



EAST PARK ENERGY

East Park Energy

EN010141

Environmental Statement Volume 1 – Main Report

Chapter 3: Alternatives and Design Evolution

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3.0 ALTERNATIVES AND DESIGN EVOLUTION

3.1 Introduction

3.1.1 This chapter of the Environmental Statement (ES) describes the consideration of alternatives and design evolution in relation to the East Park Energy project (the 'Scheme'). A description of the 'Site' is provided in **ES Vol 1 Chapter 1: Introduction [EN010141/DR/6.1]**.

3.1.2 This chapter is supported by the following appendices in **ES Volume 2 [EN010141/DR/6.2]**:

- **ES Vol 2 Appendix 3-1: Site Identification Report [EN010141/DR/6.2];**
- **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2];**
- **ES Vol 2 Appendix 3-3: Land Identification Report Addendum [EN010141/DR/6.2];**
- **ES Vol 2 Appendix 3-4: Land Identification Report Further Addendum [EN010141/DR/6.2];**
- **ES Vol 2 Appendix 3-5: Review of Site Identification Report following designation of National Policy Statement EN-3 [EN010141/DR/6.2];** and
- **ES Vol 2 Appendix 3-6: Grid Connection Corridor Appraisal [EN010141/DR/6.2].**

3.1.3 This chapter is supported by the following figures in **ES Volume 3 [EN010141/DR/6.3]**:

- **ES Vol 3 Figure 3-1: Scoping Indicative Zoning Plan [EN010141/DR/6.3];**
- **ES Vol 3 Figure 3-2: PEIR Indicative Zoning Plan – Scheme Evolution from EIA Scoping [EN010141/DR/6.3];** and
- **ES Vol 3 Figure 3-3: Illustrative Zoning Plan – Scheme Evolution from PEIR [EN010141/DR/6.3].**

- 3.1.4 Regulation 14(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the ‘EIA Regulations’) identifies the information that must be included in an ES, this includes:

“(d) a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment.....

(f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected”

- 3.1.5 Paragraph 2 of Schedule 4 of the EIA Regulations sets out the following in relation to alternatives:

“A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”.

- 3.1.6 It should be noted that the EIA Regulations place no specific obligation on a developer to study alternatives, but simply to describe them in the manner specified, where they have been considered.

- 3.1.7 Overarching National Policy Statement (NPS) for Energy (EN-1)¹ paragraph 4.3.9 states that:

“As in any planning case, the relevance or otherwise to the decision making process of the existence (or alleged existence) of alternatives to the proposed development is, in the first instance, a matter of law. This NPS does not contain any general requirement to

consider alternatives or to establish whether the proposed project represents the best option from a policy perspective.”

3.1.8 NPS EN-1 states at paragraph 4.3.15 – 4.3.17 that:

“4.3.15 Applicants are obliged to include in their ES, information about the reasonable alternatives they have studied. This should include an indication of the main reasons for the applicant’s choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility.

4.3.16 In some circumstances, the NPSs may impose a policy requirement to consider alternatives.

4.3.17 Where there is a policy or legal requirement to consider alternatives, the applicant should describe the alternatives considered in compliance with these requirements.”

3.1.9 Within NPS EN-1 examples of where consideration of alternatives is a requirement of policy are:

- paragraph 5.8.9 in relation to flood risk and the application of the sequential test;
- paragraph 5.10.32 in relation to development within National Parks, the Broads and National Landscapes; and
- paragraph 5.4.27 in relation to The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (the ‘Habitats Regulations’).

3.1.10 The approach taken to alternatives in the decision-making process is set out in NPS EN-1 at paragraph 4.3.22 – 4.3.23:

“4.3.22 Given the level and urgency of need for new energy infrastructure, the Secretary of State should, subject to any relevant legal requirements (e.g. under the Habitats Regulations) which

indicate otherwise, be guided by the following principles when deciding what weight should be given to alternatives:

- the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; and*
- only alternatives that can meet the objectives of the proposed development need to be considered.*

4.3.23 The Secretary of State should be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security, climate change, and other environmental benefits) in the same timescale as the proposed development.”

