



The Sizewell C Project

6.2 Volume 1 Introduction to the Environmental Statement

Chapter 4 Project Evolution and Alternatives

Revision: 1.0
Applicable Regulation: Regulation 5(2)(a)
PINS Reference Number: EN010012

May 2020

Planning Act 2008
Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009



Contents

| | | |
|-----|---|----|
| 4. | Project Evolution and Alternatives | 1 |
| 4.1 | Introduction..... | 1 |
| 4.2 | Strategic site selection for the power station | 1 |
| 4.3 | Strategic alternatives and the need for associated development..... | 4 |
| 4.4 | Summary of associated development requirements | 18 |
| | References | 20 |

Tables

| | | |
|-----------|---|----|
| Table 4.1 | Freight strategy construction materials | 17 |
|-----------|---|----|

Plates

None provided.

Figures

None provided.

Appendices

None provided.

4. Project Evolution and Alternatives

4.1 Introduction

4.1.1 In accordance with Regulation 14(2)(d) and Schedule 4 to The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations), an **Environmental Statement (ES)** to be submitted with the application for development consent should include “a description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”.

4.1.2 This chapter of the **ES** sets out the strategic alternatives that have been considered by SZC Co. and how these have guided the evolution of the proposed development. This chapter describes:

- the strategic site selection for the power station and reactor design;
- the consideration of alternative strategies for the accommodation and movement of construction workers and the transportation of freight – which in turn has informed the need for, and strategic siting of, associated development; and
- the principles of design development that have evolved through the pre-application phase of the Sizewell C Project.

4.1.3 The site-specific alternatives and project evolution (e.g. location and sizing of the proposed development; layout; and design iterations) for each element of the Sizewell C Project are then considered in **Volumes 2 to 9** of the **ES** (Doc Ref. 6.3-6.10).

4.1.4 Further detail can be found in the Site Selection Report at **Appendix A** of the **Planning Statement** (Doc Ref. 8.4) which addresses site selection in a wider context than the requirements of the EIA Regulations.

4.1.5 Details of the alternatives considered by SZC Co. in relation to the offshore works area can be found in **Volume 2 Chapter 6** of the **ES** (Doc Ref. 6.3).

4.2 Strategic site selection for the power station

4.2.1 A number of decisions relating to the Sizewell C Project have been determined through other processes, policy or legislation and, therefore, SZC Co. has not considered any alternatives in this regard. In particular,

the proposed siting of Sizewell C is set out in the Nuclear National Policy Statement (NPS) (EN-6) (Ref. 4.1) and decisions relating to the reactor design were completed through the UK GDA process.

a) **Geographical location**

- 4.2.2 NPS EN-6 identifies eight sites, including Sizewell C, as potentially suitable locations for the deployment of new nuclear power stations in England and Wales by 2025.
- 4.2.3 NPS EN-6 is underpinned by a Strategic Siting Assessment (SSA) of the eleven sites promoted through a nomination-driven process. The Government also undertook a strategic level screening process (the Alternative Sites Study) to identify if there were any potentially suitable sites that were not put forward through nominations.
- 4.2.4 The Appraisal of Sustainability (Ref. 4.2), took into account both alternative strategies (i.e. whether the objectives of the NPS could be achieved through alternative options) and the potential acceptability of the eleven sites originally nominated to the SSA based on selected exclusionary and discretionary criteria¹.
- 4.2.5 NPS EN-6 confirms that, as a result of the SSA and Alternative Sites Study, the Government's policy is that there are no alternatives to the eight listed sites, capable of deployment before the end of 2025 (paragraph 4.4.3). It also states that the Government considers that all eight sites are required to be listed in the NPS (paragraphs 2.4.4 and 2.5.4).
- 4.2.6 The location of the Sizewell C power station, to the north of the existing Sizewell B power station, and the approximate location of the temporary construction area for the main development site, are indicated in plans appended to NPS EN-6. The NPS recognises, at paragraphs 2.3.3 and 2.3.4, that the site boundary proposed in the application for development consent may vary from the NPS site boundary, as specific proposals are developed.

¹ Exclusionary criteria were those which, if breached, would categorically exclude all or part of a site from further consideration (for example demographic risk or proximity to certain military activities). Discretionary criteria were those that the Government considered, for various reasons, could, either singly or in combination, make all or part of a site unsuitable but which needed to be carefully considered in order to come to a conclusion as to the site's strategic suitability (for example, flood risk and proximity to hazardous facilities).

