The Sizewell C Project

8.13 Sustainability Statement

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This **Sustainability Statement** (Doc Ref. 8.13) has been prepared by SZC Co. to support the Development Consent Order application for a new nuclear power station at Sizewell – the Sizewell C Project.

Achieving sustainable development concerns the balanced consideration of environmental, social and economic objectives – the three dimensions of sustainability, measured and reported on as the triple bottom line. SZC Co. wishes to deliver this triple bottom line approach for the development of the Sizewell C Project, whereby objectives under all three categories can be successfully accomplished. In order to demonstrate this, this **Sustainability Statement** presents the findings of a project-level sustainability appraisal which considers how sustainability has been integral to the development of the Sizewell C Project proposals. The appraisal is structured against relevant themes and objectives, developed from the Government's own Appraisal of Sustainability (AoS) framework for new nuclear power stations (Ref. 1.1). These have been used to evaluate project performance and have also helped to identify further sustainability principles which should be taken forward as the Sizewell C Project progresses. This appraisal considered the Sizewell C Project proposals, including the Environmental Impact Assessment (EIA), as well as wider project strategies in order to do this.

Sustainability appraisal key findings

a) Climate change – mitigation and adaptation

The UK Government is committed to tackling climate change, and is the first major economy to sign legally binding agreements to achieve net zero emissions by 2050. The electricity supply sector is a significant contributor to UK greenhouse gases (GHGs). The Committee on Climate Change's report 'Net Zero – the UK's Contribution to stopping Global Warming' (Ref. 1.2) recognises that the decarbonisation of the grid is an essential part of the Zero-Carbon Strategy, requiring a quadrupling of the supply of low carbon energy by 2050 in order to meet a fully decarbonised electricity supply. Whilst a range of technologies will be vital to achieving this, nuclear power will have an important role to play in providing a stable baseload of power, to complement other technologies such as wind and solar power. On a life cycle basis, the carbon intensity of electricity generated from the Sizewell C Project, as presented in **Chapter 26** - Climate Change of the **Environmental Statement (ES)**, would be in the region of 9-10g CO_2e[1] / kWh. This is similar to wind,

[1] CO_2e = carbon dioxide equivalent, the standard unit for measuring carbon footprints, expressing the impact of each different greenhouse gas in terms of the amount of CO2 that would create the same amount of warming.

lower than solar and much lower than fossil fuels, even once fitted with carbon capture and storage. The Sizewell C Project would be capable of generating enough electricity to supply approximately six million (or about 20%) of homes in the United Kingdom (UK) each year.

Whilst there are inherent carbon reduction benefits during the operation phase of the Sizewell C power station, as with any large infrastructure project, the construction phase would give rise to emissions of GHGs. It is estimated that over the course of the nine to twelve year construction period, approximately 5.7 million tonnes of CO_2e would be emitted. It is relevant to note that this is small in comparison to the savings that would be achieved once the power station becomes operational, when the station will be displacing more carbon intensive energy from the national grid. Notwithstanding this, recognising the urgent need to tackle climate change, measures would be taken to reduce construction emissions where possible. This statement explains how measures and controls would be put in place to manage and monitor these emissions. Further details, including how the predicted quantity of emissions has been calculated, are also available within the **Climate Change Chapter**, **Chapter 26** of **Volume 6** of the **ES**.

Linked closely to this, in order for the Sizewell C Project to be effective at tackling climate change, the power station would be designed so that it is adaptable to risks posed by future climate change, including sea level rise and the availability of fresh water to operate the station. UK projections predict the likely consequences of climate change by assessing a range of greenhouse gas (GHG) emission scenarios, considering matters including probable changes to mean summer and winter temperatures, and mean summer winter and annual rainfall. The main platform would be at a level of 7.3 metres (m) Above Ordnance Datum (AOD), which is similar to the 1 in 1000 annual probability extreme still water levels in the year 2110 for the worst credible climate change scenario. Similarly, assessments of water availability have demonstrated that the new power station would be resilient, when considering the combination of water efficiency measures and the various water supply options that could be employed to supply water to the main development site. These are explored further in section 3.9. This **Sustainability Statement** draws from project assessments to demonstrate how climate resilience has been fully considered.

b) Resources and waste

The construction of any infrastructure project would be resource intensive and have the potential to generate waste. The Sizewell C Project would require approximately 10.1 million tonnes of material to be imported to the main development site during construction. A detailed review of the sources of construction materials would be conducted once the design and construction of the power station has been further developed, which would follow the principles of a circular economy model. This aims to keep resources in use for as long as possible, whilst extracting the maximum value

from resources while in use and recover and regenerate products and materials at the end of their life. A whole life approach to the development of infrastructure projects requires that permanent buildings are constructed to remain durable, and in service for as long as possible, whilst temporary buildings and infrastructure required to deliver the permanent works, should be designed for their intended use and lifespan, promoting disassembly and re-manufacture where practical.

This approach ensures positive social, economic and environmental outcomes, and is therefore a cross cutting issue for the Sizewell C Project. A comprehensive approach has been developed for resource management, as set out in the **Waste Management Strategy** in **Chapter 8, Appendix A** of **Volume 2**, with the aim of maximising the ongoing value of resources and minimising waste. The **Materials Management Strategy** in **Chapter 3, Appendix A** of **Volume 2** explains how the excavated materials generated during construction will be managed, with the aim to maximise the sustainable use of natural resources and achieve a neutral cut and fill balance on the main development site and associated development sites.

It is recognised that greatest potential for improving resource efficiency and contributing to the circular economy in infrastructure delivery occurs during the optioneering, feasibility and early design stages. This statement explains how circular economy principles have been promoted and would continue to drive the Sizewell C Project through design, procurement and construction.

c) Movement of people and materials

Building the Sizewell C Project would involve the daily movement of large numbers of construction workers and significant amounts of materials and equipment. In developing and designing the proposals, opportunities have been sought to limit the impact of construction of the Sizewell C Project on the local area including the highway and railway networks wherever possible.

The **Transport Strategy** presented within **Chapter 4** of the **Transport Assessment** (Doc Ref. 8.5) aims to minimise the volume of traffic associated with the construction of the Sizewell C Project; maximise the safe, efficient and sustainable movement of people and materials required for the construction of the Sizewell C Project; minimise the impacts both for the local community and visitors to the area using the road network; provide long-term legacy benefits for the local community; and, take reasonable steps to ensure the resilience of the transport network. To achieve these objectives, the **Transport Strategy** includes a **Workforce Strategy** and an **Integrated Freight Strategy**. A key component of the **Workforce Strategy** is a 2,400-bed worker accommodation campus on the main development site and caravan park. At peak construction this would result in nearly 3000 workers living and working in close proximity, reducing the need to travel to and from the main development site. The **Integrated Freight Strategy** includes the construction of a temporary rail

extension, branching off the existing Saxmundham to Leiston line, into the main development site, referred to as the green rail route. This would facilitate the delivery of up to three trains per day (six movements) to the main development site during peak construction, which would allow for almost 40% of construction materials (by weight) to be delivered to site by rail.

d) Skills and employment

The Sizewell C Project would bring significant economic and employment opportunities, supporting the security of the UK's economic future, as well as producing a long-term boost for the local economy through increased employment and skills provision. The Sizewell C Project would support just over 40,000 roles and provide a major boost to local and regional businesses. Whilst the construction phase of 9-12 years is a limited period, this would be a sustained, and relatively long-term boost and would help to transform the economy and the employment prospects of local residents. There would also be a need for a significant workforce in non-construction roles, both directly and in the supply chain, including in the tourism, hospitality, food production, and business support sectors. Overall, it is predicted that up to around one third of the workforce (2,600 roles) could be drawn from existing residents from within a 90-minute travel time to the site at peak construction.

Once operational, Sizewell C would continue to provide a long-term benefit to the economy. The Sizewell C Project would support 900 operational staff plus approximately 1,000 staff for refuelling and maintenance every 18 months, during outages. As described in the **Economic Statement** (Doc Ref. 8.9), it would boost Gross Domestic Product (GDP) by around £225m per year, and bring around £44.5m of wages into Suffolk each year. There is a major opportunity to 'embed' the Sizewell C Project in the 'Energy Coast' and the wider sub-regional economy, contributing to enhancing economic growth in the area.

e) Health and wellbeing

Ensuring the health and wellbeing of the population and the construction workforce is of paramount importance. The construction and operation of the Sizewell C Project has the potential to influence health and wellbeing. These effects have been fully assessed within **Chapter 28 – Health and Wellbeing** of **Volume 2** of the **ES**.

Wellbeing is further addressed alongside potential social impacts from the introduction of a non-home based workforce through the **Community Safety Management Plan** (Doc Ref. 8.16) and the **Code of Construction Practice (CoCP)** (Doc Ref. 8.11). The potential change in local public health demand is addressed through the provision of a comprehensive occupational health service open to the entire workforce. This would facilitate health promotion campaigns with the aims of maintaining and improving the health and well-being of the workforce by raising awareness of health issues and encouraging healthy behaviours within and outside of the workplace. This

would include healthy eating options in site canteens and would be further promoted by providing access to a range of sports facilities and amenities within the campus and in Leiston for use by the workforce. More broadly, the creation of employment opportunities during the construction phase has the potential to deliver a range of benefits to the local community, including health and wellbeing benefits linked to security of income and skills development.

Further to this, SZC Co. has a proven track record in promoting zero harm in the delivery of infrastructure projects, promoting the health and safety of the workforce from both a physical and mental health perspective. This statement explains the measures that would be taken to promote health and wellbeing.

f) Community services

A workforce of up to 7,900 on the main development site and an additional 600 associated development site workers is anticipated at the peak of the construction phase, expected to be in 2028. A workforce of this scale has the potential to impact upon public services within the locality of the site. The potential effects on net additional demand for public services has been considered, and mitigation proposed where appropriate within the Socio-economics chapter in **Volume 2, Chapter 9** of the **ES**. This considers the potential for the construction workforce and families to generate additional demand for planning and regulatory services, healthcare, social services and school places.

To help manage the workforce and avoid adverse effects, an **Accommodation Strategy** (Doc Ref. 8.10) has been developed, to minimise impacts on local private-rented and tourism accommodation while balancing the economic benefits of workers living and spending in the area**,** and a **Community Safety Management Plan (CSMP)** (Doc Ref. 8.16) have been developed for the Sizewell C Project, including a commitment to implementing a Worker Code of Conduct.

SZC Co. would also be providing sports and leisure facilities as part of the Sizewell C Project. The off-site facilities at Alde Valley Academy, adjacent to Leiston Leisure Centre, would be made available for shared used by the school and the local community and would remain as a legacy post-construction.

g) Biodiversity and ecosystems

Recognising the importance of the natural environment of the site and its surroundings, the Sizewell C Project has, from the outset, been designed with the aim of avoiding significant harm to biodiversity. An optioneering process has been undertaken to develop a strategy which limits land take on ecologically valuable habitat as far as possible, however some land take would be unavoidable. The creation of new habitat at Aldhurst Farm is part of a long-term proposal to ensure habitats are created and have time to become established before any land take from

the Sizewell Marshes Site of Special Scientific Interest (SSSI) occurs. The combination of measures proposed on and offsite is considered to attain an overall net gain, when considered using biodiversity net gain metrics.

A **Rights of Way and Access Strategy** has been developed **Appendix 15I** to strike a balance between providing access opportunities to replace those temporarily lost during construction and minimising potential impact on habitats and species of European importance. Further mitigation measures have been proposed in the **CoCP** specifying measures required during enabling works and construction in relation to the presence of protected species and required vegetation clearance works.

The **outline Landscape and Ecological Management Plan (oLEMP)** (Doc Ref. 8.2) sets out the **Restoration Strategy** following construction, including the return of arable land to Suffolk Sandlings habitat, comprising acid grassland and heathland, a habitat of greater biodiversity value with reduced habitat fragmentation.

h) Water environment

Sizewell is located in one of the driest parts of the country. Consideration has been given to water resources within the area and how the Sizewell C Project can influence the availability and quality of fresh water. SZC Co. has developed a strategy for site water supply by engaging with stakeholders including the Environment Agency, Essex and Suffolk Water (ESW) and Anglian Water to discuss and assess potential sources for water supply. In order to provide security of supply, and to ensure that all the water requirements of the Sizewell C Project can be met, SZC Co. has worked with these stakeholders to assess several water supply options.

In order to provide a robust and sustainable water supply, SZC Co. has chosen to carry forward various water supply options. Using a combination of water supply options will ensure security of supply and help to reduce the demand for potable water from mains supply. These options will be brought forward in combination with water efficiency measures to reduce the demand from mains supply, for example using water efficient fixtures and fittings, rainwater harvesting and greywater reuse.

This **Sustainability Statement** reports on the Sizewell C Project's relationship with water as a resource and explains the options being considered to meet the demands of the Sizewell C Project, reflecting that other projects in the region, may also create demand on the water infrastructure in future.

Developing the Sizewell C Project Sustainability Strategy

It is clear that the sustainability of nuclear new build is founded on its attributes of low carbon emissions, and secure electricity supply once nuclear stations are constructed, and the creation of tangible socio-economic benefits, for example, through skills creation and employment opportunities. These are very important benefits in

sustainability terms, towards which the Sizewell C Project would contribute significantly, and where strategies already exist to maximise the benefits.

It is also identified that further opportunities may exist through ongoing design work and supply chain engagement to help promote sustainable design and construction, with attention paid to resource use aspects of the Sizewell C Project. In order to help steer this, SZC Co. has identified three sustainability principles:

- Principle 1 – Design and Construct for a Low Carbon Future.

  Whilst the Sizewell C Project would play a key role in decarbonising the energy supply sector, it would be a contributor to emissions during construction. It is important to understand and, where possible, control and manage emissions.

- Principle 2 – Adopt a Circular Economy Model.

  Constructing the Sizewell C Project would be resource intensive. Adopting the concept of a circular economy model as an emerging alternative to a traditional linear economy (make, use, dispose) ensures that resources remain in use for as long as possible and that maximum value is extracted whilst in use, and recovered and regenerated at the end of each service life, as products and materials maintain, rather than degrade, their resource value.

- Principle 3 – Use Water Wisely.

  Sizewell is within one of the driest parts of the country. Measures are being taken to explore the availability of fresh water to support the Sizewell C Project during construction and operation, and for controls to be put in place to reduce impacts on the availability and quality of water in the region.

These principles are supported by enabling activities which will help to secure sustainable outcomes for the Sizewell C Project. The way these principles would be used to explore further opportunities is explained within Chapter 4 of this statement.

1 Introduction

1.1 The Sustainability Statement

1.1.1 This **Sustainability Statement** is submitted in support of the application for development consent for the proposed new nuclear power station at Sizewell C. It describes how sustainability has been given consideration in the development of the proposals and how the sustainability principles have been developed to drive forward further improvements during the further design, construction, operation and ultimately decommissioning of the Sizewell C Project.

1.2 Background and context

1.2.1 The UK Government has created a legally binding framework for reducing CO_2 emissions through to 2050 via the Climate Change Act 2008 (Ref. 1.3), with a specific duty on the Secretary of State to ensure that GHG emissions are reduced by at least 80% by that date compared to 1990 levels. Delivery of this target will require early decarbonisation of electricity supplies, which will necessitate massive investment in three areas:

- Nuclear power;
- Renewable energy; and
- Carbon Capture and Storage on gas and biofuel generation.

1.2.2 In June 2019 the Government strengthened this commitment in the Committee on Climate Change's report 'Net Zero – The UK's Contribution to stopping Global Warming' (Ref. 1.4), pledging to achieve net zero carbon by 2050, through an amendment to the 2008 Act. This report recognises that the decarbonisation of the grid is an essential part of the **Zero-Carbon Strategy**, requiring a quadrupling of the supply of low carbon energy by 2050 in order to meet a fully decarbonised electricity supply. Nuclear power will have an important role for this as it provides a stable base load of low-carbon power.

1.2.3 In the 2008 White Paper on Nuclear Power (Ref. 1.5), the Government made clear that new nuclear power stations should have a role in the UK's energy mix, alongside other low-carbon sources. Nuclear power can contribute to meeting the UK's binding targets for emissions reductions, whilst contributing to diversity and security of supply.

1.2.4 The Government's Overarching National Policy Statement for Energy (NPS EN-1) (Ref. 1.6) states that, for the Government to meet its energy and climate change objectives, there is an urgent need for new electricity generating stations, including nuclear power. NPS EN-1 anticipates that, as a low carbon, proven technology, nuclear power generation can play an increasingly important role as we move to diversify and decarbonise our sources of electricity.

1.2.5 SZC Co. believes a diverse mix is critical to addressing climate change, ensuring security of supply and providing affordable electricity. This includes all types of generation, as well as investment in the grid and battery storage, greater energy efficiency within buildings and support towards community energy projects. It is evident that action must be taken now to invest in new nuclear power stations. It is on this fundamental basis that SZC Co. believes there is a pressing need for new nuclear development.

1.2.6 The National Policy Statement for Nuclear Power Generation (NPS EN-6) (Ref. 1.7) considers the need for, and siting of, new nuclear power stations at a strategic level, identifying those sites that are 'in principle' suitable for new nuclear power stations. These sites, including Sizewell, were identified through the Government's Strategic Siting Assessment (SSA), as presented in NPS EN-6, to be credible for deployment by 2025.

1.2.7 Whilst SZC Co. remains confident that Sizewell is suitable for the deployment of a new nuclear power station, it is no longer possible for deployment to take place by the end of 2025. Both NPS EN-1 and NPS EN-6, however, continue to be important and relevant for projects which will deploy after 2025 in advance of a new National Policy Statement (NPS) for nuclear power generation being designated.

1.2.8 The proposed nuclear power station at Sizewell C would provide more than 6% of the UK's electricity requirements from a very low carbon source. This would represent a significant contribution to the Government's energy policy aims in its own right. SZC Co. also promotes development at Sizewell in recognition that the Sizewell C Project fulfils a number of the SSA criteria, carried through into NPS EN-6:

- the Sizewell C Project is adjacent to an existing nuclear facility. There has been a nuclear power station at Sizewell since 1966 and the community is familiar with the technology and the employment opportunities it offers;

- Sizewell is connected to the National Grid transmission system, although upgrades and reinforcement would be required;
- the provision of direct cooling using water from the North Sea is established and is the preferred option for new nuclear development;
- ground conditions are considered suitable for development; and
- environmental impacts are considered to be less in comparison to alternative sites considered.

1.2.9 The SSA also outlined a number of areas which would require further consideration during the development of the Sizewell C Project proposals, including effects and mitigating actions of coastal erosion, effects on biodiversity (including the SSSI) and the visual impact on the Area of Outstanding Natural Beauty (AONB). The issues raised have been addressed within the proposals as appropriate. The SSA concluded that none of these factors should prevent the site from being considered as potentially suitable.

1.2.10 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 beyond 2025 (Ref. 1.8). SZC Co. nominated Sizewell as a site that is suitable for the deployment of a new nuclear power station by 2035.

1.2.11 Further information on the need for the Sizewell C Project, the SSA, and the consideration of alternatives is provided in the **Planning Statement** (Doc Ref. 8.4).

1.3 Purpose and scope of this Sustainability Statement

a) Purpose

1.3.1 There is no statutory requirement to produce a Sustainability Statement in support of an application for development consent, however the Planning Inspectorate (PINS) Advice Note 6 (Ref. 1.9) notes that '*other documents*' (any other document not listed above which the applicant chooses to support the application) may include a 'sustainability appraisal'. Reflecting this, SZC Co. considers this statement could be helpful to the examining authority in considering the Application. The overall purpose is to demonstrate how the Sizewell C Project aligns with the sustainable

development policies and best practice, and identify opportunities for further improvement during delivery.

1.3.2 The standardised approach to demonstrating alignment with sustainable development policies and best practice is to undertake a sustainability appraisal. **Chapter 2** of this statement provides details on the methodology for this appraisal. The aim is to demonstrate how the Sizewell C Project would perform against a series of sustainability objectives. These objectives address the relevant sustainability issues of a new nuclear power station, and span the social, economic and environmental dimensions of sustainable development.