3.1.11 Taking into consideration the policy and legal requirements as well as the iterative approach to the design to date, the following alternatives have been considered for the Scheme and are discussed in this chapter:

- Alternative sites;
- Alternative cable route corridors;
- Scheme evolution and alternative layouts; and
- Alternative technologies.

3.2 Need for the Scheme

- 3.2.1 NPS EN-1 clearly establishes that there is a demonstrable and urgent need for renewable energy infrastructure:

“3.2.6 The Secretary of State should assess all applications for development consent for the types of infrastructure covered by this NPS on the basis that the government has demonstrated that there is a need for those types of infrastructure which is urgent, as described for each of them in this Part.

3.2.7 In addition, the Secretary of State has determined that substantial weight should be given to this need when considering applications for development consent under the Planning Act 2008.

3.2.8 The Secretary of State is not required to consider separately the specific contribution of any individual project to satisfying the need established in this NPS”

- 3.2.2 A detailed analysis of the need for the Scheme is provided within Section 2.0 of the **Planning Statement [EN010141/DR/5.3]**. This describes that the need for additional renewable energy development, including solar photovoltaic (PV) generation, is a critical national priority and new infrastructure must be delivered as a matter of urgency, if the UK Government is to meet its commitment to Net Zero by 2050. This chapter, which describes the reasonable alternatives considered by the Applicant, is therefore set in the context of this clear and urgent need for the Scheme.
- 3.2.3 The Eaton Socon substation that forms the point of connection with the National Grid is a location with significant capacity to enable new electricity generation connections. The Applicant has secured a connection agreement with National Grid of up to 500 MW, comprising 400 MW of solar generation, and 100 MW of energy storage import and export. In the context of the national need for new renewable electricity generation, available capacity within the transmission and distribution network must be utilised, and the

Applicant has therefore sought from the outset to maximise the capacity of the connection agreement. A 'less development' scenario that delivers a connection of less than 400 MW solar electricity generation and 100 MW energy storage has therefore not been pursued.

- 3.2.4 A 'no development' alternative would not deliver the additional electricity generation capacity associated with the Scheme and has not been considered as an alternative by the Applicant. As such a no development scenario is not considered further within this chapter.

3.3 Alternative Sites

Site Selection

3.3.1 The starting point for any renewable energy generation project is identifying a part of the National Grid where there is available grid capacity to connect a renewable energy project. To identify suitable sites for solar farms, two principal criteria must both be satisfied:

- Firstly, and most importantly, any solar scheme must be located proximate to an existing substation which has the available capacity to import the required amount of power into the National Grid, either directly into the substation or via a point of connection into the nearby transmission or distribution network;
- Secondly, solar schemes must be located close enough to the identified substation or transmission line to remain viable both in terms of cable deployment for the grid connection, and to ensure that minimum transmission losses occur.

3.3.2 These principles are supported by the National Policy Statement for Renewable Energy Infrastructure (EN-3) which states at paragraph 2.10.22 that:

“The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical and commercial feasibility of a development proposal.”

3.3.3 A search for a point of connection (PoC) was undertaken by the Applicant in 2021, which involved analysis of the National Grid to identify parts of the network with potential available capacity to connect a commercial solar farm. Following an application to National Grid it was established that the Eaton Socon substation had significant capacity to connect a commercial solar farm, and that this could be achieved within a commercially viable timeframe and cost (i.e. the connection would not be dependent on significant upgrades to

the transmission or distribution network, including the Eaton Socon substation).

3.3.4 The Applicant therefore entered into a connection agreement with National Grid to provide 400 MW of electricity generation to the Eaton Socon Substation and began a site search exercise to identify a land area suitable to accommodate the Scheme.

3.3.5 NPS EN-3 states at paragraph 2.10.17 that:

“Along with associated infrastructure, a solar farm requires between 2 to 4 acres for each MW of output. A typical 50MW solar farm will consist of around 100,000 to 150,000 panels and cover between 125 to 200 acres. However, this will vary significantly depending on the site, with some being larger and some being smaller. This is also expected to change over time as the technology continues to evolve to become more efficient. Nevertheless, this scale of development will inevitably have impacts, particularly if sited in rural areas.”