- 4.2.7 The Statement on Energy Infrastructure published on 7 December 2017 (Ref. 4.3) concludes that in respect of matters where there is no relevant change of circumstances it is likely that significant weight would be given to the policy in EN-1 (Ref. 4.4) and EN-6 in determining proposals at those sites listed in EN-6 that would not be deployed before 2025. For the reasons set out in **Chapter 3** of the **Planning Statement**, (Doc Ref. 8.4), there has been no relevant change of circumstances which would suggest that anything less than significant weight should be given to the policies in EN-1 and EN-6.
- 4.2.8 EN-6 advises the decision maker to “*judge an application on a listed site on its own merits and a comparison with any other listed site is unlikely to be important to its decision*” (Ref. 4.1). EN-6 makes clear that sites are not in competition against each other. So far, only one of the identified sites (Hinkley Point C) has secured a Development Consent Order (DCO) for a new nuclear power station.
- 4.2.9 Between December 2017 and March 2018, the Government consulted on the siting criteria and process for a new NPS for nuclear power with single reactor capacity over 1 gigawatt for deployment between 2026 and 2035 (Ref. 4.5). SZC Co. nominated Sizewell as a site that is suitable for the deployment of a new nuclear power station by 2035.
- 4.2.10 The Government Response, published in July 2018 (Ref. 4.6), confirmed that the proposed process for assessing and designating potential sites was to first carry the list of potentially suitable sites from EN-6 through to the new NPS subject to each site meeting the updated siting criteria and an updated environmental statement.
- 4.2.11 Once the new NPS is designated, the Secretary of State must determine any application for new nuclear built in accordance with that NPS (pursuant to section 104 of the Act). In the meantime, the Government Response at paragraph 3.10 confirms that “*sites listed in EN-6 on which a new nuclear power station is anticipated to deploy after 2025 will continue to be considered appropriate sites and retain strong Government support during the designation of the new NPS*” (Ref. 4.1).
- 4.2.12 The approach adopted in EN-6, that the eight sites were not alternatives to each other, remains applicable now. As set out in **Chapter 3** of the **Planning Statement** (Doc Ref. 8.4) the need for new nuclear power is now even greater than before. EN-6 is clear that all eight sites are required to be listed in the NPS so that they are each available as a potential opportunity for nuclear development subject to consideration through the DCO process (paragraph 2.3.2). It follows that even if new potential locations were to be located through the new NPS nomination process (once a future window for

new nominations opens), that would not diminish the need case for a new nuclear power station at Sizewell.

4.2.13 Against this policy basis, alternative locations for the nuclear power station are not considered further in this chapter. This matter is addressed in further detail, having regard to the Government consultation the new NPS for Nuclear Power between 2026 – 2035 (new NPS) in **Appendix 1** of the **Planning Statement**. (Doc Ref. 8.4).

4.2.14 The location and size of the temporary construction area are, however, considered further in **Volume 2, Chapter 6** of the **ES**.

b) Reactor design

4.2.15 The UK EPR™ reactor is proposed for Sizewell C. This reactor has completed the UK Generic Design Assessment (GDA) process with the award of a Design Acceptance Confirmation from the Office for Nuclear Regulation and a Statement of Design Acceptability from the Environment Agency in December 2012. Therefore, no alternative designs for the nuclear reactor have been considered. The UK EPR™ reactor is the same reactor design as is being constructed at Hinkley Point C.

4.3 Strategic alternatives and the need for associated development

4.3.1 Although it is not necessary to consider alternative locations for the power station, or the designs for the nuclear reactor, it is necessary to explain the approach to identifying the need for associated development that would be required for the construction and operation of the power station.

4.3.2 SZC Co. has taken a staged approach to the site selection process for associated development, having regard to the principles that associated development should have a direct relationship with the principal development, should not be an aim in itself and is proportionate to the nature and scale of the principal development.

4.3.3 The first stage, which is described in this section, involved the consideration of alternative strategies in relation to the accommodation of the construction workforce, movement of people and movement of freight during construction – and the consequent need for associated development

4.3.4 The second stage relates to site-specific alternatives for each associated development identified as being required as part of the accommodation and transport strategies. This includes a consideration of alternative locations and design solutions. This second stage involved a two-filter process, the first to identify potential options that met the identified prerequisites for the development and the second to assess alternatives that did meet the

objectives. It follows that alternatives that did not pass the first filter stage are not reasonable alternatives and were not included in the consultation stages.

