Department for
Business, Energy
& Industrial Strategy

This document has been prepared in draft for consultation in accordance with section 3(2) of the Nuclear Energy (Financing) Act 2022. It reflects the Secretary of State's preliminary decision on the designation of NNB Generation Company (SZC) Limited and the Secretary of State's current view of the reasons for the designation. It is subject to change in light of the responses received from the consultation.

Designation of NNB Generation Company (SZC) Limited

Draft of the Secretary of State's reasons for designation

May 2022

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1. Document background

1. On 31st March 2022, the Nuclear Energy (Financing) Act ("the Act") received Royal Assent. The Act established the legislative framework for the Regulated Asset Base (RAB) model to support the design, construction, commissioning, and operation of new nuclear energy projects, creating an additional method for funding future nuclear projects. The first step in allowing a nuclear company to benefit from the RAB model is for the Secretary of State to determine whether to designate the relevant nuclear company under section 2(1) of the Act. A nuclear company is defined in the legislation as a company that holds an electricity generation licence in respect of a nuclear energy generation project.

2. The Secretary of State may only designate a nuclear company if the two criteria laid out in section 2(3) of the Act are met. Those designation criteria are that:

   a. the Secretary of State is of the opinion the development of the nuclear project is sufficiently advanced to justify the designation of the nuclear company in relation to the project.
   b. the Secretary of State is of the opinion that designating the nuclear company in relation to the project is likely to result in value for money.

   The Secretary of the State may also attach conditions to the designation.

3. On 11th April 2022, the Secretary of State published "Nuclear RAB model: Statement on procedure and criteria for designation" ("Designation Statement"). This sets out the procedure that the Secretary of State expects to follow in determining whether to exercise the power under section 2(1). It also sets out how the Secretary of State expects to determine whether the designation criteria have been met in relation to a specific company, including the information and milestones they expect to take into account when making this decision. This document can be found on Gov.uk[1].

4. The Secretary of State has been in discussions with NNB Generation Company (SZC) Limited (NNBG SZC) in respect of the Sizewell C Project since January 2021. NNBG SZC notified the Secretary of State of its intention to apply for designation on the 13th April 2022 , and submitted a full application on 28th April 2022. As part of its application, NNBG SZC provided evidence of how both the nuclear company and the Sizewell C project meet the criteria laid out in the Act. This included referencing material and information provided to the Secretary of State as part of negotiations on the Sizewell C Project.

5. Since receipt of this information, officials in the Department for Business, Energy and Industrial Strategy ("BEIS"), on behalf of the Secretary of State, have analysed this evidence and carried out a value for money assessment. Having completed this analysis and had regard to all relevant information, the Secretary of State considers that the designation criteria in section 2(3) of the Act are met, subject to consultation in compliance with section 3(2) of the Act.

6. In this context, this document sets out the Secretary of State's rationale for designating NNBG SZC. In so designating NNBG SZC, the Secretary of State is mindful that he has a discretionary

[1] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation

power under section 5 of the Act to revoke NNBG SZC's designation as a designated nuclear company should:

a. either of the designation criteria cease to be met,
b. the company fail to comply with a condition that would result in its designation being revoked; or
c. the company ceases to hold an electricity generation licence in respect of the nuclear energy generation project described in the designation notice.

7. In line with section 3 of the Act, the Government is consulting with NNBG SZC, Ofgem, the Office for Nuclear Regulation (ONR) and the Environment Agency (EA) before designating NNBG SZC, including on the draft reasons for designation. The following is a non-exhaustive indication of the types of input that the Secretary of State expects that these persons will be able to provide in relation to the draft reasons:
   a. NNBG will be able to provide technical input on the Sizewell C Project and detail on the capital costs and operating costs associated with the design, construction, commissioning, financing, and operation of the Sizewell C Project;
   b. Ofgem will be able to provide input on the likely impact on consumers of the Sizewell C Project in line with their objective and duties under section 3A of the Electricity Act 1989;
   c. The ONR will be able to provide detailed input on the nuclear safety and regulatory matters covered in the draft reasons including the likelihood of the grant of the Nuclear Site Licence, the Generic Design Assessment, the establishment and governance of NNBG SZC and their nuclear safety case;
   d. The EA will be able to provide input on those environmental aspects of the Sizewell C Project which are relevant to the designation decision, including around environmental permitting and the GDA .

   The consultees are not limited to the areas mentioned above but are free to make any response to the consultation that they consider appropriate.

8. The Act does not require the Secretary of State to consult Welsh or Scottish Ministers, Natural Resources Wales or the Scottish Environment Protection Agency with regard to this Project because no part of the site for the proposed nuclear project is in either Wales or Scotland.

9. The Secretary of State has, pursuant to section 3(3)(g) of the Act, considered carefully whether it would be appropriate to consult any other person, with respect to their proposal to designate NNBG SZC. In particular, the Secretary of State has considered whether they should consult (a) consumer groups (b) environmental non-governmental organisations (c) the general public and (d) potential investors (both debt and equity) and (e) any other persons. However, the Secretary of State has concluded that:
   a. The interests of consumers and the wider public interest will be reflected through this consultation, particularly given Ofgem's principal duty under the Electricity Act 1989 to protect the interests of existing and future electricity consumers. The Secretary of State notes that those interests are taken as a whole, including in relation to the reduction in emissions of targeted greenhouse gases, security of supply of electricity and Ofgem fulfilling its designated regulatory objectives.
   b. As highlighted above, the EA will be able to provide input on the relevant environmental matters related to the Sizewell C project.

c. BEIS officials and Ministers engage with NGOs through regular forums, where members are invited to present their views on prospective nuclear projects to BEIS, and to ask questions about current and future policy.
d. NNBG SZC are already carrying out active engagement with potential investors regarding the Sizewell C Project. BEIS officials also undertook engagement with investors as part of the policy development of the RAB. This included both investors responding to the original consultation and further market engagement during the design of the RAB. Officials will continue to test the structure and project with the market over the coming months. BEIS have also benefited from the input of financial advisors on investor sentiment.

10. In determining whether to include any other parties in the consultation process, the Secretary of State has also taken into account other opportunities for parties to provide their views in respect of the NNBG SZC nuclear company, the Sizewell C Project, and the RAB model. These opportunities have included:
    a. The full public consultation on the application of the RAB model to new nuclear build in summer 2019. This allowed for public input on the principles and approach behind the RAB funding model. BEIS received over 37,000 responses to that consultation, which were taken into account during the design of the RAB funding model.
    b. The passage of the Nuclear Energy (Financing) Act, where the proposed funding model was scrutinised by MPs and Peers during its passage through Parliament.
    c. The Secretary of State has published a Statement, setting out the procedure they expect to follow in determining whether to exercise the power under section 2(1) of the Act and how the Secretary of State expects to determine whether the designation criteria mentioned in section 2(3) are met. Publication of this document allowed for scrutiny and challenge of the Secretary of State's approach.
    d. Local communities, environmental non-governmental bodies and statutory consultees have been consulted extensively on the Sizewell C Project and the impact on the environment through the Development Consent Order and other relevant planning processes.
    e. The Act requires the Secretary of State to publish additional documents relating to the RAB model for public scrutiny and – where appropriate – consult with statutory consultees. This includes, for example, a requirement to consult statutory consultees on secondary legislation to implement the RAB model revenue arrangements.
    f. BEIS officials submits key documents on potential projects to internal Governance Boards for scrutiny. Membership of these Boards includes Her Majesty's Treasury and the Infrastructure Project Authority (IPA), allowing for expert advice to be provided to the Secretary of State on technical, financing and value for money issues. These forums also provide cross-Government scrutiny of the Department's decisions and further technical feedback.

