this project, the Commission assessed whether the notified Strike Price, and the underlying rate of return, could be deemed to be commensurate to the level of risk in the project.

9.5.3.2 *Assessment and conclusions on the Strike Price and the rate of return*

- (478) As discussed in Section 9.5.2 above, the IRR of the project can be considered in line with the rate of return which a project of this size and characterised by this level of uncertainty can be expected to attain. The Commission notes that the project IRR is below that typically granted to large generation projects in the energy sector, or to renewable energy generators funded through State aid, ⁽¹⁾ even if the characteristics of these projects are very different.
- (479) The Commission in particular takes the view that the rate of return proposed for the project is also consistent with the overall set of measures framing it. While some of these measures, such as the compensation mechanism for QCILs, the opex re-openers and the Secretary of State Agreement, provide an element of advantage to NNBG in addition to the effect of the CfD alone, the project IRR, taking the above elements into account, is consistent with the overall balance of risks and protections granted to the beneficiary.
- (480) However the Commission remained concerned that the project also needed to provide an adequate incentive structure in terms of both project and equity IRR.
- (481) In particular, shareholders in the HPC project should retain adequate incentives to decrease costs and produce efficiencies, but they also should not be in a position to unduly benefit from potential gains on their investment which are related to the financing structure only. In terms of IRRs, this would mean ensuring that NNBG has sufficient incentives to decrease costs and achieve efficiencies, while at the same time also ensuring that any financing gains are shared adequately between the beneficiary and the CfD Counterparty.

⁽¹⁾ See for example case SA.31107 (11/N), where a rate of return on capital between 9,6 per cent and 11 per cent was found to be acceptable. See also case N354/09, where a return on capital of 12 per cent was found to be acceptable.

- (482) While project IRRs can change for reasons which are linked to the project's overall efficiency levels, equity IRRs could increase as a result of re-financing of the project, hence through changes which affect its capital structure. In particular, as mentioned in recital 457 above, it is conceivable that a project characterised by the level of risk which HPC will feature in the initial phase of construction, but which then can be expected to decrease during the operational phase, where NNBG will benefit from relatively stable and certain revenues, will attract re-financing operations of potentially large size. It is for example conceivable that a part of the debt raised during the construction phase might be re-financed, after the plant has been built, at lower rates than the ones charged initially, precisely reflecting the lower level of risk that NNBG's debt might incur post-construction. In other words, the project IRR can stay at the same level while the equity IRR may evolve as a result of changes in the debt/equity ratio and of the cost of debt.
- (483) While the project IRR of [9,25 – 9,75] per cent can be considered proportionate, the equity IRR of [11,0 – 11,5] per cent (based on the adjusted Guarantee fee) could evolve so as to significantly benefit NNBG's shareholders. This raises an issue of potential overcompensation, given that even small changes in the equity IRR may involve vast returns in absolute levels for a project of HPC's size, and that those returns would be funded through aid.
- (484) Also, the Commission was concerned that the construction gain-share proportions were set at fixed levels regardless of the amount of potential savings realised.
- (485) The Commission therefore required more stringent equity gain-share mechanisms, in particular in relation to the equity gain-share, compared to the one initially notified by the UK.

9.5.3.3 *Gain-share commitments*

- (486) The UK committed to substantially amend the gain-share mechanisms it initially proposed to take account of the Commission concerns.
- (487) The new construction gain-share ⁽¹⁾ will provide that:
- (a) the first GBP [...] billion of construction gain (nominal value) will be shared on a 50:50 basis with 50 per cent of the gain going to the CfD Counterparty and 50 per cent to NNBG; and
 - (b) any construction gain in excess of GBP [...] billion (nominal value) will be shared on a 75:25 basis with 75 per cent of the gain going to the CfD Counterparty and 25 per cent to NNBG.
- (488) The largest changes were made to the equity gain-share. While the original threshold for the equity gain-share was set at a level of 15 per cent in the notification, the UK committed to an adjusted threshold. This implies that NNBG will have to immediately share any gains above the level of equity IRR which it expects to make at the time of the decision. In particular, the adjusted level of the gain-share are as follows ⁽¹⁾:
- (a) A first threshold set at the level of forecast equity IRR level produced at the time of this decision by the latest Financial Model, ⁽²⁾ or 11,4 per cent on a committed equity basis and in nominal terms. Any gain above and beyond this level will be shared by the CfD Counterparty for 30 per cent and by NNBG for 70 per cent.
 - (b) A second threshold set at the higher between 13,5 per cent in nominal terms or 11,5 in real (CPI-deflated) terms, based on the same model as in point (a) above. Above this threshold, any gain will be shared by the CfD Counterparty for 60 per cent and by NNBG for 40 per cent.
 - (c) The equity gain-share mechanism will be in place for the entire lifetime of the HPC installation, as opposed to only the duration of the measure.
- (489) The extension of the duration of the equity gain-share to the lifetime of the project tackles any concerns of overcompensation after the 35 years when the CfD is in place, which is consistent with the view that the measure provides investment aid.

⁽¹⁾ For a detailed description of the commitment please see Annex C.

⁽²⁾ In particular, HPC IUK Model v[21.10] (Beta)_2014-09-19_DECC.xlsm, per 'DECC Output' worksheet

- (490) Also, the equity gain-share threshold is the one resulting from the increase in the Guarantee fee to 295 basis points — in particular, the [11,0 – 11,5] per cent equity IRR, calculated on the basis of the adjusted fee of 295 basis points, is lower than the initially proposed equity IRR of [11,5 – 12,0] per cent, which was calculated on the basis of the proposed fee of 250 basis points ⁽¹⁾. Hence the equity gain-share is triggered for any level of equity IRR higher than the one estimated at the date of this decision.
- (491) Gains by the CfD Counterparty will be reflected in an adjustment of the SP. In particular for the equity gain-share, the adjusted mechanism is likely to translate into significant decreases in the SP, hence to lower levels of support to be provided by suppliers, and ultimately by electricity consumers, during the entire period of operation of the plant ⁽²⁾.
- (492) Moreover, both the equity gain-share and the construction gain-share ensure that NNBG continues to have efficiency incentives throughout the lifetime of the project, since NNBG's investors retain part of the gains.
- (493) On the basis of the agreed equity and construction gain-share thresholds, and taking into account the adjusted Guarantee fee and the overall design of the measure, the Commission concludes that the measures are proportionate.
- (494) As a result of the changes agreed with the Commission, the financial metrics of the project with and without these commitments are displayed in Table 2.

Table 2

Financial metrics of the HPC project before and after the changes agreed with the Commission

(per cent)

Financial Model version 21.10	29 August 2014 Lower Guarantee fee and higher equity gain-share threshold	19 September 2014
Project IRR	[9,25 – 9,75]	[9,25 – 9,75]
Equity IRR (drawn basis)	[12,75 – 13,25]	[12,25 – 12,75]
Equity IRR (committed basis)	[11,50 – 12,00]	[11,00 – 11,50]

9.6. POTENTIAL DISTORTIONS TO COMPETITION AND TRADE

- (495) For the aid to be compatible with the internal market, 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. In particular, once the objective of the aid has been established, it is imperative to minimise its potential negative effects on competition and trade.
- (496) In the Opening Decision the Commission posited that the project might distort competition in three ways. First, the aid may distort investment decisions and displace alternative investments. Second, it might distort downstream market functioning, in particular through the unclear impact of the SP on wholesale and retail market prices; through strategic behaviour by the beneficiary to affect the RP; and through other types of strategic behaviour allowed by the large output volumes which NNBG and EDF Energy, as the supplier entrusted by NNBG to sell its output, can offer, such as price manipulation on forward markets or limiting the ability of

⁽¹⁾ These figures were computed at the time of writing this decision, using Financial Model 21.10 as delivered to the Commission on 19 September 2014.

⁽²⁾ After the 35-year duration of the CfD the gains will no longer translate into a reduction of the SP, as there will be no SP anymore. Hence, after the end of the CfD, the gains will be shared directly between the CfD Counterparty and NNBG.

alternative suppliers to procure electricity independently. A final distortion was welfare allocation between end users and NNBG (discussed above in the context of proportionality). In addition to the points above, the Commission extensively assessed four main downstream competition distortions which the aid may cause.

- (497) First, the possibility for EDF or NNBG to alter the RP by strategic selling in the markets which are used to calculate it. For example, it is unclear what the effect is on the incentives of EDF to bid in capacity under a very low (even negative) price to markets, and in particular into the reference market(s), in a situation where it receives a premium reflecting the difference between the prevailing (even negative) RP and the SP in the previous reference period. Altering the RP would have an impact on difference payments for all other CfD technologies, including on EDF installations benefiting from other CfDs.
- (498) Second, EDF as a group might manipulate forward markets by selling, or withholding, large amounts of electricity produced by the HPC plant to the benefit of the group's trading or hedging positions. EDF is a vertically integrated operator which is active in both generation (upstream), supply (downstream) and trading markets. Under a CfD, it might have an incentive to favour its own downstream subsidiaries. For example, if the group were to benefit from 10-year-ahead prices being higher or lower, HPC might be instrumental in achieving this result.
- (499) Third, and linked to the above, HPC might increase EDF's profitability by allowing it to lower its hedging costs, in particular if the supplier were able to 'net off' internal trading positions using the vast and stable output provided by HPC.
- (500) Fourth, the project might have a negative impact on wholesale market liquidity, given that it would add to the generation assets of a vertically integrated company, potentially leading to foreclosure of independent suppliers or barriers to entry for prospective entrants at the supply level.
- (501) The Sections below will assess each of these issues.