4.3.5 The design of the proposed development has evolved through the adoption of the following principles:

- an understanding of the operational requirements of the various components of the Sizewell C Project (e.g. number of car parking spaces at the park and ride sites);
- the experience of designing and constructing the Hinkley Point C power station;
- consideration of the site's context and development constraints;
- the planning policy context;
- the outcomes of the environmental assessment process to avoid likely significant environmental effects where possible and, where this is not possible, to mitigate and manage any remaining effects;
- consideration of potential transport impacts; and
- feedback from consultation with public and statutory stakeholders.

4.3.6 The design process has been an iterative one, whereby outcomes and feedback from those principles have been incorporated into the proposed development. The design process for the Sizewell C Project has been undertaken in parallel with the EIA and has taken into account emerging assessment outcomes and proposed mitigation, which have been built into the development proposals and plans. Refer to the description of primary and tertiary mitigation measures within **Chapter 6** of this volume.

4.3.7 A description of these site-specific considerations for the associated development sites is included in **Chapter 3** of **Volumes 4 to 9** of the **ES**.

4.3.8 The alternatives and design evolution in relation to the main development site (including, for example the size and boundaries of the temporary construction area, the design of the Site of Special Scientific Interest (SSSI) crossing, location of the borrow pits etc.), are presented in **Volume 2, Chapter 6** of the **ES**.

4.3.9 This section relates to the first stage, and describes the strategies developed for the management of accommodation and transport and how this informed the requirement for associated development.

a) Context for strategic alternatives

- 4.3.10 Sizewell C would need a peak workforce of approximately 7,900 on the main development site. Whilst SZC Co. and its contractors would seek to recruit as many of the construction workforce as possible from the local area, it is likely that a large proportion would be recruited from further afield. SZC Co. has therefore developed a Gravity Model that uses transport and socio-economic information, along with accommodation data, to calculate where both home-based and non-home-based workers would be likely to live across the region at peak construction, as discussed in **Volume 2, Chapter 9** of the **ES**. It is estimated that up to 5,880 workers would be recruited from outside the local area.
- 4.3.11 Given the number of workers who would be recruited from outside the local area, new infrastructure would be required to accommodate and support the transport of the construction workforce. Alongside the construction workforce requirements, SZC Co. has also considered the large volumes of freight that would need to be transported to the main development site during the construction programme.
- 4.3.12 Together, these requirements have helped to inform the scale and distribution of supporting infrastructure, which is referred to as “*associated development*” under section 115 of the Planning Act 2008.

b) Accommodation infrastructure

- 4.3.13 The requirement for a large non-home-based workforce needs the development of a balanced strategy to ensure that there is a range of accommodation that is attractive to workers in the vicinity of the construction sites and to ensure that this can be managed in such a way that any disturbance to local communities is minimised as far as possible.
- 4.3.14 The **Accommodation Strategy** (Doc Ref. 8.10) sets out the approach proposed by SZC Co., which makes use of existing local accommodation where possible, in addition to a single accommodation campus on the main development site and a caravan site on the land east of Eastlands Industrial Estate (LEEIE) in Leiston.
- 4.3.15 At a strategic level, SZC Co. considered the principle of providing a single or multiple campuses, and whether the campus(es) should be within the main development site boundary or remote from it.
- 4.3.16 SZC Co. identified at an early stage of consultation, supported by evidence from contractors at Hinkley Point C, along with experience on Hinkley Point B and Sizewell B, that a single campus within walking distance of the main site would be beneficial for a number of reasons:

NOT PROTECTIVELY MARKED

- A single site campus would enable SZC Co. to provide the most flexible accommodation offering, making it easy for workers and contractors to manage their accommodation needs.
- It would greatly reduce the number of journeys on local roads, as well as time associated with travelling to and from the construction site.
- A single campus close to the main site would minimise traffic disruption from workers travelling to and from the site and effects on local communities, including concerns about safety, community cohesion and use of community facilities and space.
- It would increase productivity and reduce potential health and safety risks associated with long travel and work times.
- It is vital that key workers are resident on-site, so they could be flexible in terms of the out of hours working that may be necessary to respond to emerging site needs and maintain construction productivity and progress.
- The size of such a campus would generate a critical mass that would in turn allow the provision of a range of amenities for workers.
- A single, on-site accommodation campus would also help to mitigate the impacts of large groups of construction workers in a number of small rural communities.
- A single campus would enhance the ability of the site to provide a safe, secure facility.

4.3.17 By comparison an off-site campus, either as an alternative, or an addition to a smaller, on-site accommodation campus, would be likely to generate potential off-site community impacts, increase traffic locally and dilute the many benefits of an on-site accommodation campus in terms of providing worker facilities and enhancing wider worker management.