11. Taking into account this context, the Secretary of State has decided that it is not appropriate to consult any other party on the proposal to designate NNBG SZC. They have consequently determined that the consultation, which the Department is carrying out with NNBG SZC, Ofgem, the ONR and the EA, will, alongside the Department's own assessments and analysis, furnish them with the information necessary to take the decision.

12. In the interests of transparency, although not required to do so, the Secretary of State is publishing the draft reasons for designation.

13. The below reasons relate to the designation of the nuclear company on the basis of the relevant information available, including both the evidence provided by NNBG SZC and the Government's own due diligence, to the Secretary of State. Under section 5 of the Act, the Secretary of State may revoke a designation if the company loses its electricity generation licence or either of the designation criteria Secretary of State.

2. The Sizewell C project

2.1 Background

14. On the 21st October 2015, it was announced that China General Nuclear (CGN) and EDF had agreed the Heads of Terms to bring forward a project at the Sizewell site[2]. This followed the Government identifying the site as potentially suitable for nuclear construction in 2011[3]. The two entities have previously collaborated on the Hinkley Point C project, which began construction in 2016.

2.2 Ownership structure

15. The project is being brought forward by NNBG SZC. The company was incorporated on the 28th October 2014 as a private limited company[4]. The purpose of the company is to have responsibility for all activity replated to the Sizewell C project[5]. The business of the company is to undertake the Sizewell C project, including the generation and sale of electricity[6].

16. The company is wholly owned by NNB Holding Company (SZC) Limited, which in turn has two direct shareholders: EDF Holdings (UK) limited own 80%, and General Nuclear International Limited (GNI) hold the remaining 20%[7]. EDF SA owns 100% of the share capital in EDF Holdings (UK) Limited. GNI is owned by China Nuclear Power EPC Limited.

17. In January 2022, the Secretary of State purchased an option over the shares in NNBG SZC and land on the Sizewell C site for the sum of £100m (the "Option Fee"). Should the Project go ahead, the Secretary of State has an option to convert the Option Fee, together with a financing return, into an equity stake in the nuclear company.

18. The Option Fee has been invested by EDF Holding UK Limited in NNBG SZC to further mature the Sizewell C project. If the project does not reach a Final Investment Decision, the Secretary of State may either exercise the land or share option, or extend the longstop date with EDF's agreement. As part of the decision to take an option over the shares and land, and to support commercial negotiations beyond this point, the Secretary of State has been carrying out extensive due diligence on the Sizewell C Project, including with reference its levels of maturity.

[2] https://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/news-views/agreements-in-place
[3]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47859/2009-nps-for-nuclear-volumeI.pdf
[4] https://find-and-update.company-information.service.gov.uk/company/09284825
[5] https://www.edfenergy.com/file/9634667/download
[6] https://www.edfenergy.com/file/9634667/download
[7] https://www.edfenergy.com/file/9634667/download

19. Under section 1 of the Act, an entity is only eligible for designation if it satisfies the definition of a "nuclear company":
    a. Being a company registered under the Companies Act 2006 in England and Wales or Scotland; and
    b. Holding an electricity generation licence (under section 6(1)(a) of the EA 1989) in respect of a nuclear energy generation project.

20. NNBG SZC is registered under the Companies Act 2006 (registration number 09284825)[8]. NNBG SZC is also the holder of an electricity generation licence, under section 6(1)(a) of the Energy Act 1989,[9] in respect of the Sizewell C nuclear energy generation project. Therefore, NNBG SZC satisfies the definition of "nuclear company" under the Act and so is eligible for designation.

2.3 Technical description of project

21. The Sizewell C project would be an above-ground replica of the United Kingdom (UK) European Pressurised Water Reactor (EPR), currently under construction at Hinkley Point C. It is intended for the Sizewell C project to consist of a 3.2GW (equivalent to 7% of the UK's current requirements for electricity) power station with two UK EPR reactors[10]. The project would utilise and repurpose the execution design, safety case and supply chain from Hinkley Point C. It is intended that, once operational, the Sizewell C Project will generate electricity for approximately 60 years[11].

3. Reasons for designation

3.1. Project maturity assessment

22. As laid out in the Designation Statement[12], the Secretary of State would expect to be satisfied that the development of a nuclear project is sufficiently advanced so as to justify the designation of the company. In judging whether a project is sufficiently mature, the Secretary of State will seek to understand whether it can demonstrate a credible strategy and plan for the design, manufacturing, construction, installation, commissioning, operations, and ultimate decommissioning of its proposed nuclear project. The below sections provides the reasons for the Secretary of State's conclusion that the criterion in section 2(3)(a) of the Act is met in relation to NNBG SZC and the Sizewell C project.

[8] https://find-and-update.company-information.service.gov.uk/company/09284825/officers
[9] https://www.ofgem.gov.uk/publications/nnb-generation-company-szc-ltd-notice-grant-electricity-generation-licence
[10] https://www.edfenergy.com/energy/nuclear-new-build-projects/sizewell-c
[11] https://www.edfenergy.com/energy/nuclear-new-build-projects/sizewell-c/proposals#:~:text=Once%20built%2C%20Sizewell%20C%20will,jobs%20needed%20for%20maintenance%20outages.
[12] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1 – Project Maturity assessment; Page 16

3.1.1 Planning process

23. Under the Planning Act 2008, a nationally significant infrastructure project, including any new nuclear power plant with an electrical output capacity of over 50MW in England or over 350MW in Wales, would require a Development Consent Order (DCO), prior to the start of construction. An application for a DCO is to be made to the Planning Inspectorate by the developer of the project.

24. To be able to make an application for a DCO, a project company requires comprehensive evidence about the suitability of the proposed site for the project, as well as the impact on the local community and its environment. The DCO process requires the developer to have carried out an extensive consultation process with the local communities and statutory consultees, prior to submitting the application to the Planning Inspectorate. To determine an application for a DCO, sufficient information concerning the proposals for the site and the plant to be constructed will need to have been submitted. This could include, for example, an Environmental Impact Assessment and detail of how the project will be funded. For this reason, the Designation Statement[13] makes clear that progress through the DCO process is a clear indicator of the maturity of a project.

25. NNBG SZC submitted its DCO application in respect of the Sizewell C Project in May 2020[14]. Since this point, the project has proceeded through the majority of the stages in the DCO process, including a number of rounds of consultations with the local community, a full Environmental Impact Assessment and the submission of detailed plans for the implementation of the Project. In addition to this, the Planning Inspectorate has undertaken a six-month examination process between April and October 2021. Following this, the Planning Inspectorate passed its report and recommendation to BEIS for a decision[15].

26. The Secretary of State is aware that there could be a perception of a conflict of interest between his role in determining the DCO application for the Sizewell C project and his role in determining whether or not to designate the nuclear company. To avoid any perceived conflict of interest, the Secretary of State will delegate the final decision on the DCO, which must be taken by the 8th July 2022, to another BEIS Minister.

27. The Secretary of State has considered the progress of NNBG SZC through the DCO process in considering whether the development of the Sizewell C project is sufficiently advanced to justify designation of the nuclear company. Given that the examination stage of the DCO assessment in respect of the Sizewell C project has been completed, the Planning Inspectorate has submitted its report, and the DCO is only awaiting the decision of a BEIS Minister, the Secretary of State has concluded that the DCO application has progressed to a point where the development of the project in this respect can be judged to be sufficiently advanced to justify designation of the company.