9.6.1. Distortions of investment and trade flows

- (502) The Commission considered the questions of whether the aid would distort energy flows or electricity prices.
- (503) As a preliminary remark, the Commission notes that a widespread use of CfDs can substantially interfere with, or altogether remove, the role of prices as investment signals, and to effectively lead to price regulation of electricity generation at government-chosen levels.
- (504) The Commission recognises that CfDs require generators to sell on the market, thereby preserving some of the incentives which apply to unsupported market operators. However such incentives are mainly preserved at the operational level, and not at the level of investment decisions, which will likely be determined by the revenue stability and certainty provided by the CfD.
- (505) In any event, market distortions deriving from the CfD at the operational level are very limited for nuclear energy generators, which are characterised by low marginal operating costs and are therefore likely to sell on the market regardless of price levels and, as will be explained further, occupy the initial positions in the supply merit curve.
- (506) In terms of interconnector build and the direction and intensity of trade flows, the analysis by the Commission confirms that the provision of the aid, and the resulting construction of the HPC plant, are estimated to have a minimal impact on UK wholesale prices.
- (507) In particular, the modelling work carried out ⁽¹⁾ suggests that GB prices will decrease by less than 0,5 per cent as a result of the operation of the HPC plant. This will in turn translate into a cumulative and overall decrease in interconnector revenues of less than 1,7 per cent up to 2030. This result stems from the fact that the marginal cost of HPC-produced electricity will be lower than the price of existing plants, but that its overall capacity will be a small fraction of overall GB capacity.

⁽¹⁾ The analysis was carried out by the Commission taking into account DECC's model and Pöyry's modelling work.

- (508) This result is based on a worst-case scenario, since in the absence of HPC the UK can be expected to pursue other types of low-carbon production, up to the extent which will be feasible (and not up to the overall capacity provided by HPC, which would be too large to replace through low-carbon sources only, as discussed in recital 199). Hence a decrease in wholesale prices and in interconnector revenues can be expected to take place also in the absence of HPC.
- (509) In terms of trade distortions, the Commission found that HPC has a negligible impact on non-GB prices, which was quantified in 0,1 per cent at most. This would translate into a decrease in cross-border flows of less than 1 per cent.
- (510) Finally, the Commission modelled alternative scenarios where the HPC project does not take place. The results of this analysis suggest that the displacement of alternative investments is limited. In particular, the forecasts of shrinking supply leave ample room for other generators and generation technologies to enter and/or expand capacity regardless of investment in HPC, in particular given the timing of the closure of existing nuclear and coal plants. The UK will need about 60 GW of new generation capacity to come online between 2021 and 2030, of which HPC will provide 3,2 GW. It would be impossible for low-carbon sources only to fill this gap.
- (511) The Commission therefore concludes that the aid has an insignificant impact on trade flows, on prices and on investment.

9.6.2. Attempts to manipulate the RP

- (512) The Commission raised initial concerns that NNBG or EDF might have incentives to act strategically to keep the RP low in order to maximise the difference payments.
- (513) In reply to the Opening Decision, the UK has submitted a KPMG report ⁽¹⁾ which analysed whether NNBG or EDF had the incentive and the ability to strategically reduce the RP in the way envisaged by the Commission.
- (514) NNBG will only have an incentive to lower the RP if it was able to sell substantial volumes at a price that is higher than the RP. If NNBG sells electricity below the RP the difference payments might not compensate it fully up to the Strike Price.
- (515) The Commission considers that NNBG's risk-minimising strategy will be to sell HPC-produced capacity on the season-ahead markets so that the price is as close as possible to the RP. Seeking to strategically reduce the RP will increase the risk that HPC capacity is sold at a price below the RP and therefore involves NNBG moving away from its risk minimising strategy.
- (516) Even if EDF and NNBG had an incentive to engage in a strategy to reduce the RP, the ability for them to do so is limited. This is so because market forces and arbitrage by other electricity sellers will counteract any strategic reduction in the RP. Should the RP be lower, other generators would be encouraged to sell their capacity elsewhere.
- (517) The Commission tested the extent to which EDF could have the possibility to systematically realise higher prices in the market. As explained in recital 11, the RP curve is based on prices one season (i.e. six months) ahead of delivery, or a 'season-ahead' price. As nuclear is a baseload technology with a steady and comparably reliable output profile, HPC could in theory sell large quantities of electricity further ahead than one season. If prices longer than one season ahead are systematically and significantly higher the season-ahead prices — the basis of the RP curve — then on average HPC could realise a higher effective price per MWh than the strike price.
- (518) To assess this possibility, the Commission requested the UK to apply the formula presented in recital 11 to historic market conditions (prices and quantities) for the period winter 2012 to winter 2014 to generate a simulated historic RP curve. The Commission matched the obtained RP curve with data on one- and two-seasons-ahead electricity prices for delivery dates in the same time interval ⁽²⁾. The result is displayed in Figure 2 in Annex A.

⁽¹⁾ Annex 8 of the UK Government Response to Commission's Opening Decision, 31 January 2014.

⁽²⁾ The match of delivery to trade dates was carried out using the EFA calendar, at https://www.theice.com/publicdocs/EFA_Calendar.pdf retrieved on 13 June 2014.

- (519) Figure 2 reveals that although on occasions there were trading days where the two-seasons-ahead baseload price may have been higher than the one-season-ahead price and the RP, the difference is neither particularly large, nor does the relationship appear systematic. Furthermore, to systematically realise higher profits than the RP, EDF would very likely have to sell most of its output outside the reference market. Doing so would likely involve a higher level of risk for EDF than selling in the reference market, making it less profitable to engage into such a strategy.

9.6.3. Potential incentives for EDF to withhold capacity

- (520) In theory strategic withholding can lead to increased profits for generators even if they have very low market shares. The key factor enabling them to exert market power in this way is their position on the merit order curve. Given that EDF owns both flexible and baseload plants, the commissioning of HPC may allow EDF to withhold capacity from its flexible plants in order to drive wholesale prices higher and to gain higher prices on the sale of electricity from its baseloads plants (including HPC).
- (521) The UK has put forward ⁽¹⁾ that HPC would confer EDF neither the ability nor the incentives to withhold flexible capacity.
- (522) In particular, the UK states that by 2025 the share of EDF in the market for generating flexible capacity will be only 6,5 per cent (taking into account the closure of a coal plant approaching the end of its useful life as well as the potential opening of a new plant). After having acknowledged that market shares may be a weak indicator of a generator's ability to influence prices by withholding capacity, various indices of 'pivotality' (i.e. the extent to which a particular generation unit or company is needed for demand to be satisfied, which makes that unit or company potentially able to influence the market price by curtailing capacity) are computed to show that EDF's flexible capacity is not expected to be pivotal in 2025. Assuming various counterfactuals, it is further shown that the construction of HPC will not in any event increase this pivotality.
- (523) The Commission considers that the CfD instrument limits the incentives for withholding by its nature. In particular, as a first order effect of the CfD, most HPC energy would be sold on the Reference Market to minimise basis risk, according with the hedging strategy defined by NNBG together with IUK. As a result, EDF Energy will obtain the SP for the HPC supply and its revenues would not increase if wholesale spot prices were to increase as a result of a temporary capacity withholding. A strategy of selling a high amount of capacity on the spot market is unlikely to be profitable in this context.
- (524) However, given the specificities of the merit curve, the Commission considers that even if a certain flexible capacity is not pivotal, it can nevertheless have an influence on the price. Depending on its relative position on the supply curve, even withholding a small capacity from the market may shift the supply curve towards the left, leading to equilibrium with higher prices. Given that the construction of HPC may increase the potential gains from withholding, EDF may have more incentives to engage in it post-aud.
- (525) The Commission therefore assessed EDF's incentives to withhold capacity through a simulation produced by the UK based on the 2025 merit order curve.
- (526) This simulation shows that, even in the hypothetical and unrealistic scenario abstracting from the effect of the CfD, the commissioning of HPC would not increase any theoretical incentive to engage in the withholding of flexible capacity which EDF Energy might have in the absence of the CfD. The UK simulation uses an expected generation mix in 2025 in the UK very much in line with DECC EMR scenarios. This exercise shows that the plausible levels of demand for which a withholding strategy would be profitable occur with a low probability.
- (527) In conclusion, the Commission believes that competition distortions in respect of potential withholding of capacity are kept to the minimum.

