Department for Energy Security & Net Zero

Sizewell C (SZC) Final Investment Decision

Value for Money (VfM) assessment

July 2025

Contents

Value for Money assessment at Final Investment Decision

1. The Secretary of State for the Department for Energy Security and Net Zero has taken a Final Investment Decision (FID) on Sizewell C (SZC). This decision was informed by a consideration of the project's Value for Money.

2. This document provides a summary of the relevant Value for Money evidence, building on the analysis published at the Designation of Nuclear New Build (NNB) Generation Company (SZC) Limited.[1] The finding that SZC is likely to result in Value for Money still holds, as does proceeding with a Regulated Asset Base (RAB) funded project:

   a. Is estimated to reduce costs of a low-carbon electricity system in all the core scenarios modelled, robust to low future power demand and project assumptions.
   b. Generates a positive return on UK government investment in all the core scenarios modelled.
   c. Has substantial non-monetised benefits, including maintaining and developing the nuclear supply chain in the UK, and supporting energy security.

3. The analysis has been completed in line with HM Treasury (HMT) Green Book principles on how to appraise and evaluate projects

Strategic case for new nuclear

4. The strategic case for SZC is supported by two evidenced factors:

   i. first, that it is widely agreed that further new nuclear capacity beyond Hinkley Point C (HPC) is required for a low cost, net zero compliant energy system that can meet future demand for electricity; and
   ii. second, SZC is by far the most mature new nuclear project in development and, as an above-ground replica of HPC, is ideally placed to support increased nuclear capacity.

5. Given the legislative requirement to meet net zero by 2050, predicted increases in electricity demand require a significant increase in the provision of low-carbon electricity.[2] Aligned with the Clean Power 2030 plan, the vast majority of future power generation will come from renewable sources. However, analysis demonstrates low-carbon technologies such as nuclear are required in tandem to lower the overall cost of the electricity system.[3]

[1] Department for Business, Energy & Industrial Strategy (BEIS) (2022), 'Designation of NNB Generation Company (SZC) Limited: Secretary of State's reasons for designation'.
[2] The Climate Change Committee (2020), 'The Sixth Carbon Budget, Electricity Generation'.
[3] BEIS (2020), 'Modelling 2050: Electricity System Analysis.'.

Nuclear power is expected to be required to deliver an electricity system that is both low carbon and low cost to consumers.[4]

6. SZC would also reverse the decline in UK nuclear capacity seen over the past 20 years. SZC, together with HPC, would contribute c.6.5GW of decarbonised electricity to the grid.

7. There is strong evidence that a construction-ready design and standardised supply chain (including key equipment suppliers and personnel) are critical aspects of reducing the risk of schedule and cost overruns of new nuclear projects.[5] SZC will benefit from the learning from HPC, giving greater design and scope certainty, and enabling a more mature starting position on schedule and cost.

8. There is a clear case for government support for nuclear to overcome persistent market failures and barriers to investment, and to deliver a secure and low carbon power supply. Large-scale nuclear plants have characteristics that mean the market is likely to underinvest in them, relative to their value to society, without government intervention. All previous nuclear power stations have been built with some level of government support.

Regulated Asset Base and Government Support Package model to overcome the barriers to investment

9. The RAB and Government Support Package (GSP) model have been designed to ensure barriers to investment in SZC can be overcome.

10. The RAB, under the Nuclear Energy (Financing) Act 2022, is a funding model for new-build nuclear power projects which entitles the project to receive a regulated revenue provided by a charge upon end-users based on costs incurred during the project's delivery.[6]

11. The GSP is the government provision of support intended to cover against specific high impact, low probability ("HILP") risks, that private investors would not be able or willing to finance themselves, either at all, or at a level which represents VfM.

12. Government has designed the RAB and GSP to help overcome the below barriers, ensuring an efficient allocation of risk across investors, consumers, and taxpayers:

---

[4] Assuming future electricity demand is high, Electricity System Analysis undertaken in 2020 suggests it is not possible to achieve net zero at low cost without increased deployment of nuclear. BEIS (2020), 'Modelling 2050: Electricity System Analysis.

[5] Nuclear Energy Agency, The Organisation for Economic Co-operation and Development (2020), 'Unlocking Reductions in the Construction Costs of Nuclear: A Practical Guide for Stakeholders'.