[13] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(a) – Regulatory approvals, Planning Consents; Page 17
[14] https://infrastructure.planninginspectorate.gov.uk/projects/eastern/the-sizewell-c-project/
[15] Sizewell C Strategic Outline Business Case, dated 8 July 2021

28. Under section 3(5) of the Act, the Secretary of State is allowed to attach conditions to the Designation decision. Details of any such conditions must be specified in the designation notice, along with the consequences of any failure to comply with such conditions.

29. The Secretary of State is minded to make it a condition of designation that the project obtains a DCO, prior to the Secretary of State issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC, which would itself be subject to the decision of the Secretary of State at that time. In the event that a DCO is not granted by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNBG SZC.

3.1.2 Nuclear permissions

30. As part of the UK's world leading approach to regulating the civil nuclear sector, a project must obtain specific permissions related to nuclear safety and environmental protections before it can proceed. The Designation Statement[16] laid out a number of these, highlighting their importance as a marker of whether the development of a project is sufficiently advanced.

31. The progress of NNBG SZC and the Sizewell C project against these regulatory permissions, and how this relates to designation, is described below.

Nuclear Site licence

32. In order to assure the safety of nuclear installations in the UK, the ONR works on a system of regulatory control based on a robust licensing process by which a corporate body is granted a licence to use a site for specified activities.

33. The Nuclear Site Licence (NSL) is the means by which the ONR grants permission to a person to undertake specific nuclear activities. To obtain a licence in respect of a new nuclear project, a company must meet a set of standard conditions to demonstrate the safety in the design, construction, operation and decommissioning of the project.

34. The nuclear site licence granted by ONR is a legal document, issued for the full life cycle of the facility. It contains site-specific information, such as the licensee's address and the location of the site and defines the number and type of installations permitted. Such installations include nuclear power stations, research reactors, nuclear fuel manufacturing and reprocessing, and the storage of radioactive matter in bulk.

35. A set of 36 Standard Conditions, covering design, construction, operation and decommissioning, is also attached to each licence. These conditions require licensees to implement adequate arrangements to ensure compliance.

36. NNBG SZC submitted its application for an NSL in June 2020[17]. Following this, NNBG SZC also submitted a strategy and approach for achieving an NSL decision to the ONR. The ONR agreed to the proposed strategy and approach.

[16] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(a) - Regulatory approvals; page 18

[17] https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c.htm

37. The ONR subsequently provided an update on the progress made by NNBG SZC towards obtaining an NSL in September 2021. This update described the progress made under a number of key workstreams, including compliance with relevant safety and nuclear security legislation, the development of the project company's organisation and the work to ensure the site is suitable for the project to proceed.

38. The conclusion of this update was that ONR was satisfied that the progress being made would support the completion of the licensing assessment by mid-2022[18].

39. As set out in the Designation Statement[19], for a project to be judged to be sufficiently mature it is likely that the Secretary of State would need to be confident that the project's plan for obtaining an NSL is well advanced. This is likely to include considering whether an application has been submitted and that progress is being made through the applicable regulatory process.

40. As NNBG SZC submitted an application in June 2020, and the ONR has judged that the licensing assessment is on track to be completed by mid-2022, the Secretary of State has concluded that the Sizewell C project is sufficiently advanced in this area to warrant designation.

41. The Secretary of State is minded to make it a condition of designation that the project obtains an NSL, prior to the Secretary of State issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC, which would itself be subject to the decision of the Secretary of State at that time taking into account relevant evidence. In the event that an NSL is not granted by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNBG SZC.

Regulatory Design Assessment

42. The Generic Design Assessment (GDA) is a voluntary process by which a company submits its nuclear reactor design to the ONR and the EA for them to assess the safety and efficacy of the product. Passing this process shows that the reactor is ready to be deployed on a site in the UK, within the generic site envelope.

43. A reactor design having completed, or being on track to complete, the GDA process is an important demonstration that a project is at a mature stage of development. The Designation Statement[20] sets out that the Secretary of State is likely to consider this as part of the designation decision.

44. NNBG SZC is intending to deploy the same UK EPR design and technology at the Sizewell C site[21], which obtained GDA approval on the 13th December 2012[22].

[18] https://www.onr.org.uk/civil-nuclear-reactors/sizewell-c.htm
[19] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(a) - Regulatory approvals; page 18
[20] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(a) - Regulatory approvals; page 19
[21] https://infrastructure.planninginspectorate.gov.uk/projects/eastern/the-sizewell-c-project/?ipcsection=docs&stage=app&filter1=Application+Form
[22] https://www.onr.org.uk/new-reactors/uk-epr/index.htm

45. The Secretary of State is therefore satisfied that, in relation to this area, the development of the project is sufficiently advanced.

Funded Decommissioning Programme

46. Under the Energy Act 2008, companies proposing to build a new nuclear power station are obligated to have in place a Funded Decommissioning Programme (FDP), approved by the Secretary of State, prior to nuclear-related construction at a site beginning. The FDP must set out the site operator's costed plans for appropriately managing its future liabilities in relation to decommissioning, waste management and waste disposal, and how the operator will make financial provision to meet those liabilities.

47. NNBG SZC and BEIS, along with other key stakeholders, have been discussing the FDP in respect of the Sizewell C project since the summer of 2021. Given that the Sizewell C project is a replication of the UK EPR design, and that the Secretary of State has previously approved the FDP for Hinkley Point, NNBG SZC intends to replicate the technical aspects of the previous FDP arrangements for Hinkley Point C where appropriate and possible. The development of the SZC FDP will be supported by a "convergence" based approach to ensure a consistent approach to decommissioning.

48. SZC is developing the documents necessary for the completion of the FDP and their submission to the Secretary of State. This includes:
    a. **Decommissioning and Waste Management Plan**– A draft of the document (dated 5 February 2022) has been commented on by ONR, EA and Radioactive Waste Management. It is being updated to take into account these comments.
    b. **Funding Arrangements Plan**– A draft of the document (dated 18 February 2022) is currently being developed and further refined, prior to submission to the Secretary of State. It is noted that the FAP will differ in certain respects from the HPC FAP as the RAB funding model has a different approach to funding the FDP, but it is nevertheless well progressed.
    c. **Waste Transfer Contracts** – Set out terms for the transfer of waste from the Sizewell C project (including associated charges and timing for transfer). Drafts of two documents (dated 23 February 2022) are currently under development, prior to submission to the Secretary of State..
    d. **Standstill Agreement** –This is being considered further between NNBG SZC and BEIS.

49. As described in the Designation Statement[23], the Secretary of State should consider the maturity of the FDP documentation, as well as the plan to progress it to a stage where it can be submitted, as an indicator for designation.

50. The majority of the key documents related to the FDP have been drafted, including the Decommissioning and Waste Management Plan which is being reviewed by the Nuclear Decommissioning Authority.

51. The maturity of the documentation has allowed, the Nuclear Liabilities Financing Assurance Board to be appointed in April 2022 to review certain elements of the FDP for the Sizewell C

[23] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(a) - Regulatory approvals; page 21

project, particularly the Funding Arrangements Plan. It is therefore the Secretary of State's opinion that the development of the project is sufficiently advanced in this area for the purposes of designation.

52. The Secretary of State has therefore concluded that the development of the FDP for the new nuclear plant at SZC is sufficiently advanced for the purposes of designation.

53. The Secretary of State has statutory obligations in relation to the approval or rejection of an FDP under the Energy Act 2008. The Secretary of State's assessment of the maturity of the FDP for the purposes of the designation of NNBG SZC, does not affect or replace their statutory obligations in relation to the consideration of the FDP when fully submitted by NNBG SZC, which will be reviewed when the FDP is complete and advice has been received from NLFAB.