9.6.4. Advantage to EDF through reduction in hedging costs

- (528) The wholesale electricity markets are uncertain for both generators and suppliers due to the particular features of supply and demand. In order to get more certainty over revenues from the sale of electricity and over the costs of electricity, generally suppliers and generators buy or sell electricity forward and use spot and near-term markets to fine-tune their positions.

⁽¹⁾ Compass Lexecon submission, 'Analysis of the impact of HPC on the potential for capacity withholding', 4 August 2014.

- (529) Forward trading (or hedging) is therefore, used to provide a degree of protection from price volatility. Hedging costs are primarily determined by the bid-offer spread on forward rates, which is the difference between the bid price (the price at which buyers are prepared to buy) and the offer price (the price at which sellers are willing to sell). The larger the number of participants and the volumes traded, the lower the bid-offer spread and hence the lower the transaction costs for both sellers and buyers.
- (530) The Commission had a preliminary concern that the additional baseload capacity provided by HPC and sold by EDF Energy might allow the latter to lower its hedging costs, gaining a competitive advantage over its peers, in particular in respect of its potentially better ability to optimise its risk portfolio. The Commission raised an additional preliminary concern that EDF Energy might be in a better position to increase its share of specific segments, such as energy intensive users.
- (531) The Commission assessed the evidence produced by EDF in terms of capacity supplied in the post-aid scenario. EDF already has a net generation of 22,9 TWh in 2013, i.e. the difference between the amount generated through own assets and the amount sold through its retail operations. It estimates that in 2020 it will have a [...] TWh net generation position and in 2025 a [...] TWh net generation position with HPC.
- (532) The Commission therefore concludes that hedging costs are not likely to change as a result of the aid.
- (533) Moreover, the supply of electricity to non-domestic customers, including energy intensive users, can be considered competitive. EDF's share is less than 25 per cent of the market, despite the high baseload generation capacity that it currently holds. In its recent referral to the Competition and Markets Authority for a full investigation of the electricity markets, Ofgem ⁽¹⁾ notably excluded the non-domestic sector on the grounds that the sector could be considered broadly competitive ⁽²⁾.
- (534) In spite of the uncertainties inherent to predicting strategies and market outcomes over a relatively long time horizon, namely until the time HPC will be running, the Commission considers these arguments sufficiently sound to dispel its concerns as regards this particular type of potential distortion of competition.

9.6.5. Potential reductions in wholesale market liquidity

- (535) The mere fact of being able to access additional own electricity may result in a negative impact on wholesale market liquidity levels, which are in turn likely to negatively impact on independent suppliers. While this does not automatically imply that vertical integration leads to less liquid markets or foreclosure, it does imply that where most of generation capacity is owned by suppliers, markets can become increasingly less liquid.
- (536) The Commission had some preliminary concerns as to whether having increased access to own generation may translate into a decreased need for EDF to access forward markets to obtain capacity. The extent to which EDF would need to trade post-aid would be offset by its ability to access HPC-produces generation.
- (537) In reply to Commission's questions regarding the potential impact that HPC may have on market liquidity, EDF responded that it would have neither incentives nor the ability to reduce it.
- (538) EDF Energy claims that its supply business is wholly independent of the building or otherwise of HPC ⁽³⁾. As explained in the previous section, the policy of the EDF generation and supply business is to reduce market price risk. There is no policy to systematically supply internally as this is not the best way to reduce market price risk. On the contrary, the best way to reduce market price risk is to buy and sell in the market (or at a market price).
- (539) EDF Energy explained further that it does not operate its business in a manner aimed at netting off volumes between supply and generation. EDF does not even specifically identify trades which are transferred between its generation and supply businesses without being routed through the market.

⁽¹⁾ Ofgem, *Decision to make a market investigation reference in respect of the supply and acquisition of energy in Great Britain*, 26 June 2014. Available at the following address: <https://www.ofgem.gov.uk/publications-and-updates/decision-make-market-investigation-reference-respect-supply-and-acquisition-energy-great-britain>

⁽²⁾ See Ofgem, *State of the Market Assessment*, 27 March 2014, points 4.41 and *infra*. Available at the following address: <https://www.ofgem.gov.uk/publications-and-updates/state-market-assessment>

⁽³⁾ See EDF/NNBG response to questions regarding potential impact on market liquidity, 8 September 2014.

- (540) In support of the claim that the extent of internal netting is limited, EDF presented figures on its traded volumes and churn amounts ⁽¹⁾. Finally EDF explained that given recent regulatory developments, it does not even have the ability to reduce liquidity of the wholesale market. In order to enhance the liquidity of a range of market segments, Ofgem has introduced a mandatory 'market making' obligation into the licences of the largest six energy suppliers in the UK, including EDF Energy. The requirement is to post bid and offer prices in the market, with the aim of supporting price discovery and ensuring regular opportunities to trade.
- (541) The Commission assessed the degree to which the measure might be likely to result in lower liquidity in wholesale markets.
- (542) It noted that EDF Energy's ratio of traded volume compared to its generated volume has been steadily decreasing from a churn ratio (traded volume/generation) of 3 in 2010 to a churn ratio of 2 in 2014. Moreover, this ration is the lowest amongst the main six vertically integrated energy producers in the UK ⁽²⁾.
- (543) The Commission notes that Ofgem's regulatory 'market making' obligations might limit the extent to which vertically integrated suppliers could willingly or unwillingly engage in strategies which result in lower liquidity levels. However it is unclear to the Commission the extent to which such obligations are likely to stay in place, or indeed to what extent they may prevent the netting off of internal positions (i.e. using own generation assets to serve own customers).
- (544) The Commission therefore requested further safeguards, in order to fully dispel any concern in relation to potential detriment to market liquidity in a post-aid scenario.
- (545) In particular, EDF agreed to increase the transparency in a way in which it will trade and sell electricity in the market, thus reducing the extent to which it may unduly improve its profitability and impact negatively on liquidity.
- (546) As sole supplier of market services to NNBG for the HPC forecast output, EDF has committed ⁽³⁾ to the following:
- (a) Record trades for HPC forecast output in a separate NNBG book;
 - (b) Price trades for HPC forecast output conducted with EDF at the market price for the product concerned at the time of trading;
 - (c) Undertake at market price all HPC forecast output bilateral trades with any other asset portfolios owned by or traded by EDF; and
 - (d) Provide a report to the CfD Counterparty and the European Commission on a yearly basis to evidence compliance with the above commitments.

9.6.6. Conclusion on competition distortions

- (547) The Commission concludes that overall the potential for distortions of competition are limited, based on the consideration in Sections 9.6.1, 9.6.2, 9.6.3, 9.6.4 and 9.6.5 above, and taking into account the commitments offered by EDF.
- (548) After a thorough balancing and taking into account the commitments offered by EDF, the Commission reached the conclusion that competition distortions resulting from the commissioning of HPC are kept to the minimum necessary and are offset by the positive effects of the measures.
- (549) In respect of compliance with Article 30 and 110 TFEU, the UK has committed that it will, for so long as the CfD is not open to electricity generators located outside of Great Britain, adjust the way in which electricity suppliers' liabilities for CfD payments are calculated so that eligible nuclear electricity generated in EU Member States outside Great Britain and supplied to customers in Great Britain is not counted towards suppliers' markets shares. The UK will remove this exemption once non-GB generators are eligible to apply for CfDs.

⁽¹⁾ Table 3 of EDF/NNBG response to questions regarding potential impact on market liquidity, 8 September 2014.

⁽²⁾ See Figure 43, Ofgem — State of the Market Assessment, 27 March 2014.

⁽³⁾ For a detailed description of the commitment please see Annex C.

10. CONCLUSION

- (550) Based on the assessment conducted and in light of the specific circumstances of this case, the Commission finds that the package of measures notified by the UK involves State aid which, as amended by the commitments provided, is compatible with the internal market pursuant to Article 107(3)(c) TFEU.
- (551) The Commission notes that it has been provided, for assessment, with the financing head of terms agreed to date as regards the project financing of HPC. The United Kingdom authorities declared that the rest of the terms and conditions as well as the final financing documents will contain standard clauses that any investor would seek for a similar project. As the Commission did not have the opportunity to verify this, in case the final documents amend the measure as currently presented to the Commission in any respect, they will have to be notified by the United Kingdom authorities to the Commission. However, if the final financing documents contain further State aid elements then, *rebus stantibus*, they cannot be approved since the present package of State measures represents all the aid that is necessary to allow the HPC investment project to be undertaken,

HAS ADOPTED THIS DECISION:

Article 1

Aid to Hinkley Point C in the form of a Contract for Difference, the Secretary of State Agreement and a Credit Guarantee, as well as all related elements, which the UK is planning to implement, is compatible with the internal market within the meaning of Article 107(3)(c) of the Treaty on the Functioning of the European Union.