1.3.3 **Chapter 3** of this statement then provides the findings of the sustainability appraisal, and how sustainability would be further embedded through a range of different strategies, including a specific set of sustainability principles.

1.3.4 **Chapter 4** of this statement concludes this **Sustainability Statement**, confirming the agreed sustainability principles for the Sizewell C Project and setting out a set of actions or 'enablers' which are the 'roadmap' for their delivery.

b) Scope

1.3.5 The focus of this **Sustainability Statement** is the delivery of the Sizewell C Project. It does not attempt to appraise the sustainability of the nuclear power generation. This has already been considered by the Government in its White Paper on Nuclear Power, and in the formulation of NPS EN-6. It is therefore not for this document to appraise it further. Likewise, the balance between the radiological impacts on human health of the UK European Pressurised Reactor (UK EPR™) practice proposed for the Sizewell C Project and its wider social, economic and other benefits has been considered by the Government through the process of Regulatory Justification under the Justification of Practices Involving Ionising Radiation Regulations 2004 (Ref. 1.10). This has led to the Justification Decision (Generation of Electricity by the EPR Nuclear Reactor) Regulations 2010 (Ref. 1.11), confirming that the practice is justified for the purpose of the Basic Safety Standards Directive 96/29/Euratom (Ref. 1.12).

1.4 Policy context

a) Background

1.4.1 The purpose of this section is to set out the overall policy context under which the development would be taken forward, and which would influence

the sustainability of the Sizewell C Project. Further topic specific policy reviews, including relevant national and local planning policies is provided within **Chapter 3** of this statement. Further information can also be found within **Volume 1, Chapters 3** and **4** of the **ES**, including specific detail of other regulation and legislation that governs the operation of Sizewell C and nuclear power in general.

1.4.2 Many definitions of sustainable development exist, although the common objective for all involves striking a balance between social, economic and environmental objectives to meet the needs and aspirations of people today, without compromising the needs of future generations.

1.4.3 In 2015, the United Nations General Assembly passed a resolution to adopt the 2030 Agenda for Sustainable Development (Ref. 1.13), with 17 Sustainable Development Goals (UN SDGs) at its core. The UN SDGs reflect an urgent call for action by all countries – developed and developing – in a global partnership. They span goals to end poverty and other deprivations, which must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve oceans and forests.

1.4.4 Principles of sustainable development are central to the UK planning system. The proposals for the Sizewell C Project are being taken forward in accordance with the Planning Act 2008 (Ref. 1.14) which provides the planning regime for Nationally Significant Infrastructure Projects (NSIPs) in England and Wales. However, beyond the legislative requirements, a wide range of policy drivers exist which establish the sustainability context for these proposals.

b) National Planning Policies

1.4.5 Whilst other policy documents can be important and relevant, the principal policy for new nuclear power stations is set out in two National Policy Statements (NPS):

- NPS EN-1: 'Overarching Policy Statement for Energy', July 2011; and
- NPS EN-6: 'National Policy Statement for Nuclear Power Generation', July 2011.

1.4.6 NPS EN-1 and EN-6 establish an urgent need for new nuclear power generation in the UK and establish a policy framework for their assessment principles. The **Planning Statement** (Doc Ref. 8.4) assesses the

application proposals comprehensively against the NPSs' Assessment Principles and explains how these are supported by the proposals.

1.4.7 NPS EN-1 explains that there is an urgent need for new electricity NSIPs and Part 3 of EN-1 sets out the principal considerations which have informed this conclusion. The NPS should be read as a whole but the principles can be summarised briefly as follows:

- in the UK at least 22 GW of existing electricity generating capacity will need to be replaced in the coming years, particularly by 2020. This amounts to about a quarter of the UK's current electricity generating capacity of 85 GW (paragraph 3.3.7);
- in addition, the overall demand for electricity is likely to increase as significant sectors of energy demand switch from being powered by fossil fuels to using electricity, so that total electricity consumption could double by 2050 (paragraph 3.3.14);
- forecasts suggest that a minimum need of 59 GW of new electricity capacity needs to be provided by 2025 to avoid the severe social and economic disruption that would be caused by insufficient electricity supply (paragraph 3.3.19 and 3.3.23); and
- stretching targets for renewable energy are set out in the NPS but, even if these are achieved, there is a balance of 18 GW to come forward from non-renewable capacity and it is Government policy that nuclear power should be free to contribute as much as possible towards meeting the need for around 18 GW of new non-renewable capacity by 2025 (paragraph 3.3.22).

1.4.8 NPS EN-6 sets out the Government's assessment of the need for new nuclear power, including the identification of Sizewell as a potentially suitable site for the deployment of a new nuclear power station before the end of 2025. Sizewell was one of the sites listed in NPS EN-6 as potentially suitable for the deployment of new nuclear power stations in England and Wales by the end of 2025. Whilst EDF Energy remains confident that Sizewell is suitable for the deployment of a new nuclear power station, it is no longer possible for deployment to take place by the end of 2025.

1.4.9 A Ministerial Statement on Energy Infrastructure published on 7 December 2017 ('2017 Ministerial Statement') (Ref 1.15) states that for projects yet to apply for development consent and due to deploy beyond 2025, the Government continues to give its strong in principle support to proposals at

those sites currently listed in EN-6. The 2017 Ministerial Statement recognises that, even if NPS EN-6 is considered not to have effect under section 104 of the Act for such a project (which provides that an application would have to be determined in accordance with a relevant NPS subject to limited exceptions), section 105 of the Act would apply to the decision on whether or not to grant development consent.

1.4.10 The 2017 Ministerial Statement explains that the Government is confident that both EN-1 and EN-6 incorporate information, assessments and statements which will continue to be important and relevant for projects which will deploy after 2025, including statements concerning the need for nuclear power, as well as environmental and other assessments that continue to be relevant for those projects.

1.4.11 The 2017 Ministerial Statement goes on to conclude 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 and EN-6. There have been no relevant change of circumstances which would suggest that anything less than significant weight should be given to the policy in EN-1 and EN-6. Indeed, the need for new nuclear power is now even greater than when NPS EN-1 and NPS EN-6 were designated.

c) Other national policies of potential relevance

1.4.12 The National Planning Policy Framework (NPPF) (Ref. 1.19) sets out the Government's planning policy at the national level, though it does not contain specific policies for nationally significant infrastructure projects. These are to be determined in accordance with the decision-making framework in the Act and relevant NPSs for major infrastructure, as well as any other matters that are relevant (which may include the NPPF). The NPPF confirms this at paragraph 5:

> *"The Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework). National policy statements form part of the overall framework of national planning policy and may be a material consideration in preparing plans and making decisions on planning applications."*

d) Local planning policy and guidance

1.4.13 The Sizewell C Project is located within the administrative area of East Suffolk Council (ESC), which was formed on 1 April 2019 when the former districts of Suffolk Coastal District Council (SCDC) and Waveney District Council were amalgamated.

1.4.14 The adopted and emerging local planning policies and guidance also provide useful indicators and objectives for sustainable development, and consequently have been considered by the **Sustainability Statement**. Local authorities will also have regard to these policies in preparing their Local Impact Reports. Documents reviewed include:

- Suffolk Coastal Final Draft Local Plan (Ref. 1.20);
- Suffolk Coastal District Local Plan Core Strategy and Development Management Policies (Ref. 1.21); and
- Suffolk Climate Change Action Plan # 3 (Ref. 1.22).

1.5 The development proposals

1.5.1 The proposed Sizewell C nuclear power station would comprise two United Kingdom European Pressurised Reactor (UK EPR™) units with an expected net electrical output of approximately 1,670 megawatts (MW) per unit, giving a total site capacity of approximately 3,340MW.

1.5.2 The proposed location of Sizewell C is on the Suffolk Coast, approximately halfway between Felixstowe and Lowestoft, north-east of the town of Leiston, to the north of the existing Sizewell B power station.

1.5.3 In addition to the key operational elements of the UK EPR™ units, the Sizewell C Project comprises other permanent and temporary development to support the construction and operation of the Sizewell C nuclear power station. The key elements are the main development site, comprising the Sizewell C nuclear power station itself, offshore works, land used temporarily to support construction including an accommodation campus, the enhancement of sports facilities in Leiston, fen meadow and marsh harrier compensation habitat, and a series of off-site associated development sites in the local area.

1.5.4 These associated development sites are:

- two temporary park and ride sites; one to the north-west of Sizewell C at Darsham (the 'northern park and ride'), and one to the south-west at Wickham Market (the 'southern park and ride') to reduce the amount of traffic generated by the construction workforce on local roads and through local villages;

- a permanent road to bypass Stratford St Andrew and Farnham (referred to as the 'two village bypass') to alleviate traffic on the A12 through the villages;

- a permanent road linking the A12 to the Sizewell C main development site (referred to as 'Sizewell link road') to alleviate traffic from the B1122 through Theberton and Middleton Moor;

- permanent highway improvements at the junction of the A12 and B1122 east of Yoxford (referred to as the 'Yoxford roundabout') and other road junctions to accommodate Sizewell C construction traffic;

- a temporary freight management facility at Seven Hills on land to the south-east of the A12/A14 junction to manage the flow of freight to the main development site; and

- a temporary extension of the existing Saxmundham to Leiston branch line into the main development site ('the green rail route') and other permanent rail improvements on the Saxmundham to Leiston branch line, to transport freight by rail in order to remove large numbers of HGVs from the regional and local road network.

a) Main development site – permanent development

1.5.5 Permanent development at the main development site would comprise the following building, engineering or other operations:

- the main platform: the power station platform area that would become the power station itself;

- Sizewell B relocated facilities land and National Grid land: the area that certain Sizewell B facilities would be moved to in order to release other land for the Sizewell C Project and land required for the National Grid transmission network;

- Offshore works area: the area where offshore cooling water infrastructure and other marine works would be located; and
  - off-site developments – sports facilities at Leiston;
  - two fen meadow compensation areas; and
  - Marsh Harrier compensation land.

1.5.6 The main platform would accommodate the two nuclear islands, the conventional island and cooling water infrastructure. In summary, the Main Platform comprises:

- two nuclear islands[2], including two UK EPR™ reactor buildings capable of exporting a total of approximately 3,340 Megawatts (MW) to the National Grid and associated annexed buildings containing the safety systems, fuel handing systems and access facilities, together with the adjacent emergency diesel generator buildings;
- two conventional islands[3], each including a turbine hall, associated electrical buildings for the export and distribution of electrical power;
- overhead power lines and pylons connecting the conventional islands to the National Grid substation;
- two cooling water pumphouses with related infrastructure (one for each UK EPR™ reactor);
- waste storage, spent fuel storage, remaining balance of plant and other buildings;
- associated buildings, plant and infrastructure outside of the power station perimeter, including buildings for security, training, office storage and other purposes;
- sea defences and coastal protection measures; and

[2] Nuclear island is defined as that part of a nuclear power station which incorporates all equipment, systems, installation and control and other relevant hardware installed within the reactor and reactor auxiliary buildings.
[3] Conventional island is defined as that part of a nuclear power station that comprises the turbine hall and everything else that needs to be designed, constructed and tested to convert the steam generated by the nuclear reactor into electricity.

- a beach landing facility proposed for the delivery of Abnormal Indivisible Loads by the sea;

1.5.7 A number of existing Sizewell B facilities need to be relocated from the main platform to facilitate the proposed development, comprising of the following:

- relocation of National Grid 400 Kilovolts (kV) substation and associated relocation of an existing National Grid pylon and power line south of Sizewell C;
- relocation of several Sizewell B facilities including the outage store, outage laydown area, training centre, visitor centre, operational and outage car parking and access roads.

b) Main development site – temporary construction area

1.5.8 The temporary construction area is land located primarily to the north and west of the SSSI crossing, which would be used to support construction activity on the main platform. Works is this area would comprise of:

- vehicular and pedestrian crossing over the Sizewell Marshes SSSI south of Goose Hill in the form of a causeway/culvert;
- power station access road, linking the SSSI crossing with a new roundabout onto Abbey Road (B1122);
- a new training centre and entry relay building;
- emergency equipment store and back-up generator at Upper Abbey Farm and electrical substation south of Upper Abbey Farm;
- car parking facilities at Kenton Hills for up to 15 additional car parking spaces;
- highway works including the realignment of Lover's Lane and the provision of a combined bridleway, cycleway and footpath from Sizewell Gap and King George's Avenue to Eastbridge Road;
- a water resource storage area; and
- a water detention area.

1.5.9 Land east of Eastland's Industrial Estate (LEEIE), the area directly north of Sizewell Halt, would be used to support construction on the main platform and temporary construction area. Works in this area would include the reconfiguration of the existing railhead at Sizewell Halt to accommodate longer trains.

1.5.10 The temporary accommodation campus would provide accommodation for up to 2,400 workers constructing the proposed development and would include:

- modular buildings with self-contained rooms and en-suite facilities;
- car parking for residents;
- a canteen/restaurant and kitchen facilities;
- bars and recreational areas;
- central administration offices;
- a gym (on-site);
- waste recycling and facilities to supply energy to the site;
- site security area including fencing;
- perimeter road and appropriate lighting to ensure the safe and secure operation of the site;
- a shop;
- laundry service;
- refuse stores for each block; and
- other utilities and services, including a foul water pump station.

1.5.11 Off-site sports facilities would be provided during the construction period for construction workers, as well as members of the public and pupils from Alde Valley Academy.

1.5.12 Facilities would include:

- one full-size 3G pitch, 400mm pile, rubber crumb surface suitable for football, non-contact rugby and hockey (currently the closest similar facilities are in Framlingham and Woodbridge); and
- two multi-use games areas to the south west of the full-size pitch suitable for basketball, netball, tennis and football (currently the closest similar facility is in Yoxford).

1.5.13 The facilities would be retained as a legacy benefit.

c) Main development site – operations

1.5.14 Electricity would be generated at the main development site from heat energy produced from the two UK EPR™ reactors. The heat would be used to raise steam which would then be used to power turbines to generate electricity. The expected electrical output of Sizewell C would be approximately 1,670MW per unit giving a total site capacity of 3,340MW.

1.5.15 Electricity generated in the two turbine halls (would be converted by transformers to high voltage (400kV), before being exported from the site. Electrical connections from Sizewell C would be made via underground cables from the site to a new National Grid 400kV sub-station would be located adjacent to the existing Sizewell B sub-station. This would provide the connection for Sizewell C to the existing national grid high voltage transmission system. One National Grid pylon (tower) would be removed and relocated to allow the existing overhead lines to connect to the new sub-station.

1.5.16 Spent fuel removed from the reactor core would undergo several years of storage to cool in the pools inside the plant before transfer to the Interim Spent Fuel Store (ISFS).

1.5.17 For the UK EPR™ reactors at Sizewell C there would be three cooling systems, comprising primary, secondary and open circuit systems. The primary and secondary systems are closed systems. The open circuit cooling system would draw water directly from the sea and, at the end of the cooling process, the now heated water would then be discharged back to the sea.

1.5.18 During the 60-year operational life, Sizewell C would undergo refuelling and maintenance shutdowns (otherwise known as 'outages') at approximately 18-month intervals. The length of these outages would vary according to

the maintenance and inspections required, but would typically be up to 3 months in duration.

d) Offsite associated development

i. Park and ride facilities at Darsham and Wickham Market

1.5.19 The park and ride facilities would play an important role in reducing the amount of additional traffic generated by the construction workforce on local roads and through local villages. Two park and ride facilities are proposed, one at Darsham for construction workers approaching Sizewell C from the north on the A12 and the other at Wickham Market for those approaching from the south on the A12. Both park and ride facilities would also intercept traffic movements from locations west of the A12. The workforce would be transported to and from the Sizewell C main development site by bus.

1.5.20 Each park and ride facility would comprise:

- car parking areas for up to 1,250 car parking spaces (of which up to 40 would be accessible spaces) and up to 12 pick up only spaces;
- up to 10 spaces for minibuses/vans/buses;
- up to 80 motorcycle parking spaces;
- secure cycle parking for up to 20 bicycles;
- secure bus terminus and parking, including shelters;
- perimeter security fencing and lighting;
- an amenity and welfare building comprising toilets, staff room, security and administration offices;
- a security building;
- a security booth adjacent to an exit loop for errant vehicles;
- bus shelters;
- other ancillary development, including signage, lighting, CCTV and utilities; and

- external areas including roadways, footways, landscaping, surface water management areas and drainage infrastructure.

1.5.21 Once the need for the park and ride facilities has ceased, the buildings and associated infrastructure would be removed in accordance with a **Demolition and Restoration Plans**, which would maximise the potential for re-use of building, modules and materials. When the sites have been cleared, they would be returned to agricultural use.

Northern park and ride at Darsham

1.5.22 The northern park and ride at Darsham would be situated to the west of the A12, to the east of the East Suffolk line and to the north of Darsham rail station. Access to the site would be via a new three arm roundabout, with realignments of Willow Marsh Lane and the A12.

Southern park and ride at Wickham Market

1.5.23 The southern park and ride would be located to the north-east of Wickham Market. Access to the site would be off the slip road from the B1078 which leads to the northbound A12.

1.5.24 In addition to the above described facilities, the southern park and ride would also contain the parking and buildings, postal consolidation building and **Traffic Incident Management Plan (TIMP)** (Doc Ref. 8.6).

1.5.25 The postal consolidation facility would handle and process postal deliveries for the Sizewell C main development site. On receipt at the facility, all mail and courier packages would be checked, sorted and consolidated. Outgoing mail would be collected from the main development site for postal or courier services.

1.5.26 If there is an incident within the site or external to the site which requires deliveries to be held or diverted, the **TIMP** could be utilised to manage vehicles and remove them from the public road network while the incident is being resolved.

ii. Two village bypass

1.5.27 The two village bypass would comprise a new, permanent, 2.4 kilometre (km) single carriageway road, with a design speed of 50 miles per hour (mph), that would depart from the A12 to the south-west of Stratford St. Andrew before re-joining the A12 to the east of Farnham. The two village bypass would effectively create a new route around the south of Stratford St. Andrew and Farnham, thus bypassing the two villages. The two village

bypass is proposed to be a permanent bypass that would form a new section of the A12. The existing section of the A12 through the villages would be retained.

1.5.28 Where possible, public right of way (PRoW) would be retained on their existing alignments. However, several PRoW would require a diversion to ensure connectivity across the route of the bypass these are described in **Volume 5, Chapter 2** of the **ES**.

1.5.29 The two village bypass would include:

- a 2.4km single carriageway road;
- provision of a four arm roundabout at the western end of the road, east of Parkgate Farm and Stratford Plantation to connect the road to the A12 and Tinker Brook;
- a single span overbridge for all traffic, up to 7.5m in height above ground level to the road surface, and approximately 36m in length, to allow a crossing over the River Alde;
- provision of flood compensation areas to the north of the bypass (if required);
- provision of a staggered junction between Nuttery Belt and Pond Wood to maintain access on both sides of the route of the proposed two village bypass;
- Hall, a non-motorised user overbridge, over the two village bypass road, would be provided and two PRoW diverted to maintain connectivity across the route; and
- provision of a four arm roundabout at the eastern end of the road, to replace the existing junction of the A12, with the A1094 (Friday Street).

iii. Sizewell link road

1.5.30 The Sizewell link road would comprise a new, permanent, 6.8 km single carriageway road, with a design speed of 50 mph, which begins at the A12 south of Yoxford, bypasses Middleton Moor and Theberton before joining the B1122. It would be used by SZC Co. during the construction phase of the Sizewell C main development site to transport construction workers

arriving by car, buses from both the northern park and ride sites (who would only use the Sizewell link road east of the Middleton Moor link) and southern park and ride site, and goods vehicles (both light and heavy) delivering freight to the Sizewell C main development site. It would also be open to the public.