54. The Secretary of State is minded to make it a condition of designation that NNBG SZC obtains, as a minimum, conditional approval of its FDP for the Sizewell C project under the Energy Act 2008, prior to the Secretary of State issuing any the direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC, which would itself be subject to the decision of the Secretary of State at that time. The decision of whether to approve the FDP will be an entirely separate decision from the designation, based on the processes and evidence involved in the FDP application. In making the decision, the Secretary of State will be able to take into account a range of advice, including the Nuclear Liabilities Financing Assurance Board. The purpose of this Board, as highlighted above, is to provide impartial scrutiny and advice on the suitability of the FDP for the Sizewell C Project[24].

55. In the event that the FDP has not been approved by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNBG SZC.

3.1.3 Environmental permissions

56. Alongside specific nuclear regulatory permissions, there are a range of additional regulatory environmental permits which are required to enable construction to begin. These permits have a range of goals linked to the safe construction and operation of the plant, as well as the disposal of waste and environmental protections.

57. Given the volume of these permits, and the specific information needed to progress them, the project company is required to submit these at different points in the lifetime of a project. As [25][OBJ] sets out that the Secretary of State will need to have confidence that there is a comprehensive plan to identify and achieve the permits, in addition to there being timely progress towards achieving the permits legally required to support the proposed construction and operation schedule.

58. One permit which would have been required prior to construction relates to the UK's obligations under the Euratom Treaty has been received. The Euratom Treaty required the UK and NNBG

[24] https://www.gov.uk/government/organisations/nuclear-liabilities-financing-assurance-board/about
[25] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(a) - Regulatory approvals; page 19

SZC to make a submission to the EU under Article 37 of the Euratom Treaty, whilst the UK was within the transition period for exiting the EU, a period which has now expired. The submission relates to whether the Sizewell C project is likely to result in radioactive contamination of the water, soil or airspace of an EU Member State. NNBG SZC's Article 37 submission in respect of the Sizewell C project was made to the European Commission in August 2020, and a positive decision was received in June 2021[26].

59. A number of additional environmental permits have already been applied for by NNBG SZC. To support progress on these applications, the EA has been engaging with NNBG SZC. This has taken place through a series of Joint Interventions with ONR to gain the required evidence that NNBG SZC is a competent organisation, able to receive and comply with the permits should they be granted. The key permits currently awaiting a decision are:
    a. **Water Discharge Activity Permit** – Required to allow the discharge of non-radioactive cooling water from the Sizewell C reactor back into the sea. An application for the permit was submitted in May 2020. It is scheduled for public consultation in July 2022[27].
    b. **Combustion Activity Permit** – Required to allow the operation of the diesel generators in the unlikely event the power station experiences a loss of onsite power. An application for the permit was submitted in May 2020. It is scheduled for public consultation in July 2022[28].
    c. **Radioactive Substances Regulation (RSR) Permit** – Required to allow the discharge of small and safe amounts of radioactivity from the Sizewell C reactor into the air and sea, and off-site disposal of solid radioactive waste generated by the reactor. An application for the permit was submitted in May 2020. The EA has provided an early draft of the RSR Decision Document which states that it is 'Minded to Grant' the permit and will proceed with its statutory public consultation. It is scheduled for public consultation in July 2022. Subject to the conclusion of the public consultation, NNBG SZC anticipates being granted its RSR permit in January 2023[29].

60. Approximately ninety permits are expected to be required during the construction phase of the project and will need to be applied for in line with the wider construction schedule. NNBG SZC have presented a credible plan for embedding the obtaining of these permits within the wider construction schedule. They have also provided evidence that eight construction permits have been applied for, in addition to one already granted.

61. Construction of the Sizewell C Project would not commence until after a DCO had been granted and after the main environmental permits had been received.

62. The Secretary of State has assessed the wider credibility of the plan for obtaining the remaining construction permits. Based on this assessment, the Secretary of State considers that the plan for obtaining the relevant permits by the time that they are required is credible. They have also reflected on the feedback from current applications, including on the RSR. Based on the evidence provided and the process for obtaining the relevant permits, the Secretary of State is of the opinion that development of the permitting schedule is sufficiently advanced for the purposes of designation.

[26] https://energy.ec.europa.eu/topics/nuclear-energy/radiation-protection/radiological-impacts/article-37-commission-opinions_en
[27] https://consult.environment-agency.gov.uk/psc/ip16-4ur-sizewellc-wda-permit-proposed-decision
[28] https://consult.environment-agency.gov.uk/psc/ip16-4ur-sizewellc-ca-permit-proposed-decision
[29] https://consult.environment-agency.gov.uk/psc/ip16-4ur-sizewellc-rsr-permit-proposed-decision

63. The Secretary of State is minded to make it a condition of designation that NNBG SZC obtains the key environmental permits named in paragraph 61, as well as any permits necessary to begin construction, prior to the Secretary of State issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC (which would itself be subject to the decision of the Secretary of State at that time). In the event that those permits are not granted by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNGB SZC.

3.1.4 Delivery strategy

64. Beyond the immediate need for regulatory permissions, the Designation Statement[30] sets out that the Secretary of State will take a holistic view of the development of the project. This includes considering whether NNBG SZC has put in place the practices necessary to deliver a major project to schedule and budget. This review reflects whether the development of the project is sufficiently advanced to justify the designation of the nuclear company.

65. The below sets out the broad categories that the Secretary of State has reviewed when considering if the Sizewell C project is sufficiently mature. Given the progress in each of these areas, the Secretary of State is of the opinion that the development of the project is sufficiently advanced in relation to all aspects, contributing towards their overall opinion that the development of the project is sufficiently advanced to justify designation of NNBG SZC.

Delivery and Governance

66. The construction of a nuclear project is a complex undertaking. As such, the Designation Statement[31] sets out that the Secretary of State would want to assess whether the project company's delivery plan is clear and captures the key expected areas. Similarly, the Designation Statement[32] makes clear the Secretary of State would seek to establish whether the plan to obtain and maintain financing has been developed. To support the implementation of this plan, the Designation Statement[33] suggested the Secretary of State would look at whether the governance structure of the project is adequately developed.

67. NNBG SZC has submitted to BEIS a number of documents to support the assessment against this guidance. This includes:
    a. Company Manual
    b. Project Delivery Strategy
    c. Supply Chain Strategy

[30] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 21
[31] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 22
[32] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 22
[33] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 22

d. Procurement and Contracting Strategy
e. Operations Phase Strategy
f. Financing Strategy
g. Enterprise & Delivery Model Presentation

These documents collectively set out NNBG SZC's delivery and financing strategy. These documents have been thoroughly analysed at various stages since discussions between NNBG SZC and the Secretary of State commenced. The Secretary of State, through their officials, has had extensive engagement on the project delivery strategy, the supply chain strategy, the procurement and contracting strategy, the operations phase strategy and the financing strategy. Whilst some refinement of these is required, the Secretary of State believes that they reflect a clear delivery strategy for the project.

68. In the Company Manual, NNBG SZC have set out a mature governance structure which provides clarity on decision-making structures. This is further supported by the Enterprise & Delivery Model Presentation. This describes the roles and responsibilities of the Executive Directorate. This presentation further provides evidence for the project's plan for acting as an "intelligent client" in its development, which is also a requirement of the NSL.