[6] The Nuclear Energy (Financing) Act (NEFA) was developed in 2022 and introduced the RAB funding model for new-build nuclear power projects. Nuclear Energy (Financing) Act 2022, 'Nuclear Energy (Financing) Act 2022' and BEIS Impact Assessment (2021), 'Impact Assessment, Regulated Asset Base model for New Nuclear'.

a. **Exposure to risk:** Nuclear power plants have high upfront costs and long construction periods. Although running costs are low in operation, investors must take on considerable risk when making an investment, including construction risk, market risk, technology risk, political risk, and the risk of broader low probability but high impact events.

b. **Financial market constraints:** There are only a limited number of institutions with sufficient capital and expertise to invest in projects of this scale. The RAB and GSP enable the project to attract private investment and demonstrate an investible asset class. Given SZC is on government's balance sheet, public financing in the capital structure helps overcome potential financial market constraints, in turn reducing the effective cost of capital for consumers. This complements the value that strategic private investors can bring on project delivery.

Assessing Value for Money of SZC in the electricity system

13. When assessing the monetised impacts of the project two key questions were considered:

  i. To what extent does building SZC reduce the cost of a net zero compliant electricity system, benefiting society and consumers?

  ii. To what extent does building SZC represent a return on government investment?

14. The Net Present Social Value (NPSV) has been calculated by comparing the cost of the electricity system with and without SZC. It includes costs that have already been incurred by the project (which will be logged against the RAB and passed onto consumers).7 Payments from consumers to government, within its role of financing the project, are included in this assessment (net of recycling).8

15. The return on government investment is defined as the NPSV plus the returns to government as an investor in the project, divided by the capital cost, as the entire project is on government's balance sheet. This assessment excludes sunk capital costs, as they have already been committed. As agreed with the HMT Green Book team, a 0% cost of government finance is assumed for this metric, and any revenues flowing from consumers to government are treated as an economic transfer (i.e. a reduction to government funding). The opportunity cost of government financing SZC can then be considered by comparing the NPSV per £ of government funding across other policies.

[7] BEIS (2022), 'Guidance on development costs and the nuclear Regulated Asset Base model'.
[8] Government will be a price taker during the capital raise for equity and debt. Therefore, whilst government's contribution will receive the same rate of return as private investment, the actual funding from government will be borrowed at the lower government gilt rate plus an administrative margin. This provides an opportunity to reduce RAB costs to consumers by reimbursing them for the spread between the prevailing market rate and government borrowing rate, through a process termed 'recycling'.

16. In addition, there are a range of non-monetised costs and benefits that form an important part of the overall value for money assessment.

Counterfactuals for analysis

17. To assess the impact of SZC on the electricity system, it is compared to counterfactuals that draw on alternative low carbon technologies to meet emissions targets and net zero by 2050.[9] The counterfactuals are bespoke and informed by the department's power system optimisation analysis and more recent modelling of credible power sector pathways to meet net zero targets by 2050 ('net zero reference cases').[10] The counterfactuals assume no new build nuclear after HPC, to ensure the assessment focuses on the value of SZC as the marginal nuclear plant on the system.

18. Multiple combinations of wind, solar, Carbon Capture Utilisation and Storage (CCUS), and hydrogen-to-power technologies were assessed as counterfactuals. The counterfactuals were chosen on the basis of producing low levels of emissions (achieving a similar grid carbon intensity to SZC) and feasible to deliver (without significantly exceeding build limits or relying too heavily on nascent technology). Where multiple counterfactuals satisfied these criteria, the scenario with the lowest appraisal systems costs was chosen. The chosen counterfactual saw SZC's c.3.3GW[11] of firm power substituted for additional onshore wind and offshore wind, supported by flexible sources of power. It is assumed this alternative capacity is in place the year SZC becomes operational.

19. The counterfactual analysis accounts for uncertainty surrounding the date which SZC comes online, as well as future power demand in the wider economy. The counterfactuals cover each of the SZC regulatory thresholds for deployment dates (outlined in paragraph 21.a) and two power demand scenarios.[12]

---

[9] Counterfactuals whereby SZC is built with alternative funding models weren't considered at this stage, given the maturity of SZC as a RAB funded project. Previous analysis estimated that a RAB model would reduce the present value cost of building and financing a new nuclear plant by £30bn, compared to a Contract for Difference (CfD) model. At the time, the Department also believed there were few, if any, investors in the market with the risk appetite to finance a nuclear project using a CfD. BEIS (2021) '[Regulated Asset Base model for new nuclear Impact Assessment']

[10] BEIS (2020), '[Modelling 2050: Electricity System Analysis']'.