3.3.6 Based on the above, as a starting assumption a 400 MW solar farm could be expected to require between 800 to 1,600 acres of land to deliver, which approximately equates to between 325 and 650 hectares. In order to find a land area suitable to meet this need the site selection process followed two broad stages:

- The first stage, set out in **ES Vol 2 Appendix 3-1: Site Identification Report (SIR) [EN010141/DR/6.2]** identified the most appropriate location for a large-scale solar NSIP capable of utilising the available grid capacity within the Eaton Socon Substation. A 15km area of search around the Eaton Socon Substation was taken as a starting point, with the land in this area of search reviewed against known planning and environmental constraints in accordance with the ‘factors influencing site selection’ set out in Section 2.48 of the former draft NPS EN-3 (September 2021) which was the most recent draft of NPS EN-3 at the time. This first stage concluded by identifying a ‘Search Zone’ to the north-west of the Eaton

Socon Substation that was considered the most suitable location for a large-scale solar development. The recommendation given at the conclusion of the first stage was that the Applicant should approach landowners in the Search Zone to gauge interest in developing a project.

- The second stage, set out in the **ES Vol 2 Appendix 3-2: Land Identification Report (LIR) [EN010141/DR/6.2]** follows on from the first stage and comprised a high-level review of the land offered to the Applicant to establish environmental and planning constraints to development of the Scheme and refine the overall landholding to be taken forward. The culmination of the second stage was the identification of the proposed site to be taken forward for the Scheme.

Stage 1: Site Identification

- 3.3.7 As set out above, the first stage in the site selection is reported in full within **ES Vol 2 Appendix 3-1: Site Identification Report [EN010141/DR/6.2]**, which was undertaken in January 2022.
- 3.3.8 The SIR began with a review of planning and environmental constraints within a 15km area of search around the Eaton Socon Substation, identifying that there are no large-scale strategic statutory or non-statutory constraints such as national parks, national landscapes, green belt or European protected sites that would rule out significant parts of the initial area of search.
- 3.3.9 Following the guidance set out in NPS EN-3, the SIR then firstly identified and ruled out possible brownfield or previously developed land, before establishing that agricultural land would be required to deliver the Scheme. As agricultural land was required, a desk-based review of published agricultural land classification datasets was undertaken to try and identify a 'Search Zone' that was deliverable and of a lesser environmental value.
- 3.3.10 The Search Zones were reviewed in line with the 'Factors Influencing Site Selection' set out in the September 2021 consultation draft of NPS EN-3 (which was the most contemporary emerging policy at the time). These factors were:

- **Irradiance and site topography** – was the topography of the area a constraint to solar development;
- **Proximity of a site to dwellings** – how densely populated was the search zone, and would there be opportunities to mitigate impacts on nearby dwellings;
- **Capacity of a site** – was the Search Zone large enough to meet the Scheme’s anticipated land requirements;
- **Grid connection** – how proximate was the Search Zone to the point of connection, and what are the nature of the constraints to providing a grid connection between the Search Zone and the Eaton Socon substation;
- **Agriculture land classification and land type** – what was the likelihood of best and most versatile agricultural land being present in the Search Zone; and
- **Accessibility** – how would the land be accessed during the construction phase and were there any constraints to providing safe access.

3.3.11 The SIR identified that there was no Search Zone not constrained in some way, and that only by taking a balanced consideration of the above factors was it possible to make a recommendation as to a Search Zone to take forward.

3.3.12 The recommendation reached by the SIR was that the Applicant should take forward ‘Search Zone B’ (as illustrated on Figure 7 of **ES Vol 2 Appendix 3-1: Site Identification Report [EN010141/DR/6.2]**) and seek to identify a landowner(s) in the central and eastern parts of this Search Zone that may be interested in developing a project.

3.3.13 The key determining factor in recommending Search Zone B was that it was likely to have the most straightforward grid connection, which should in turn avoid and reduce environmental impacts, affect less landowners, and ensure that the Scheme remains commercially viable.