69. The Designation Statement[34] further states that the Secretary of State will expect that the project can show sufficient understanding of the schedule and the necessary arrangements to support delivery, including programme management, strategic risk reduction and how prior learnings have been considered to deliver the project. NNBG SZC will rely on processes and procedures which have been developed and used in the design and construction of the Hinkley Point C and Flamanville nuclear construction projects. The Secretary of State is satisfied that NNBG SZC have undertaken a careful review of those projects and adopted lessons learnt. This will help to ensure that the issues identified at previous projects do not occur at the Sizewell C Project.

70. NNBG SZC has set out its understanding of the project's timeline, based on "intelligent replication" as a Second-Of-A-Kind reactor in the UK. Intelligent replication is a concept used throughout the delivery of the Sizewell C Project. It refers to the fact that the Sizewell C Project proposes to use the same detailed design as Hinkley Point C, with necessary adjustments to deal with site specific matters, such as ground conditions and site layout. Using the same design allows NNBG SZC to commence construction with a high level of maturity in the design of the plant and associated infrastructure, as well as the ability to accurately forecast the quantities of materials which are required for the construction of the plant.

71. In developing its procurement strategy for the Sizewell C Project, NNBG SZC has taken into consideration the importance of replication, both of the design and key elements of the supply chain. Replication of the key elements of the supply chain allows the learning gained from previous projects to be implemented in the design and construction of the Sizewell C Project. This has important benefits for schedule, quality and productivity in the design and construction period. This will help enable comparative cost and schedule reductions.

[34] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 23

72. The Project will benefit from "live updates" from Hinkley Point C through a collaboration agreement. As the Sizewell C Project will contain the 7th and 8th reactors of this kind worldwide, and the 3rd and 4th EPR to be built in the UK, learnings will be directly taken from previous projects, as part of the intelligent replication approach. NNBG SZC have also provided evidence showing how they have taken learnings from other major asset programmes outside of nuclear into account.

73. On risk reduction, NNBG SZC have provided the Secretary of State with the Key Enablers Maturity Assessment. These make up a framework that assesses and communicates the status of Sizewell C risk reductions, based on industry best practices for large, complex projects in general, and for new build nuclear projects specifically, based on the review of the drivers of cost and schedule overruns in nuclear projects. This is further supported by a Risk and Opportunity Management process, which identifies both risks and mitigations at an early stage. The Secretary of State has judged that action being taken in this area is credible and advanced.

74. With reference to the financing plans, the Designation Statement sets out that the Secretary of State would expect to be satisfied that the plan for obtaining finance is sufficiently developed, including the period up to financial close and later construction. In its application, NNBG SZC has set out evidence that it is in the process of developing the financing package in collaboration with BEIS, HMT, IPA, UKGI and Ofgem. On pre-financial close financing arrangements, NNBG SZC have submitted its budget up to July 2022. NNBG SZC remain in discussions with officials from BEIS, HMT, IPA and Ofgem on this.

75. NNBG SZC have provided clear evidence in the draft Financing Plan of their preparation and plans to complete a successful capital raise to support the project. The plan sets out timescales for providing the key materials, the supporting activities that will need to take place and engagement with investors. They have also hired a range of advisors to assist with this process.

76. The Secretary of State has considered and analysed the information which has been supplied by NNBG SZC, in addition to the due diligence which their officials have been carrying out on the Sizewell C Project since discussions started in 2021. The Secretary of State has concluded on the basis of the evidence provided by NNBG SZC and the work of officials, that the evidence for the development and delivery of the Sizewell C Project is credible, that the governance arrangements for the project are mature and the process for obtaining finance is being progressed in a manner which is consistent with delivery of private financing, and where necessary public financing, by financial close. This meets the considerations set out in the Designation Statement.

Organisational Design and Development

77. Further to the governance structures, the Designation Statement[35] sets out that the Secretary of State would consider whether the organisation has been sufficiently developed to support the delivery of the project. In a similar way, they will also seek to ensure that the project management approach demonstrates a clear plan for leading project delivery.

[35] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 23

78. NNBG SZC have shared detail of its Enterprise Strategy and associated Delivery Model with BEIS, the ONR, EA and IPA. This sets out its internal organisation, as well as the responsibilities of individuals and teams within that structure. This includes a specific Safety, Licensing and Assurance Directorate. NNBG SZC also intends to apply the intelligent replication strategy in this area, allowing for the transfer of key individuals and skills between the projects. This will help ensure there is appropriate resourcing in place to support the delivery of the project. As highlighted above, NNBG SZC have presented a financing strategy, analysed by BEIS, to provide adequate financial resource.

79. NNBG SZC has taken steps in creating a capable Project Delivery Organisation (PDO), taking into account feedback from officials at BEIS, HMT and the IPA. The PDO is the delivery arm of the Sizewell C project company and will be accountable for the full delivery of the project between design and handover to the Operations Team.

80. NNBG SZC have supported the creation of the PDO by sharing a Project Delivery Strategy with BEIS, the ONR, the EA and the IPA. The intended structure of a matrix organisation split into PDO programmes and integrators will support the delivery of the project. This PDO function will benefit from the learnings taken from Hinkley Point C.

81. One of the challenges for delivery will be scaling-up the organisation to ensure that it is capable of delivering a project of Sizewell C's size. NNBG SZC have provided a Resource Strategy Framework outlining its plans for identifying and obtaining the necessary skills for the project throughout all of its phases. This is further supported by the Project Delivery Strategy, which sets out how appropriate supporting mechanisms, such as an Integrated Management System, will be put in place.

82. The structure, and other steps taken, provides reassurance that there is sufficient maturity and resourcing to cover the key areas of delivery in terms of safety, time and budget.

83. The Designation Statement[36] sets out that the Secretary of State would look ahead to the operational phase of the project, to ensure that there are appropriate arrangements in place. NNBG SZC has provided an Operation Phase Strategy, which sets out both the estimated resourcing requirements and proposed structure for the operation of the project. The Secretary of State considers that this is a credible plan which reflects Sizewell C's learning from the operation of other EPR plants. In particular, the Secretary of State notes that NNBG SZC will benefit from joining the World Association of Nuclear Operators (WANO) and the EPR owner's Groups.

84. It is the opinion of the Secretary of State that the work undertaken to date, and the plans for the future, indicate that the development of the Sizewell C project is sufficiently advanced to justify designation of NNBG SZC. The arrangements provide reassurance that the current organisation, and future changes within established structures, will support the timely and cost-effective delivery of the project.

Cost and schedule estimates

[36] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 23

85. The Secretary of State is aware that insufficient maturity of cost and schedules estimates is a key reason for cost overruns in nuclear projects. The Secretary of State is particularly focussed on ensuring that the arrangements for securing a mature cost and schedule estimate, which takes into account all of the information from previous projects, are robust and deliverable. For this reason, the Designation Statement[37] sets out that the project company should have clearly set out the proposed cost and schedule, in a way that is aligned with the wider maturity of the project.

86. For both cost and schedule estimates, Sizewell C benefits from being a Second-Of-A-Kind project, meaning estimates are able to be based on the experience of Hinkley Point C's development and construction. This allows for a more mature estimate than other projects at a similar stage of development. The cost and schedule estimates will further benefit from continued updates in light of the data emerging from the Hinkley Point C project. BEIS have seen the continued development of the estimates from regular submissions provided by NNBG SZC, over the course of the discussions which have been in train since 2021. In particular, the Secretary of State has been provided with advice from his officials and those in HMT and the IPA, as well as independent consultants who have scrutinised the build-up of costs and schedule and provided detailed feedback. Hinkley Point C published an updated cost and schedule estimates on 19th May 2022. The relevant elements of this for the Sizewell C project have been taken into account by the Secretary of State, in relation to the Value for Money assessment included below.