1.5.31 Where possible, PRoW would be retained on their existing alignments. However, several PRoW would require a diversion to ensure connectivity across the route of the bypass. These are described in **Volume 2, Chapter 2** of the **ES**.

1.5.32 The Sizewell link road would include:

- a 6.8km single carriageway road;
- a new three arm roundabout on the A12, located approximately 180m north of The Red House Farm;
- a single span bridge, approximately 50m in length, to enable the proposed road to cross over the East Suffolk line;
- a ghost island junction and a new link road (referred to as the 'Middleton Moor link'), from the proposed route of the Sizewell link road;
- Fordley Road would be realigned on the south side of the proposed route of the Sizewell link road so northbound traffic could join the new road;
- provision of a staggered crossroads ghost island junction to give access to Trust Farm located to the south and to the existing B1122 to the north;
- provision of an access road from the south side of the route of the proposed Sizewell link road to Hawthorn Cottages, and realignment of Hawthorn Road for approximately 150m to meet the proposed route of the Sizewell link road. Hawthorn Road would be stopped up on the north side of the proposed route of the Sizewell link road;
- two crossings of an unnamed watercourse, which would be culverted beneath the route of the proposed Sizewell link road;

- a new ghost island junction would be formed with an extension of the B1125 and reconfiguration of the existing B1122 to form suitable new junction;
- a new priority junction on the west side of the Sizewell link road at Pretty Road.
- a new single span overbridge would carry non-motorised users only (pedestrians, cyclists, equestrians) over Pretty Road;
- a new junction to Moat Road would be provided to maintain access to the existing properties including Theberton Grange and Moat House; and
- a new junction to provide access to Theberton to the north, where approximately 500m of the B1122 would be realigned, with the route of the Sizewell link road joining the southern section of the B1122.

iv. Yoxford and other highways improvements

1.5.33 The proposed off-site highway improvement works comprise the following:

- A12 and B1122 east of Yoxford – provision of a new roundabout at the junction (referred to as the 'Yoxford Roundabout').
- A1094/B1069 junction south of Knodishall – improvements of visibility splays and provision of signage and road markings. SZC Co. would also seek to reduce the speed limit from 60 mph to 40mph.
- A12/A144 junction south of Bramfield – provision of a central reservation island and waiting area.
- A12/B1119 junction at Saxmundham – improvements of visibility splays and provision of signage and road markings.

v. Freight management facility

1.5.34 The freight management facility would assist in allowing a controlled pattern of deliveries to the Sizewell C main development site with reduced movements during peak or sensitive hours on the network. The facility would provide buildings and external areas where paperwork and goods can be checked prior to delivery to the Sizewell C main development site,

and be a location where Heavy Goods Vehicles (HGVs) are held while they wait to enter the main development site or in the event of an accident on the local road network which prevented access to the main development site.

1.5.35 Once the need for the facility has ceased, the buildings and associated infrastructure, would be removed in accordance with a **Demolition and Restoration Plan**, which would maximise the potential for re-use of building, modules and materials. When the site has been cleared, the area would be returned to agricultural use.

1.5.36 The Freight Management Facility would comprise:

- parking for approximately 150 HGVs including up to six covered HGV spaces for screen and search activities;
- up to 12 car parking spaces for staff and visitors including up to one accessible space;
- up to ten spaces for minibuses/vans;
- up to four motorcycle parking spaces;
- cycle shelters for up to ten bicycles;
- access and circulation roads;
- a ghost island junction on the access road to the site, which allows right turning traffic from the east to enter site without blocking westbound traffic using Felixstowe Road;
- security fencing and lighting;
- ancillary buildings and structures including an amenity and welfare building, a security building, a security booth, two bus shelters and two smoking shelters and a shelter for cycle parking;
- covered search lanes to conduct search and screen activities;
- other ancillary development, including signage, fencing, lighting, CCTV and utilities; and

- three landscape bunds and additional planting, one swale forming part of the Sustainable Urban Drainage System, and external areas including roadways and footways.

vi. Green rail route and rail improvements (green rail route and Saxmundham to Leiston branch line)

1.5.37 A temporary rail extension, referred to as the 'green rail route' is proposed which would provide a new rail route from the Saxmundham to Leiston branch line up to the main development site. In addition, infrastructure upgrades and changes to level crossings would be required to the Saxmundham to Leiston branch line to accommodate the additional freight trains once the green rail route is operational.

Green rail route

1.5.38 The green rail route would include a 4.5km rail extension from the existing Saxmundham-Leiston branch line, running from west to east to the main development site. Following the completion of the construction of the Sizewell C Project, the green rail route, including the track bed and level crossings, would be removed and returned to its original topography.

1.5.39 The green rail route commencing from the existing Saxmundham-Leiston branch line, would run from west to east in three main parts as follows:

- Saxmundham Road to Buckleswood Road;
- Buckleswood Road to B1122 (Abbey Road); and
- B1122 (Abbey Road) to Sizewell C power station site.

1.5.40 The proposed green rail route also comprises:

- Saxmundham Road to Buckleswood Road;
- Automated level crossing on Buckleswood Road;
- Diversion of footpath E-363/003/0;
- Automated level crossing where the rail extension crosses the B1122 (Abbey Road);

- Diversion of Footpath E-363/006/0;
- Diversion of Footpath E-363/010/0;
- Permanent relocation of the B1122 (Abbey Road) and Lover's Lane junction;
- Sustainable urban Drainage System to include swales alongside the track with the potential for a larger infiltration pond at low points or adjacent to the cuttings, if required;
- Landscaping including the provision of landscape bunds, grassed areas and other areas of proposed planting.

Saxmundham to Leiston branch line

1.5.41 The proposed track replacement on the Saxmundham to Leiston branch line comprises the renewal of the entire length of track using new ballast, flat bottom continuously welded rail on concrete sleepers. The proposed upgrades would ensure that the existing track would meet Network Rail standards for freight transport.

1.5.42 Upgrades would also be required on nine operational level crossings on the Saxmundham to Leiston branch line between the Saxmundham junction and Sizewell Halt. This is to enable safe use of the Saxmundham to Leiston branch line for freight deliveries as part of the construction of the Sizewell C main development site. These are located at:

- Bratts Black House;
- Knodishall;
- West House;
- Snowdens;
- Saxmundham Road;
- Buckles Wood;
- Summerhill;

- Leiston; and
- Sizewell.

2 Approach to Appraisal

2.1 Project vision

2.1.1 The Sizewell C Project vision makes a clear commitment to developing, operating and ultimately decommissioning the power station to the highest standards of sustainability:

> *"EDF Energy intends to deliver a nuclear power station at Sizewell C that will make a major contribution to the nation's low-carbon energy needs. The development, operation and ultimate decommissioning of the power station will be undertaken in a manner consistent with the highest standards of safety, reliability and sustainability."*

2.1.2 This section presents the approach SZC Co. has taken to considering and integrating sustainability into the proposed development in order to achieve this vision.

2.2 Embedding sustainability considerations in proposals

2.2.1 SZC Co.'s commitment to delivering the Sizewell C Project in a sustainable manner necessitates that sustainability be embedded into decision making from an early stage, and which would continue throughout its lifecycle.

2.2.2 The consideration of sustainability has been an important factor influencing SZC Co.'s proposals, which have been informed through extensive consultation and engagement. In defining the Sizewell C Project proposals, input has been provided from technical experts on suitable options to pursue, giving balanced consideration to:

- engineering and operational considerations;
- environmental considerations;
- transport, including the movement of people and materials;
- impacts and benefits to local communities;

- land interests;
- land use;
- governance;
- diversity and inclusion; and
- planning policy.

2.2.3 These factors have informed the proposals, ensuring that a sustainable and balanced approach has been achieved wherever possible. **Chapter 3** and **Appendix A** to this statement explore how this balance has been achieved for the main development site proposals, and the off-site associated development.

2.2.4 A key mechanism to deliver a more sustainable outcome lies within SZC Co.'s proposals for its transport and economic strategies. These have sought to minimise effects of construction and promote positive social and economic outcomes. The role these strategies have for helping to achieve SZC Co.'s sustainability objectives is discussed under the relevant themes in **Chapter 3** of this statement.

2.2.5 In addition, the Sizewell C Project has been guided by principles of good design, as explained in the **Sizewell C Main Development Site Design and Access Statement** (Doc Ref. 8.1) and **Associated Development Design Principles** (Doc Ref. 8.3), which have been informed by consultation. The principles help to define and establish how to fulfil the criteria of 'good design', as set out in NPS EN-1 (section 4.5), which states:

> *"Applying "good design" to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible."*

2.2.6 This **Sustainability Statement** makes reference to the **Sizewell C Main Development Site Design and Access Statement** and **Associated Development Design Principles**, explaining how these would support the sustainability objectives.

2.3 Undertaking a project sustainability appraisal

a) What is sustainability appraisal?

2.3.1 A sustainability appraisal has been carried out to understand how the Sizewell C Project aligns with the principles of sustainable development. Whilst not a statutory requirement, the practice has been adopted for NSIPs subject to determination under the Planning Act 2008. The process takes the key concepts and issues identified in the AoS at a strategic policy level, and demonstrates how these have been addressed at the project level.

2.3.2 There is no specific guidance on the methodology to follow and different approaches can be taken. The approach used for this appraisal has been developed from that used for the Hinkley Point C application for development consent, and refined to take account of approaches adopted for more recent NSIP applications, including for Wylfa Newydd Power Station, the Proposed Port Terminal at Former Tilbury Power Station and Eggborough CCGT.

b) Development of a sustainability appraisal framework

2.3.3 A sustainability appraisal framework has been developed specifically for the Sizewell C Project, the purpose of which is to define a set of relevant sustainability themes and objectives that are then used to appraise the proposals. This is the same approach as used in sustainability appraisals at both a policy level and a project level, albeit with different themes and objectives depending on the scope of the appraisal. An early version of the framework was published in support of SZC Co.'s Stage 2 consultation, and has been further developed within the Sizewell C Project and through review against other recent NSIP applications listed above. The themes and objectives have been reviewed and updated to reflect recent developments in sustainability appraisal methodologies. They address the relevant sustainability issues of a new nuclear power station, and span the social, economic and environmental dimensions of sustainable development.

2.3.4 The themes and objectives have been tested for alignment with the Government's proposed sustainability appraisal framework in the scoping report for the AoS of the new nuclear NPS and the UN SDGs, and are therefore considered a sound and robust platform for evaluating and reporting sustainability commitments.

2.3.5 The final sustainability appraisal framework applied in this statement is presented in **Table 1.1**.

Table 1.1: Sustainability appraisal framework

Sustainability Theme	Sustainability Objectives
Climate Change Mitigation and Adaptation	To minimise GHG emissions and maximise resilience to climate change.
Resources and Waste	To promote the sustainable use of natural resources and apply the principles of the Waste Hierarchy.
Movement of People and Materials	To minimise detrimental impacts on strategic transport network and promote sustainable transport.
Skills and Employment	To promote a strong economy with opportunities for local communities.
Health and Well-Being	To protect the physical and mental health of the population, and enhance where feasible.
Community Services	To minimise disruption to services and infrastructure and promote positive legacy benefits.
Biodiversity and Ecosystems	To minimise impacts on protected habitats, species, valuable ecological networks and ecosystem functionality, and enhance these where possible.
Water Environment	To protect surface (including coastal) and groundwater quality (including distribution and flow), and enhance where feasible.

2.3.6 The Sizewell C Project has been appraised against the above objectives and the findings are presented in **Chapter 3** of this statement. The appraisal takes into account planning policy and associated objectives.

c) Reviewing the Sizewell C Project level evidence base

2.3.7 To inform the appraisal, a number of technical studies and strategies were reviewed. **Table 1.2** below identifies the technical studies which have been taken into account.

Table 1.2: Technical documents

Doc Ref	Title	Relevance	Applicable Theme
5.2 to 5.9	**Flood Risk Assessments**	Assessment of potential risks from flooding, both currently and in predicted future climatic conditions.	Climate Change Mitigation and Adaptation Water

Doc Ref	Title	Relevance	Applicable Theme
			Environment
5.13	**Community Impacts Report**	This draws together the identified environmental impacts on individual communities and the proposed mitigation measures.	Community Services Health and Wellbeing
6	**Environmental Statement (ES)**	The documents identify the environmental baseline and assesses the environmental impacts, having regard to proposed mitigation measures, of the proposed development, including the off-site associated development. Includes the following appendices of particular relevance:	All themes
6.2 Ch3 App A6.1 Ch3 App A	**Materials Management Strategy**	The strategy demonstrates how SZC Co. intends to manage excavated materials generated during the construction of the Sizewell C Project.	Movement of People and Materials Resources and Waste
6.2 Ch 8 App A6.1 Ch 8 App A	**Waste Management Strategy**	Strategy for management of the non-radioactive waste produced during the Sizewell C Project.	Resources and Waste
6.2 Ch15 App I6.1 Ch 15 App I	**Rights of Way and Access Strategy**	Strategy developed to minimise impacts on Public Rights of Ways and users around the main development site and green rail route.	Health and Wellbeing Community Services
8.1	**Sizewell C Main Development Site Design and Access Statement**	The Design and Access statement sets out how the Sizewell C Project would be delivered in accordance with a series of design principles, which have been developed to meet criteria for good design.	All themes
8.2	**Outline Landscape and Ecological Management Plan (oLEMP)**	Sets the objectives and general principles for establishment and longer-term management of the landscape and ecological mitigation proposals for the EDF Energy Estate following construction of the Sizewell C Project.	Biodiversity and Ecosystems

Doc Ref	Title	Relevance	Applicable Theme
8.3	**Associated Development Design Principles**	This documents sets out how the proposed associated developments would be delivered in accordance with a series of design principles, which have been developed to meet criteria for good design.	All themes
8.4	**Planning Statement**	The **Planning Statement** sets out the legislative and planning policy context for the Sizewell C Project and draws together the evidence on the key issues and examines the planning balance that should guide the decision.	All themes
8.5	**Transport Assessment**	Report includes **Transport Strategy** for the construction phase of the Sizewell C Project. Main constituent parts are: - **Workforce Strategy** – a strategy to get the construction workforce to Sizewell C Project site and associated development sites as sustainably and safely as possible, including development of a **Construction Workforce Travel Plan**; and An **Integrated Freight Strategy** – a strategy for getting freight and materials to site whilst minimising the impact on local roads and communities, including development of a **Construction Workforce Travel Plan**.	Movement of People and Materials
8.9	**Economic Statement**	Statement that includes implementation plans (**Employment, Skills and Education Strategy; Supply Chain Strategy**; and **Tourism Fund**), considering the effects of the Sizewell C Project on people and the economy, including jobs, education, skills, supply chain, and effects on other sectors including tourism, setting out approach to avoiding adverse effects and enhancing benefits.	Skills and Employment
8.10	**Accommodation Strategy**	The strategy describing the approach to managing the	Movement of People and

Doc Ref	Title	Relevance	Applicable Theme
		construction workforce, provision of temporary worker accommodation (campus and caravan site) and avoiding adverse effects.	Materials Community Services
8.11	**Code of Construction Practice (CoCP)**	This sets out the management measures which SZC Co. would require its contractor(s) to adopt and implement in the construction to maintain satisfactory levels of environmental protection and limit disturbance from construction activities as far as reasonably practicable.	Health and Wellbeing Biodiversity and Ecosystems Water Environment
8.15	**Combined Heat and Power (CHP) Feasibility Study**	The **CHP Feasibility Study** has been prepared to evaluate the feasibility of incorporating Combined Heat and Power into the Sizewell C power station.	Climate Change Mitigation and Adaptation
8.16	**Community Safety Management Plan (CSMP)**	Strategy to address the potential effects on communities and community facilities, public services and social cohesion.	Community Services

d) Appraising performance

2.3.8 As discussed above, there is no specific methodology which needs to be followed when undertaking a sustainability appraisal for projects. The sustainability appraisal presented within **Chapter 3** of this statement provides a qualitative assessment of the Sizewell C Project's performance against the sustainability objectives. The appraisal process does not seek to fully replicate the Government's methodology, and does not apply the same rigid categorisation of effects and scoring that was applied when undertaking the AoS of NPS EN-6.

3 Sustainability Statement

3.1 Introduction to appraisal

3.1.1 This chapter provides a summary of how the Sizewell C Project development complies with the sustainability objectives as outlined in the preceding chapters. It describes the Sizewell C Project's performance against the following sustainability themes:

- Climate Change Mitigation and Adaptation;
- Resources and Waste;
- Movement of People and Materials;
- Skills and Employment;
- Health and Well-Being;
- Community Services;
- Biodiversity and Ecosystems; and
- Water Environment.

3.1.2 The background, policy context, including mapping against UN SDGs, and sustainability objectives for each theme are identified, and then an appraisal of the Sizewell C Project against the identified policy and objectives is described and summarised. **Chapter 4** of this statement then explains the Sizewell C **Sustainability Strategy** in the context of the appraisal conclusions.

3.2 Climate change mitigation and adaptation

a) Background

3.2.1 There is good scientific evidence to show the climate is changing because of emissions of GHGs resulting from human activity. Climate change has the potential to have numerous impacts in the UK, such as warmer, wetter winters and hotter, drier summers. These changes would prompt increasing risk of floods, droughts and overheating (through higher temperatures). Scientific consensus attributes this change to emissions of GHGs, primarily carbon dioxide (CO_2) from the combustion of fossil fuels. In 2018, the UK's total emissions were provisionally estimated as being 364.1 $MtCO_2e$ (Ref. 1.23), carbon dioxide emissions from power stations, at 65.2 $MtCO_2e$, accounted for 18 per cent of all carbon dioxide emissions.

3.2.2 Whilst there has been a steep cut in emissions associated with the energy supply sector, there is a clear and urgent need for significant new electricity generating capacity in the UK to meet growing demands over the coming decades. The National Audit Office in its 2016 report '*Nuclear power in the*

UK' (Ref. 1.24), states that current generating capacity, from all sources, amounts to 108GW. The same report predicts an increase in demand over the next two decades of 31GW due to a combination of demographic change, economic growth and the electrification of heat and transport. Notably, the rise in the number of electric vehicles is likely to continue, with as many as 36 million such vehicles expected to be on UK roads by 2040. It is vital that this growing demand is met by diverse low carbon solutions.

3.2.3 Recognising this need to provide both affordable and clean energy, the UN goal and associated targets are as follows:

UN SDG 7 – Ensure access to affordable, reliable, sustainable and modern energy for all:

- Target 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services;
- Target 7.2 By 2030, increase substantially the share of renewable energy in the global energy mix; and
- Target 7.3 By 2030, double the global rate of improvement in energy efficiency.

3.2.4 A major focus in tackling climate change has been on mitigation; taking action to reduce emissions. However, if current trends persist, average global temperatures will rise within the next fifty years and therefore, in addition to mitigation measures, climate change adaptation is also required to deal with the unavoidable effects of climate change. Adaptation is the only response available for the impacts that will occur over the next several decades before mitigation measures can have an effect and requires that SZC Co. addresses the risks of climate change through a robust design response.

3.2.5 Recognising the importance of addressing the potential impacts of climate change, the UN SDG and targets linked to this objective is:

- UN SDG 13 – Take urgent action to combat climate change and its impacts:
  - Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries; and

- Target 13.2 Integrate climate change measures into national policies, strategies and planning.

3.2.6 The AoS of both EN-6 and the new nuclear NPS identify a single climate change objective: '*to minimise detrimental effects on the climate from greenhouse gases and ozone depleting substances and maximise resilience to climate change'*. A wide range of legislative provisions, policies and targets are in place which require the UK to deliver this objective.

b) Policy context

3.2.7 Policies for climate change are imposed by all levels of Government and the most notable have been given statutory force in the Climate Change Act 2008 and 2050 Target Amendment Order (Ref. 1.25). Policies address climate change both in terms of mitigation, whereby policies are in place to reduce emissions, but also for adaption, where policies seek to make development resilient to the effects of future climate change.