3.3.14 In terms of agricultural land classification, the September 2021 draft of NPS EN-3 was clear at Paragraph 2.48.13 that *‘land type should not be a*

predominating factor in determining the suitability of the site location'. It was therefore given less weight than the grid connection in determining site location.

Stage 2: Land Identification

3.3.15 As set out above, the second stage in the site selection is reported in full within **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2]**, which was undertaken in June 2022.

3.3.16 Following identification of a broad Search Zone in the SIR, the Applicant approached landowners in the Search Zone and identified a number of interested landowners such that there would theoretically be sufficient land to take forward the Scheme. The LIR comprised a review of the land offered to the Applicant in order to establish constraints to development of the Scheme and refine the overall landholding to be taken forward.

3.3.17 NPS EN-1 states that: *"Design principles should be established from the outset of the project to guide the development from conception to operation"*. Therefore, the land identification stage was guided by a series of 'Early Design Principles' as follows:

- The Scheme will seek opportunities to deliver solar development as efficiently as practicable to support national electricity network decarbonisation targets;
- The Scheme will be sensitive to landscape and views, and how people perceive the landscape;
- The Scheme will be sensitive to heritage assets, looking to protect the most valuable assets that contribute to a sense of place;
- The Scheme will be sensitive to biodiversity, and look to provide enhancement where possible; and
- The Scheme will seek opportunities to leave a positive legacy through the delivery of multiple social and environmental benefits.

- 3.3.18 An appraisal of all land parcels offered to the Applicant was undertaken in line with the above Early Design Principles, as set out in full within Section 5.0 of **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2]**.
- 3.3.19 The culmination of the second stage of site selection was the identification of a 'Proposed Site Area' to be taken forward for the Scheme, which is shown on Figure 8 of **ES Vol 2 Appendix 3-2: Land Identification Report [EN010141/DR/6.2]**.

Additional Land

- 3.3.20 Following the conclusion of the LIR in June 2022 and the identification of the 'Proposed Site Area', additional land was deemed to be required to account for mitigation and technical constraints that would reduce the developable area and consequently the installed capacity of the Scheme. In order to mitigate for these risks and deliver a Scheme that maximises the 400 MW grid connection and optimises generation, the Applicant instructed Axis to review an area of additional opportunity land to the east of the Proposed Site Area (which is now East Park Site D). This review was completed in October 2022 as an Addendum to the LIR and is attached as **ES Vol 2 Appendix 3-3: Land Identification Report Addendum [EN010141/DR/6.2]**. The conclusion was that the land was suitable to be included as part of the Scheme.

Further Additional Land

- 3.3.21 On behalf of the Applicant, AOC Archaeology undertook an archaeological geophysical survey between July 2023 and early January 2024. The archaeological geophysical survey identified the potential remains of a Roman town in Site C (refer to **ES Vol 2 Appendix 6-5: Archaeological Geophysical Survey Report [EN010141/DR/6.2]**). Early desk-based analysis concluded that the archaeology was likely to be of national importance, and this was confirmed through discussion with the county archaeologists and Historic England. Recognising the potential significance of the archaeology, and seeking to protect it in the future, the Applicant made a decision to apply to the Secretary of State for Culture, Media and Sport (via

Historic England) to designate the area as a scheduled monument. The application was accepted and the archaeology was designated as a scheduled monument in September 2024. The location of this scheduled monument is shown on **ES Vol 3 Figure 1-3: Environmental Constraints [EN010141/DR/6.3]**.

- 3.3.22 The Applicant therefore amended the Scheme design to exclude solar development from within the scheduled area in the north of East Park Site C. To compensate for the removal of this part of the Scheme, one of the landowners engaged with the Scheme undertook a review of their landholding and offered a parcel of land that had not previously been offered. This 'Further Additional Opportunity Land' parcel was therefore not considered as part of the original LIR.
- 3.3.23 The Applicant consequently instructed Axis to review this area of additional opportunity land to the western side of East Park Site C, with the conclusion that the land was suitable for inclusion subject to mitigation being provided as part of the design development. This review was completed in late January 2024 as and is attached as **ES Vol 2 Appendix 3-4: Land Identification Report Further Addendum [EN010141/DR/6.2]**, with the additional opportunity land identified on Figure 1 of Appendix 3-4.