4.3.18 A multiple-campus option would spread the workforce across a wider area and increase the difficulty in managing effects on those communities, as well as increasing traffic through more (and longer) bus journeys across multiple shifts. A multiple campus proposal was not therefore identified as a reasonable alternative and was not included as an option through consultation.

4.3.19 Other alternatives suggested during consultation included the provision of permanent housing or seeking to accommodate more workers in existing accommodation.

- 4.3.20 Given the effects of the Sizewell C Project in terms of accommodation would only occur during the construction phase, permanent accommodation (which could only be delivered to a maximum of 500 dwellings through the DCO process) would be considered disproportionate to mitigate potential effects. The delivery of permanent housing has not been considered as a reasonable alternative to the on-site campus.
- 4.3.21 The provision and scale of an on-site campus reflects the estimated level of spare accommodation capacity in the area – striking a balance between placing too much pressure on existing stock and maximising the economic benefits of a non-home-based workforce in the area by using otherwise spare tourist accommodation. This balanced approach is set out in detail in the **Accommodation Strategy** (Doc Ref. 8.10).
- 4.3.22 Having established the principle of a single campus near the main development site, the search area for potential sites was defined to the north by Theberton, and to the south by Leiston. Sites further afield were scoped out because they would not deliver the advantages of a close to site accommodation campus in terms of convenience for workers, efficiency of operation and significant benefits in terms of limiting traffic impacts on local communities. At Stage 1 consultation SZC Co. identified three possible sites within this area for the proposed campus, one adjacent to the main development site and two alternative near-site options. At Stage 2 consultation the former was confirmed as the preferred location. The site selection process in relation to this decision is explained at **Volume 2, Chapter 6** of the **ES** along with the evolution of its design.
- 4.3.23 SZC Co.'s experience of the construction of new nuclear power stations has highlighted that caravan accommodation would also be popular with some non-home-based construction workers, especially in the early years of construction. Accordingly, the strategic decision was taken to provide some caravan accommodation within the LEEIE, as outlined in **Volume 2, Chapter 6** of the **ES**.

c) **Movement of people**

- 4.3.24 The transport strategy, which is set out at **Chapter 4** of the **Transport Assessment** (Doc Ref. 8.5), considers the workforce volumes that would need to be transported to the Sizewell C Project sites on a daily basis throughout the construction programme.
- 4.3.25 SZC Co. has developed measures, throughout the consultation process and feeding through into the DCO proposals, to manage and reduce the daily traffic associated with the construction workforce during the peak years of construction.

- 4.3.26 As set out above, the provision of an on-site campus would greatly reduce the number of journeys to work on the highway network as well as time associated with travelling to and from the construction site.
- 4.3.27 A range of approaches for the movement of people located away from the campus during the construction period were identified at Stage 1 consultation. This included the potential for walking or cycling, the need for some workers to drive directly to site and the provision of a range of bus services – including direct buses, bus pick-ups from nearby railway stations on the East Suffolk line, and buses from park and ride sites.
- i. **Park and ride facilities**
- 4.3.28 The Gravity Model indicates that a large proportion of construction workers are likely to be travelling to the main development site from both the north and south, with a relatively even distribution between the two. If travelling by car, it is considered that the majority of these workers would use the A12 for a substantial proportion of their journey. Two park and ride sites on the A12 were therefore proposed; one to the north of the main development site and one to the south.
- 4.3.29 The approximate locations were chosen with the aim of intercepting construction-related traffic at strategic locations to reduce traffic through the towns and villages closer to the main development site. The search area for the northern park and ride sites was defined to the south by the A12/B1122 road corridor north of Theberton. The search area for the southern park and ride was defined by the A12 road corridor between Woodbridge and Friday Street (the existing A12/A1094 road junction) with different specific locations considered through consultation.
- 4.3.30 Further details on the site selection approach, the final location of each of these sites (i.e. at Darsham and Wickham Market), and the evolution of their design, can be found in **Volume 3, Chapter 3** of the **ES** and **Volume 4, Chapter 3** of the **ES**.
- 4.3.31 At Stage 2, SZC Co. introduced a proposed short-term park and ride area at the LEEIE, to allow workers to be shuttled by mini-bus to the power station platform, until an SSSI crossing has been established and the workforce can use the main construction car park. SZC Co. considered the retention of the additional park and ride spaces at the LEEIE beyond the early years, though this would not be necessary with the park and ride facilities at Darsham and Wickham Market in place and the approach to parking permits, which will mean that the 1,000 spaces at the main development site are sufficient at peak.