3.2.8 The NPS EN-1 sets out the need to consider climate change adaption in the development of new energy infrastructure. It states:

"New energy infrastructure will typically be a long-term investment and will need to remain operational over many decades, in the face of a changing climate. Consequently, applicants must consider the impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure." (Paragraph 4.8.5).

c) Sustainability objective

3.2.9 Capturing the need to consider both the potential impact on and the effect of climate change, the specific sustainability objective, against which the proposals have been appraised, is "to minimise greenhouse gas emissions and maximise resilience to climate change."

d) Sustainability performance

i. Whole project principles

3.2.10 Nuclear power is a low carbon technology. On a lifecycle basis GHG emissions from the Proposed Development over the 60-year design life would equate to between 9-10 gCO_2e/kWh. This compares favourably with other fossil fuel electricity generation and is comparable with alternative low carbon fuel sources such as wind:

- Natural gas 340 gCO_2e/kWh.
- Solar photovoltaic 40-85 gCO_2e/kWh.
- Offshore wind 7-24 gCO_2e/kWh.
- Onshore wind 7-20 gCO_2e/kWh.

3.2.11 Nuclear power is able to provide a reliable source of electrical energy and is generally advantageous compared with wind and solar energy in providing a stable base load to support the National Grid. The proposals for the Sizewell C Project would be for two UK EPR™ units, generating 1,670MW (net) of low carbon electricity per unit. The electrical output would provide a low carbon source for over 20% of the UK's homes and, based on current grid intensity, offset approximately 7 million tonnes of CO_2 per annum[4] by displacing the existing mix of more carbon intensive electricity from the National Grid. The development of the Sizewell C Project would therefore play a significant role in the UK's transition to a low carbon economy.

3.2.12 Recognising these inherent long-term benefits of carbon reduction, it is also important that consideration is given to minimising, where possible, the GHG emissions associated with the construction and operation of the Sizewell C Project, as for any large-scale infrastructure project. These emissions have been considered as part of a life cycle GHG gas impact assessment, as presented in **Chapter 26** – Climate Change.

3.2.13 GHG emissions from construction activities would occur throughout the construction programme (between 9 to 12 years in duration), during which time all enabling and construction works are expected to take place. The majority of emissions during this period would be associated with the embodied carbon within materials (84%), with transport of materials to site and construction worker commuting totalling 10%. **Table 1.3** identifies the main sources of emissions arising from construction activities and their respective contributions.

Table 1.3: CO_2e arising from construction activities

Lifecycle Stage	Project Activity / Emissions Source	Emissions (tCO_2e)	% of Construction Emissions
Construction	Embedded carbon in	4,832,242	84%

[4] Based on UK Grid electricity declared at 255.6g/kwh (UK Greenhouse Gas Conversion Factors 2019).

Lifecycle Stage	Project Activity / Emissions Source	Emissions (tCO_2e)	% of Construction Emissions
	materials		
	Construction Activities	204,880	4%
	Transport of materials to site	283,449	5%
	Construction worker commuting	302,566	5%
	Waste treatment and disposal	52,735	<1%
	CHP (worker accommodation)	52,735	<1%
	Removal and treatment of materials from temporary associated developments	8,286	<1%
	Total	**5,738,084**	

(Source – **Volume 2, Chapter 26** of the **ES**)

3.2.14 Recognising the predicted high proportion of the construction carbon footprint from transport related activities, reference should be made to the section below on 'Movement of People and Materials'. This provides detail of the **Transport Strategy** for the construction phase of the Sizewell C Project, which has been developed, following extensive consultation, to minimise the volume of traffic and maximise sustainable movements; helping to reduce the carbon emissions of the transportation activities.

3.2.15 The below sections identify the potential GHG emissions, and how they may be reduced within the context of the design, construction and operation of the main development site. A similar appraisal is presented for each of associated development sites in **Appendix A**.

i. Main development site – design of permanent buildings and infrastructure

3.2.16 The principal function of the permanent development would be to generate low carbon electricity. There is no proposal to incorporate gas connections to the buildings and, in operation, electricity generated from Sizewell C would be the sole fuel source used within the new development site. This low carbon electricity would power all buildings across the permanent development site.

3.2.17 Buildings and structures within the nuclear island are generally not governed by UK Building Regulations governing the conservation of fuel and power (Ref. 1.26), however permanently staffed operational buildings would need to meet Part L of the Building Regulations. It is identified that these buildings should be designed to significantly exceed the minimum requirements of the regulations, and would follow a sustainable design brief. This would include promoting good levels of insulation and energy efficiency to reduce demand where possible.

3.2.18 With regard to climate adaptation, the design of the Sizewell C Project must take account of the likely consequences of climate change to ensure that the permanent development is appropriately resilient to future climate scenarios throughout and beyond its 60-year design life (as referenced in the **Sizewell C Main Development Site Design and Access Statement** (Doc Ref. 8.1)). This involves designing the proposed power station to ensure it can cope with, and be adaptable to, the predicted effects of climate change, and that it is resilient to increases in extreme weather events such as storms, floods and droughts.

3.2.19 Due to its nature, there are a range of potential risks posed from climate change on the permanent buildings, including the threat from future sea level rise, and the availability of water to run the process loads, which requires a consistent supply of up to 2 million litres of fresh water per day. There are also other considerations however, including the risks posed by more intense rainfall events.

3.2.20 To ensure that the development is future proofed from sea level rise, extensive design and modelling of the height of the sea defence has been undertaken to satisfy the requirements of the Office of Nuclear Regulation (ONR). This modelling has been undertaken on the reasonably foreseeable climate change scenario (derived from assessments incorporating predicted changing climates to 2110). The main platform would be at a level of 7.3m AOD, which is similar to the 1 in 1000 annual probability extreme still water levels in the year 2110 for the worst credible climate change scenario. In addition, the main development site includes a Hard Coastal Defence Feature set at 10.2 m which is resilient to a 1 in 10,000 year flood event, with future resilience provision in terms of being able to increase its height up to 14.2 m to provide further protection from overtopping.

3.2.21 With regard to surface water flows, once constructed, the main platform area would comprise predominantly impermeable surfaces. As Sizewell C has a boundary with Sizewell B to the south and both platforms are at differing ground levels, a retaining wall would be constructed to prevent

surface water discharging from Sizewell C to Sizewell B. The surface water drainage design would have sufficient capacity that surface water could be discharged from the site to the sea while ensuring:

- In a 1 in 200 annual probability rainfall event, critical site access and transport links to Sizewell C would be capable of operating safely and that staff operating the power station could do so without surface water flood risk. For events up to this magnitude, the platform would drain to the sea through the main cooling water infrastructure.

- In a 1 in 1,000 annual probability rainfall event, staff and visitors to Sizewell C site would remain safe from the effects of surface water flooding, though design of surface water exceedance flow paths.

- In a 1 in 10,000 annual probability rainfall event, no flood water that builds up within the site would reach a level where it could flow into safety classified buildings. Any surface water drainage network relied upon to achieve this would also be safety classified.

3.2.22 Drought risk is also an important consideration, particularly in Suffolk which is already within one of the most water stressed regions in the country. The strategies for water use and reduction in water demand where feasible are discussed under the water environment theme.

3.2.23 Further details on climate adaptation are presented within the climate resilience assessment, within **Chapter 26** – Climate Change of **Volume 2**.

ii. Main development site – design of temporary buildings and infrastructure

3.2.24 When considering temporary buildings and infrastructure, given their relatively short duration, the principal consideration with regards to climate change is the need to minimise embodied GHGs in materials, and reducing energy demand for temporary buildings in operation. Climate adaptation, whilst a relevant consideration, is less significant, albeit that suitable provision should be made to ensuring that buildings and infrastructure are resilient to extreme weather events.

3.2.25 A temporary accommodation campus for up to 2,400 construction workers is proposed in development. These would be used for approximately 9 to 12 years during construction. There would also be offices and welfare facilities. These buildings would be brought forward with a sustainable design brief, ensuring that embodied GHGs in their assembly are measured and controlled, where practical. The brief would consider the use of

techniques to limit energy demand and generate energy that is used sustainably. It is currently proposed that the temporary workforce accommodation campus would be heated using air source heat pumps, a renewable energy source which also produces no local air quality impacts and be constructed from readily demountable building elements, to allow reuse.

iii. Main development site – construction

3.2.26 Whilst there is a generally positive relationship between the proposals and the objective of minimising GHGs, it is recognised that the construction of the power station, as with any energy source, would contribute to the emission of GHGs. This would be the consequence of a number of activities - principally the production and handling of construction materials, but also those associated with worker transport and the operational construction plant on site.

3.2.27 It is important to recognise, however, that construction emissions are in many cases unavoidable. Given the urgent need to deliver the Sizewell C Project, coupled with certain restrictions unique to nuclear power station development, for example materials and construction processes fixed under the Generic Design Assessment, decarbonising the construction process may be impractical and potentially detrimental. Notwithstanding this, the construction needs to take steps where it can to minimise the impacts of GHG emissions. These steps should include efficient energy supply for onsite requirements, including use of alternative fuels and mechanisms to measure onsite use for improved control and possible reductions.

iv. Main development site – operations

3.2.28 Activities carried out on site during the operation of the power station would also lead to the potential emissions of GHG emissions. Estimates of operational GHG emissions from fuel fabrication, diesel generators, back-up CHP plant, waste treatment and vehicles journeys total approximately 1,364,346 tCO_2e over the 60-year design life, as presented in **Chapter 26** – Climate Change. This equates to 22,739 tCO_2e per annum based on 2019 emission factors.

3.2.29 Whilst certain emissions would be difficult to avoid, best practice measures would need to be established and implemented through good management of buildings, Sustainable Transport Plans, and the electrification of fleet in order to minimise GHG emissions once the site is operational.

3.2.30 Consideration would also be given to potential opportunities to form an ‘energy hub’, which could employ innovative solutions to reuse waste heat

released during the energy generation process as a potential source of useful energy, for example to make low carbon hydrogen, in cryo-storage or in absorption chillers for data centres which require continuous power and cooling. Sizewell C is considering small engineering adjustments to ensure that relevant options remain open once the Sizewell C Project is operational.

e) Summary

3.2.31 The sustainability objective 'to minimise greenhouse gas emissions and maximise resilience to climate change' is clearly supported; the Sizewell C Project would generate low carbon electricity for 60 years, providing a significant proportion of the UK's energy demand. Further consideration is also being given to other decarbonisation opportunities, for example by exploring innovative ways waste heat generated during the electricity generation process may be beneficially used in an 'energy hub'.

3.2.32 Whilst the construction phase would involve substantial quantities of materials, many of which have high embodied energy, these are being used to construct infrastructure, which would have a significant operational design life. Notwithstanding this, recognising the urgent need to tackle climate change, measures must be taken to reduce construction emissions where possible. Whilst the Sizewell C Project is therefore considered to support the objective overall, an opportunity has been identified to further drive forward improvements beyond the regulatory minimums to design, construct and operate the proposed nuclear power station and associated development as efficiently as possible. This opportunity is to be further explored through the implementation of the Sizewell C **Sustainability Strategy** set out in **Chapter 4** of this statement.

3.3 Resources and waste

a) Background

3.3.1 The construction of a new nuclear power station requires significant quantities of raw materials and would generate large quantities of construction waste. In a wider context, the UK generated 222.9 million tonnes of waste in 2016, with over half of this (61%) being generated by construction, demolition and excavation activities (Ref. 1.27).

3.3.2 The management of waste and opportunities to reduce the environmental impact has, until recently, been driven by the adoption of the waste hierarchy. This prioritises reduction of waste and recycling before considering options for disposal, including deriving energy from the burning

of waste. Best practices for resource efficiency and material management are fast evolving; with a significant move now seen towards the principles of a 'circular economy'. This is an emerging alternative to a traditional linear economy (make, use, dispose) which maximises the ongoing value of resources through the careful design and specification of materials.

3.3.3 The importance of sustainable resource use and waste management is also reflected in the following UN SDG (focused on those of particular relevance to the Sizewell C Project only):

- UN SDG 12 Ensure sustainable consumption and production patterns.

3.3.4 The AoS for NPS EN-6 did not include a specific theme or objective on waste, however this has been addressed in the proposed AoS for the new nuclear NPS which includes a new theme in the proposed AoS sustainability framework – *"Resources and Raw Materials"* with the appraisal objective "to promote the sustainable use of resources and natural assets".

b) Policy context

3.3.5 NPS EN-1 and NPS EN-6 include specific requirements on waste management, in ensuring there is an effective system to manage hazardous and non-hazardous waste arising from all stages of the development. Paragraph 5.14.3 of NPS EN-1 states that disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.

3.3.6 At the local level, the Suffolk County Council Waste Core Strategy (2011) (Ref. 1.28), which covers the period up to 2026, describes the overarching principles and policy direction of waste planning applications in Suffolk. This document is part of a suite of documents which make up the Suffolk Minerals and Waste Development Scheme (Ref. 1.29).

c) Sustainability objective

3.3.7 The focus of this theme is the sustainable consumption of resources, minimising waste and maximising recycling. The specific sustainability objective, against which the proposals have been appraised, is "to promote the sustainable use of natural resources and apply the principles of the Waste Hierarchy".

3.3.8 This appraisal considers the management of non-radioactive waste streams. It does not consider spent fuel or radioactive waste which would arise during the operation and decommissioning, or the management of

conventional waste arising in the future decommissioning of the nuclear power station, as this would be managed under a separate consent, with a separate appraisal.

d) Sustainability performance

i. Whole project principles

3.3.9 The greatest potential for improving resource efficiency in infrastructure delivery occurs during the optioneering, feasibility and early design stages.

3.3.10 A **Waste Management Strategy** in **Appendix 8A** of **Volume 2** for the Sizewell C Project has been produced and submitted with this Development Consent Order application. This strategy addresses non-radioactive waste arising during construction and operation. The **Waste Management Strategy** follows the priorities for sustainable waste management set out at paragraph 5.14.2 of NPS EN-1. The key principle detailed throughout the strategy is that waste would be managed in accordance with the waste hierarchy:

- prevention;
- preparing for reuse;
- recycling;
- other recovery, including energy recovery; and
- disposal.

3.3.11 The **Waste Management Strategy** has the objective to achieve zero waste to landfill and includes associated Key Performance Indicators to help drive this.

3.3.12 The **Materials Management Strategy** in **Appendix 3B** of **Volume 2** explains how the excavated materials generated during construction will be managed, with the aim to maximise the sustainable use of natural sources.

ii. Main development site – design of permanent buildings and infrastructure

3.3.13 It is relevant to consider that the permanent buildings would have a design life of at least 60 years, however they may be operated beyond this.

Therefore, the focus should be on the longevity of materials specified and minimising the need for maintenance where possible.

3.3.14 All the main equipment for the UK EPR™ reactor units would be constructed off-site. Consequently, these materials would be delivered as AILs to site, therefore reducing the production of construction waste.

3.3.15 At the main development site, the majority of excavated materials created to facilitate construction would be retained on-site for re-use as backfill and landscaping. This would significantly reduce the amount of material to be classified as waste, which would otherwise require removal from site for re-use, recycling, recovery or disposal and is considered to be a sustainable approach as it prevents/minimises waste production. Consideration should also be given to the specification of recycled aggregates where feasible and where design integrity allows.

iii. Main development site – design of temporary buildings and infrastructure

3.3.16 It is envisaged that the majority of the accommodation campus buildings would be modular. In addition, the temporary facilities, i.e. accommodation campus and construction office facilities should be designed for deconstruction and offsite reuse.

3.3.17 The design of the accommodation campus also considers the following:

- clear signage that indicates the location of the communal waste bins and the type of waste that can be placed in each bin;
- provision of waste storage facilities for the collection of organic food waste, with the potential for disposal in a composting or anaerobic digestion facility;
- provide storage receptacles in communal waste storage rooms for batteries, lightbulbs and unused discarded hazardous chemicals and arrange and promote collection and recycling of these wastes using East Suffolk Council or commercial services; and
- use of a community notice board to allow for tenants to advertise obsolete items for reuse by other tenants in the development.

iv. Main development site – construction

3.3.18 Taking forward the good initiatives being followed at Hinkley Point C, appropriate procedures are proposed in the Sizewell C **Waste Management Strategy** for minimising waste to landfill generated on site in temporary facilities.

3.3.19 The proposals include a centralised waste management facility, referred to as the waste consolidation centre, enabling the segregation and management of waste arising from construction activities and waste bailing and compaction, prior to removal from site. Operational waste from the on-site associated development facilities would also be segregated and stored in this facility.

3.3.20 The **Materials Management Strategy** in **Appendix 3B** of **Volume 2** (Doc Ref. 8.11) outlines the aspiration of the Sizewell C Project to: -

- reuse 100% of uncontaminated topsoil on site;
- achieve a neutral cut and fill balance across the main development site and associated development sites; and
- divert 95% (by weight) of non-hazardous excavation waste from landfill.

3.3.21 Topsoil and subsoil would be stripped and stored for reuse on site for landscaping. This process would be managed through a site-specific Soil Resources Plan and in line with **Outline Soil Management Plan** for the Sizewell C Project.

3.3.22 The construction of the main platform requires deep excavations as well as the raising of land levels, to achieve the required level for the permanent platform. An indication of the volumes is provided in the **Materials Management Strategy**.

3.3.23 An integrated design approach has been developed to use excavated material to satisfy the fill material requirements wherever reasonably practicable. The proposed borrow pits on site, which would provide a source of sand and gravel for use as backfill material for the main construction, are considered a more sustainable and cost-effective method than importing large quantities of aggregate. Once excavated, the borrow pits would be filled in with excavated materials from across the site that are unsuitable for reuse in construction, and the ground reinstated. Any waste

material would not be used to fill the borrow pits and would be dealt with separately in line with the **Waste Management Strategy**.

v. Main development site – operations

3.3.24 The operational waste storage requirements for the Sizewell C power station have been defined in the **Waste Management Strategy**. This predicts the volumes and types of conventional waste arising during operation and identifies that sufficient space has been provided. In due course further consideration will be given to how waste management practices of the operational development can be optimised.

e) Summary

3.3.25 The **Waste Management Strategy** developed for the Sizewell C Project defines how conventional waste would be managed in accordance with the waste hierarchy. In addition, the **Materials Management Strategy** explains how the excavated materials generated during construction would be managed, with the aim to maximise the sustainable use of natural sources, thereby demonstrating the sustainability appraisal objective is met.

3.3.26 As referenced in the introduction to this section, best practices for resource efficiency and material management are fast evolving; with a significant move now seen towards the principles of a 'circular economy'. This is an emerging alternative to a traditional linear economy (make, use, dispose) which maximises the ongoing value of resources through the careful design and specification of materials. The aim is to ensure that resources remain in use for as long as possible, that maximum value is extracted whilst in use, and would be recovered and regenerated at the end of each service life as products and materials that maintain rather than degrade resource value.

3.3.27 Whilst the Sizewell C Project is therefore considered to support the objective overall, an opportunity has been identified to further drive forward improvements and the possibility of adopting the principles of a circular economy in future project decision making. This opportunity is to be explored through the implementation of the Sizewell C **Sustainability Strategy** set out in **Chapter 4** of this statement.

3.4 Movement of people and materials

a) Background

3.4.1 The construction phase of NSIPs can be significantly longer than a standard construction project. An essential component in the delivery of

such projects is the movement of people and materials to and from the main development site. It is recognised that, without careful planning and management, such projects have the potential to impact upon transport infrastructure both at a local level and at a wider scale, particularly where there are cumulative effects as a consequence of further development in the region.

3.4.2 Although there is no specific sustainable transport goal, the UN SDGs linked to this objective are:

- UN SDG 11 – Make cities and human settlements inclusive, safe, resilient and sustainable;
- UN SDG 13 – Take urgent action to combat climate change and its impacts.