Review of Site Selection following designation of revised NPS EN-3

- 3.3.24 **ES Vol 2 Appendix 3-1: Site Identification Report (SIR) [EN010141/DR/6.2]** was prepared in January 2022 following the publication of the former draft NPS EN-3 in September 2021 and makes specific reference to that NPS. Following the selection of the Site in June 2022, the September 2021 draft NPS EN-3 was superseded by the March 2023 draft, and then subsequently by the November 2023 NPS EN-3 which was designated in January 2024.
- 3.3.25 The Applicant has reviewed the Site and the decision-making process that led to the selection of the Site against the now designated NPS EN-3 and has

determined that there are no differences between the draft NPS EN-3 and the designated NPS EN-3 that would have materially changed the decision-making process, or resulted in an alternative site being selected. A technical note comparing the relevant differences between the two policy documents has been prepared and is provided at **ES Vol Appendix 3-5: Review of Site Identification Report following designation of National Policy Statement EN-3 [EN010141/DR/6.2]**.

3.3.26 Paragraph 4.3.24 of the designated NPS EN-1 states that:

“The Secretary of State should not refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals.”

3.3.27 The Applicant has taken a methodical approach to selecting the site and has determined that it is the most suitable location for the Scheme when considering technical, environmental, and commercial viability factors.

3.4 Alternative Cable Route Corridors

3.4.1 The Scheme has a requirement for a connection with the National Grid. The point of connection provided by the National Grid Energy System Operator (ESO) was the Eaton Socon Substation, however the Applicant has also identified and considered a possible alternative; connecting into the overhead electricity transmission lines which crosses East Park Site D.

3.4.2 The Applicant consulted with National Grid ESO on the possibility of connecting into the overhead transmission lines. National Grid confirmed that the PoC within the connection agreement is the Eaton Socon Substation, which will be the most economic and efficient for the project and the end consumer (i.e. the public). National Grid are obliged to offer the most economical solution for the end consumer under the obligations of their

transmission licence. Therefore, it was established that the Scheme must provide a direct grid connection to the Eaton Socon Substation.

- 3.4.3 The grid connection to the Eaton Socon Substation comprises a 400 kV single circuit cable corridor. This cable corridor could be above or below ground, however, to minimise environmental impacts it was established that this should be an underground or buried cable connection. An overhead connection has therefore not been considered.
- 3.4.4 Due to the capacity of the cables and the need for cable jointing chambers it would not be possible to provide a buried connection that followed roads or the public highway. It is therefore a requirement that the grid connection is buried within farmland between the Site and the Eaton Socon Substation.
- 3.4.5 The Applicant therefore established that there were three realistic possibilities for the grid connection corridor between the Site and the Eaton Socon Substation. These three possible corridors were identified as Option 1, Option 2 and Option 3 (as shown on Figure 1 of **ES Vol 2 Appendix 3-6: Grid Connection Corridor Appraisal [EN010141/DR/6.2]**). An appraisal was undertaken for each of the Corridors considering a wide range of factors under the headings of environmental impact, economic impact, and social impact in order to identify the most sustainable solution.
- 3.4.6 The appraisal of the three possible grid connection corridors is set out in **ES Vol 2 Appendix 3-6: Grid Connection Corridor Appraisal [EN010141/DR/6.2]**, the conclusion of which was that Option 3 was the most suitable because it would have the least impact on local communities and land uses, and slight benefits over the other options with regards its potential impact on the historic environment, landscape and visual receptors, and noise receptors.
- 3.4.7 Option 3 was therefore taken forward as part of the Scheme for Environmental Impact Assessment (EIA) scoping and has subsequently been further refined through consultation with landowners and stakeholders.

3.4.8 The selected grid connection corridor is predominantly arable land and any slight deviation of the final cable alignment within this corridor would not result in any materially different significant environmental effects. The refinement of the alignment of the grid connection corridor has therefore been undertaken primarily in consultation with landowners and their wishes for where the cable is sited across their land.