ii. Direct bus services

- 4.3.32 SZC Co. proposes to provide a range of direct bus services to the main development site from key locations where there are concentrations of workers.
- 4.3.33 The scope of these services has been determined through the Gravity Model to identify where construction workers are forecast to live during peak construction.
- 4.3.34 At Stage 1 consultation SZC Co. identified that direct buses would be provided from central Ipswich and Lowestoft during the peak years of construction. In addition, following further modelling work that has been undertaken, SZC Co. confirmed at Stage 3 that direct bus services would also run from the Leiston area.
- 4.3.35 Direct bus services would also be provided during early years construction.

iii. Rail

- 4.3.36 At Stage 1 consultation SZC Co. explained the relatively small role envisaged for rail in the movement of the construction workforce, for the following reasons:
- only a limited proportion of the construction workforce is likely to live sufficiently close to a rail station to make daily travel by rail an attractive proposition;
 - the attractiveness of using rail for workers is likely to be further limited by the constrained frequency of services on the East Suffolk line, and the relatively slow journey time by rail from many locations when compared to travel by car or bus;
 - start and finish times for the workforce would not be likely to coincide with available rail services, whereas park and ride and direct bus services can be more easily timed and flexibly adapted to meet the required demand; and
 - there is no passenger rail service to Leiston, and providing such a service would not be economic or sustainable.
- 4.3.37 For those reasons SZC Co. identified that the strategy for the movement of construction workers would not include dedicated rail services.
- 4.3.38 However, SZC Co. introduced proposals to provide bus pick up services from the nearest railway stations on the East Suffolk line to the main development site, namely Darsham and Saxmundham.

iv. Management of car parking

- 4.3.39 SZC Co. identified the need for some car parking on the main development site in order to allow workers living in the area bounded by the A12 and rivers Deben and Blyth to drive directly to the construction site. The rationale being that it would not be sensible or sustainable for these workers to travel away from the construction site to a park and ride facility only to then travel back by bus.
- 4.3.40 The transport strategy seeks to limit the number of car journeys to the main development site by constraining the level of parking and actively managing the on-site parking through a permit system.
- 4.3.41 Only workers living inside the area bounded by the A12, River Blyth and River Deben (except those living in the Leiston area) would be issued a parking permit. Workers without a parking permit (including those benefiting from a direct bus service such as those living in the Leiston area) would need to use one of the park and ride sites, a rail pick-up, a direct bus services or walk or cycle to the main development site.
- 4.3.42 The alternative of providing more car parking at the main development site would result in a greater number of construction workforce trips on the local highway network. The provision of 1,000 spaces, which at peak construction would accommodate only 12% of the construction workforce, provides an appropriate balance to enable workers living inside the area described above to have a sustainable journey to work. Providing fewer spaces would mean workers located in this geographical area would have to drive out to one of the park and ride facilities and back in on the shuttle bus which would add to, rather than reduce, traffic on local roads.

v. Walk and cycle improvements

- 4.3.43 At Stage 1 consultation SZC Co. identified that workers living close to Sizewell C would be encouraged to walk or cycle where practicable and would explore measures to encourage cycling and walking – for example by improving footpaths and cycleways.
- 4.3.44 Bridleway 19 currently runs through what would be the main construction area for Sizewell C. During the construction phase, it is proposed to divert the bridleway onto a single 3m-wide route, surfaced to bridleway standards and with waiting boxes at crossing points. The proposals also include a footpath linking the caravan site at the LEEIE to the main construction site.

vi. Summary

4.3.45 The final proposed strategy for the transportation of the workforce has retained the overarching principles established at the first stages of consultation, namely an on-site accommodation campus and caravan site at LEEIE, provision of direct buses, constrained car parking and promotion of walking and cycling and the principle of two park and ride facilities.

4.3.46 Alternatives for the movement of construction workers, such as rail or more or less parking at the main development site, have been considered – but the proposed strategy represents the most appropriate and balanced approach.

d) Movement of freight

4.3.47 Construction of Sizewell C would require large volumes of freight to be transported to the main development site. The principles informing SZC Co.'s overall strategy for managing materials and freight movements are as follows:

- first, wherever practical and cost effective, SZC Co. and its contractors have sought to reduce the volume of materials that require movement off-site, either through the re-use of excavated material as fill, landscaping or via the deployment of the borrow pit to both source material on-site and deposit of other material.
- secondly, where materials must be imported to, or exported from the site, to seek to move bulk materials, and containerised goods by sea or by rail where this is practical or cost effective.
- thirdly, where movement of materials by road remains necessary, to manage this in a way which reduces local impacts via the use of defined routes for heavy goods vehicles (HGVs), and systems which can monitor, manage and control the number and timing of HGV movements to the site.