3.4.3 The Government AoS of the NPS EN-6 addressed these effects as part of the Community Supporting Infrastructure appraisal theme, with the appraisal objective: '*to minimise detrimental impacts on strategic transport network and disruption to basic services and infrastructure'*. This is the same in the proposed AoS for the new nuclear NPS.

b) Policy context

3.4.4 NPS EN-1 acknowledges that new NSIPs may give rise to substantial impacts on the surrounding transport infrastructure, and the applicant should mitigate these impacts, including impacts during the construction phase of the development.

3.4.5 NPS EN-1 paragraph 5.13.2 states that the consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in section 2.2 of NPS EN-1.

3.4.6 Paragraph 5.13.4 states that, where appropriate, the applicant should prepare a Travel Plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts. To direct the consideration of relevant mitigation measures, paragraph 5.13.8 requires demand management measures to be considered first, and paragraph 5.13.10 states that water-borne or rail transport is preferred over road transport at all stages of the Sizewell C Project, where cost-effective.

3.4.7 At the local level, Suffolk's Local Transport Plan 2011-2031 (Ref. 1.30) outlines the 20-year strategy for the transport network in Suffolk, with a focus on maintaining and improving the network, reducing congestion and improving access to jobs and markets.

c) Sustainability objective

3.4.8 For the Sizewell C Project sustainability appraisal, the theme of "Movement of People and Materials" has been included to specifically focus on the sustainability issues associated with the effect on the transport infrastructure and opportunities to encourage the use of sustainable modes of transport. The sustainability appraisal objective "to minimise detrimental impacts on strategic transport network and promote sustainable transport" has been derived for this purpose. A separate theme and objective has been included on Community Services (see **section 3.7** below).

3.4.9 This theme has been appraised at the whole project level, considering the potential benefits and impacts that may arise during construction and operation.

d) Sustainability performance

i. Whole project principles

3.4.10 Building the Sizewell C Project would involve the daily movement of large numbers of construction workers and significant amounts of materials and equipment. In developing and designing the transport proposals, opportunities have been sought to limit the impact of construction on the local rail and highway networks wherever possible. The proposals include mitigation measures to limit potential effects on local communities and the environment, and measures to encourage sustainable transport use for the workforce and freight. As part of this, the strategy promotes the use of rail for material delivery and bussing or the workforce travelling to the main development site, which consolidates vehicle trips.

3.4.11 Transport logistics has shaped the proposals, and has been the subject of ongoing public consultation with communities around Sizewell. A number of strategic decisions have been taken in determining the requirements for and locations of the associated development in order to minimise or mitigate the impacts that would arise from the construction of the Sizewell C Project, in particular to minimise the impact on the local road network.

3.4.12 These decisions are presented in the **Transport Strategy** in **Chapter 4** (Doc Ref. 8.5) that has been prepared for the construction of the Sizewell C

Project. This has two constituent parts – a **Workforce Strategy** and an **Integrated Freight Strategy**. The overall objectives are to: -

- Minimise the volume of traffic associated with the construction of the Sizewell C Project as far as reasonably practical;
- Maximise the safe, efficient and sustainable movement of people and materials required for the construction of the Sizewell C Project as far as reasonably practicable;
- Minimise the impacts both for the local community and visitors to the area using the road network as far as reasonably practicable;
- Provide long-term, legacy benefits for the local community from new infrastructure, where appropriate; and
- Take reasonable steps to ensure the resilience of the transport network in the event of an incident.

3.4.13 The **Workforce Strategy** sets out the strategy on how to get the construction workforce to the main development site and associated development sites, whilst minimising the impact on local roads and communities. It presents the decisions that have led to the following project wide proposals:

- the location of the accommodation campus on the main development site and a caravan site on LEEIE in Leiston to reduce the number of workforce journeys;
- park and ride facilities at key locations on the A12 for workers to travel by bus to the main site, as well as bus services from the caravan site;
- direct bus services from Ipswich and Lowestoft during the peak years of construction;
- a direct bus service between Saxmundham railway station and the main development site;
- local bus services from Leiston;
- management of car parking with strict permit system;

- walking and cycling improvements, as set out in the **Walking and Cycling Strategy** in **Chapter 12** of the **Transport Assessment** (Doc Ref. 8.5); and

- working patterns that minimise workers travelling at peak times.

3.4.14 The collection of workforce transport measures would help to manage potential impacts on the local road network, and promote more sustainable travel options to the site. The proposed accommodation campus and caravan park would result in approximately 3,000 workers living and working in close proximity, who would otherwise need to travel to and from the main development site. The park and ride facilities would play an important role in reducing the amount of additional traffic generated by the construction workforce on local roads and through local villages. The Northern (Darsham) Park and Ride and Southern (Wickham) Park and Ride sites would each provide 1,250 car parking spaces, 80 motorcycle parking spaces, and secure cycle parking for approximately 20 bikes.

3.4.15 The mechanisms for both delivery and management of these measures are set out in the **Construction Worker Travel Plan** (Doc Ref. 8.8). Proposals for the use of electric vehicles, including electric buses and the integration of EV charging in the park and ride car parks would help to further enhance the sustainability of the strategy.

3.4.16 The **Transport Strategy** aims to minimise the impact of traffic associated with the construction of the Sizewell C Project on the road network through a package of sustainable transport measures. Nevertheless, the residual construction traffic on the network in some cases justifies specific mitigation to relieve potential problems at particular locations. The works proposed at points on the highway network are where they are considered necessary for highway safety and/or highway capacity reasons.

3.4.17 The package of highway improvement works, as referenced in the description of proposals in **Chapter 2** of this statement, offers permanent legacy benefits and includes: -

- Two-village bypass to mitigate the impacts of traffic travelling to and from the main development site on the A12, particularly on the bend through Farnham.

- Sizewell link road to relieve the B1122 from the anticipated construction traffic associated with the main development site.

- Upgrades to the Saxmundham to Leiston branch rail line.

- A roundabout ('Yoxford Roundabout') at the junction of A12/B1122 to increase the highway capacity of the junction, reduce accident risk and accommodate Abnormal Indivisible Loads (AILs) to/from the A12 north of the B1122.

- Highway safety improvements at:

  - A12 / A144 south of Bramfield;
  - A12 / B1119 at Saxmundham; and
  - A1094 / B1069 south of Knodishall.

3.4.18 The **Freight Management Strategy** sets out the strategy for getting freight and materials to site whilst minimising the impact on local roads and communities. Various options to manage these movements have been developed and been the subject to consultation with the local communities around Sizewell. A central consideration has been the best method to transport materials, such as bulk aggregate to the site. The following principles have informed the development of the **Freight Management Strategy**:

- wherever possible reduce the volume of materials that require movement off-site;

- where materials must be imported to, or exported from the site, seek to move bulk materials and containerised goods by sea or by rail where practical and cost effective; and

- where movement of materials by road remains necessary, manage this in a way which reduces local impacts.

3.4.19 Following these principles, the proposals include the construction of a beach landing facility at the main development site, to allow for the delivery of AILs throughout the construction phase, and also during the operational phase, when required.

3.4.20 In addition, the green rail route extension is proposed, which would involve the construction of a temporary rail extension, branching off the existing Saxmundham to Leiston branch line, into the main development site. The purpose of the green rail route extension would be used to facilitate the delivery of up to three trains per day (six movements) to the main

development site during peak construction, which would allow for almost 40% of construction materials (by weight) to be delivered to site by rail.

3.4.21 Prior to the green rail route extension being operational, the proposals include the construction of a temporary single railway line with railway sidings and a passing loop for the locomotive within the LEEIE. This would be used to bring two trains per day, transporting freight to the LEEIE, where it would then be transferred to HGVs for delivery to the main development site.

3.4.22 The residual HGV movements would be managed on the local highway network through a delivery management system and **Construction Traffic Management Plan**. A Freight Management Facility is proposed, which would accommodate approximately 150 spaces for HGVs to wait temporarily. This is proposed to assist a controlled pattern of deliveries to site with reduced movements during peak or sensitive hours on the network. In addition, a consolidation facility is proposed to be located at the Southern (Wickham) Park and Ride, for post, packages and small item deliveries to the main development site. There would also be a **TIMP** located in the northern part of the Wickham site. If there is an incident within the site or external to the site which requires deliveries to be held or diverted, the Wickham Market **TIMP** could be utilised to manage vehicles and remove them from the public road network while the incident is being resolved.

3.4.24 The nature of travel patterns once the station is operational would be different than during construction. With regard to material movement, it would be necessary during maintenance outages to transport bulky loads. As described above, the proposals include a permanent beach landing facility which would be available during the operational phase of Sizewell C. The beach landing facility would facilitate an occasional - but essential - need to transport exceptionally large loads that are too big for transportation by road across the foreshore.

3.4.25 The permanent access and junction improvements needed to facilitate construction would offer a permanent legacy benefit. These include:

- The retention of the site access roundabout on the B1122 would benefit traffic travelling to and from Eastbridge.
- The site access would also be used during Sizewell C outage periods when traffic levels would be higher than during the main period of operation (though much lower than during the Sizewell C construction

period). This piece of legacy infrastructure would therefore retain the additional junction capacity required during outage periods.

- Retention of the Lover's Lane realignment following the completion of Sizewell C construction would provide a legacy benefit to pedestrians and cyclists using Lover's Lane.

3.4.26 The design of the permanent site also presents options for:

- The inclusion of electric vehicle charging points;
- Cycle parking;
- Showers and changing facilities for staff; and
- On-site canteen and amenities for staff.

3.4.27 These options would be explored during further development of the detailed design proposals.

3.4.28 The workforce numbers would reduce to approximately 900 permanent staff during the operational phase. Sustainable transport would be promoted for the workforce through comprehensive travel planning initiatives, which would be a condition of employment on site. An Operational Travel Plan would be prepared near the time that Sizewell C becomes operational and that would take account of the transport conditions at that time and relevant changes in sustainable transport planning.

3.4.29 The proposed new north-south off-road combined bridleway, cycleway and footpath between Leiston, the main development site and Eastbridge would be retained following completion of the construction and extended to join the existing PRoW network.

e) Summary

3.4.30 The sustainability objective 'to minimise detrimental impacts on strategic transport network and promote sustainable transport' is considered to be supported by the Sizewell C Project. The construction of any large infrastructure project gives rise to the need for significant movement of people and materials. SZC Co. has adopted a comprehensive strategy to support the sustainable movement of people and materials.

3.4.31 The **Transport Strategy** proposes an integrated approach to managing the movement of people and materials associated with the construction and

operation of the Sizewell C Project. Efforts have been taken to prioritise the use of rail over road as far as possible during the construction phase, which should be kept under review and monitored. This and other opportunities to promote sustainable transport would be further explored through the implementation of Principle 1 – Design and Construction for a Low Carbon Future, which is set out within the Sizewell C **Sustainability Strategy** in **Chapter 4, Plate 1.1** of this statement.

3.5 Skills and employment

a) Background

3.5.1 Alongside delivering a secure supply of low carbon energy essential to the transition to a sustainable low carbon economy, the development of a new fleet of nuclear power stations can help to create a highly skilled construction workforce that can build major infrastructure projects and, through the supply chain, support advanced manufacturing sectors.

3.5.2 Establishing and maintaining strong economic growth is a key tenet of sustainable development. This is reflected through the UN SDG 8:

UN SDG 8 - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

3.5.3 To deliver this goal of sustained economic growth, focus is also placed on education in UN SDG 4:

UN SDG 4 – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

3.5.4 The construction, operation and decommissioning of a new nuclear power station would create direct and indirect employment opportunities, with potentially significant benefits to the local and national economy. The proposed AoS for the new nuclear NPS identifies the objective for Skills and Employment as *"to promote a strong economy with opportunities for local communities".*

b) Policy context

3.5.5 NPS EN-1 states that the Infrastructure Planning Commission (now PINS) should have regard to the potential socio-economic impacts of new energy infrastructure identified by the applicant. Further, NPS EN-6 advises that PINS should give the potential socio-economic benefits significant weight when assessing Development Consent Order applications; and should

consider any positive provisions the developer has made and any options for phasing development in relation to the socio-economic impacts.

3.5.6 The NPPF identifies three overarching objectives for the planning system to achieve sustainable development:

- *an economic objective – to help build a strong, responsive and competitive economy;*
- *a social objective – to support strong, vibrant and healthy communities; and*
- *an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment.*

c) Sustainability objective

3.5.7 Reflecting the importance of establishing and maintaining strong economic growth and developing skills locally, the specific sustainability objective, against which the proposals have been appraised, is "to promote a strong economy with opportunities for local communities". The theme has been appraised at whole project level, considering the potential benefits and impacts that may arise during construction and operation.

d) Sustainability performance

i. Whole project principles

3.5.8 In addition to the clear benefits delivered by the Sizewell C Project in reducing UK carbon emissions, the construction and operation of the Sizewell C Project presents opportunities to promote social and economic benefits, particularly at the local and regional levels. There is a major opportunity to contribute to enhancing economic growth in the area.

3.5.9 At 9 to 12 years, the construction phase would provide a boost to the local economy which will help to raise competency and expertise in the supply chain and deliver sustainable and transferrable skills in construction, energy and service sectors. The Sizewell C Project would support over 40,000 roles during the construction phase.

3.5.10 The operational phase would also provide a long-term boost to the economy. It would raise GDP by around £225m per year and bring around £44.5m of wages into Suffolk each year.

3.5.11 As described in the **Economic Statement** (Doc Ref. 8.9), there is a major opportunity to 'embed' the Sizewell C Project in the 'Energy Coast' and the wider sub-regional economy, contributing to enhancing economic growth in the area and promoting synergies between this and other energy sector investment, and to position the local labour force and businesses as pacesetters in what has been established as the region's major growth sector.

3.5.12 In order to maximise the benefits to local residents, SZC Co. and Suffolk County Council both aspire to generate employment from out-of-work residents or new entrants to the labour market, and also to enable local residents to access the higher paid and higher skilled roles.

ii. Construction

3.5.13 At peak, the Sizewell C Project would be one of the largest construction projects in the UK, and would bring significant economic and employment opportunities, producing a long-term boost for the local economy through increased employment and skills provision.

3.5.14 Construction of the Sizewell C Project would create approximately 40,000 roles. Technical Note 1: Workforce Profile in **Appendix 9A** of **Volume 2** provides an estimate of the roles required over the construction period showing overall build up and ramp down of the construction workforce and its components – civils, construction, mechanical, electrical and heating, professional and management, site support/services, construction of associated development sites and operational workforce for these sites. There would also be a need for a significant workforce in non-construction roles, both directly and in the supply chain, including in the tourism, hospitality, food production, and business support sectors.

3.5.15 Overall, it is predicted in the **Economic Statement** that up to around one third of the demand for workers at peak could be drawn from existing residents already living within an area of 90-minute travel time to the site (referred to as the Construction Daily Commuting Zone). This would mean an additional 2,410 jobs across a range of occupations and skills levels, the equivalent of 1% of all employment in Suffolk.

3.5.16 An **Employment, Skills and Education Strategy** in **Appendix A** of the **Economic Statement** has been developed to help steer these positive social impacts. The strategy is centred around four priorities:

- Creating economic benefit and improving social mobility;

- Minimising workforce and project risk;
- Setting realistic commitments;
- Integrating strategic activity between Sizewell C and Hinkley Point C – and in the future Bradwell B.

3.5.17 The strategy sets out how learning from Hinkley Point C has helped to provide more clarity about Sizewell C, and sets out a 'range of interventions and investments that the Project will make, including:

- A future Sizewell C jobs service - SZC Co's focus on recruitment will be on targeting the right people into the right jobs through the enhancement of Hinkley Point C's Jobs Service. This will provide a service that is managed centrally but delivers locally though a small number of dedicated staff in Suffolk and through optimising external partnerships;
- Skills initiatives – including:
  - a flexible Asset Skills Enhancement and Capability (ASEC) Fund with a strong, accountable governance structure including Tier 1 contractors and local stakeholders;
  - A commitment to funding a Regional Skills Coordinator post to provide a focal point of coordination and skills planning between project and providers; and
  - Supporting contractors in exploring options for training and assessment facilities to enable the competence of workers to be assessed and to identify areas of additional training.
- Supply chain initiatives - in order to help jobseekers find roles on the project and to backfill occurrences of displacement within the supply chain. The strategy will be an integral part of the wider Energy Coast strategy and will not work in isolation.
- Education initiatives – partnering with regional stakeholders to invest in a range of activities including:
  - Supporting specific and existing educational initiatives in the region that are working well or are supporting young people in

raising their aspirations for careers in energy, engineering or construction;

- Supporting and investing in specific interventions with a focus on career introduction and development;
- Starting early with 'aspiration raising' activities;
- Introducing actual opportunities to 'have a go' with an emphasis on the promotion of Sizewell C's critical skills that are in short supply;
- Creating an innovative and 'first of a kind' Bursary Scheme to support the creation of alternative pathways for those that haven't reached the required entry level, providing a 'second chance' for young people in rural Leiston, Lowestoft, Great Yarmouth and Ipswich; and
- Establishing a Young Sizewell C programme providing an insight programme to inspire and build awareness of opportunities among young people who are closest to the workplace and to help pipeline them into actual Sizewell C opportunities.

3.5.18 Wherever possible, the Sizewell C Project aims to ensure local businesses can compete for the significant number of contracts needed to build, support and operate the proposed nuclear power station. Hinkley Point C has already generated £1.5 bn of contracts in the south west, with £4 bn expected to the regional economy over the Sizewell C Project's life.

3.5.19 The Sizewell C Project has taken active steps to engage with Suffolk Chamber of Commerce to build and operate a supply chain database enabling local businesses to register and get 'Fit for Nuclear' - the industry benchmark for nuclear-ready manufacturers.

3.5.20 A **Supply Chain Strategy** in **Appendix B** (Doc Ref. 8.9) has also been developed with the core objective to successfully deliver the construction and commissioning of the Project utilising the expertise and capability within the supply chain.

3.5.21 The Strategy identifies lessons learnt from previous experience, and sets out a range of initiatives that will enable the region to capture economic benefits generated by the goods and services needed for the delivery of the Project. These include:

- A Sizewell C Supply Chain Team, partnering with the Suffolk Chamber of Commerce. The Team will assist local and regional businesses in winning contracts on the Project through:
  - chairing and enabling steering groups that oversee the developing supply chain response;
  - management of a supply chain website with project information, details of work packages and professional standards, signposting to relevant support, details of events and examples of success; and
  - a Sizewell C Supply Chain Portal capturing details and core capabilities of regional businesses and mapping them against requirements of the Project, brokering business support and matching suppliers with SZC Co and Tier 1 contractors.
- Contractor engagement including senior leadership commitments from Tier 1 contractors to engage with the local supply chain, 'meet the buyer' events and coordination of wider networking with key public and private sector stakeholders.
- Facilitation of local business consortia and business support activities.
- Monitoring and reporting in order to compare and contrast local and regional levels of engagement.

iii. Operations

3.5.22 The operational workforce would start to build up gradually from around year five of the construction phase. At full operation, 9 – 12 years after the start of construction, there would be a workforce of around 900 people, comprising 700 staff and 200 contractors at Sizewell C. The **Economic Statement** predicts a boost in wages in the area by £44.5m per year.

3.5.23 The workforce would increase by at least 1,000 during each unit's refuelling/maintenance outages (every 18 months). This workforce would be likely to boost output and spending in the local economy during these periods.

3.5.24 The **Employment, Skills and Education Strategy** sets out an agreed set of measures between SZC Co. and the relevant stakeholders to support investment in education that could improve the ability for new entrants to the workforce to gain the skills needed to work on the Sizewell C Project

once operational. It is estimated that just over half (370) of the 700 operational staff could be drawn from the pre-existing residential population and the remaining 330 are expected to be recruited from outside the area but are likely to move to the area permanently. Further details are available in the Socio Economics chapter presented in **Volume 2, Chapter 9.**

e) Summary

3.5.25 The Sizewell C Project is considered to meet this objective to promote a strong economy with opportunities for local communities. The Sizewell C Project will clearly contribute to the long term economic stability in the area. Through the implementation of the **Employment, Skills and Education Strategy** and the **Supply Chain Strategy**, the identified benefits in job creation and upskilling of the local population would be realised.