3.5 Scheme Evolution and Alternative Layouts

Scheme Evolution

- 3.5.1 The layout of the Scheme has evolved iteratively as part of the EIA process taking into consideration planning and environmental constraints, the Scheme's objectives and functionality, and feedback from stakeholders and public consultation. The design process that has been followed and the Scheme's evolution is set out in full within the **Design Approach Document [EN010141/DR/5.6]**.
- 3.5.2 The purpose of this section is to summarise the main layout changes from each reporting stage of the project, beginning with the EIA scoping phase which coincided with the phase 1 consultation in October 2023, through the statutory consultation phase that was accompanied by the Preliminary Environmental Information Report (PEIR) in September 2024, and finally the submission layout that has been assessed in this ES. The following figures illustrate the changes with reference to an 'Indicative Zoning Plan' that was first shared at non-statutory consultation and in the EIA scoping report, and has been subsequently updated at each stage of the project:
- **ES Vol 3 Figure 3-1: EIA Scoping Indicative Zoning Plan [EN010141/DR/6.3]; and**
 - **ES Vol 3 Figure 3-2: PEIR Indicative Zoning Plan (Scheme Evolution from EIA Scoping) [EN010141/DR/6.3]; and**
 - **ES Vol 3 Figure 3-3: Illustrative Zoning Plan (Scheme Evolution from PEIR) [EN010141/DR/6.3].**
- 3.5.3 The key changes between EIA scoping and the PEIR for the Scheme are annotated on **ES Vol 3 Figure 3-2: PEIR Indicative Zoning Plan (Scheme Evolution from EIA Scoping) [EN010141/DR/6.3]** and are summarised briefly as follows:

- The identification of an alternative location for the battery energy storage system (BESS) and substation location within East Park Site D, which is discussed further below;
- Solar development removed from the north and east of East Park Site C in response to consultation feedback, and following the discovery of the remains of a Roman town in this area;
- Solar development removed from areas west of Little Staughton in response to consultation feedback;
- Solar development removed from land north of The Kangaroo (a residential property on Staughton Road) in response to consultation feedback;
- Solar development added to the west of East Park Site C to compensate for the loss of developable area in Site C;
- Realignment of solar development fencelines to provide suitable buffers to existing public rights of way, and to remove development from areas identified as being within fluvial Flood Zones 2 and 3;
- Solar development fencelines consolidated across the Scheme to rationalise boundaries and reduce the amount of fencing;
- Change in site access, with the removal of two proposed site access points along the B645 near Hail Weston, and addition of a new site access north of East Park Site D, and a further new site access utilising an existing private access to the north-west of Site C;
- Changes to the alignment of the 400 kV grid connection in response to feedback from the affected landowners; and
- Change in position and alignment of the cable corridors between Site B and Site C, and between Site C and Site D.

3.5.4 The key changes between the PEIR and this ES for the Scheme are annotated on **ES Vol 3 Figure 3-3: Illustrative Zoning Plan (Scheme Evolution from PEIR) [EN010141/DR/6.3]** and are summarised briefly as follows:

- Selection of a final location for the BESS and substation, such that these features will be located within East Park Site D;
- Solar development set back by additional 10m from a bridleway in the south-west of East Park Site A to create increased buffer and additional space for a woodland belt to provide visual screening, in response to consultation feedback;
- Solar development removed from field in the south of East Park Site D, and west of Little Staughton, in response to consultation feedback;
- Solar development removed or set back in fields around Lodge Farm to the north-west of Little Staughton in East Park Site B, in response to consultation feedback;
- Solar development set back in fields north of Little Staughton in East Park Site B, in response to consultation feedback;
- Change in alignment of site access north of Lodge Farm to provide additional offset to property, and reduce conflict with a public footpath, in response to consultation feedback;
- Change in position and extent of offsets for solar development around The Kangaroo, in response to consultation feedback;
- Order limits widened between East Park Site B and Site C at request of the landowner in order to allow sufficient space to work around any field drains;
- Change in alignment of the site access between Great Staughton Road and East Park Site C (north-west of Site C), in response to consultation feedback and to gain agreement with the landowner;
- Solar development set back from Garden Farm in the west of East Park Site C, and set back further south from Staughton Manor to allow additional space for woodland belt planted mitigation, in response to consultation feedback and to gain agreement with the landowner; and
- Solar development removed from north of East Park Site C to create a better delineated boundary between the solar development and the Roman town scheduled monument, with woodland belt planting providing a buffer and edge between the two.