Implementation of the aid is accordingly authorised.

Article 2

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

Done at Brussels, 8 October 2014.

For the Commission
Joaquín ALMUNIA
Vice-president

ANNEX A

CFD RATE OF RETURN

Table 3

NNBG Financial Risk Assessment — estimated probability distribution of HPC’s total outturn costs

[...]

Source: TESLA4, page 12

Figure 2

UK historic forward prices and RP

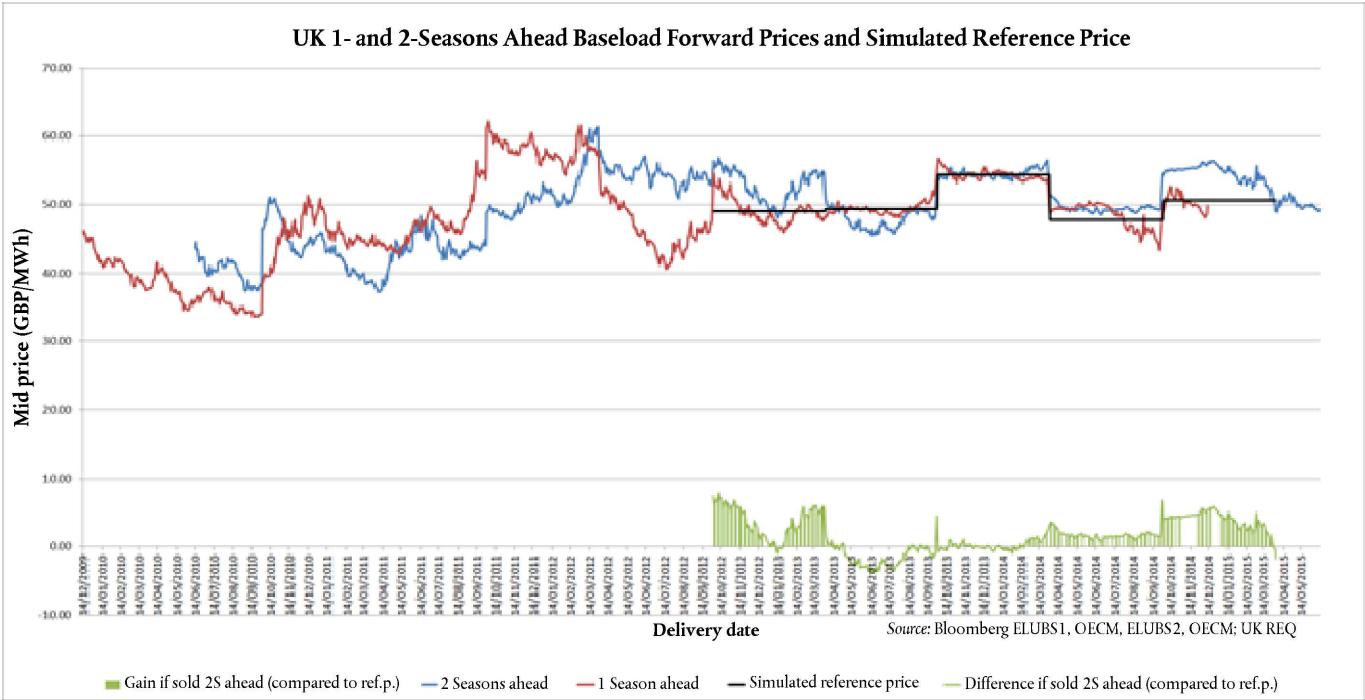


Table 4

Summary of approaches taken for analysing an appropriate rate of return, by KPMG

(per cent)

Approach	Range of returns (project IRR; post-tax nominal)	Comments
Relative risk analysis	8,5-11 (project basis)	Comparison of offshore wind and PPP/PFI returns during construction phase and also UK regulated utilities/nuclear operators during operations phase
Benchmarking Analysis	6-13 (project basis)	Comparison of UK regulated utility/PPP/IWPP/comparable nuclear projects
Project Hurdle Rate analysis	10,5-14,5	Based on EdF WACC estimates plus premium observed in academic studies from a range of corporates

(per cent)

Approach	Range of returns (project IRR; post-tax nominal)	Comments
Financing analysis	9-13 — construction 6-9,5 — operational	Analysis of potential financing structures both during construction and during operations
Assumed debt-financed structure with UK Guarantee	10,2 — Project IRR 12,8 — Levered Equity IRR	Analysis of the Project Return and the Levered Equity Return (for the proposed UK guaranteed debt levels) and at the negotiated SP. The 10,2 % is due to the tax shield effect on project level cash flows and indicative IUK Guarantee pricing.

Source: Notification, Table 5, based on KPMG

Table 5

Commission sensitivity analysis — Model with changed annual cash flows in the construction phase

[...]

Shaded cells denote construction cost capex — target IRR scenarios yielding a lower SP than 92,50 GBP/MWh. Based on NNBG Financial Model version 9.8.

Table 6

Project scenarios, probabilities (confidence levels that outturn factors will be more favourable than assumptions) and key project metrics

[...]

Notes:

- (1) Includes construction gain share benefit of GBP 0,8/MWh (real 2012)
- (2) Lump sum from SZC only released post COD2 and therefore does not form part of funding requirement
- (3) Opex adjustment only applied for first 15 yrs and after CFD period due to potential opex reopener protection.
- (4) Min DSCR excluding first period
- (5) EIRR committed real approximated as EIRR committed nominal minus long term CPI assumption
- (6) Lower level of Committed equity assumed in this version of the Financial Model will mean Committed Equity IRR is optimistic v current modelled results

VERY LOW	Very low likelihood of more favourable outcome than assumed
LOW	Low likelihood of more favourable outcome than assumed
MODERATE	Moderate likelihood of more favourable outcome than assumed
HIGH	High likelihood of more favourable outcome than assumed
VERY HIGH	Very high likelihood of more favourable outcome than assumed

Table 7

Funding profile during construction and DSCR during operations

[...]

Table 8

Combined capex, delay and other downside scenarios

[...]

Table 9

Summary DDM results for a selection of scenarios

Run	Key Assumptions	Capacity Market	First Nuclear Deployment	Grid carbon intensity 2030	Grid carbon intensity 2040	Grid carbon intensity 2049
1a	BAU	No	2037	232	188	96
1d	BAU, High Fuel Prices	No	2031	186	101	46
1e	BAU, Low Fuel Prices	No	2041	269	233	121
2a	BAU + Nuclear CfD	No	2023	158	88	37
3a	Non-nuclear Low Carbon CfDs	No	2037	164	135	61
3d	Non-nuclear Low Carbon CfDs, High Fuel Prices	No	2031	181	123	52
3e	Non-nuclear Low Carbon CfDs, Low Fuel Prices	No	2041	182	120	66
3h	Non-nuclear Low Carbon CfDs, more inter-connection	No	2037	160	133	59
4a	Low Carbon CfDs	No	2023	100	42	25
5a	BAU	Yes	2037	236	194	88
5d	BAU, High Fuel Prices	Yes	2032	194	111	52
5e	BAU, Low Fuel Prices	Yes	2041	272	235	126
7a	Non-nuclear Low Carbon CfDs	Yes	2046	104	49	33

Run	Key Assumptions	Capacity Market	First Nuclear Deployment	Grid carbon intensity 2030	Grid carbon intensity 2040	Grid carbon intensity 2049
7d	Non-nuclear Low Carbon CfDs, High Fuel Prices	Yes	2038	137	65	28
7e	Non-nuclear Low Carbon CfDs, Low Fuel Prices	Yes	Not before 2049	113	51	44
7f	Non-nuclear Low Carbon CfDs, High Nuclear Costs, Low RES and CCS costs	Yes	2048	97	46	35
7g (only to 2030)	Non-nuclear Low Carbon CfDs, more DSR, more EDR, more Interconnection	Yes	Not before 2030	104	N/A	N/A
7h	Non-nuclear Low Carbon CfDs, more interconnection	Yes	2046	101	48	32
8a	Low Carbon CfDs	Yes	2023	104	50	31
8d	Low Carbon CfDs, High Fuel Prices	Yes	2023	99	48	30
8e	Low Carbon CfDs, Low Fuel Prices	Yes	2023	99	38	30
8f	Low Carbon CfDs, High Nuclear costs, Low RES and CCS costs	Yes	2023	102	45	28
8g (only to 2030)	Low Carbon CfDs, more DSR, more EDR, more Interconnection	Yes	2023	98	N/A	N/A
8h	Low Carbon CfDs, more Interconnection	Yes	2023	100	53	32

Table 10

Benchmark infrastructure transactions

Sponsor	Antin Infrastructure Partners	CDP Capital	Brookfield Renewable Energy Partners	Borealis, First State EDIF
Fund Target Equity IRR	15 %	16 %	9 – 12 %	9 – 15 %

Source: UK submission 'Answers to the Commission's questions received 16 September 2014' based on Fund websites, Preqin, Press releases.
Note: Fund target IRRs shown gross of fees and expenses. Exchange rates used: GBP EUR: 1: 1,26, GBP CAD: 1: 1,81. HPC post-tax nominal equity IRR used for comparison purposes. Borealis target IRR: 9 – 12 per cent, First State EDIF target IRR: 10 – 15 per cent.