4.3.48 In line with this strategy, SZC Co. has evaluated the possibility of moving bulk materials and containerised goods by sea or by rail. This has included:

- evaluating the capability of the options for sea and rail deliveries, including assessment of potential constraints on delivery (e.g. weather and navigational constraints in respect of sea delivery and rail pathing/infrastructure constraints in respect of rail deliveries);
- assessing the key material requirements that would arise over time during the construction phase, for each key area of the Sizewell C

NOT PROTECTIVELY MARKED

Project build, and from this identifying the periods during which demand for materials is greatest;

- considering the scope to move each major category of materials by sea and rail, taking account of the nature of the materials and possible supply sources; and
- consideration of the environmental impact of each of the main strategies.

4.3.49 Paragraph 5.13.10 of NPS EN-1 states that “*Water-borne or rail transport is preferred over road transport at all stages of the Project, where cost-effective*” (Ref 4.4). The feasibility of a marine-led strategy has therefore been considered.

4.3.50 As part of Stage 1 consultation a wide jetty was one of the three options proposed for a marine delivery facility. A wide jetty would have enabled the delivery of bulk materials, containerised goods and Abnormal Indivisible Loads (AILs) by sea during the construction phase.

4.3.51 The preliminary environmental assessment of these options was undertaken between Stages 2 and 3, and identified several significant environmental impacts associated with a wide jetty.

4.3.52 The Beach Landing Facility (BLF) also requires piling, but to a greatly reduced extent, and only in shallow waters which greatly attenuates the radius of underwater noise. The BLF is therefore predicted to have a more limited impact on the environment, shipping and navigation activities compared with either of the jetty options and would not require removal as it would be retained for use during the operation of the power station.

4.3.53 Whilst the wide jetty option would not have caused permanent change to the shoreline alignment, it would likely have caused greater temporary effects, such as a reduced wave height at the shore, and associated short-term changes to the alignment of the shoreline. Measures to reduce these impacts would significantly increase the overall time taken to construct the power station, would not fully address those impacts, and it could delay the overall construction programme.

4.3.54 The narrow jetty would not have allowed the type of material needed during construction and therefore would not have been able to make any meaningful contribution to the construction phase. SZC Co. therefore discounted the narrow and wide jetty options following Stage 2 consultation and progressed with a BLF, in order to retain the ability to deliver AILs by sea that would be too large to be delivered by road or rail. The decision was informed by design development and environmental work, and SZC

Co.'s experiences from the construction of Hinkley Point C in relation to the type of material and deliveries needed during construction.

- 4.3.55 A BLF is now to be the only marine based capacity promoted. It will allow for the delivery of AILs throughout the construction phase and during the operational phase, to remove heavy and oversized loads from the road network.
- 4.3.56 Stage 3 consultation set out two freight delivery options for the Sizewell C Project: a rail-led and road-led option. Both options included the movement of freight by both road and rail, with the road-led option allowing for up to 30% of materials to be moved by rail, and the remaining 70% by road (construction materials by weight). The rail-led then allowed for 55% by rail and 45% by road.
- 4.3.57 Network Rail's Stage 3 consultation response identified the work currently being undertaken by SZC Co. and Network Rail; that high-level work is to understand the improvements needed to support two freight trains per day, and then to support five freight trains per day. In their Stage 3 response, Network Rail identified a number of risks to the rail-led solution that could potentially impact the Sizewell C programme. They note "*[t]herefore, EDF Energy and Network Rail recognise that this could affect their decision as to which strategy to pursue*".

i. Deliverability

- 4.3.58 Funding the construction of nuclear power stations poses unique challenges due to the high cost of construction, the long construction period, and the perceived risk of programme delays. It is therefore necessary for SZC Co. to take into account the potential cost implications of the respective transport options, along with the risks of delay to delivery.
- 4.3.59 In order for these issues to be taken into account in the proposed freight strategy, the deliverability of the road- and rail-led strategies was considered in detail by SZC Co., in consultation with Network Rail between Stage 3 Consultation and the submission of the DCO application.
- 4.3.60 SZC Co. and Network Rail prepared a governance for railway investment projects (GRIP) 2+ Report in relation to the rail works necessary for the road- and rail-led strategies, including indicative scheme designs and programme. This work identified that the rail-led strategy requires significant improvement works to the East Suffolk line. Due to the complexity of these works Network Rail was unable to give SZC Co. the necessary level of assurance regarding the programme for the East Suffolk line.