Alternative Layouts

- 3.5.5 As set out in this chapter, the design and layout of the Scheme has evolved from the initial site identification through land identification and further land identification, and as a result of the EIA process and consultation feedback.
- 3.5.6 The key alternative considered with regards layout related to the location of the East Park BESS and substation. At the non-statutory consultation and in the EIA scoping report it was assumed that they would be located within Site C, however in response to further environmental surveys and consultation with stakeholders it emerged that Site D could have been a preferable location. This was considered to have the following possible advantages:
- Ease of access from the public highway during construction, operation, and in case of an emergency response;
 - Separation from the newly found Roman small town Scheduled Monument discovered in Site C; and
 - Reduced length of 400 kV Grid Connection between the East Park Substation and the Eaton Socon Substation.
- 3.5.7 A possible disadvantage of locating the East Park BESS and substation in Site D is the slightly higher classification of the agricultural land, being partly Grade 3a instead of wholly Grade 3b.
- 3.5.8 At the statutory consultation, the location of the BESS was therefore not fixed and feedback on the location was specifically sought as part of the consultation questionnaire (as set out in the **Consultation Report [EN010141/DR/5.1]**). Accordingly, the following options on alternative layout were assessed in the preliminary environmental information report (PEIR):
- **Option 1** – the East Park BESS and substation would be located within Site C.
 - **Option 2** – the East Park BESS and substation would be located within Site D.

3.5.9 The locations of Option 1 and Option 2 are shown on **ES Vol 3 Figure 3-2: PEIR Indicative Zoning Plan [EN010141/DR/6.3]**. A summary of the residual significant effects of Option 1 and Option 2 (as was reported in Chapter 18 of the PEIR) is set out in Table 3.1:

Table 3.1: Comparison of Option 1 and Option 2 environmental effects reported in the PEIR

Environmental Topic	Comparison of Option 1 and Option 2 Effects
Landscape and Visual	<p>No substantial difference in residual effects between Option 1 and Option 2 layouts.</p> <p>The visual effects of Option 2 would be very slightly greater than Option 1 due to the proximity of a bridleway allowing closer views of the East Park BESS and Substation (Viewpoint 68).</p>
Cultural Heritage and Archaeology	<p>The Option 1 layout would result in additional Significant residual effects on the setting of the Roman small town south of Great Staughton Scheduled Monument, and the Scheduled Monuments of Rushey Farm, and two bowl barrows on the higher ground to the south of the Site. This would be due to the increased massing of infrastructure and associated activity in the close setting of these assets.</p> <p>Option 2 would avoid these significant effects.</p>
Ecology and Nature Conservation	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Hydrology and Flood Risk	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Traffic and Transport	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Noise and Vibration	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Air Quality	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Ground Conditions	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Land and Soils	No substantial difference in residual effects between Option 1 and Option 2 layouts.

Environmental Topic	Comparison of Option 1 and Option 2 Effects
	Option 2 would however result in permanent adverse impacts to an additional 1.01 hectares of best and most versatile land compared to Option 1.
Socio Economics, Land Use and Tourism	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Climate Change	No substantial difference in residual effects between Option 1 and Option 2 layouts.
Other Environmental Topics	No substantial difference in residual effects between Option 1 and Option 2 layouts.

3.5.10 The residual significant environmental effects of either Option 1 or Option 2 were therefore assessed in the PEIR as being broadly comparable across all topics, however Option 1 would result in additional significant residual effects in relation to cultural heritage and archaeology.

3.5.11 Feedback as to a preference of either the Option 1 or Option 2 layouts was reviewed following the statutory consultation, with all feedback set out within the **Consultation Report [EN010141/DR/5.1]**. In summary, a majority of the public gave a preference towards Option 2 (siting the BESS and substation within East Park Site D), and in addition, the host authorities and Historic England gave a preference towards Option 2.