87. The Designation Statement[38] sets out that the Secretary of State would expect, for designation, that the project company should be able to set out an estimated cost and schedule, with an appropriate level of contingency. This estimate should be aligned with other aspects of delivering the project. For Sizewell C, the Secretary of State is satisfied that the cost and schedule estimates are beyond that which would be expected at this stage in a project's maturity. They have benefitted from the experiences of Hinkley Point C, and the estimates will continue to be refined through the data gathered there. BEIS have also received additional supporting documentation, including detail around how the estimates were calculated, that provide reassurance they are mature and robust. For these reasons, the Secretary of State has assessed that the project is sufficiently advanced in this area to justify designation.

Design and supply chain maturity

88. The maturity of a project's design prior to construction has historically shown to be a strong indicator of long-term costs. The Designation Statement[39] therefore sets out that the Secretary of State should be able to be confident that the project is at a level of design maturity that it can be constructed safely, whilst also acting as an underpinning to accurate cost and schedule estimates.

89. Sizewell C would be a Second-Of-A-Kind project in the UK; it is intended that it will use the same EPR technology and be a technical replica of Hinkley Point C. The design would be based on intelligent replication of Hinkley Point C. This includes using the same detailed design, thereby

[37] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 23
[38] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 23
[39] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 24

reducing the construction risk of the project. The effectiveness of replication has already been demonstrated in the cost and schedule reductions between the first and second reactors at Hinkley Point C. The Secretary of State understands that evidence of these benefits can already be seen when comparing efficiency improvements between the first and second units at Hinkley Point C. For example, there has been a 50% reduction in installation time on Unit 2 cooling system components compared to Unit 1.

90. The design has been informed via learning from other, international EPR projects such as Flamanville 3, Olkiluoto 3 and Taishan 1 and 2. Lessons will continue to be taken from these projects for the benefit of the Sizewell C project.

91. Given that the design has already been used in the ongoing construction of Hinkley Point C, the design maturity is considered to meet the requirements set out in the Designation Statement and it is therefore the Secretary of State's opinion that the development of the project is sufficiently advanced in terms of design maturity.

92. To support the project's construction, the Designation Statement[40] also makes clear that the Secretary of State would want to be satisfied that the project has a well-developed supply chain and contracting strategy to support delivery.

93. Both the strategy and contracts benefit from the broader intelligent replication strategy. Key supply chain contracts either have or will be replicated from Hinkley Point C, taking into account the differences between the projects. NNBG SZC's assessment is that this approach secures the benefits of completing a Second-Of-A-Kind project.

94. NNBG SZC has commenced the procurement of the main elements of the supply chain, including the reactor designer (Edvance), reactor (N4S), equipment supplier (Framatome), turbine supplier (GE) and the main civils works alliances (Laing O'Rourke and Bouygues). All critical equipment contracts and alliance agreements are being negotiated with a view to completing those negotiations by December 2023 and forging work linked to these contracts has already begun. NNBG SZC regularly updates officials at BEIS, HMT, IPA and Ofgem as to the progress on completing the negotiations for the main contracts. The remaining equipment programme is progressing in line with the project's development schedule.

95. The key commercial, structural and scope elements for the primary construction contracts have largely been agreed with the relevant supply chain partners. NNBG SZC have provided a plan for the refinement of these construction contracts to ensure that the supply chain execution plan and governance arrangement ensure an environment where best-for-project outcomes are produced.

96. The Secretary of State has analysed the Procurement and Contracting Strategy, previously shared with their department. The Secretary of State believes that the strategy outlined within it provides credible reassurance that the supply chain and future procurement actions will support and enable the overall delivery model.

[40] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 24

97. Based on the work completed to date, advice from his officials and other government departments, as well as the strategy for future undertakings, it is the Secretary of State's opinion that the development of the supply chain procurement is sufficiently advanced to support designation.

Operational strategy and plans

98. The Designation Statement[41] sets out that nuclear companies will need to consider the long-term future of the newly constructed plant, including how it will move into its operational phase. As highlighted above, NNBG SZC have submitted an Operations Phase Strategy, taking learnings from the operation of other EPR reactors, including Olkiluoto 3 and Taishan units 1 and 2. The strategy draws on wider, internationally recognised guidance regarding the operation of nuclear plants, such as the World Association of Nuclear Operator's "Roadmap to Operational Readiness"[42].

99. NNBG SZC's operational strategy includes details of Operational Development and Resourcing, Current Anticipated Station Operational Organisation and Operational Risk Mitigation, including support agreements and long-term service agreements. Moreover, as part of the financial modelling, NNBG SZC have submitted benchmarking analysis to understand costs associated with the operational phase, providing further robustness to the financial case for this project.

100. The work undertaken in this area to date, provides reassurance to the Secretary of State that the project has reached an appropriate level of maturity with respect to its operational strategy, planning and preparation for the future operational phase of the power station. The Secretary of State has taken into consideration the fact that the ONR has confirmed that good progress has been made towards the grant of the NSL. It also demonstrates that NNBG SZC has carefully analysed the costs associated with the operational phase, as well as the transition from construction to operation. It is therefore the Secretary of State's opinion that the development of the project is sufficiently advanced in its operational strategy and plans.

3.2 Value for money assessment

101. To designate a nuclear company in relation to a project, the Secretary of State must be of the opinion that doing so is likely to result in Value for Money. BEIS has undertaken an analysis of the project to ascertain if this is likely to be the case. This analysis has been completed in line with HMT Green Book principles on how to appraise and evaluate projects.[43]

102. Based on this analysis, the Secretary of State is of the opinion that designating NNBG SZC in relation to the Sizewell C project is likely to result in Value for Money. This is because proceeding with a RAB funded Sizewell C Project:
    a. is estimated to reduce costs to consumers of a low-carbon electricity system, in the majority of scenarios which have been modelled.

[41] https://www.gov.uk/government/publications/nuclear-regulated-asset-base-rab-model-statement-on-procedure-and-criteria-for-designation Section 3.1(b) - Additional Project Maturity Considerations: Page 24
[42] https://www.wano.info/getmedia/346d2b79-2c11-4b09-962f-840ef279e6d0/R2OR-Revision-0-Final-for-Publication-September-2020.pdf.aspx
[43] The Green Book: appraisal and evaluation in central government https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

b. has an estimated return on government investment which is positive in the majority of scenarios which have been modelled.
c. has substantial non-monetised benefits, in particular protecting security of supply of the GB electricity system.

103. The analysis supporting these judgements is laid out below.

Monetised benefits

Methodology

104. BEIS use an internal model, called the Dynamic Dispatch Model (DDM). [44] The DDM is an electricity supply model of the GB power sector. It simulates dispatch of power and investment decisions based on the projected profits of generation assets. It allows for comprehensive analysis of the impact of different policy decisions on capacity, system costs, prices, security of supply and carbon emissions and is used as a tool for the development of policy in the energy system.

105. The DDM has been used to estimate the cost of the electricity system, with and without a RAB funded Sizewell C being built. Analysts have developed two different counterfactuals to examine the question of whether a RAB funded Sizewell C reduces the cost of a Net Zero compliant electricity system. These counterfactuals are derived from the two DDM scenarios ('Reference Cases'), which inform policy decision across a range of technologies within the power system:

a. **The Net Zero high demand Reference Case**, which includes an illustrative pathway to Net Zero in 2050 with a higher demand trajectory, assuming a higher level of electrification in heat and transport.

b. **The Net Zero low demand Reference Case**, which includes an illustrative pathway to Net Zero in 2050, assuming a lower demand trajectory that is consistent with lower levels of electrification across the economy.