3.6 Health and well-being

a) Background

3.6.1 NSIPs have the potential to both positively and negatively influence the health and well-being of the community that work and live on the development site and in the surrounding area. The creation of employment opportunities and improvement of local facilities can deliver significant benefits to the local population if managed effectively. However, the long-term nature of the construction of a project of this scale also has the potential to create nuisances, which, if not controlled, can impact the health and well-being of both workers on the site and people living close by.

3.6.2 The importance of good health and well-being is reflected in the following UN SDGs:

SDG 3 Ensure healthy lives and promote well-being for all at all ages.

3.6.3 One of the aims of delivering an NSIP in a sustainable manner is to maximise the socio-economic benefits that would have a positive impact, and minimise the potential health impacts where feasible. The proposed AoS of the new nuclear NPS identified a single health and wellbeing objective: '*to protect and enhance the physical and mental health of the population".*

b) Policy context

3.6.4 NPS EN-1 requires the applicant to work with the local authority and the local primary care trust to identify any potentially significant health impacts and appropriate mitigation measures. Consideration should be given to the

positive effect of employment and other socio-economic impacts on human health and well-being.

3.6.5 The NPPF identifies three overarching objectives for the planning system to achieve sustainable development, including a social objective *"to support strong, vibrant and healthy communities…by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being"*.

c) Sustainability objective

3.6.6 Reflecting the potential to both positively and negatively influence the health and wellbeing of the population, the sustainability objective, against which the proposals have been appraised, is *"to protect the physical and mental health of the population, and enhance where feasible*", to help identify the opportunities to maximise benefits and minimise impacts.

d) Sustainability performance

i. Whole project principles

3.6.7 Ensuring the health and wellbeing of the population and the construction workforce is of paramount importance. **Chapter 28** of **Volume 2** (Doc Ref. 6.3) presents an assessment of construction and operational activities which have the potential to impact on health and wellbeing. This section draws upon the results of that assessment and looks to identify opportunities for enhancement.

3.6.8 The UK Nuclear Industry is extremely tightly controlled. The process for implementing EPR™ Reactor technology in the UK is extensive and has required a process of regulatory justification, whereby the use of any new type of ionising radiation practice must be justified against potential risks to population. The process has been completed for the Sizewell C Project, through an independent assessment by the Office for Nuclear Regulation (ONR) through the Generic Design Assessment (GDA) process. The UK EPR™ reactor is required to include diverse systems for safe reactor shut down in the event of any faults, and essential buildings are required to withstand a range of human and natural hazards and comply with an extensive regulatory regime and Government guidelines for delivering new nuclear power stations. In addition, the security arrangements at the site must be approved by the ONR Civil Nuclear Security, and physical security protection features such as fencing CCTV, access controls and intruder alarms, as well as a security presence from the Civil Nuclear Authority.

ii. Main development site – design of permanent buildings and infrastructure

On site facilities for permanent employees

3.6.9 The proposed office accommodation and onsite training facilities within the Operational Service Centre would be designed to provide suitable working environment for the staff, incorporating glazing to provide natural light and relevant strategies to manage thermal comfort.

Minimising potential impacts on the health and wellbeing of the local community through design

3.6.10 The Sizewell C Project is located close to several settlements, visitor destinations and popular walking and cycling routes. Health is a multidisciplinary concept that overlaps with other aspects assessed through the Environmental Impact Assessment. **Volume 2**, **Chapters 10**, **11**, **12**, **17**, **18**, **19**, **20**, **21**, **25** and **27** of the **ES** (Transport, Noise and Vibration, Air Quality, Soils and Agriculture, Geology and Land Quality, Ground and Surface Water, Costal Geomorphology, Marine Water Quality, Radiological and Major Accidents) explore environmental hazards with the potential to impact upon health. Furthermore, **Volume 2 Chapters 9**, **13**, **15** and **16** of the **ES** (Socioeconomics, Landscape and Visual, Amenity and Recreation, and Terrestrial Historic Environment), explore socio-cultural and lifestyle aspects important to health and wellbeing. The Health and Wellbeing chapter has thereby reviewed, drawn from and built upon the supporting technical disciplines within **Volume 2** of the **ES** covering the main development, but also **Volumes 3** to **10** of the **ES** covering the associated developments.

iii. Main development site – design of temporary buildings and infrastructure

On site facilities for the construction workforce

3.6.11 To promote health and wellbeing within the construction workforce, attract a high-quality workforce, and mitigate potential impacts on local leisure facilities, a range of sports facilities and amenities would be provided within the campus and in Leiston for use by the workforce. Within the accommodation campus, facilities such as a gym, restaurant, bar and informal recreation facilities are proposed. Off site, sports facilities are proposed at Alde Valley Academy, with shared community use.

3.6.12 The **Walking and Cycling Strategy** encourages active travel by the construction workforce, helping to promote health and wellbeing.

Minimising potential impacts on the health and wellbeing of the local community

3.6.13 Informal recreational activities, using the PRoW network, are generally recognised as having a beneficial health and wellbeing impact. During construction of the Sizewell C Project, some existing PRoW and permissive footpaths would have been temporarily stopped up or diverted for reasons of safety and security, resulting in the potential to affect the ability of the local community to participate in such activities. To mitigate this, a new north-south combined bridleway, cycleway and footpath would extend from Sizewell Gap and St George's Avenue in the south to the northern end of Bridleway 19 on Eastbridge Road. This would provide a safe route for pedestrians, cyclists and equestrians to travel off-road, allowing an enhanced route for people travelling between locations such as Leiston and Sizewell in the south and the main development site entrance and Eastbridge in the north.

3.6.14 The existing car park serving Kenton Hills would be improved to provide additional parking spaces. The car park surfacing and the access road to it would be improved, and signage would be enhanced by replacing existing wayfinding and information boards adjacent to the car park and providing a sign on Lover's Lane promoting the parking and walking facilities. Current access to the existing network of permissive footpaths in Kenton Hills from the car park is by an informal path, and it is this route which would be formalised as a permissive footpath.

3.6.15 A new permanent east-west footpath would be created linking Abbey Road and two existing PRoW that run north from Leiston. In addition, public access would be provided to specific areas of land within the Aldhurst Farm habitat creation area for informal recreation as part of a separate but related planning application.

iv. Main development site – construction

Health and wellbeing of the construction workforce

3.6.16 Health and safety on the construction site is of paramount importance and all relevant procedures would be put in place and followed categorically by the construction workforce.

3.6.17 As detailed in **Volume 2, Appendix 28A** of the **ES** - Health Technical Note 1, a 24-hour occupational health service would be provided within the main development site to manage risk, promote the health and wellbeing of construction workers, and provide health care (including GP, nursing, pharmacy etc.) for the entire Sizewell C workforce.

3.6.18 The occupational health provision includes screening and monitoring of the health of the construction workforce, including their mental health, and a drugs and alcohol policy would be enforced, including random testing. The occupational health provision will be aligned with and complement local public health care, including a range of interlinked health campaigns and initiatives, with ongoing engagement to test the effectiveness of the provision and its refinement where appropriate.

Health and wellbeing of the local community during the construction phase

3.6.19 The creation of employment opportunities during the construction, as described in **section 3.5,** Skills and Employment above, has the potential to deliver a range of benefits to the local community, including health and wellbeing benefits linked to security of income and skills development, as well as mental health benefits.

3.6.20 It is recognised that the influx of a temporary construction workforce into a new area has the potential to have an impact on the health and wellbeing of the existing population. For the Sizewell C Project, SZC Co. management practices would be adopted to minimise this, including the implementation of a Worker Code of Conduct to help govern worker behaviour.

3.6.21 The measures set out in the **CoCP** to control noise, air quality, light pollution and water pollution would together help to mitigate any detrimental impact of the construction works on the local community's health and wellbeing.

v. Main development site - operations

3.6.22 The proposed sports facilities at Alde Valley Academy would remain as a legacy post construction.

3.6.23 The temporary stopping up or diversion of existing PRoW and permissive footpaths would substantially revert to their original alignment and original condition at the end of construction. Some new routes created during the construction would be retained, providing permanent enhanced recreational opportunities.

e) Summary

3.6.24 Potential construction, operational and decommissioning environmental hazards with the potential to impact upon health are inherently addressed through the planning process and other regulatory regimes including the UK nuclear regulatory regime which is controlled by the Nuclear Regulatory Authority. Working within these regulatory regimes, the Sizewell C Project

includes a number of strategies to minimise the potential effects and enhance the health and wellbeing of both the workforce, temporary and permanent, and the local population, in line with this appraisal objective.

3.7 Community services

a) Background

3.7.1 The development of a significant infrastructure project such as the Sizewell C Project has the potential to impact upon basic services, including water, sanitation and power, within the locality of the site.

3.7.2 The importance of provision of basic services is reflected in the following UN SDG:

UN SDG 6 - Ensure availability and sustainability management of water and sanitation for all.

3.7.3 The importance of this is reflected in the objective for Community Infrastructure in the proposed AoS for the new nuclear NPS:

"To minimise detrimental impacts on strategic transport network and disruption to basic services and infrastructure".

3.7.4 The above section on 'Movement of People and Materials' addresses the potential impacts on the strategic transport network, whilst this section focuses on minimising the potential disruption to local community services.

b) Policy context

3.7.5 Section 5.12 of NPS EN-1 requires the development to minimise adverse impacts of new energy infrastructure on socio-economic conditions. Any positive provisions by the developer should be considered, including legacy benefits. Paragraph 3.11.3 of NPS EN-6 requires measures to be set out to reduce impacts at local and regional level from all stages of the proposal. These could include pressures on resources, alterations to local/regional demographics and economic benefits.

3.7.6 As referenced in **section 3.6** above, 'Health and Well-Being', the NPPF identifies three overarching objectives for the planning system to achieve sustainable development, including a social objective *"to support strong, vibrant and healthy communities…by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being"*.

3.7.7 At the local level, the Suffolk Coastal Draft Local Plan outlines the strategic objectives and policies to promote community wellbeing, including promoting better access to housing, employment, services and facilities for every member of the community.

c) Sustainability objective

3.7.8 Focusing on the impacts and benefits that may arise under the theme of Community Services, the appraisal objective is "*to minimise disruption to services and infrastructure and promote positive legacy benefits*". As for the theme of Skills and Employment, the Community Services objective has been appraised at whole project level, considering the potential benefits and impacts that may arise during construction and operation. The focus is on the strategies developed to address potential effects arising during each of these phases.

d) Sustainability performance

i. Construction

3.7.9 At peak, the Sizewell C Project would be one of the largest construction projects in the UK. Whilst this presents significant socio–economic benefits, it also presents potential challenges. A workforce of around 7,900 workers is anticipated at the peak of the construction phase on the main development site, plus 600 workers at the associated development sites. It is estimated that around a third of the construction workforce would be drawn from the existing labour pool within 90 minutes of the main development site. Further details on the predicted numbers of home based and non-home based workers are set out in **Chapter 9**, **Volume 2** - Socioeconomics (Doc Ref. 6.3). The local and regional economic benefit of this employment is set out in **section 3.5** and **3.6** above.

3.7.10 A workforce of this scale has the potential to impact upon basic services within the locality of the development, if not carefully managed. To help manage the workforce and avoid adverse effects, an **Accommodation Strategy** (Doc Ref 8.10) and a **CSMP** (Doc Ref 8.16) have been developed for the Sizewell C Project, including a commitment to implementing a Worker Code of Conduct similar to that in place for Hinkley Point C.

3.7.11 The **Accommodation Strategy** has been developed with the overall aim of striking a balance between providing temporary worker accommodation and workers using existing local accommodation, in order to minimise impacts on the community while promoting the economic benefits of workers living and spending in the area.

3.7.12 The proposals include a range of accommodation options for the workforce, depending on their role and length of their contract. This includes a purpose-built accommodation campus for 2,400 workers, caravan accommodation, available during the early years of construction, as well as in the private rented and tourist sectors.

3.7.13 SZC Co. would also be providing sports and leisure facilities as part of the Sizewell C Project. This would include gym and informal recreation facilities at the accommodation campus, and formal recreation facilities including a full-size 3G pitch and multi-use games areas located off-site at Alde Valley Academy (and adjacent to Leiston Leisure Centre). The off-site facilities would be made available for shared used by the school and the local community and would remain as a legacy post-construction.

3.7.14 SZC Co. has been working closely with Suffolk County Council to understand the existing pressures concerning the provision of services to support vulnerable adults, families and children in terms of the location and demand for services and the potential effect that a non-home based construction workforce may have on service delivery and perceptions of workers within the community. SZC Co. has identified where there may be risks of significant adverse effects and identified appropriate mitigation and monitoring in order to reduce these risks and respond to them should they arise.

3.7.15 The **Employment, Skills and Education Strategy,** as referenced in **Section 3.5**, Skills and Employment above, includes linking implementation strategies with priority social services target groups, for example so that outreach programmes target children Not in Education, Employment and Training (NEETs) and other vulnerable groups.

3.7.16 The **Accommodation Strategy** includes an accommodation management system and other initiatives which aim to strike a balance to make sure the local community derives economic benefits from worker spend in the area, while avoiding negative effects on accommodation capacity, affordability and community cohesion.

3.7.17 In addition, a range of measures have been proposed to minimise the potential adverse impacts on the local community and encourage a positive relationship between the construction workers and the local community. These include:

- An occupational healthcare service for workers to avoid pressure on local services, as described in **section 3.6** above;

- A **CSMP** including a Worker Code of Conduct;
- A range of measures to manage the local impact of transport movements, as described in **section 3.4** above;
- Supporting community engagement as set out in the **CoCP,** and
- A range of community integration initiatives based on the recommendations in the Government's **Integrated Communities Strategy** Green Paper, as described in **Table 9.54** in **Chapter 9 - Socioeconomics**.

3.7.18 The **CSMP** explains how SZC Co. would work with the emergency services and local authorities and, where appropriate, third sector organisations, to deliver community safety initiatives that mitigate the impact of the construction workforce within the community. A range of potential mitigations have been developed in consultation with the Emergency Services and local authorities, through an Emergency Services Working Group as well as meetings with individual stakeholders. These include:

- Health and Safety measures to protect people and the environment supporting SZC Co.'s commitment to Zero Harm.
- **Community Engagement Strategy**, to ensure the local area is informed about what is happening on the Sizewell C Project in a timely manner, is able to easily contact the Sizewell C Project with questions / complaints and receives a prompt and reasoned response.
- On site emergency response – fire.
- 24/7 on site security team to support dealing with any on-site protests.
- Emergency co-ordinator to appraise incident / situation; allocate available site-based resource; contract emergency services to request assistance.
- In addition, contact person for each emergency service for day-to-day liaison, site familiarisation visits etc.to be identified.
- Worker Code of Conduct**.**

- Security vetting of workers on main development site.
- Drug and alcohol testing.
- Accommodation campus and caravan site.
- Accommodation Strategy.
- Community Fund.
- Transport mitigation measures.
- Employment, Skills and Training Strategy.

ii. Operations

3.7.19 As referenced above in **section 3.5** - Skills and Employment, the operational workforce would be established over the time of the construction period and become part of the permanent population of the area, thereby contributing towards any net additional demand for public services through general taxation. The long term economic and health and wellbeing benefits are described above in **section 3.5** and **3.6**.

3.7.20 Of particular significance, as referenced in the Health and Well Being section of this statement, the proposed recreation facilities at Alde Valley Academy would remain as a legacy for community use post construction.

3.7.21 During the operational phase, there would be a number of planned outages, which would require a short-term, temporary additional workforce at the Sizewell C site at regular intervals. It is anticipated that around 800 outage workers could be non-local and therefore would require accommodation in the area. It is envisaged that the temporary outages would be handled in similar ways to the current arrangements for the Sizewell B station, primarily via the use of serviced and rented accommodation.

3.7.22 The long term legacy benefits of the Sizewell C Project would be promoted through the proposed replacement of the existing Sizewell B visitor centre with a permanent, modern educational facility for visitors, including school groups. The purpose of this new facility would be to provide information to the general public and school groups on the benefits of low-carbon energy and the role of nuclear power in the UK, illustrating the contribution of Sizewell C to carbon reduction as part of the Suffolk Energy Coast.

e) Summary

3.7.23 The measures proposed, including those set out in the **Construction Workforce Accommodation Strategy** and the **CSMP**, as well as those described in other sections of this statement (e.g. the strategies proposed for managing the movement of people and materials in **section 3.4** and the employment benefits in **section 3.5**) are in line with this appraisal objective, ensuring the Sizewell C Project minimises disruption to local services and infrastructure whilst promoting legacy benefits.

3.8 Biodiversity and ecosystems

a) Background

3.8.1 The siting of nuclear power stations often conflicts with biodiversity and ecosystem objectives, in part due to the demographic principle applied within the SSA to locate such facilities away from urban areas. In such areas, ecological assets are commonly more prevalent. There is also an operational preference to locate these facilities in coastal areas or near significant bodies of water for cooling water infrastructure, which may often provide valuable natural habitats. The importance given to ecological considerations is reflected in a number of statutory and non-statutory instruments, ranging from international agreements for the protection of internationally significant habitats and species, through to local planning policy objectives, intended to preserve and enhance valuable wildlife areas.

3.8.2 The Government's 25 Year Environment Plan (2018) (Ref. 1.31) sets the UK strategy for improving the environment, including goals and targets to *"achieve a growing and resilient network of land, water and sea that is richer in plants and wildlife"*. The goals and targets set out will be used to inform policy and strategic decisions on the protection and enhancement of the natural environment in the UK.

3.8.3 Recognising the importance of the natural environment within sustainable development, the UN SDGs include two goals relevant to biodiversity and ecology:

- UN SDG 14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- UN SDG 15 - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss.

3.8.4 The proposed AoS for the new nuclear NPS identifies one objective for biodiversity and ecosystems:

"To protect and enhance protected habitats, species, valuable ecological networks and ecosystem functionality".

b) Policy context

3.8.5 NPS EN-1 sets out key principles for consideration with regard to biodiversity and geological conservation. These relate to sites of varying significance for biodiversity value, from international sites, through to biodiversity within developments. The policy document states that:

"As a general principle, and subject to the specific policies [outlined within the Overarching NPS], development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives; where significant harm cannot be avoided, then appropriate compensation measures should be sought... In taking decisions, the IPC should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment". (Paragraph 5.3.7 and 5.3.8)

3.8.6 The Suffolk Coastal Local Plan and supporting documents include policies which express the need to protect ecologically valuable sites and species outside nationally designated areas. Further information on legislation, policy and guidance of relevance is found in **Volume 1, Chapters 3** and **4** of the **ES.**

c) Sustainability objective

3.8.7 Focusing on the need at a project level to minimise potential impacts and also to consider, where feasible, the inclusion of enhancements through good design and management, the sustainability objective, against which the proposals have been appraised, is *"to minimise impacts on protected habitats, species, valuable ecological networks and ecosystem functionality, and enhance these where possible"*.

d) Sustainability performance

i. Whole project principles

3.8.8 A number of ecological studies have been conducted to determine the impacts on terrestrial, marine and coastal ecology during the construction and operation of the Sizewell C Project. The strategic issues identified within the Government's AoS Site Report for Sizewell C included:

- potential adverse effects on a number of nature conservation sites of UK and European importance including Minsmere-Walberswick Heaths and Marshes SSSI and special area of conservation (SAC), Minsmere-Walberswick special protection area (SPA) and Ramsar, Sizewell Marshes SSSI, Leiston-Aldeburgh SSSI, Sandlings SPA, Alde-Ore Estuary SSSI, SPA and Ramsar, Alde-Ore and Butley Estuaries SAC and Outer Thames SPA;

- effects on water quality and fish/shellfish populations in nearby coastal waters due to the abstraction and release of sea water for cooling; and

- potential cumulative adverse effects from Bradwell and Sizewell on the European designated site of the Outer Thames Estuary.