4.3.61 The GRIP 2+ Report indicates a series of critical, major and significant risks that could further delay the programme or unknown cost increases. SZC Co. has considered the potential for the works to the East Suffolk line to be included as part of the DCO, but the risks identified in the GRIP 2+ Report are not unique to Network Rail delivering those works and would apply equally to a scenario where SZC Co. elected to deliver those works. This is principally because the risks arise from undertaking complex rail works to an operational passenger line.

4.3.62 Whilst further work would clarify the precise programme and cost implication, SZC Co. and Network Rail agree that the extent of rail works needed for the rail-led strategy could not be delivered within the required timescales. This position was confirmed in Network Rail’s Stage 4 consultation response which noted:

“As previously noted, Network Rail has identified a number of risks to the viability of a rail-led solution that could potentially impact the programme in terms of the submission date for the DCO. Therefore, EDF and Network Rail recognise that this could affect their decision as to which strategy to pursue.”

4.3.63 The level of uncertainty of the works needed to deliver the rail-led option would affect SZC Co.’s ability to secure the necessary funding for the Sizewell C Project, and the ability to demonstrate to the Government that the Sizewell C Project can be deployed in time to meet the urgent need for new nuclear power generation.

4.3.64 On the basis of these concerns, SZC Co. concluded that the works needed to support a rail-led strategy would not be deliverable. Instead, an integrated strategy was developed to seek to secure the best deliverable rail outcome, whilst addressing the concerns expressed in relation to the road-led strategy.

4.3.65 SZC Co. and Network Rail have continued discussions and it is understood that Network Rail support the alternative integrated strategy, now proposed as part of the DCO application, as discussed below.

e) [Stage 4 consultation](#)

4.3.66 Rail provides the opportunity to reduce the number of HGVs on the road, and/or mitigate road traffic capacity issues. Bypass(es) would also provide amenity (noise/emissions) mitigation. However, as Network Rail identified, the rail-led strategy includes a number of risks that could impact on the deliverability of the Sizewell C Project within the required programme.

4.3.67 The same impacts were not identified for the road-led scheme, but such a strategy would lead to greater levels of impacts associated with HGV movements, leading to a number of significant noise and air quality impacts.

4.3.68 SZC Co. therefore proposed a third strategy: the Integrated Strategy. This sought to maximise the use of rail by committing to those rail works which could be carried out by SZC Co., or where there was sufficient programme certainty. This would allow for up to three trains per day (six movements) and would include the green rail route and upgrades to the branch line.

f) Conclusion

4.3.69 There is a clear preference in NPS EN-1 and EN-6 for rail over road for the movement of materials needed during construction. NPS EN1 (para 5.13.10) states that water-borne, and rail transport is preferred over road transport at all stages of the Sizewell C Project, where cost-effective. Paragraph 5.13.11 acknowledges that even having regard to the preference for water and rail-borne transport there may well still be a substantial level of HGV traffic associated with developments of this type and scale. This is confirmed in C.8.123 of Volume II of II, which states:

“Development at the Sizewell site is assessed by the Appraisal of Sustainability as having the potential for some adverse impacts locally from additional traffic generated during construction and wider negative effects on regional road infrastructure.” (Ref. 4.2)

4.3.70 Specific proposals for controlling HGVs are summarised below.

- control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements as far as practicable;
- make sufficient provision for HGV parking, either on-site, or at dedicated facilities elsewhere, to avoid overspill parking on public roads, prolonged queuing on approach roads, and uncontrolled on-street HGV parking in normal operating conditions; and
- ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers, and the responsible police force.

4.3.71 The key policy thrust for the Freight Management Strategy is therefore considered to be one that:

- Maximises rail (or marine) based transport.
- Controls HGVs in order to reduce and minimise adverse impacts in terms of:
 - routes;
 - numbers; and
 - delivery hours.
- Is cost effective; in terms of being affordable in the context of the wider context of the Sizewell C Project costs and is deliverable in terms of providing an acceptable level of risk to potential investors.

4.3.72 The Integrated Strategy seeks to overcome the deliverability issues associated with the rail-led strategy by including only those rail improvements that do not require works to the main East Suffolk line within the DCO application. These include the green rail route, and the works needed to upgrade the branch line. To increase SZC Co.’s confidence in delivering these works, it is proposed to include all the necessary powers to undertake the works within the Sizewell C Development Consent Order. The Integrated Strategy allows for up to three trains per day, meaning that the delivery of construction materials by rail would play an important, and meaningful role in the construction of the Sizewell C Project.