[11] The planning assumption from SZC GenCo in the licence is 3,278 MW.

[12] Two power demand scenarios were examined: the Net Zero High (NZH) power demand counterfactual - an illustrative pathway to net zero with a higher power demand trajectory (c.660TWh in 2050) - and the Net Zero Low (NZL) power demand counterfactual (c.590TWh in 2050). Department for Energy Security and Net Zero (DESNZ) (2022) 'Energy and emissions projections: 2021 to 2040

Modelling approach and assumptions

Modelling approach

20. DESNZ's Dynamic Dispatch Model (DDM) has been used to estimate the cost of the electricity system with and without SZC being built.[13] The DDM is the model of the GB power sector currently used by government. It allows analysis of the impact of different policy decisions on capacity, generation, costs, prices, security of supply and carbon emissions. Appraisal system costs are split into different components, including capital, generation, networks, balancing, interconnectors, carbon (priced and unpriced) and unserved energy (unmet consumer demand due to generation shortages).[14]

Assumptions

21. An overview of the main assumptions feeding into the VfM assessment is set out below.

    a. **SZC Capital Cost and Schedule:** Sizewell C Limited[15] has undertaken comprehensive risk analysis to provide a holistic view of different risk and uncertainty scenarios for the project cost and schedule outturn. Techniques used include Monte Carlo (Quantitative Cost Risk Analysis) analysis, Scenario Based Modelling (SBM), Estimating Uncertainty and a Qualitative Schedule Risk Analysis (QSRA). The outputs of these risk analyses have helped SZC Ltd to build different projections of schedule and cost. The Lower Regulatory Threshold (LRT) and Higher Regulatory Threshold (HRT) are determined by government. These are thresholds which investors are incentivised to deliver against, and establish central and remote planning assumptions respectively. They are informed by SZC Ltd estimate and include additional costs to support the financing structures of the project.

    b. **SZC Cost of Finance:** The cost of finance for a nuclear project is a major factor in the VfM case. The cost of debt and equity during the construction period are reflected in the Initial Weighted Average Cost of Capital (IWACC) set by the Secretary of State at the point of licence modification. The macroeconomic assumptions have been updated to be consistent with April 2025 outlook for gilts and interest rates, March 2025 outlook for inflation, exchange rates and GDP deflators.

    c. **SZC Operating Assumptions:** SZC Ltd has provided extensive evidence on the technical specifications of SZC, informed by the operational performance of European Pressurised Reactors (EPR) worldwide. For power system modelling, it has been assumed SZC provides c.3.3GW of firm power, with a 90% load factor, operating for 60

---

[13] The Dynamic Dispatch Model (DDM) is a comprehensive fully integrated power market model covering the GB power market over the medium to long term. (Dynamic Dispatch Model (DDM) - May 2012 - GOV.UK)

[14] The DDM is quality assured in line with the DESNZ Quality Assurance process, and the investor model is independently audited as part of the capital raise process. The National Audit Office (NAO) reviewed the DDM at the time of their investigation into HPC and consider it to be "a reasonable approach to assessing the potential impact of different power sector scenarios given the degree of uncertainty involved" (https://www.nao.org.uk/wp-content/uploads/2017/06/Hinkley-Point-C.pdf).

[15] Sizewell C Limited (SZC Ltd) is the delivery body (GenCo) for SZC construction and operation. It is wholly owned by a Holding Company (HoldCo), of which government is the majority shareholder.

years in the core scenarios.[16] The plant will have the technical capability to operate flexibly, including potential for load-following to adjust power output to match demand, and using a steam offtake valve to enable excess heat to be utilised for other purposes (such as hydrogen production). It is not clear if these modes of operation will be used and therefore, the plant has been modelled as a baseload operator in this analysis. However, these uses do represent a potential non-monetised benefit of SZC.

d. **Counterfactual technology assumptions** – The published DESNZ Generation Costs Reports have been used to inform technology capital costs and load factor assumptions used in power system modelling.[17] The financing costs across technologies are sourced from the best available information at the time of analysis.[18]

Monetised benefits of SZC

Core scenarios assessing the Value for Money

22. The modelling shows the impact of SZC, delivered at both LRT and HRT, on electricity system costs. This is compared to the net zero compliant counterfactual of alternative low carbon technology, in both low and high scenarios for future power demand. Value for money is considered from both i) the perspective of impact on power system costs (NPSVs); and ii) looking at the societal return on government's investment (NPSV per £ of government funding).

i) Impact on power system costs

23. Table 1 sets out the estimated impact on power system costs under the cost scenarios and power demand scenarios considered in this analysis. The Net Present Social Value represents the present value of future costs and benefits.