3.8.9 These impacts have been fully evaluated within **Chapters 14** and **22** of **Volume 2**, and the **Shadow Habitat Regulations Assessment Report** (Doc Ref. 5.10). The main findings are summarised below against the sustainability objectives of relevance.

3.8.10 From the outset, one of the design principles for the Sizewell C Project has been that *"the development will be designed with the aim of avoiding significant harm to biodiversity (habitats and species) particularly designated interest features of nationally and internationally designated sites, protected and priority species. Where likely significant effects cannot be avoided or reduced then mitigation measures will be applied, as necessary. Enhancements to existing habitats will be incorporated where reasonably practicable"*. This is outlined in the **Sizewell C Main Development Site Design and Access Statement** (Doc Ref. 8.1), **Table 5.1** - High Level Design Principle 10.

3.8.11 The decision to create new habitat at Aldhurst Farm was part of the long-term strategy to ensure habitats are created and have time to become established before any land take from the Sizewell Marshes SSSI occurs. This scheme, to convert 67ha of arable farmland to wildlife habitat, including approximately 6ha of wetland, whilst part of a separate planning

permission, has been specifically designed to compensate for the potential loss of reed bed and lowland ditch habitat from the SSSI, and their associated habitats.

3.8.12 The decision to not proceed with the proposed jetty options, and focus on constructing a beach landing facility, was taken following extensive investigations of the potential impacts of the different options. Both jetty options were likely to result in severe underwater noise during construction, likely to have a significant adverse effect on the marine ecology and fisheries, as well as resulting in greater habitat loss associated with the footprint of the piles.

3.8.13 An assessment of net gain has been undertaken using Biodiversity Metric net gain 2.0 calculations issued by Defra and Natural England. This assessment considers the potential of the Proposed Development to achieve biodiversity net gain. This approach utilises information on the habitats and features of the site before and after the Proposed Development to calculate a biodiversity value, utilising this information to calculate a change in the biodiversity value. In this case the assessment considers the potential for attaining overall net gain as a result of the permanent works, considering the proposals for the main development site and certain permanent off site associated development. The conclusion of this study is that net gain would be achieved for both habitats and linear hedgerows. The latter in particular would see significant increases due to the substantial increases in hedgerow planted.

3.8.14 The net gain would be supported by the following measures proposed on and off site:

3.8.15 On-site:

- Creation of a large area of 'Dry Sandling Grassland', a collection of acid grassland, heathland scrub and scattered trees, created on mostly arable land.
- Enhancement of an area of species poor semi-improved grassland to tall tussocky grassland, as part of the Marsh Harrier habitat improvement area within the Sizewell Estate.
- Creation of mixed woodland in the centre of the site, within areas of plantation coniferous woodland.

- Creation of semi-improved grassland on arable and improved pasture land, in the west of the site.

3.8.16 Off-site:

- Creation of a high-quality reptile habitat within studio fields complex, largely composed of acid grassland, on the site of arable land.
- Creation of areas of heathland mosaic within the Aldhurst Farm area, largely on the site of arable land.
- Creation of wetland areas within the Aldhurst Farm area, largely on the site of arable land.
- Enhancement of an area of species poor semi-improved grassland to tall tussocky grassland, as part of the Marsh Harrier habitat improvement area within the Sizewell Estate.

ii. Main development site – design of permanent buildings and infrastructure

3.8.17 In developing the concept design for the construction and operational phases, a key consideration has been how to access the site whilst minimising the Sizewell C Project footprint and, in particular, the land-take of the Sizewell Marshes SSSI. The proposed SSSI crossing has two functions – providing construction access (as described below), and, following the conclusion of the construction phase, the western-most access route across the causeway would be maintained to provide operational access to the power station. The easternmost access route would be removed, although that section of the causeway would remain and would be appropriately landscaped, helping to create a boundary between the power station development and its surroundings.

3.8.18 The proposed Coastal Defence Feature has been designed to incorporate relevant mitigation measures to minimise potential impacts on the intertidal communities and designated coastal vegetated shingle habitats.

3.8.19 A **Fen Meadow Strategy** has been developed, to restore two areas of fen meadow in Suffolk, to compensate for the permanent loss of about 0.5ha of fen meadow habitat from within Sizewell Marshes SSSI, associated with power station platform and diversion of Sizewell drain.

3.8.20 In addition, a permanent foraging habitat for marsh harrier is being established and enhanced within the northern part of the EDF Energy Estate, in advance of construction, to mitigate any potential disturbance effects which might discourage marsh harriers from foraging over parts of the Minsmere South Levels and Sizewell Marshes SSSI during construction.

iii. Main development site – design of temporary buildings and infrastructure

3.8.21 The proposed location of the temporary construction area and related infrastructure has been driven by the need to strike a balance between project efficiency and programme, whilst recognising the sensitive nature of the site and its surroundings. This included considering options to minimise the land take from within Sizewell Marshes SSSI, limit disturbance to deciduous woodlands, significant hedgerows and tree belts, to minimise disturbance to European designated habitats, especially the Minsmere to Walberswick SPA, SAC and Ramsar site to the north of the site, and the Outer Thames SPA to the east, as well as limit disturbance to retained and newly created habitats.

3.8.22 The selected area of the temporary construction area extends northwards from the western extent of the nominated site, connected by a crossing of the SSSI to enable transfer of construction materials, plant and equipment. The crossing would be constructed at the narrowest point to minimise the land-take of the SSSI. The design of the SSSI crossing has evolved to minimise impacts on ecology. The culvert is significantly larger than is required for operational purposes and provides sufficient dimensions to leave the bank and channel of the Leiston Drain completely intact. The culvert would be of sufficient size to facilitate the passage of bats and water voles through the structure and retain its function as an ecological corridor. A ledge would also be installed to enable passage by otters.

3.8.23 The construction proposals also include installation of an appropriate separating solution (e.g. sheet piling) to be installed between the main development site and Sizewell Marshes SSSI to limit disturbance to the hydrology and geology of the Sizewell Marshes SSSI. The realignment of the Sizewell drain and the construction of associated water control features would help to ensure the hydrological regime caused by construction activities is corrected to safeguard the habitats of the SSSI.

iv. Main development site - construction

3.8.24 Mitigation measures have been proposed to reduce predicted impacts on biodiversity which could otherwise arise during construction. The **CoCP** defines any ecological constraints and specifies any measures required during enabling works and construction in relation to the presence of protected species and any required vegetation clearance works.

3.8.25 As the main construction phases conclude, the majority of the development within the temporary construction area and LEEIE would be removed and the land restored in accordance with the **oLEMP.** The plan proposes to return arable land to Suffolk Sandlings habitat comprising acid grassland and heathland, a habitat of greater biodiversity value with reduced habitat fragmentation. In order to ensure its delivery, it is important that the plan includes long term management strategies and a monitoring programme to ensure successful delivery of the strategic aims.

v. Main development site - operations

3.8.26 The **Operational Lighting Strategy**, set out in the **Sizewell C Main Development Site Design and Access Statement** (Doc Ref. 8.1) includes measures to minimise the light spill onto surrounding habitats to minimise impacts on nocturnal species.

3.8.27 Infrastructure would be in place to ensure all surface run-off and foul water is captured and treated and does not enter adjacent designated sites.

3.8.28 Extensive design and modelling work has been undertaken to ensure the operation of the cooling water infrastructure has minimal impact on marine water quality and ecology. This includes selecting the optimal location of the outfall heads to reduce the environmental impacts of the thermal plume, and physical mechanisms, including the fish recovery and return system, to prevent entry into the cooling water system.

e) Summary

3.8.29 Recognising the international importance of the existing natural environment and by adopting the overarching Design Principle 10, as referenced in paragraph 3.8.10 above, significant focus has been placed on minimising where possible the impact of the Sizewell C Project on protected habitats, species, valuable ecological networks and ecosystem functionality. The long-term planning, including the creation of habitat at Aldhurst Farm, and strategic decisions to minimise the impact on the marine ecology by not proceeding with the jetty options, has made a significant contribution to meeting the sustainability objective. Indeed, it is

expected that overall there would be a net gain in ecological value when using the Biodiversity Metric 2 method.

3.8.30 Through the implementation of the design proposals, the proposed mitigation and compensatory measures, and the successful delivery of the **oLEMP**, the objective is considered achievable.

3.9 Water environment

a) Background

3.9.1 NSIPs have the potential to result in adverse impacts on the water environment, including groundwater, inland surface water, transitional waters and coastal waters. Issues are related to increased demand for water and discharges into the water environment.

3.9.2 The East of England is recognised as an area of lower rainfall compared to much of the UK, and there is an increasing need to protect against a growing risk of drought and water shortages due to a changing climate and a growing population. Climate projections from the United Kingdom Climate Projections 2018 (UKCP18) (Ref. 1.32) predict that there will be changing patterns of rainfall, with significantly increased seasonal variation. By 2060 it is predicted that there will be a 2% reduction in rainfall annually within a 25 km grid around the proposed development site. Whilst it is predicted that there will be less rainfall overall, there will be increased winter rainfall leading to greater probability of flooding, and up to a 26% reduction in summer rainfall, potentially leading to more frequent drought conditions. Further details are provided in **Chapter 26**, **Volume 2** of the **ES**.

3.9.3 Recognising the importance of the water environment within sustainable development, the UN SDGs include two goals of relevance:

- UN SDG 6 Ensure availability and sustainable management of water and sanitation for all;
- UN SDG 14 Conserve and sustainably use the oceans, seas and marine resources.

3.9.4 The proposed AoS of the new nuclear NPS has identified the following objective for water quality and resources: '*to protect and enhance surface (including coastal) and groundwater quality (including distribution and flow)'*.

b) Policy context

3.9.5 The Water Framework Directive (WFD) (Ref. 1.33) establishes a framework for the protection of surface fresh water, estuaries, coastal water and groundwater. The purpose of the directive is to enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands.

3.9.6 NPS EN-1 requires the development to provide suitable pollution control, in relation to activities that discharge to the water environment. An abstraction licensing regime must be in place when water is taken from the water environment. The requirements of the WFD must also be met.

3.9.7 Local plan policies promote the efficient use of water and the protection of the water environment through a range of development management policies.

c) Sustainability objective

3.9.8 Focusing on the need at a project level to minimise potential impacts and also to consider, where feasible, the inclusion of enhancements through good design and management, the objective, against which the proposals have been appraised, is *"to protect surface (including coastal) and groundwater quality (including distribution and flow), and enhance these where possible"*.

d) Sustainability performance

i. Whole project principles

3.9.9 It is recognised that Sizewell is located in one of the driest parts of the country. As such, focus has been on ensuring a resilient and sustainable fresh water supply to site during all stages of development whilst minimising the impact on the local water environment.

3.9.10 Essex and Suffolk Water (ESW) is the local water company which supplies potable water to the area. ESW owns and maintains the water resource facilities, water treatment plant and the potable water main distribution network.

3.9.11 SZC Co. have developed a strategy for site water supply by engaging with stakeholders including the Environment Agency, ESW and Anglian Water to discuss and assess potential sources for this water supply. The principal supply for the Sizewell C Project will come from mains water, provided by

ESW. This will be drawn from within the Blyth Water Resource Zone, the zone that includes Sizewell C.

3.9.12 In order to provide security of supply, and to ensure that all the water requirements of the Sizewell C Project can be met, SZC Co. has worked with stakeholders to assess several water supply options. A strategy for site water supply has been developed, which includes an assessment of these options and potential delivery approach and impacts of the options that have been shortlisted.

3.9.13 As a result of the assessment, and in order to provide a robust and sustainable water supply, SZC Co. has chosen to carry forward four water supply options, alongside water efficiency measures to reduce demand for mains supply, such as using water efficient fixtures and fittings, rainwater harvesting and grey water reuse. Using a combination of water supply options will ensure security of supply and help to reduce the demand for potable water from mains supply.

3.9.14 The primary options of the strategy for the site water supply for Sizewell C power station are:

- Mains water supply provided by ESW from within the Blyth Water Resource Zone;
- Mains water supply provided by ESW from within the Northern/Central Water Resource Zone via new pipeline transfer connection to the Blyth Water Resource Zone;
- Additional mains water supply enabled by licence trading with local licence holders; and
- Storage of non-potable water in a reservoir in the north of the Sizewell C power station application boundary. Water for this reservoir may be derived from a number of sources including water pumped from a new pumping station at Minsmere Sluice, effluent from Sizewell B or Sizewell C power station, or greywater from Sizewell C power station;

3.9.15 Together these options will provide sufficient and sustainable supply for the Sizewell C Project. Additionally, other options, would provide additional temporary supply in times of high demand, where required.

3.9.16 SZC Co. is aware that other projects in the region, such as Bradwell B, may also create demand on the water infrastructure in future. SZC Co. has

taken a pro-active approach, engaging early with regulators and water companies, to produce a robust, sustainable supply strategy. When developing the strategy for water supply for the Sizewell C power station other demands on regional water supply are being accounted for and adequate surplus provision included.

3.9.17 With regard to surface and ground water, **Chapter 19** of **Volume 2** outlines a number of potential impacts on surface water hydrology and ground water as a result of the construction of the Sizewell C Project. These impacts have been assessed by giving appropriate weight to the importance of the surface and ground water hydrology in relation to sensitive receptors and the ability of the water body to withstand impacts.

3.9.18 Activities associated with preliminary works and construction activities that could impact on water quality have been given full consideration. During construction, the movement of heavy plant, stripping and exposure of soil areas, levelling of ground, and stockpiling and placement of fill materials, have the potential to generate sediment laden surface water run-off. The release of sediment and other pollutants would be managed by adopting working practices through the **CoCP**. Examples includes:

- adopting watercourse buffer zones and restricting access for plant movement;
- the adoption of relevant guidance from the Environment Agency, CIRIA and the Design Manual for Roads and Bridges (DMRB); and
- designation of a series of Water Management Zones across the main development site to attenuate and treat water to ensure that flow rates and chemical quality are acceptable prior to discharge into local surface water features.

3.9.19 With regards to groundwater, **a Groundwater Monitoring and Response Strategy** in **Volume 2, Appendix 19F** of the **ES**, would be put in place to assess the impact of the dewatering on surrounding sensitive receptors and the effectiveness of the cut-off wall and mitigation measures.

ii. Main development site – design of permanent buildings and infrastructure

3.9.20 The permanent works would introduce new areas of hard standing, such as car parks, roads and buildings, and would change the infiltration rate to the ground and increase surface water runoff. An adequate drainage system would be introduced, including Sustainable urban Drainage System

measures to intercept water, sediment and contaminants and pollution control measures to ensure that surface water and ground water quality are not impacted. Rainwater falling on the main power station platform would be managed through an engineered drainage system, including the necessary treatment through a bypass separator before being drained to the sea via the cooling water infrastructure. Onsite effluent treatment systems would be used to manage sewage. The treated effluent would also be discharged via the cooling water infrastructure.

3.9.21 With regards to water use, it is relevant to consider that permanent buildings would be in use for a considerable period of time and therefore water efficiency measures would be an important consideration. Opportunities to integrate water efficiency measures would continue to be explored as designs develop. Low water fittings would be installed wherever possible to reduce operational water use. SZC Co. has the aspiration to include rainwater harvesting where feasible, safe and cost effective. Rainwater harvesting proves most practical on buildings with high occupancy, where water demand to cater for sanitary use is highest.

iii. Main development site – design of temporary buildings and infrastructure

3.9.22 Temporary buildings and infrastructure would be placed and designed with adequate drainage infrastructure in place. The site would include a number of modular sewage treatment plants which would be used to manage sewage arising from the temporary buildings. Treated water from these plants would enter the site drainage system, before being discharged to the sea. The construction phase temporary drainage would need to remain operational until the land is restored to its current greenfield state, or until permanent site drainage and associated outfalls are commissioned. Where possible, temporary drainage would be incorporated into the permanent drainage.

3.9.23 The temporary buildings would incorporate measures for water efficiency, such as reduced flush WCs, waterless urinals and low flow taps and showers. Where appropriate these facilities may also include rainwater harvesting / greywater reuse, depending on the operational characteristics.

iv. Main development site - construction

3.9.24 Water use during the construction programme would vary depending on the works being carried out. Whilst the average demand is expected to be 1.2 million litres per day, the peak demand for water may be up to 2.5 million litres per day.

3.9.25 The difference between maximum and average arises from the occasional demand for water used in production and commissioning activities. Water demand for domestic consumption is set by the total workforce which would vary during construction with initial low demand but increasing to a peak before reducing as construction is completed. The reduction in construction demand would be balanced by the increase in demand for the permanent site operation.

3.9.26 Whilst ESW would be able to provide the required water demand at all stages of construction, it is intended that potable water saving measures, such as those described in 39.23 are implemented wherever possible and practical. Examples of activities would include wheel washing and dust suppression. Sources of water for recycling would need to be reliable but could be supplemented by potable water supplied by ESW. Potential sources of water for reuse may include groundwater abstracted from the deep excavation, the harvesting of rainwater from roofs and treated effluent and runoff contained in Water Management Zone attenuation ponds.

v. Main development site - operations

3.9.27 During the operation of Sizewell C, the average demand for water would increase from average construction demand to approximately 2 million litres per day. Water use for the operation of Sizewell C would comprise cooling water from the sea, as well as freshwater for industrial systems, demineralisation plant and potable water for sanitary requirements. Potable water would be supplied by ESW.

3.9.28 Typical uses for potable water on a power station are domestic (for example, for drinking, laundry, showering) and industrial (such as fire protection, pump sealing and process water). The greatest industrial demand would be for process water to be used in the turbine in the form of steam, and in the reactor systems, pumped through closed circuits. The process water is produced by passing the raw 'townswater' through a demineralising system to produce water of very high purity, which protects the power station from corrosion.

3.9.29 Whilst 2 million litres per day of fresh water would be required, by far the largest proportion of water required in operation would be supplied from sea water, which would be circulated at a rate of approximately 65m^3/sec for each intake tunnel and reactor unit, cooling the turbines and condensing steam back into water for re-use. This would be pumped into the site through the cooling water infrastructure and would be returned to the sea. The Sizewell C Project's coastal location ensures there is a constant and renewable cooling water source.

e) Summary

3.9.30 **Chapter 19** of **Volume 2** of the **ES** and the **CoCP**, includes a range of measures to ensure that the sustainability objective - "to protect surface (including coastal) and groundwater quality (including distribution and flow) and enhance these where possible" is met. Whilst the Sizewell C Project is considered to support the objective overall, an opportunity has been identified to further drive forward improvements beyond the regulatory minimums and further consider measures to minimise water in design, construction and operation. This opportunity is to be further explored through the implementation of the **Sizewell C Sustainability Strategy** set out in **Chapter 4** of this statement.

4 Sizewell C Sustainability Strategy

4.1 Context

4.1.1 This part of the Statement presents the sustainability principles that have been identified to drive forward improvements in the sustainability performance of the Sizewell C Project, as designs and supply chain engagement progresses following development consent. The principles, and their associated priorities, have been informed by the extensive experience SZC Co. has gained through the ongoing construction works at Hinkley Point C. They also draw from best practices adopted on other critical infrastructure projects.

4.1.2 The Sizewell C Project is expected to be one of the largest construction projects in Europe. As explained within the previous chapter, the construction and the operation of Sizewell C has been subject to extensive evaluation to ensure that adverse environmental impacts are minimised as far as possible and practical, and that positive social and economic benefits are realised. The mitigation that is necessary to ensure that the proposals are acceptable is fully explained within the **ES**, and controls are put forward within the **CoCP**, with which compliance would become a requirement of the Development Consent Order.

4.1.3 This chapter outlines the sustainability principles SZC Co. has identified which would help the Sizewell C Project go beyond mitigation proposed by the **ES**, in order to further enhance the sustainability of the Sizewell C Project.