Table 11

Selected regulatory allowed returns calculations

	Electricity Transmission (Ofgem ⁽¹⁾)	Ofwat ⁽²⁾ — PR09	Ofwat — PR 14 (not finalised) ⁽³⁾
Note			
Period	2013-21	2010-15	2015-20

Real

Levered cost of equity (post-tax)	7,00 per cent	7,10 per cent	5,65 per cent
Cost of debt (pre-tax real)	2,92 per cent	3,60 per cent	2,75 per cent
Notional gearing	60,0 per cent	57,5 per cent	62,5 per cent
Vanilla WACC	4,55 per cent	5,10 per cent	3,85 per cent
Inflation assumption	3,50 per cent	3,50 per cent	3,50 per cent

Allowed Nominal Costs/Returns (geometric calc)

Levered cost of equity	10,7 per cent	10,8 per cent	9,3 per cent
Cost of debt (pre-tax)	6,5 per cent	7,2 per cent	6,3 per cent
Vanilla WACC*	8,2 per cent	8,8 per cent	7,5 per cent

Nominal (arithmetic calc)

Levered cost of equity*	10,5 per cent	10,6 per cent	9,2 per cent
Cost of debt (pre-tax)*	6,4 per cent	7,1 per cent	6,3 per cent
Vanilla WACC	8,1 per cent	8,6 per cent	7,3 per cent

	Electricity Transmission (Ofgem ⁽¹⁾)	Ofwat ⁽²⁾ — PR09	Ofwat — PR 14 (not finalised) ⁽³⁾
Note			
Period	2013-21	2010-15	2015-20

<https://www.ofgem.gov.uk/ofgem-publications/53602/4riiot1fpfinancedec12.pdf>

http://www.ofwat.gov.uk/pricereview/pr14/gud_tec20140127riskreward.pdf

http://www.ofwat.gov.uk/pricereview/pr09phase3/det_pr09_finalfull.pdf

⁽¹⁾ Final Proposals for National Grid Electricity Distribution and National Grid Gas

⁽²⁾ Ofwat Future water and sewerage charges 2010-2015: Final determinations

⁽³⁾ Ofwat: Setting price controls for 2015-20 — risk and reward guidance

Source: Presentation of EDF Energy to Commission officials of 15 July 2014, slide 'Comparison of HPC with UK regulated utilities'.

Table 12

Benchmark nuclear generation project

Project	Ontario Power Authority
Technology	Refurbishment of Bruce Power nuclear plant
Gearing	20-40 per cent
Real cost of debt (pre-tax)	6,20 per cent
Nominal target equity IRR (post-tax)	13,7-18 per cent (12,8-17,1 per cent adjusted for current UK interest rate)
Target project IRR	10,6-13,8 per cent (9,7-12,9 per cent adjusted for current UK interest rate)
Investment horizon (asset life)	25 years
Investment size	4bn CAD
Level of Revenue certainty	Fixed price CfD for remainder of plant life (25 years)
Level of construction risk	Lower — refurbishment, not new build, cost overrun sharing
Level of operating risk	Lower — staff cost overrun sharing, fuel cost pass-through
Level of financing risk	Lower — smaller capital project, shorter period
Contingent equity required	Unknown

Source: UK submission 'Answers to the Commission's questions received 16 September 2014' based on publicly available documents (Bruce Power audit report — April 2007, p. 14.: Confirmed as a project rate of return in letter from CIBC World Markets Inc. to The Ministry of Energy, Ontario, 17 October 2005, http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/67137/view/PWU_Exhibit_K11.3_fairness_opinion_bruce_20080613.pdf.PDF, Letter from CIBC World Markets Inc. to the Ministry of Energy, Ontario, 17 October 2005, http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/67137/view/PWU_Exhibit_K11.3_fairness_opinion_bruce_20080613.pdf.PDF Bruce Power Fairness Opinion (CIBC World Markets Inc.) — October 2005, p. 5.

Table 13

Benchmark Power Purchase Agreement (PPA) projects

Technology	CCGT	PPA projects
Gearing	< 80 per cent	Unknown
Cost of debt	Unknown	Unknown
Nominal target return on equity (post-tax)	> 13 per cent	
Nominal target project return (post-tax)		9-15 per cent (*)
Investment horizon (asset life)	25 years	Various
Investment size	Various	Various
Degree of revenue certainty	20 year PPA	PPA
Level of construction risk compared to HPC	Lower-EPC contract-based, well-known technology	Unknown but likely lower
Level of operating risk compared to HPC	Lower	Unknown
Level of financing risk	Lower shorter construction period	Unknown but likely lower
Contingent equity required	Unknown	Unknown
References	(¹)	(²)

Source: UK submission, Table 2 — on Rate of Return, 10th September as well as (1) and (2) below.

(¹) In tenders for Independent Water and Power Producer (IWPP) contracts in Abu Dhabi, which include a 20 year fixed-price water/power purchase agreement with inflation indexation, 'the nominal internal rate of return (IRR) on equity is required to be not less than 13 per cent'. These projects will typically involve construction of technically — mature CCGT capacity under a lump sum, date-certain turnkey EPC contract, with provisions to compensate investors for any delays and deviations from the terms of the contract. See Independent water and power producers, Abu Dhabi Regulation & Supervision Bureau, <http://rsb.gov.ae/assets/documents/231/infoiwpp.pdf>. (Source: UK submission)

(²) <http://www.gdfsuez.com/wp-content/uploads/2012/07/GDF-SUEZ-at-a-glance-060712-final.pdf> Slide 8

(*) While the UK's submission quotes 9-15 per cent post-tax nominal rates of returns from the source given in (2), the Commission notes that this seems to ignore the 'regulated and concession' projects mentioned in that source. The Commission understands from (2) that the regulated and concession activities of GDF-Suez are indicated to realise around 5-13 per cent post-tax nominal project returns, with the most likely range being below 10 per cent.

Table 14

Regulated Settlement Benchmarks: Allowed returns on regulated assets for UK energy and water utilities in recent regulatory price controls

Regulator	Ofwat	Ofgem	CC	Ofgem	CC	CAA	ORR
Determination	PR14 (not final) (¹)	WPD 14 (²)	NIE 2014 Final (³)	RIO T1 2012 (NGET) (⁴)	Bristol W 2010 (⁵)	HAL 2014 Final (⁶)	NR 2013 (⁷)
Gearing	62,50 per cent	65 per cent	45 per cent	60 per cent	60 per cent	60 per cent	62,50 per cent

Regulator	Ofwat	Ofgem	CC	Ofgem	CC	CAA	ORR
Determination	PR14 (not final) ⁽¹⁾	WPD 14 ⁽²⁾	NIE 2014 Final ⁽³⁾	RIIO T1 2012 (NGET) ⁽⁴⁾	Bristol W 2010 ⁽⁵⁾	HAL 2014 Final ⁽⁶⁾	NR 2013 ⁽⁷⁾
Other risks	Less than HPC. See detailed discussion on difference in fundamental business models; diversification of assets; and technology risks in recitals 113 – 122 — NNBG Submission on Rate of Return, 10 September						
Contingent equity required	None						

⁽¹⁾ http://www.ofwat.gov.uk/pricereview/pr14/gud_tec20140127riskreward.pdf

⁽²⁾ <https://www.ofgem.gov.uk/ofgem-publications/86375/fast-trackdecisionletter.pdf>

⁽³⁾ https://assets.digital.cabinet-office.gov.uk/media/535a5768ed915d0fdb000003/NIE_Final_determination.pdf. The Commission notes that while Table 13.10 of the quoted document provides a 'low' and a 'high' estimate for the reported financial indicators, the UK's submission seems to be based on the 'high' estimates alone.

⁽⁴⁾ <https://www.ofgem.gov.uk/publications-and-updates/riio-t1-final-proposals-national-grid-electricity-transmission-and-national-grid-gas-overview>

⁽⁵⁾ Source was not provided in the submission.

⁽⁶⁾ <http://www.caa.co.uk/docs/33/CAP%201140.pdf>

⁽⁷⁾ http://orr.gov.uk/data/assets/pdf_file/0011/452/pr13-final-determination.pdf

⁽⁸⁾ Nominal values are calculated using an arithmetic approach. A geometric approach would add 0,1 per cent-0,2 per cent to nominal cost of equity and nominal vanilla WACC estimates.

⁽⁹⁾ Credit Suisse: National Grid — No longer a growth/value play, cut to Neutral, 29 May 2014; Credit Suisse: SSE — Referendum risk to be addressed, 15 August 2014; Macquarie: National Grid — Quality costs, but better opportunities elsewhere, 24 March 2014.