Table 1 – Impact on power system costs

NPSV to c2100, £bn 2024 prices, 2025 PV year	Lower Regulatory Threshold	Higher Regulatory Threshold
Net Zero Low power demand	13.6	3.9
Net Zero High power demand	18.0	6.6

[16] The planning assumption from SZC GenCo in the licence is 3,278 MW. This has been rounded to 3.3GW for input into the DDM.
[17] DESNZ (2023), 'Electricity generation costs'.
[18] BEIS (2020), 'Cost of capital update for electricity generation, storage and DSR technologies.'

24. The results shown in Table 1 suggest that building SZC would reduce cost of the electricity system to consumers in all of the core scenarios modelled, including if the project delivers at LRT and HRT (central and remote planning assumptions respectively).

25. The underlying electricity system modelling shows that, compared to the counterfactual of additional deployment of onshore and offshore wind supported by flexible sources of generation, SZC delivers significant benefits as the marginal nuclear plant on the system beyond HPC. Although the capital costs it adds to the system are higher, these are outweighed by the benefits of reduced network, interconnector and balancing costs. Once operational, SZC could reduce the cost of a low-carbon electricity system by around £2 billion per year on average (£2024 real terms, in all core scenarios modelled).[19]

26. The results of positive NPSVs in all core scenarios would support a decision to build SZC, as it is likely to represent VfM.

ii) Societal return on government investment

27. Table 2 sets out the societal return on government investment, calculated using the NPSV per £ on government's balance sheet.

Table 2 – Societal return on government investment

NPSV/£ government spend to c2100, 2024 prices, 2025 PV year	Lower Regulatory Threshold	Higher Regulatory Threshold
Net Zero Low power demand	1.3	0.9
Net Zero High power demand	1.4	1.0

28. The results set out in Table 2 suggest that building SZC would generate a positive return on government investment in all the core scenarios modelled. If the project delivers at LRT, the net societal benefits per £ on government's balance sheet (i.e. the project capital cost excluding sunk costs) are greater than 1. Even if the project delivers at HRT, the net societal benefits per £ on government's balance sheet are positive, though less than 1 where future power demand is low. As above, the results would support a decision to build SZC.

Bills impact

29. The RAB model reduces the cost of finance of the project by allowing shareholders to share some of the project's construction and operating risks with consumers. Under the RAB model, SZC will draw a revenue stream from consumers during the construction period to prevent the accumulation of financing costs. Recycling allows for a

[19] System cost benefits are discounted in the calculation of the NPSV, in line with HMT's Green Book principles on how to appraise and evaluate projects. HMT (2022), 'The Green Book'

reimbursement amount, related to HMG’s debt and equity related returns, to lower supplier RAB levies.

30. It is estimated that the RAB levies will be an average of £1 a month on a typical household bill through the construction period (post-recycling, real £2025). This finding is consistent across LRT and HRT.

31. These estimates are based on SZC's projected revenues from consumers during construction and forecast eligible electricity sales[20] and average annual household[21] consumption. Actual bill impacts will differ by household depending on their annual electricity consumption.

Non-monetised impacts of SZC

32. There are significant non-monetised benefits and risks from the project, which are not captured in the power system modelling, but are important and form part of the overall VfM assessment.

Additional non-monetised benefits of SZC

33. **Increasing security of supply:** whilst the DDM values security of supply impacts in routine operation of the electricity system (with a Loss of Load Expectation of 3 hours a year or less), it does not account for low probability, high impact risks. These include extended solar/wind droughts, the interruption of domestic energy imports, and potential national security risks to offshore/subsea infrastructure, which increased nuclear capacity can help mitigate against. As such, the full security of supply benefits from SZC are not monetised.[22]

34. **Developing the nuclear supply chain and skills base**: building SZC will maintain the UK’s nuclear supply chain and skills base expertise, which has been developed to support HPC. This would reduce the schedule and cost of building future nuclear plants, thus making the option of future nuclear projects more viable.