4.3.73 **Table 4.1** below sets out the comparison of the proportions of construction materials (by weight) that each of the options might be able to deliver.

Table 4.1 Freight strategy construction materials

| Construction Materials % (by Weight) | Road | Integrated | Rail |
|--------------------------------------|------|------------|------|
| HGV | 70 | 61 | 45 |
| Sea | 1 | 1 | 1 |
| Rail | 29 | 38 | 54 |

4.3.74 When compared to the road led strategy, the additional train movements allowed for in the Integrated Strategy enable a substantial reduction in the HGV movements from 750 HGVs on the busiest day, down to 500 in the proposed integrated strategy. The average would also be reduced from 375 to 325 HGVs. Whilst the levels of HGVs are substantially reduced in the Integrated Strategy, the construction stage would still involve a large number of vehicles travelling to and from the main development site. This means that the park and ride sites, freight management facility, two village

bypass and Sizewell link road would provide an important role in reducing and mitigating impacts associated with the construction stages.

4.3.75 The EIA has identified a number of receptors that are predicted to experience significant noise impacts along the rail line during the construction phase. The preliminary environmental information also identified that the road-led strategy required extended hours for HGV operation (beyond 7am to 11pm), which would result in a number of significant noise impacts arising from night-time road noise. Further environmental assessment work undertaken as part of Stage 4 therefore concluded that the predicted impacts of the three options are broadly comparable and therefore there was no environmental reason to prefer road based strategy, having regard to the clear policy preference for rail over road where practicable.

4.3.76 Since Stage 4, SZC Co. has undertaken further analysis and has considered the potential advantages of the Integrated Strategy over the road-led Strategy. In addition to consistency with the clear policy preference, the key benefits are as follows:

- Increased proportion of material transported by rail: the Integrated Strategy allows for 38% of construction materials (by weight) to be transported to the main development site by rail, or 39% by rail and sea. This is 9% more than that possible under the road-led option and provides a significant advantage in terms of overall sustainability.
- Reduction in HGV movements: the Integrated Strategy would reduce the busiest day HGV limits by a third, from 750 to 500. This reduction in HGVs would substantially reduce noise and air quality impacts to the receptors along the HGV routes, along with reducing the amount of traffic on the roads themselves.

4.3.77 SZC Co. concluded that the Integrated Strategy provides an appropriate strategy to move materials for the construction of the Sizewell C Project.

4.4 Summary of associated development requirements

4.4.1 The strategic alternatives process described above, for the accommodation of the construction workforce and the movement of workers and freight, has identified the need for the following associated development to support construction of Sizewell C:

- an on-site temporary accommodation campus and caravans;
- two temporary park and ride sites;

- an on-site BLF;
- a freight management facility;
- a bypass around Farnham and Stratford St Andrew on the A12;
- a bypass linking the A12 to Sizewell around Theberton and Middleton Moor;
- rail infrastructure for the delivery of construction materials; and
- road infrastructure to improve the viability of the delivery of construction materials by HGV.

4.4.2 Matters relating to the detailed siting of these facilities (and any alternatives) are described in the Alternatives sections within the relevant site volumes, **Volumes 2 to 9** of the **ES**.

4.4.3 Further detail on the proposals for associated development is provided in the **Planning Statement** (Doc Ref. 8.4) and specifically with regard to the site selection process at **Appendix 1** of the **Planning Statement** (Doc Ref. 8.4).

References

- 4.1 Department of Energy and Climate Change, National Policy Statement for Nuclear Power Generation (EN-6) (London: The Stationery Office, 2011)
- 4.2 Department of Energy and Climate Change, National Policy Statement for Nuclear Power Generation (EN-6) (London: The Stationery Office, 2011) Annex C.8
- 4.3 Department for Business, Energy & Industrial Strategy, Statement on Energy Infrastructure: Written statement (HLWS316) (London, 2017).
- 4.4 Department of Energy and Climate Change, Overarching National Policy Statement for Energy (EN-1) (London: The Stationery Office, 2011).
- 4.5 Department for Business, Energy & Industrial Strategy, Consultation On The Siting Criteria And Process For A New National Policy Statement For Nuclear Power With Single Reactor Capacity Over 1 Gigawatt Beyond 2025, (London 2017).
- 4.6 Department for Business, Energy and Industrial Strategy, Government Response: Consultation on the siting criteria and process for a new National Policy Statement for nuclear power with single reactor capacity over 1 gigawatt beyond 2025 (London, July 2018)