106. To build the counterfactuals, BEIS analysts have taken the DDM's Net Zero Compliant Reference Cases. These Reference Cases assume some new build nuclear, beyond Hinkley Point C. BEIS analysts have removed new build nuclear from the counterfactual and replaced it with the cheapest combination of non-nuclear low-carbon power - gas CCUS, solar and wind. That creates two counterfactuals, one Net Zero low demand counterfactual and one Net Zero high demand counterfactual.

107. To assess the impact of Sizewell C, each counterfactual has been compared against a policy scenario. The policy scenarios assume a RAB funded Sizewell C displaces a combination of non-nuclear low carbon power – gas CCUS, solar and wind. The policy scenarios and counterfactuals are all consistent with the Government's Net Zero target and Carbon Budget commitments.

108. Key assumptions around the cost of the Sizewell C project, construction duration and technical aspects have been provided to BEIS by NNBG SZC and assessed by BEIS officials. Given that large-scale infrastructure projects have a tendency to cost more and take longer to build than

[44] BEIS, Energy and Emissions Projections 2022, "Annex O – Net zero and the power sector scenarios": https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1059067/annex-o-net_zero-and-the-power-sector-scenarios.pdf

expected, the analysis has applied appropriate uplifts to these assumptions, in accordance with HMT Green Book appraisal guidance on optimism bias.[45]

109. The optimism bias assumptions have been developed using a Reference Class Forecasting (RCF) methodology[46], which uses data for comparable projects that are at a similar stages of project maturity. BEIS officials have worked with Oxford Global Projects, which holds data on more than 100 nuclear power plants and thousands of non-nuclear construction projects, to develop these assumptions.

110. BEIS officials, in conjunction with external advisers, have also carried out due diligence on the Sizewell C project's cost estimate and agreed that in some areas there were likely to be ongoing cost pressures. This includes equipment portfolio and the impact of an increased schedule. For modelling purposes, a correction to the Sizewell C point estimate has been applied to determine the sensitivity of, and resilience to, the value for money case with and without the point estimate correction.

111. The cost of financing Sizewell C is also an important assumption. Two cost of finance assumptions have been modelled, to test the sensitivity of the results to different cost of finance assumptions. One cost of finance assumption is based on a bottom-up calculation and the other a top-down calculation. The bottom-up calculation makes assumptions around the level of risk which will sit with investors, consumers and government for a RAB funded Sizewell C project. Risk premium assumptions have been added to an assumed risk-free rate to give an assumed cost of finance for the project. The top-down calculation makes an assumption on cost of finance based on similar projects which have already been financed.

Results

Value for Money for Consumers

112. The net present value (NPV) for consumers has been calculated by comparing the cost of the electricity system with and without SZC. Some costs which have already been incurred on Sizewell C are considered sunk cost from the point of view of society as a whole. However, these costs are assumed to be passed onto consumers if the project goes ahead. Therefore, those costs are included in the net present value for consumers estimate.[47]

113. As outlined above, the modelling compares the cost of an electricity system with a RAB funded Sizewell C against two different Net-Zero compliant counterfactuals.

[45] Green Book supplementary guidance: optimism bias
https://www.gov.uk/government/publications/green-book-supplementary-guidance-optimism-bias
The Green Book: appraisal and evaluation in central government
https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-governent

[46] Reference Class Forecasting predicts future outcomes based on the outcomes for a group of similar past projects.

[47] The DDM also calculates the value of unpriced carbon. This is the difference between the assumed carbon price generators have to pay when emitting greenhouse gases and the BEIS' greenhouse gas appraisal values. The results compare the policy scenarios, which are consistent with Net Zero, against counterfactuals which are also consistent with Net Zero. Therefore, the differences in emissions between policy options and counterfactuals is very small. Any differences due to the value of unpriced is lost in the rounding. However, the value of unpriced carbon is excluded from the net present value to consumers as it is assumed to fall on society as a whole rather than just consumers.

NPV for consumers (appraisal period until 2100, £bn 2012 prices, 2022 present value base year)

	NPV for consumers[48]
Net Zero – Low Demand	XX
Net Zero – Low Demand with point estimate cost correction	XX
Net Zero – High Demand	XX
Net Zero – High Demand with point estimate cost correction	XX

114. The initial results of the analysis have been shared with the Secretary of State who is satisfied that they provide a basis for believing that the project will represent Value for Money. They have also been shared with statutory consultees and will be revised if necessary in light of the responses received, prior to publication of a final designation notice

Return on Government Investment

115. The return on Government investment has been calculated by estimating the net present value to society as a whole, and then dividing by the assumed present value of Government funding. The net present value to society as a whole excludes any costs which have already been incurred. The present value of Government funding is assumed to 100% of the capital cost of the project. Under the RAB model, the whole project is expected to be on Government's balance sheet, even if HMG only provides finance for a portion of the project.

NPV/£ of Government investment (appraisal period until 2100, 2012 prices, 2022 present value base year)

	NPV/£ of Government investment[49]
Net Zero – Low Demand	XX
Net Zero – Low Demand with point estimate cost correction	XX
Net Zero – High Demand	XX
Net Zero – High Demand with point estimate cost correction	XX

116. The initial results of the analysis have been redacted given the continued policy development in this area. They have been shared with the Secretary of State who is satisfied that they provide a basis for believing that the project will represent Value for Money. They have also been shared with statutory consultees and will be revised if necessary in light of the responses received, prior to publication of a final designation notice.

117. There are also important non-monetised impacts and risks, presented below, which should be considered.

[48] The range of results in this column is due to differences in the cost of finance assumption.
[49] The range of results in this column is due to differences in the cost of finance assumption.

Non-monetised risks

118. There are significant risks which are not possible to monetise, but are likely to affect the value for money of the Sizewell C project. Further detail on this is laid out below. The key risks which could affect the value for money case for the Sizewell C project include:

Risk of new policies coming forward for other low-cost technologies

119. The DDM analysis does not assume any more innovative funding or financing arrangements are available to non-nuclear technologies. New policies may be developed which reduce the riskiness of investing in non-nuclear technologies. This would reduce the cost of finance of non-nuclear technologies, making the Sizewell C project appear less cost-effective.

The risk of new low-cost technologies coming forward

120. The DDM analysis examines the cost-effectiveness of the Sizewell C project compared with combinations of wind, solar, and gas with carbon capture and storage. There is a risk that other technologies could come forward that are cheaper than Sizewell C, but which have not been anticipated at present and therefore could not be included in the DDM analysis.

121. This risk applies mostly in one direction. Were a cheaper technology is developed, it will likely be used and so would reduce the overall cost of the system. However, if new technology is developed which is more expensive than what is currently available, it is unlikely to be used and, assuming this is the case, would not have an impact on total system cost.

122. The Sizewell C project is expected to have a long construction period, which increases the risk that less expensive technology comes forward. This is therefore considered an important risk.

Risk of insufficient incentives or insufficient ability to deliver the project in a low cost and timely manner

123. The DDM analysis assumes appropriate incentives are in place to motivate the project developer to build Sizewell C in a low cost and timely manner. However, if too much risk is taken away from investors, the developer may lack the right incentives to deliver the project in a timely manner and as cheaply as possible. For example, without the right incentives, there is a risk the developer would invest less time and money in the development phase which could have consequences for the overall cost.

Non-monetised benefits

Security of supply

124. Recent global events have highlighted that energy imports can lead to an unwanted reliance on foreign nations. Nuclear power can help reduce this reliance on other nations by generating power within the UK. Allowing nuclear to continue to play a key role in our energy mix will help to reduce the impact of volatile global fossil fuel prices.