⁽¹⁰⁾ The submission interpreted the length of the investment horizon as the length of a price control period. However, the submission notes that the asset lives of the investments undertaken by regulated companies often span multiple price control periods, having 'useful lives' of up to 60 years.

⁽¹¹⁾ The value ascribed by the regulator to the capital employed in the licensee's business.

⁽¹²⁾ Where source RAV values are stated in historical price terms, they have been converted to current prices using the ONS RPI index (unless otherwise stated).

⁽¹³⁾ We note that regulated companies' investment expenditure is in diverse, multiple projects that typically form only a small proportion of its RAV.

⁽¹⁴⁾ http://ofwat.gov.uk/regulating/prs_web_rcvupdates

⁽¹⁵⁾ <http://www.westernpower.co.uk/docs/About-us/financial-information/2014/Annual-reports-and-financial-statements/Financial-performance-for-website-Mar-14.aspx>

⁽¹⁶⁾ http://www.uregni.gov.uk/uploads/publications/RP5_Main_Paper_22-10-12_FINAL.pdf (page 100).

⁽¹⁷⁾ This is Ofgem's forecast for RAV at the end of the price control period. Note that at the start of the price control period SHETL is estimated to have a RAV of 0,7bn (which is forecast to increase to 3,6 bn by 2020-21): <https://www.ofgem.gov.uk/ofgem-publications/53747/sptshetlfpssupport.pdf> (pages 36 and 37) and <https://www.ofgem.gov.uk/ofgem-publications/53602/4riiot1fpfinancedec12.pdf> (pages 8 and 9).

⁽¹⁸⁾ <http://www.bristolwater.co.uk/wp/wp-content/uploads/2013/04/Annual-Report-2013.pdf> (page 27).

⁽¹⁹⁾ http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/Development_of_Regulatory_Asset_Base_30-Jun-2014.pdf

⁽²⁰⁾ <http://www.networkrail.co.uk/browse%20documents/regulatory%20documents/regulatory%20compliance%20and%20reporting/regulatory%20accounts/nril%20regulatory%20financial%20statements%20for%20the%20year%20ended%2031%20march%202013.pdf> (page 331).

Source: based on UK submission 'SA.34974 Hinkley Point C State aid case — Answers to the Commission's questions received 16 September 2014'.

Table 15

Cost of capital estimates for companies belonging to industry group 'Utility (general)' in the European Union

(per cent)

Company Name	Country	Cost of equity in USD	Pre-tax cost of debt in USD	After-tax cost of debt in USD	Cost of capital in USD
E.ON SE (DB:EOAN)	Germany	8,25	4,04	3,19	5,78
RWE AG (DB:RWE)	Germany	7,95	4,54	3,59	5,54

(per cent)

Company Name	Country	Cost of equity in USD	Pre-tax cost of debt in USD	After-tax cost of debt in USD	Cost of capital in USD
Centrica plc (LSE:CNA)	UK	6,99	4,44	3,11	6,04
Veolia Environnement S.A. (ENXTPA:VIE)	France	11,62	5,44	4,30	6,46
National Grid plc (LSE:NG.)	UK	9,37	4,44	3,11	6,33
Suez Environnement Company SA (ENXTPA:SEV)	France	9,97	4,94	3,90	6,38
A2A SpA. (BIT:A2A)	Italy	13,72	7,44	5,88	8,68
Hera SpA. (BIT:HER)	Italy	12,65	5,94	4,69	7,94
MVV Energie AG (XTRA:MOV1)	Germany	8,31	4,04	3,19	5,70
ACEA SpA. (BIT:ACE)	Italy	12,15	6,44	5,09	7,68
Iren SpA (BIT:IRE)	Italy	13,85	7,94	6,27	8,80
Mainova AG (DB:MN6)	Germany	6,96	5,54	4,38	6,30
Gelsenwasser AG (DB:WWG)	Germany	6,09	5,54	4,38	6,08
Telecom Plus plc (LSE:TEP)	UK	6,45	4,94	3,46	6,44
Compagnie Parisienne de Chauffage Urbain (ENXTPA:CHAU)	France	7,73	4,94	3,90	6,33
Zespół Elektrociepłowni Wrocławskich KOGENERACJA Spółka Akcyjna (WSE:KGN)	Poland	7,44	5,39	4,26	6,94
Fintel Energia Group SpA (BIT:FTL)	Italy	9,88	8,94	7,06	9,02
REN — Redes Energéticas Nacionais, SGPS, S.A. (ENXTLS:RENE)	Portugal	19,97	7,64	6,04	10,05
GDF SUEZ S.A. (ENXTPA:GSZ)	France	8,70	4,44	3,51	5,74
Burgenland Holding Aktiengesellschaft (WBAG:BHD)	Austria	6,08	5,54	4,38	6,08

Source: <http://www.stern.nyu.edu/~adamodar/pc/datasets/Eurocompfirm.xls> (retrieved on 14 June 2014).

(The presented WACCs are nominal (in USD terms, using USD risk free rate = 3,04 per cent) & post-tax. For the various definitions used by Damodaran, see: http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/variable.htm).

ANNEX B

CREDIT GUARANTEE

Table 16

Benchmark Information

1. Recent Limited Recourse Project Finance Bank Loans (Low Carbon Energy)

This table updates the one provided in Annex A of our responses dated 5 September 2014 to show the quantum of the commercial debt tranche distinct from the total debt quantum which, for certain projects, included export credit guaranteed or multilateral debt facilities.

Project	Financial Close	Amount [Commercial Bank Tranche]	Tenor (Years)	Commercial Bank Loan Margin ⁽⁶⁾	Government Support ⁽⁷⁾
Gemini Offshore Wind	May 2014	EUR 2 000 m [EUR 850 m]	14	300	SDE renewable subsidy (per MWh) from Dutch government Separate export credit facilities provided by EKF (Denmark), Euler Hermes (Germany) and Delcredere/Ducroire from Belgium
London Array Offshore Wind	Oct 2013	GBP 266 m [GBP 266 m]	13	275	Renewables Obligation subsidy (per MWh) from UK Government Separate export credit facility provided by EKF (Denmark) for initial financing
Butendiek Offshore Wind	Feb 2013	EUR 950 m [EUR 230 m]	8,5	300	Feed-in Tariff subsidy (per KWh) from German government Separate export credit facility provided by EKF (Denmark)
Westermost Rough Offshore Wind	Aug 2014	GBP 370 m [GBP 197 m]	15	300	Renewables Obligation subsidy (per MWh) from UK Government
[...]	[...]	EUR 650 m [EUR 650 m]	10	175-275	Finance from commercial banks only
Derbyshire Energy from Waste PFI	Aug 2014	GBP 145 m [GBP 145 m]	25	315-320	Renewables Obligation subsidy (per MWh) from UK Government Local Authority payments for waste recycling
MEDIAN				300	
SWAP SPREAD ⁽⁸⁾				+ 13	(To convert from LIBOR margin to Gilt benchmark)
ILLIQUIDITY PREMIUM				- 50	
MARKET INDICATION ⁽⁹⁾				263	

Source: Commercial banks; InfraNews; InfraJournal

2. Corporate Debt (rated BB+) Spreads

Issuer	Ticker	Coupon	Maturity	Amount	Rating	Tenor (years)	Current Spread (bp)	Government Support
Heathrow Airport	HTHROW	7,125%	01/03/2017	GBP 325 m	NR/Ba3/BB+	3	231	Nil
Heathrow Airport	HTHROW	5,375%	01/09/2019	GBP 275 m	NR/Ba3/BB+	5	253	Nil

Issuer	Ticker	Coupon	Maturity	Amount	Rating	Tenor (years)	Current Spread (bp)	Government Support
Anglian Water	OSPRAQ	7,000%	31/01/2018	GBP 350 m	NR/Ba3/BB+	3	290	Nil
Electricity North-West	NWENET	5,875%	21/06/2021	GBP 80 m	BB+/NR/NR	7	274	Nil
Yorkshire Water	KEL	5,750%	17/02/2020	GBP 200 m	BB-/NR/BB+	5	314	Nil
Enel SpA	ENELIM	7,75 %	10/09/2075	GBP 400 m	BB+/Ba1/BBB-	61	373	31,2 % owned by Government Ministry
Enel SpA	ENELIM	6,625%	15/09/2076	GBP 500 m	BB+/Ba1/BBB-	62	367	
Telecom Italia	TITIM	5,875%	19/05/2023	GBP 400 m	BB+/Ba1/BBB-	9	281	Nil
Energias de Portugal	ELEPOR	8,625%	04/01/2024	GBP 425 m	BB+/Ba1/BBB-	10	256	Nil
MEAN							293	
ILLIQUIDITY PREMIUM							- 50	
MARKET INDICATION							243	

Source: Bloomberg as at 21 August 2014 using BGN Source.