35. **Proving a new financing model:** SZC will act a pathfinder for the financing of future projects as the first nuclear project to deploy the RAB and GSP model. This may generate greater competition in future nuclear projects, lowering the future cost of capital for UK nuclear. These benefits are not factored into the power system analysis, which assumes no further nuclear beyond HPC/SZC (in the counterfactual/policy scenario).

36. **Mitigating net zero delivery risk:** building SZC would also help to mitigate the delivery risk of needing to deploy other low carbon technologies at ambitious capacity levels in

[20] Energy Intensive Industries will be exempt from RAB policy costs.
[21] Dual fuel, non-electric vehicle household.
[22] Whilst there are specific technology risks within nuclear plants, these are in part mitigated by being part of a diverse portfolio of generating technologies in the electricity system which carry a variety of risks.

order to meet the UK's net zero obligations. Aiming to deploy a variety of technologies that provide low carbon power can help reduce delivery risk.

37. **Delivering employment benefits:** it is estimated that construction of a GW-scale nuclear plant would support around 10,000 jobs at the peak of construction and will contribute to government's ambition to increase clean power jobs.[23]

38. **Benefits of SZC providing flexible electricity:** whilst not factored into the monetised analysis, there is potential for the plant to operate on a load-following basis, varying the core electricity output of the plant to respond to system demand. EPR technology is technically capable of operating in this manner. If pursued, a load-following approach could benefit the electricity system, reducing system operator costs by adding flexibility to respond to changes in demand.

39. **Benefits of using excess heat from SZC:** excess heat in the form of steam extracted from SZC could be used in a variety of use cases including: i) a supply of low carbon heat, ii) hydrogen production, and iii) direct air carbon capture from the atmosphere. Drawing excess heat from the plant would lead to a moderate reduction in electricity output, which could provide added flexibility in the power system to reduce SZC's output if desirable. This is not captured in the monetised analysis as the proposition and business models for using excess heat from the plant are not yet commercially mature.

40. **Benefits from private investors:** the capital raise process is seeking to attract private investors, with experience in nuclear and large infrastructure delivery. They will bring additional schedule and cost discipline to the project, reducing the risk of overruns. These are not factored into this power system analysis.

Non-monetised risks of SZC[24]

41. **Other new low-cost technologies or financing structures coming forward**: the analysis examines the cost-effectiveness of SZC compared with known alternative low carbon technologies. The modelling does not account for the risk that other technologies come forward that lower system costs more than SZC, or the risk that any more innovative or lower cost financing agreements become available to existing technologies.

42. **Other environmental impacts:** the DDM analysis does not estimate other environmental impacts such as air quality, noise, land use changes, biodiversity changes and emissions during construction (decommissioning costs are included in the monetised impacts analysis). A comprehensive review of the environmental impacts of the SZC project has been undertaken by SZC Ltd's GenCo.[25] This has been further developed as part of

---

[23] The figure of 10,000 jobs is an estimate using information from the Energy Innovation Needs Assessments. The EINAs use cost information to estimate the impact of different technologies in the UK's future energy system on the economy (in terms of gross value added, GVA) and then use a GVA per head figure to produce job estimates.
[24] The risk of capital cost and schedule overrun are monetised in the electricity system modelling and value for money analysis.
[25] Generation Company SZC Limited (2021) '[Life cycle carbon and environmental impact assessment of electricity from Sizewell C nuclear power plant development]'

conditions to obtain a DCO, as set out in the Environmental Statement and through ongoing efforts to monitor and mitigate these impacts.[26]

Summary of economic rationale

43. There is a clear economic case for government intervention to overcome persistent market failures and barriers to investment, to deliver a secure and low carbon power supply and help achieve net zero by 2050 at low-cost.

44. Compared to the counterfactual of delivering alternative low carbon technologies, the results from the power system modelling suggest that building SZC reduces the cost of the power system and generates a positive return on government investment. These results are consistent with all the core scenarios modelled. The results would support a decision to build SZC, as it is likely to represent value for money and the case is robust to a range of potential outcomes.

[26] SZC Development Consent Order (DCO) application (see Environmental Statement) https://sizewellcdco.co.uk/view-original-dco-application-documents/

This publication is available from: www.gov.uk/desnz

If you need a version of this document in a more accessible format, please email alt.formats@energysecurity.gov.uk. Please tell us what format you need. It will help us if you say what assistive technology you use.