Maintaining the nuclear pipeline

125. As outlined above, the DDM analysis examines the cost-effectiveness of adding Sizewell C to the electricity mix but assumes no further new GW-scale nuclear plant are built in GB after Sizewell C. However, building Sizewell C is likely to have an option value. Building Sizewell C would help maintain the nuclear supply chain in the UK. This would likely reduce the cost of building a further GW-scale nuclear plant after Sizewell C.

Job benefits

126. Sizewell C would create jobs to develop, build and operate the plant. In particular, it is broadly estimated that construction of a GW-scale nuclear plant would support around 10,000 people at

the peak of construction and will contribute to Government's drive for 2 million green jobs by 2030. An Oxford Economics report[50] found that employees in the civil nuclear sector are highly productive. In 2016, each worker contributed an average of £96,600 in GVA to the economy. That was 73% higher than the UK average in that year and puts the industry in the top decile of all UK workers, reflective of both the highly-skilled nature of the workforce as well as the intensive use of advanced technologies. The report also highlighted that median average salaries across the sector were approximately £45,000, around double the UK average in 2016.

127. In the counterfactual, those workers would either be unemployed or would be employed in a different job, possibly in other generating capacity (solar, wind, or gas CCUS). These job benefits relate to one of the objectives of Sizewell C and so are strategically important.

Production of heat and flexibility benefits

128. The DDM analysis assumes that Sizewell C is only used to provide baseload electricity. However, BEIS analysts are exploring the potential for the plant to operate on a load-following basis, varying the core electricity output of the plant to respond to system demand. While this has never been done with a nuclear power station in the UK, EDF operates a number of its reactors in France on a load-following basis, and the EPR technology that Sizewell C uses is technically capable of operating in this manner. If pursued, a load-following approach could have benefits to the electricity system, reducing system operator costs by adding a flexible tool for responding to changes in electricity demand.

129. In addition to the load-following option, the Sizewell C project could also have the potential to use the excess heat from the steam extracted from the plant. This heat could, for example, be used to support the process for producing hydrogen or capturing carbon from the atmosphere. This would have potential benefits encouraging further innovation, alongside the immediate production hydrogen or carbon capture. There is not currently enough evidence to ascertain whether Sizewell C could provide a low-cost option for low-carbon hydrogen production or direct air capture of carbon.

Environmental impacts

130. The DDM analysis examines the extent to which building Sizewell C reduces greenhouse gas emissions of the power sector compared with the counterfactuals. The DDM does not however estimate other environmental impacts such as land use changes, biodiversity changes and emissions during construction.

131. Nuclear power plants do not produce direct greenhouse gas emissions during operation. Given that alternative sources of greenhouse gas producing sources of energy would likely be needed to replace the baseload power provided by Sizewell C, the project would in all likelihood result in a reduction in emissions.

132. This assessment is supported by the Lifecycle Carbon Assessment undertaken by NNBG SZC and shared with BEIS. The assessment stated emissions from the project were likely to be around 5.5g CO_2e/kWh; this is lower than the comparable figures of 12g CO_2e/kWh for offshore wind and 48g CO_2e/kWh for large scale solar.[51]

[50] Oxford Economics (2016), Nuclear Activity Report https://www.oxfordeconomics.com/recent-releases/nuclear-activity-report-2016

[51] https://www.edfenergy.com/sites/default/files/szc_epd_style_doc_final_v02-00_29.10.21.pdf

133. The construction of Sizewell C is, however, expected to have some effects on noise and air quality in the vicinity of the site. NNBG SZC estimate that there will be significant noise effects from construction and construction traffic for some local areas. While noise effects during construction would also be expected for counterfactual technologies, those for SZC would be experienced for longer due to the greater construction timescales than for other technologies.

134. The construction of Sizewell C is also expected to have adverse effects on ecology, fisheries and marine water quality. However, some effects will be reduced dependent on successful establishment of replacement habitats. Suffolk County Council, SZC GenCo and East Suffolk Council have agreed a funding package for mitigation and compensation measures in a Deed of Obligation, which includes up to £100m for the environment. Of this, £22m will go towards investment in projects that will mitigate landscape impacts, increasing biodiversity and the creation of habitat. The remaining £78m has been agreed to establish an independent Environmental Body to enhance the area's landscape.

135. Environmental impacts are considered in significant detail as part of the DCO process.

4. Responses to consultation

136. The Secretary of State has prepared this set of draft reasons for the purposes of consulting the ONR, NNBG SZC, Ofgem and the EA. Once consultation responses have been received, the Secretary of State will take these into account, alongside all other relevant information, and consider whether or not to designate NNBG SZC under section 2(1) of the Act. If the Secretary of State were to decide to designate following that consultation, the final reasons would include a section setting out how BEIS has considered the consultation responses.

5. Conditions of designation

137. The Nuclear Energy (Financing) Act allows the Secretary of State to impose conditions in relation to the designation of a nuclear company and to specify the consequences of a failure to comply with any such conditions.[52] Under section 5(3) of the Act, the designation of a nuclear company ceases to have effect if: (a) the relevant designation notice specifies that failure to comply with a particular condition will result in the lapse of the designation; and (b) the Secretary of State gives the nuclear company a notice stating that the company has failed to comply with that condition.

5.1 Special share

138. As a condition of the designation of NNBG SZC, the Secretary of State must have the ability to take a special share in the company, prior to issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC, which would itself be subject to the decision of the Secretary of State at that time. This is in line with the statement made to Parliament during the passage of the Nuclear Energy (Financing) Act 2022. The rights attached to the special share are subject to approval by the Secretary of State but will likely be limited to protecting national security interests with respect to the proposed nuclear project and complementary to the provisions of the National Security Investment Act 2021, alongside other, related matters.

[52]See section 3(5)(c) of the Act.

5.2 Development Consent Order and Nuclear Site Licence

139. The Secretary of State is of the opinion that the development of the project is sufficiently advanced with regard to the DCO and NSL process for the purposes of designation.

140. However, as highlighted in paragraph 31, the Secretary of State is minded to make it a condition of designation that the project obtains a Development Consent Order, prior to the Secretary of State issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC, which would itself be subject to the decision of the Secretary of State at that time. In the event that a DCO is not granted by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNBG SZC.

141. Also, as set out in paragraph 43, the Secretary of State is minded to make it a condition of designation that the project obtains an NSL, prior to the Secretary of State issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC (which would itself be subject to the decision of the Secretary of State at that time). In the event that an NSL is not granted by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNBG SZC.

5.3 Funded Decommissioning Programme

142. As included in paragraph 56, the Secretary of State is minded to make it a condition of designation that NNBG SZC obtains, as a minimum, conditional approval of its FDP for the Sizewell C project under the Energy Act 2008, prior to the Secretary of State issuing any the direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC, which would itself be subject to the decision of the Secretary of State at that time).

143. In the event that the FDP has not been approved by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNBG SZC.

5.4 Additional permits

144. As set out in paragraph 65, the Secretary of State is minded to make it a condition of designation that NNBG SZC obtains the key environmental permits named in paragraph 61, as well as any permits necessary to begin construction, prior to the Secretary of State issuing any direction to the revenue collection counterparty to offer to enter into a revenue collection contract with NNBG SZC (which would itself be subject to the decision of the Secretary of State at that time). In the event that those permits are not granted by the end of 2027, the Secretary of State proposes that the designation will lapse pursuant to section 5(3) of the Act on notice given by the Secretary of State to NNGB SZC.