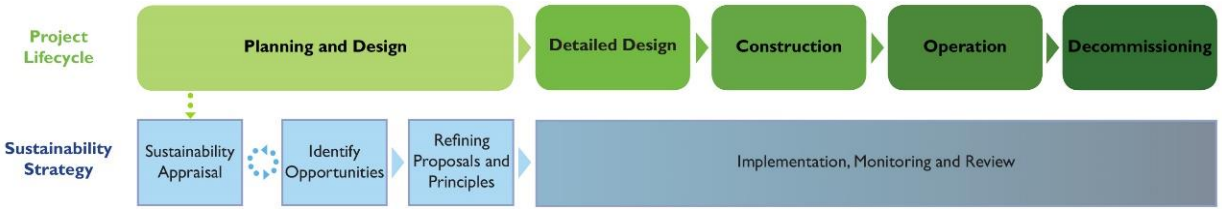
4.2 Developing the sustainability principles

4.2.1 The sustainability of nuclear new build is founded on its attributes of low carbon emissions and secure electricity supply once nuclear power stations are constructed, and the creation of tangible socio-economic benefits, for example, through skills creation and employment opportunities. These are very important benefits in sustainability terms, towards which the Sizewell C Project would contribute significantly. Building on these inherent benefits, the Sizewell C sustainability principles have been developed to help identify and deliver beneficial sustainability outcomes within the context of constructing, operating and ultimately decommissioning a nuclear power station.

4.2.2 It is important to acknowledge that the sustainability benefits of nuclear new build would not be realised unless projects are economic and can be delivered without unnecessary delay. Indeed, in order to deliver secure and affordable energy, it is vital that designs and construction processes for new nuclear power stations can be replicated as far as possible, to bring the long-term delivery costs down. Rather, the sustainability principles should be flexible, establishing approaches which help to identify opportunities within these constraints.

4.2.3 The **Sizewell C Sustainability Strategy** has evolved and gathered momentum as progress has been made towards the application for development consent. As illustrated in **Plate 1.1**, the strategy began with undertaking a sustainability appraisal of the development proposals, to identify key areas of focus.

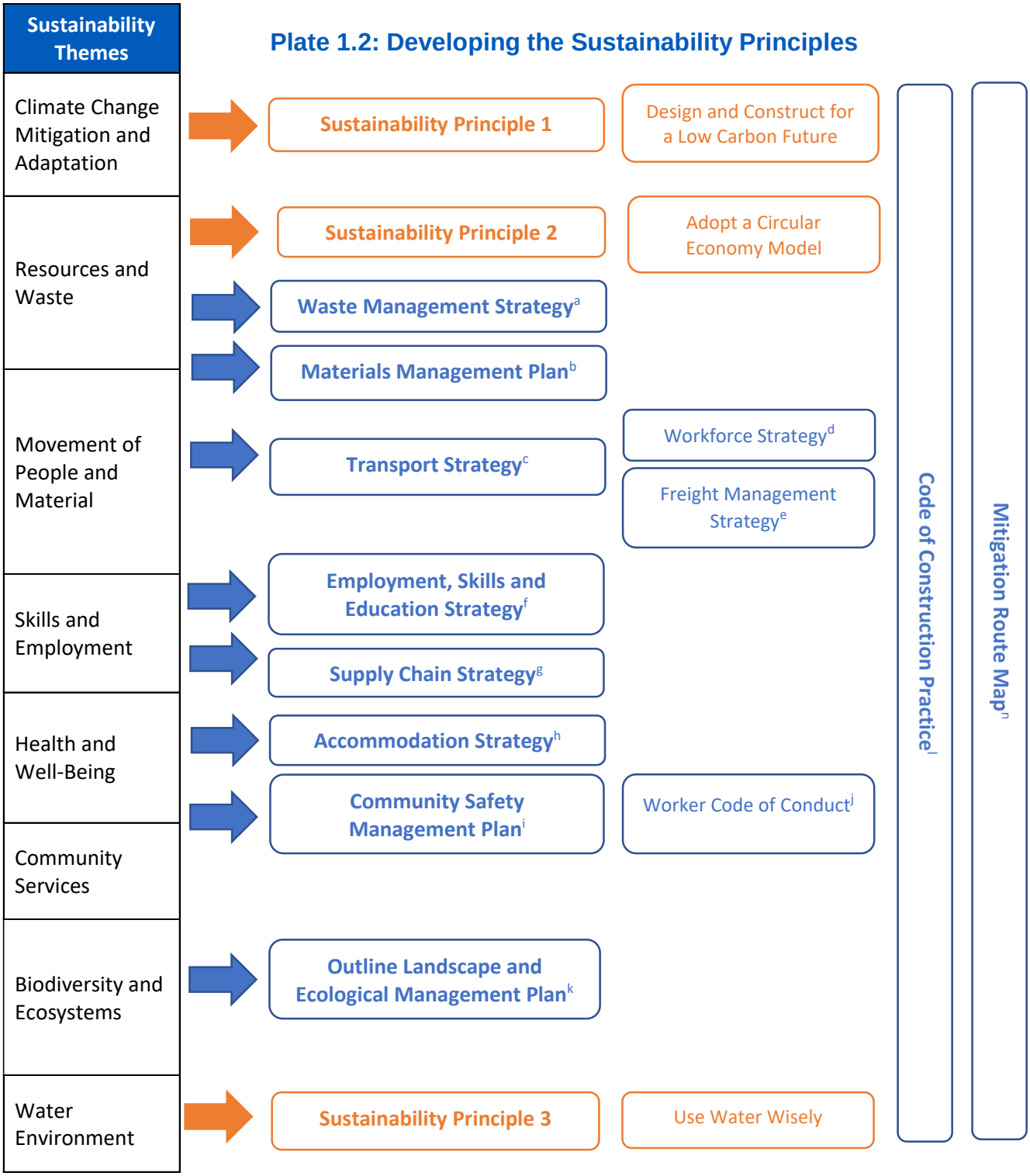
Plate 1.1: Sizewell C sustainability strategy



4.2.4 Through sustainability appraisals undertaken, it has been identified that various aspects of sustainability are already well controlled by existing regulatory processes and SZC Co.'s strategic proposals for its transport, workforce accommodation and economic strategies. Notwithstanding this, there is still an opportunity through further design development to focus on wider resource use issues, such as energy use and emissions, consumption and production, and water, which would require additional

engagement with the supply chain to achieve. These areas are therefore the focus of the **Sizewell C Sustainability Strategy**. **Plate 1.2** illustrates how sustainability principles have been made a focus of the Sizewell C Project's ongoing strategy.

Plate 1.2: Developing the Sustainability Principles



Document References in Plate 1.2

[a] 6.2 Ch8 App A
[b] 6.2 Ch3 App A
[c] 8.5 Ch4
[d] 8.5 Ch4
[e] 8.5 Ch4
[f] 8.9 App A
[g] 8.9 App B
[h] 8.10
[I] 8.16
[j] 8.16 App A2
[k] 8.2
[l] 8.11
[m] 8.12

4.3 The sustainability principles

4.3.1 The three overarching principles for the Sizewell C Project are: -

- Principle 1 – Design and Construct for a Low Carbon Future.
- Principle 2 – Adopt a Circular Economy Model.
- Principle 3 – Use Water Wisely.

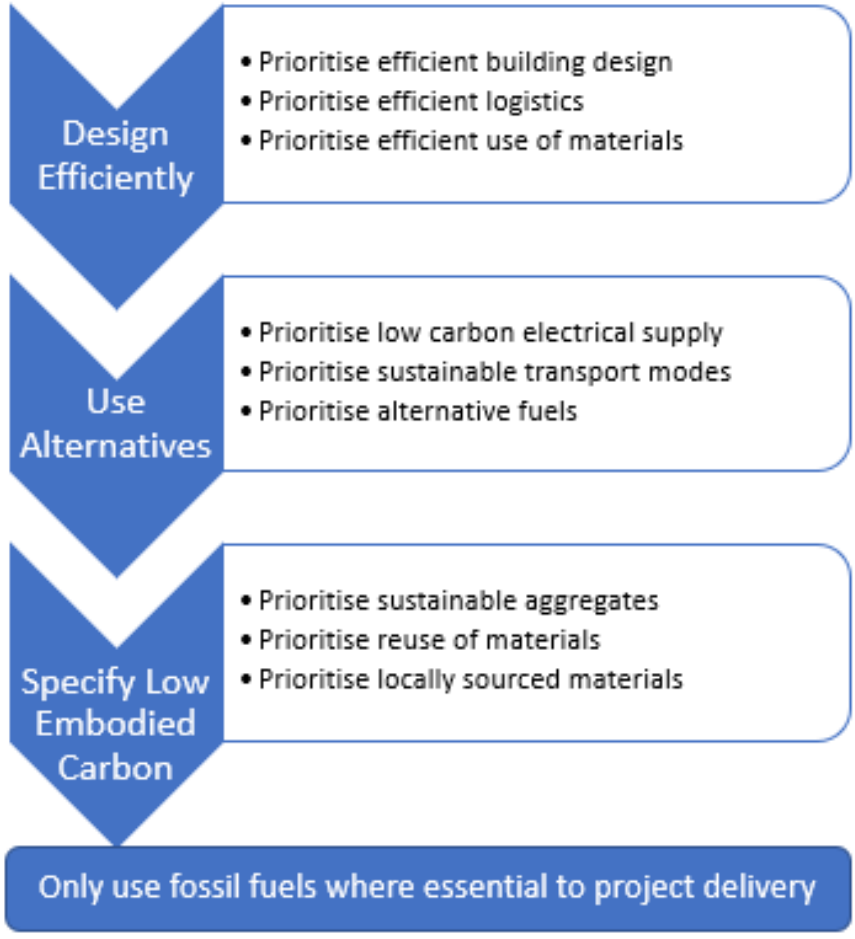
4.3.2 The principles provide a broad framework to evaluate sustainability options going forward and would be used to engage with the supply chain and project stakeholders at further stages of project development. Each principle is supported by a hierarchy of 'priorities', presented as an illustration below. These establish the broad approach to pursuing the most sustainable options for the Sizewell C Project, where possible and appropriate, and would be developed further to be appropriate to their need and application.

a) Principle 1 – Design and construct for a low carbon future

4.3.3 As identified in **section 3.2** of this statement, once operational the Sizewell C Project would supply low carbon electricity to over 20% of the UK's houses each year, and would displace the equivalent of 7 million tonnes of CO_2 per annum from the based on current grid intensity.

4.3.4 Whilst the Sizewell C Project would play a key role in decarbonising the energy supply sector, it would be a significant contributor to emissions during construction. It is estimated that approximately 2.9 million tonnes of CO2e would arise from the construction activities over a 9 to 12-year period, principally associated with material and natural resource management and the transportation of materials and people. It is important to understand and, where possible, control and manage these emissions. **Plate 1.3** illustrates how Sizewell C's first sustainability principle; 'Design and Construct for a Low Carbon Future', would be applied, following a hierarchy of preferences in design, procurement, construction and operation in order to drive down carbon emissions, and only use fossil fuels where it essential to ensure the Sizewell C Project delivery.

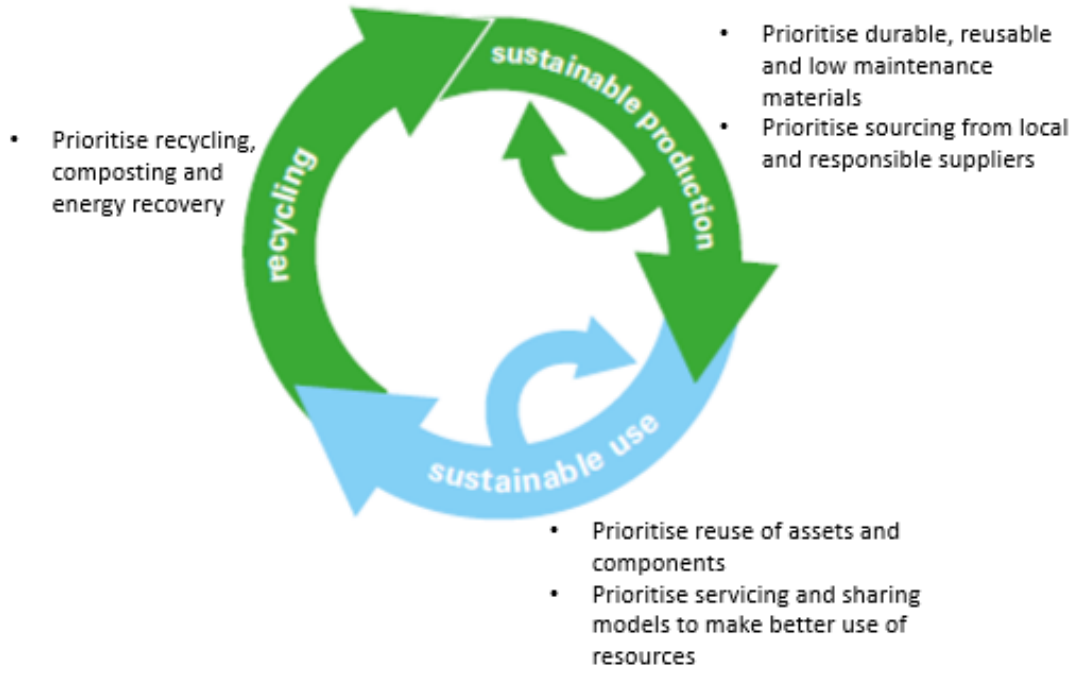
Plate 1.3: Principle 1 – Design and construct for a low carbon future



b) Principle 2 – Adopt a circular economy model

4.3.5 As explored within **section 3.3** of this statement, constructing the Sizewell C Project would be resource-intensive. Adopting the concept of a circular economy model as an emerging alternative to a traditional linear economy (make, use, dispose) maximises the ongoing value of resources and reduces unsustainable practices. The aim is to ensure that resources remain in use for as long as possible and that maximum value is extracted whilst in use, and would be recovered and regenerated at the end of each service life as products and materials that maintain, rather than degrade, resource value. **Plate 1.4** illustrates the concept of a circular economy and reflects a set of priorities that would be considered during all stages of the Sizewell C Project's lifecycle to deliver Sizewell C's second sustainability principle, 'Adopt a Circular Economy Model'.

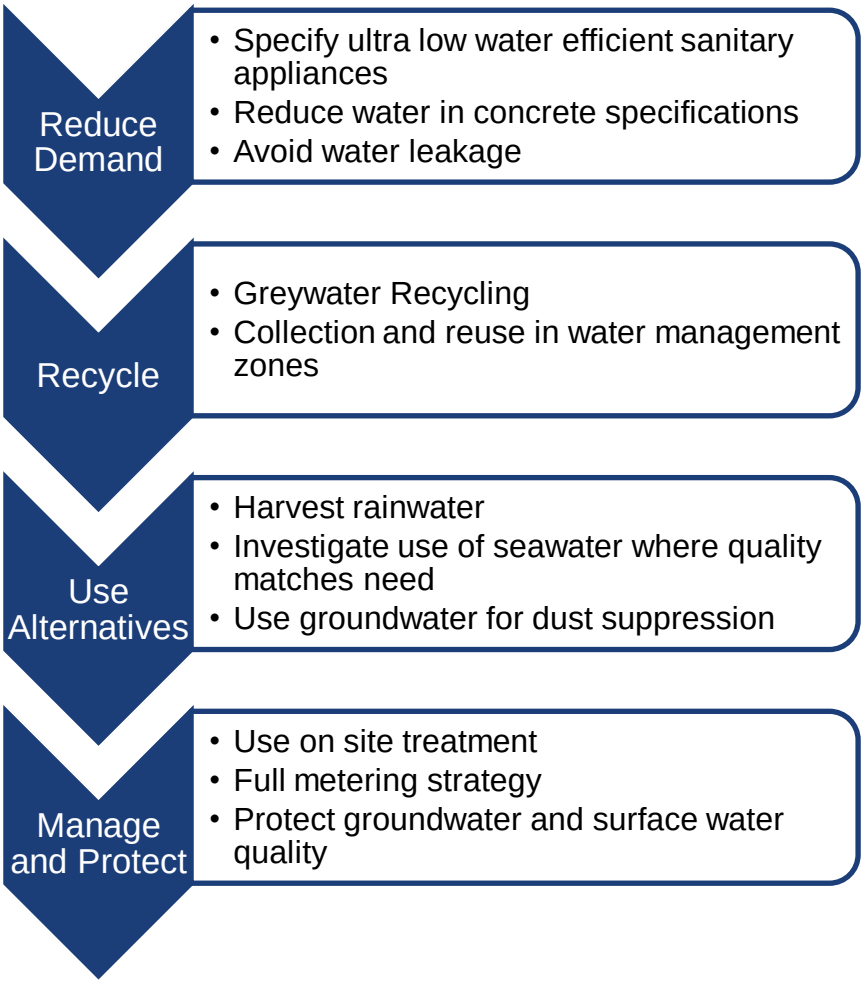
Plate 1.4: Principle 2 – Adopt a circular economy model



c) Principle 3 – Use water wisely

4.3.6 Sizewell C is within one of the driest parts of the country. At peak construction up to 2.5 million litres of fresh water per day would be required. Whilst there would always be a requirement for potable water, measures need to be explored to reduce demand by using innovative solutions in construction, operation and decommissioning. **Plate 1.5** illustrates how Sizewell C's third sustainability principle, 'Use Water Wisely', would be pursued, following the four steps in all decision making in design, procurement, construction, operation and ultimately decommissioning in order to reduce and reuse water wherever feasible, managing use through improved monitoring and ensuring protection of groundwater and surface water quality.

Plate 1.5: Principle 3 – Use water wisely



4.4 The enablers – roadmap to delivering the sustainability principles

4.4.1 In order to deliver the sustainability principles, Environmental, Social and Governance (ESG) activities would be embedded into the Sizewell C Project culture and maintained throughout the lifecycle of Sizewell C. A roadmap to delivering the sustainability principles is proposed to achieve this as below in **Plate 1.6**.

Plate 1.6: The enablers – roadmap to delivering the sustainability principles

5 Conclusions

5.1.1 This statement explains how sustainability is integral to the overall vision of the Sizewell C Project and how the principles of achieving sustainable development have informed the Sizewell C Project proposals.

5.1.2 The sustainability appraisal findings, as set out in **Chapter 3** of this statement, confirm how the appraisal objectives have been met. In particular, the statement demonstrates the significant benefits that would be realised through the Sizewell C Project in providing a sustained and

affordable source of low carbon energy which is resilient to the effects of climate change, thus achieving the sustainability appraisal objective '*to minimise GHG emissions and maximise resilience to climate change*'. The Sizewell C Project would be capable of generating enough low carbon energy to supply 20% of the UK's homes with virtually zero carbon electricity. This will be achieved from a power station, which has been designed to be resilient in operation to the worst credible effects of climate change. The significant investment into the region also presents clear socio-economic benefits that would be achieved through the construction and long-term operation of the Sizewell C Project. This supports the sustainability objective '*to promote a strong economy with opportunities for local communities*'. Such benefits are closely related with positive effects towards human health and wellbeing.

5.1.3 Through the planning process, in-depth consideration has been given to potential environmental impacts, leading to the development of the strategies related to transport, ecological protection and accommodation for the construction workforce, as well as management plans for minimising and managing risks arising during construction and operation.

5.1.4 Notwithstanding the positive relationships found, it is recognised that there are potential opportunities for further improvement which can only be explored at later stages of the Sizewell C Project's design and interactions with the supply chain. The **Sizewell C Sustainability Strategy**, as presented in **Chapter 4** of this statement, defines three key principles that would be followed to explore these opportunities. A roadmap has been developed, illustrating the process that would be followed to deliver the three principles, and ensure all the sustainability objectives continue to drive decision making through the detailed design, construction and operation. The aim would be to ensure that these are so ingrained in the Sizewell C Project that they would be carried through into the decision-making during future decommissioning.

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