3. iTraxx Europe Crossover Series 21 Constituents Rated BB+/Ba1

Company	Ticker	Identifier	Rating	Tenor (Years)	CDS Flat Spread
ArcelorMittal	MT NA	CX375716	BB+/Ba1	10	347
EDP Energias de Portugal SA	EDP PL	CEPO1E10	BB+/Ba1	10	203
Finmeccanica SpA	FNC IM	CFME1E10	BB+/Ba1	10	285
HeidelbergCement AG	HEI GY	CHEI1E10	NR/Ba1	10	226
Lafarge SA	LG FP	CLAF1E10	BB+/Ba1	10	168
Telecom Italia SpA	TIT IM	CTII1E10	BB+/Ba1	10	281
Wendel SA	MF FP	CMWP1E10	BB+/NR	10	206
MEAN					245

Source: Markit; Bloomberg as at 21 August 2014 using CMAN Source.

Table 17

Simulated distribution of yield curve at 10 years

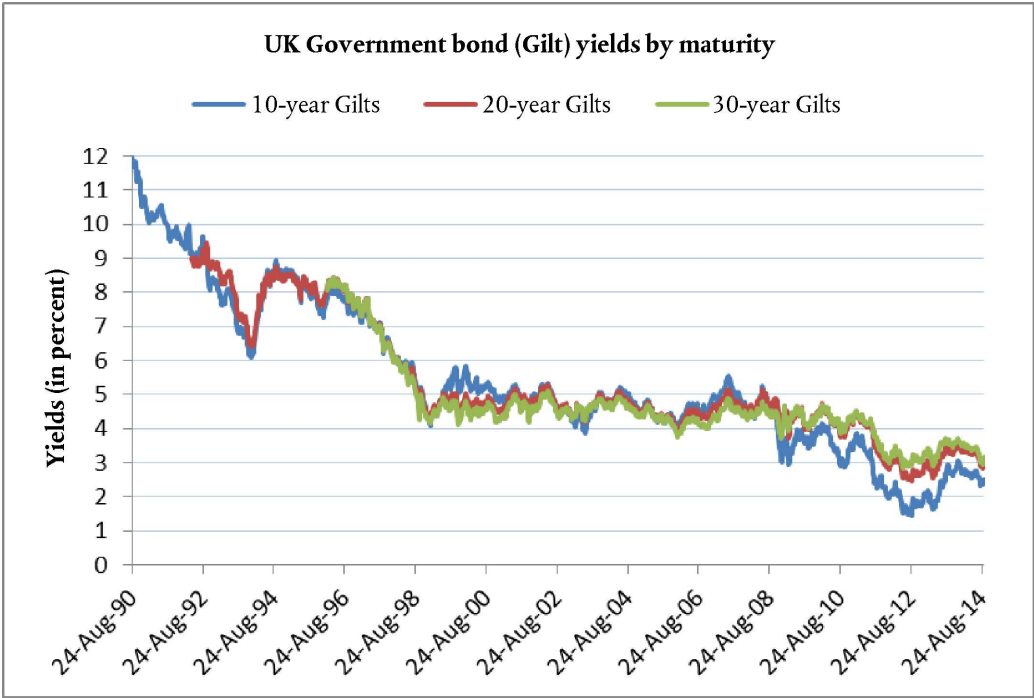
		1992 - 2013 VAR model simulation		10 Yr (P) vs. 1992-2013 VAR model simulation		
	[...]	[...]	[...]			
	Spot in 10 years time	VAR simulation 10 years ahead (June 2024)	VAR simulation 10 years ahead (June 2024)			
Tenor	10 Yr (P)	Median	95 % percentile	Distance from median (ppts)	Distance from 95th percentile (ppts)	10 Yr (P) + 1,5 ppt probability
1 Yr	3,47	3,80	6,20	– 0,33	– 2,72	19 %
2 Yr	3,55	4,00	6,24	– 0,45	– 2,69	21 %
3 Yr	3,62	4,16	6,24	– 0,54	– 2,61	22 %
4 Yr	3,70	4,31	6,20	– 0,61	– 2,50	21 %
5 Yr	3,78	4,44	6,17	– 0,66	– 2,39	20 %
7 Yr	3,93	4,64	6,20	– 0,71	– 2,27	19 %
9 Yr	4,09	4,76	6,19	– 0,66	– 2,10	15 %
10 Yr	4,17	4,79	6,14	– 0,62	– 1,97	13 %
12 Yr	4,11	4,88	6,15	– 0,77	– 2,03	15 %
15 Yr	4,07	4,97	6,09	– 0,89	– 2,02	17 %
20 Yr	4,07	4,99	6,12	– 0,92	– 2,05	17 %
30 Yr	3,98	4,97	6,08	– 1,00	– 2,10	20 %
50 Yr	3,91	5,01	6,04	– 1,10	– 2,13	24 %

IUK Sensitivity analysis

[...]

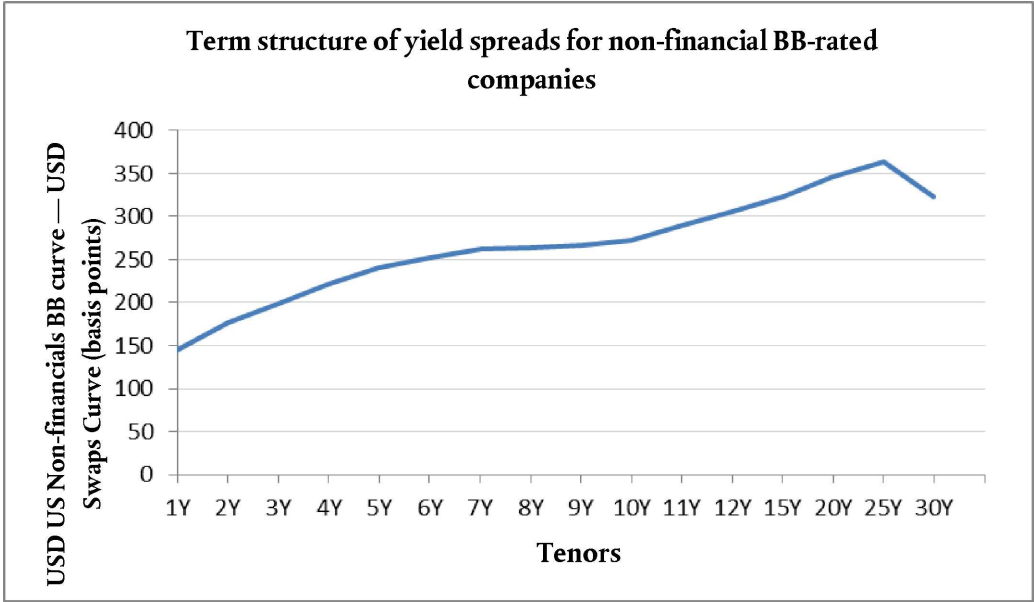
UK Gilt yields by maturity

Graph 1
UK gilt yields at 10, 20, and 30 years



USD term structure of yield spreads for BB companies

Figure 3
USD term structure of yield spreads for non-financial BB companies



Note: the data is a snapshot from Bloomberg on 21 August 2014.

ANNEX C

COMMITMENTS PROVIDED BY THE UNITED KINGDOM

TRADING COMMITMENT

Definition

'EDF Group Company' means a member of the same group of companies as EDF Energy.

Operative Terms

[.]1 Each of NNBG and EDF Energy shall ensure, in any agreement for market services for the sale of the output of HPC entered into with any EDF Group Company (the 'MSA Counterparty') that, for so long any EDF Group Company is a shareholder (direct or indirect) in NNBG, the MSA Counterparty agrees to:

- (A) record all trades undertaken to sell the HPC forecast output in a separate NNBG book;
- (B) price all trades undertaken to sell the HPC forecast output conducted with any EDF Group Company at the market price for the product concerned at the time of trading;
- (C) undertake at market price all HPC forecast output bilateral trades with any other asset portfolios owned or traded by any EDF Group Company; and
- (D) provide to NNBG (with consent for NNBG to provide the same to the CfD Counterparty, the Secretary of State and the European Commission) such information as may be reasonably required by NNBG to report to the CfD Counterparty, the Secretary of State and the European Commission on the MSA Counterparty's compliance with points (A), (B) and (C) above.

[.]2 NNBG shall, and EDF Energy shall procure that NNBG shall, by the [•] Business Day of each calendar year provide the CfD Counterparty (with consent for the CfD Counterparty to provide the same to the Secretary of State and the European Commission) with a written report on the MSA Counterparty's compliance with points (A), (B) and (C) of Clause [•].1 in the previous calendar year.

EQUITY GAINSHARE MECHANISM

1. Overview of the clause

1.1. There will be an Equity Gain Share arrangement consisting of two distinct components:

- (A) a mechanic to capture gains from the project above certain levels as a result of the project outperforming relative to the original base case assumptions (the 'Project Gain Mechanic'); and
- (B) a mechanic to capture gains above certain levels arising from sales of equity from the original shareholders (the 'Equity Sale Mechanic').

1.2. The amount of the equity gain will be shared with the CfD Counterparty and will depend on the level of the realised equity IRR at the relevant time. All threshold levels will take account of the cost of committed equity, as determined in accordance with the model:

HPC IUK Model [...] per 'DECC Output' worksheet

- (A) if the realised Equity IRR is more than the Equity IRR in the model that includes the cost of committed equity (11,4 % (nominal) as of model:

HPC IUK Model [...] per 'DECC Output' worksheet as supplied to the Commission on 19 September 2014) but less than or equal to the threshold in (B) below, any gain above that Equity IRR threshold will be shared with the CfD Counterparty as to 30 %; and

- (B) if the realised Equity IRR is more than both (i) 13,5 % (nominal) and (ii) 11,5 % (expressed in real terms but taking into account CPI inflation), any gain above such threshold will be shared with the CfD Counterparty as to 60 %.

1.3. There will be no double counting between the mechanisms.

- 1.4. Set out below is further detail on how the mechanics of the provision will operate. In addition, there will be a covenant package in support of these obligations, which may include security.

2. **Relevant mechanism — Project Gain Mechanic**

- 2.1. Subsequent to the Project Gain Mechanic having been first triggered, should a further injection of equity be required in any period, the further injection of equity will be taken into account in calculating equity holders' gains.
- 2.2. The Project Gain Mechanic captures the gains above the relevant threshold (as set out in point 1.2 above) as a result of the project outperforming relative to the original base case assumptions.
- 2.3. To determine whether any threshold has been reached in any period, the cumulative realised to-date Equity IRR will be calculated using an updated financial model throughout the project life. The Equity Gain Share calculation will be triggered in the same period in which any threshold is reached.
- 2.4. Once the Project Gain Mechanic is triggered, the CfD Counterparty will be entitled to the relevant percentage of equity holders' distributions in that period and all future periods (until the next threshold is reached in which case the relevant sharing percentage will be adjusted accordingly).
- 2.5. The CfD Counterparty entitlement to equity holders' gains will be in effect over the entire life of the HPC project from the first time the Project Gain Mechanic has been triggered.

3. **Relevant mechanism — Equity Sale Mechanic**

- 3.1. An Equity Gain Share will also be triggered upon a direct or indirect sale of shares or shareholder loans (if applicable) by the original shareholders of NNBG at any time during the life of the HPC project. The steps involved are:
 - (A) Step 1 — For each investor, establish the base case equity injection and price (as extracted from the appropriate financial model).
 - (B) Step 2 — Upon the occurrence of a sale/disposal of equity tranche by any investor, establish the Equity Sale IRR achieved by that investor on the particular sale/disposal of the tranche of equity.
 - (C) Step 3 — The Equity Sale IRR realised by the investor selling the equity tranche is calculated taking into account the actual gross proceeds of the equity tranche sale/disposal, actual equity injections proportionate to this equity tranche sold/disposed and past dividends/shareholder loan interest and principal repayments (proportionate to this equity tranche sold/disposed) to that investor out of NNBG.
 - (D) Step 4 — If the Equity Sale IRR is above any of the thresholds set out in point 1.2 above, the Equity Gain Share will be calculated as follows.
 - (E) Step 5 — Calculate the theoretical amount of money that would have to have been realised by the shareholder for the same sale of equity which, if used to calculate the Equity IRR as in Step 3 above, would have resulted in the realised Equity Sale IRR being equal to the relevant threshold.
 - (F) Step 6 — The positive difference (if any) between the actual sale proceeds amount used in Step 3 above and the theoretical equity sale proceeds amount calculated in Step 5 above is then the excess equity gain to be shared between NNBG shareholders and the CfD Counterparty.
- 3.2. The above calculations are carried out for each sale/disposal of equity independent of any prior sale/disposals of equity irrespective of whether or not previous sales/disposals of equity resulted in a gainshare to the CfD Counterparty.
- 3.3. Equity sales/disposals by secondary investors (i.e. who bought/acquired the equity on a third-party, arms-length basis from the original equity investors) will be exempt from this mechanic if such secondary investors were to subsequently sell/dispose such equity (being 'secondary equity').

4. **Provisions to support Equity Gain Share mechanisms**

- 4.1. Anti-avoidance provisions will ensure that transactions are not designed to frustrate the intent of the Project Gain Mechanics or the Equity Sale Mechanic.
- 4.2. To support the Equity Gain Share mechanics, provisions will be made to ensure payments are made to the CFD Counterparty in circumstances where there is a breach of either the Project Gain Mechanic or the Equity Sale Mechanic or there is a breach of the anti-avoidance undertakings.

5. **Disputes**

Any disputes in relation to the Equity Gain Share mechanism will be resolved in accordance with a similar dispute resolution process as is set out in the HPC Contract.

CONSTRUCTION GAINSHARE MECHANISM

1. **Overview of the clause**

- 1.1. The Construction Gain Share mechanism is designed to share savings, implemented through reduction of the Strike Price, where construction comes in at lower than the forecast cost in the agreed financial model for the HPC project. This mechanism will work in one direction, with no Strike Price increase if construction costs are higher than forecast.
- 1.2. The initial gain share calculation will take place on the date which is the earliest of (i) the date falling 6 months after the Reactor Two Start Date; (ii) the tenth anniversary of the Reactor One Start Date; and (iii) the date (if any) after the Reactor One Start Date on which the parties agree that Reactor Two will not reach its start date. The final gain share calculation will take place on the sixth anniversary of the date of the initial gain share calculation (or earlier if all construction related claims have been settled before then).
- 1.3. We have set out below further detail on how the mechanics of the provision will operate.

2. **Relevant mechanism**

- 2.1. No earlier than a defined period before each of the Initial Reconciliation Date and the Final Reconciliation Date, NNBG will provide the CfD Counterparty with a written report.
- 2.2. Each report shall:
 - 2.2.1. set out, in reasonable detail:
 - (a) the aggregate amount of the Construction Costs to the date of the report, expressed in sterling;
 - (b) the aggregate amount of the Construction Costs reasonably forecast to be incurred, paid or accrued by NNBG, expressed in sterling, provided that such Construction Costs shall be limited to those Construction Costs that would be reasonably and properly incurred, paid or accrued by NNBG to satisfy regulatory requirements without incurring excessive cost or expense;
 - (c) NNBG's actual Construction Schedules; and
 - (d) NNBG's estimated Construction Schedules for any period after the date of the relevant report;
 - 2.2.2. set out, in reasonable detail, evidence of the steps taken to ensure that the amount of any Construction Costs forecast to be incurred, paid or accrued by NNBG following the date of the report shall be limited to those Construction Costs that would be reasonably and properly incurred, paid or accrued by NNBG to satisfy regulatory requirements without incurring excessive cost or expense;
 - 2.2.3. if the report, or any part thereof, is prepared by or with the assistance of one or more third parties, include details of those third party(ies) and copies of any reports prepared by such third party(ies); and
 - 2.2.4. the consequential adjustment (if any) to the Strike Price.
- 2.3. The report will provide relevant supporting information and be accompanied by a Directors' Certificate certifying the information enclosed within the report.
- 2.4. The CfD Counterparty may require further supporting information from NNBG within a specified period. If the CfD Counterparty makes such a request, NNBG has to provide such supporting information within a specified period from the request.

- 2.5. The CfD Counterparty will notify NNBG whether or not it accepts the report provided by NNBG within a specified period. If NNBG and the CfD Counterparty are unable to reach agreement, then the matter may be referred by either party for independent resolution.
 - 2.6. If NNBG does not provide the CfD Counterparty with a report, the CfD Counterparty may obtain an opinion from an independent firm of cost consultants as to the Construction Costs and Construction Schedules and that opinion will be used instead.
 - 2.7. NNBG will give the CfD Counterparty and its professional advisers (including the cost consultants) such assistance as the CfD Counterparty may reasonably request for the purposes of reviewing the report and verifying the Construction Costs.
 - 2.8. The financial model will be updated with the revised Construction Costs and revised Construction Schedules, as set out in the report or as advised by the cost consultants, and rerun to determine a revised Strike Price. The difference between the Strike Prices produced by running the financial model using the forecast Construction Costs and Construction Schedules and rerunning it with the revised Construction Costs and revised Construction Schedules will determine the size of the construction gain, expressed in GBP/MWh. The CfD Counterparty will be entitled to take 50 % of the construction gain discovered by the exercise above (which percentage will increase to 75 % in respect of any construction gain in excess of GBP [...] (nominal)), by reducing the then prevailing Strike Price by that amount.
 - 2.9. If at any time during the period between the Initial and Final Reconciliation Dates NNBG identifies any Construction Costs or Construction Schedules different from the corresponding ones used in the model update and which give rise to savings in respect of the Construction Costs, NNBG may elect to make interim payments to the CfD Counterparty in an amount equal to the whole or part of these additional Construction Costs savings.
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