3.5.12 On the basis of the environmental assessment work undertaken in the PEIR, and the feedback received at consultation, Option 2 was selected and has been taken forward as part of the Scheme. The East Park BESS and substation are therefore proposed within East Park Site D.

3.6 Alternative Technologies

3.6.1 As described in **ES Vol 1 Chapter 2: The Scheme [EN010141/DR/6.1]**, the parameters of the DCO maintain a degree of design flexibility to allow the latest technology to be utilised at the time of construction. Notwithstanding this, several technological design options have been considered and discounted, with preferred options taken forward taking into consideration potential environmental effects and the Scheme's objectives and need for optimal functionality. Table 3.2 summarises the main alternative technologies considered by the Applicant at this Site.

Table 3.2: Technology Alternatives

Technology Element	Considerations
Type of generation technology	<p>The Applicant is a renewable energy developer with experience of developing solar, energy storage, onshore wind, and energy from waste developments in the UK.</p> <p>Onshore wind was discounted as at the time of the project development, there was a de-facto moratorium on onshore wind which was only lifted with the adoption of the updated December 2024 National Planning Policy Framework. An onshore wind farm of the scale required to deliver a 400 MW electricity export capacity would also result in significantly greater environmental impacts than the Scheme.</p> <p>An energy from waste development was discounted as such a facility would not be able to generate the electricity required to maximise a 400 MW grid connection, and the need case for a waste facility was not apparent in this location.</p> <p>The Applicant therefore elected to pursue a solar farm development, which would be able to deliver a 400 MW electricity export capacity.</p>
Type of solar array (fixed or tracking)	<p>Fixed arrays are solar panels that are mounted on arrays which are fixed to a single height and axis, i.e. they are generally fixed to face due south.</p> <p>Solar tracking arrays are solar panels that are mounted on arrays which are motorised and automated to track the sun across the sky. In this way they can turn to face the sun as it rises in the east, and track it through to sunset in the west, which allows them to maximise generation across the full extent of the day and deliver better yields.</p>

Technology Element	Considerations
	<p>The key differences between fixed arrays and solar tracking arrays are that:</p> <ul style="list-style-type: none"> • Fixed arrays are substantially cheaper to deploy and a more reliable technology; • Fixed arrays require less maintenance, and as such less traffic is likely to be generated in the operational phase; • Fixed arrays generate slightly less electricity per panel across the day than tracking arrays, and as such have a reduced yield; and • Fixed arrays have a reduced glint and glare impact compared to solar tracking arrays. <p>Considering the factors set out above, the Applicant has chosen to deploy fixed arrays with the Scheme.</p>
Solar array configuration	<p>Two configurations were considered for the solar PV layout:</p> <ul style="list-style-type: none"> • South-facing, where all solar arrays are oriented due south with regular spacing between rows; and • East-west facing, where east-facing solar tables and west-facing solar tables are arranged back-to-back. <p>The east-west configuration can achieve a slightly higher installed capacity per hectare of land as arrays can be arranged more densely, with reduced spacing required between rows due to shading impacts. A consequence of the increased density is greater shading of the ground beneath the panels, which has the potential to reduce grass establishment and impact soil-quality in the long-term.</p> <p>Despite the ability to increase installed capacity per hectare, the increase in generation capacity from an east-west facing array does not increase proportionately with the installed capacity. This is because the panels are not oriented optimally across the middle part of the day when solar irradiance is highest.</p> <p>East-west facing arrays therefore have much higher costs to install, without a proportionate return from a significantly increased yield.</p> <p>Considering the factors set out above, the Applicant has chosen to use south-facing arrays with the Scheme.</p>
String inverters or centralised inverters	<p>There are two principal types of inverter that can be utilised for solar arrays; string inverters, or centralised inverters.</p> <p>String inverters are inverters typically attached to the mounting frames of solar panels and connect together</p>

Technology Element	Considerations
	<p>the wiring from different rows for conversion to alternating current (AC). They are distributed across the solar arrays, with the advantage of being relatively small and easy to mount onto the solar PV tables.</p> <p>Centralised inverters are either small shipping containers or large cabinets that house a single large-capacity inverter to which the solar arrays connect. Fewer centralised inverters are required compared to string inverters, and they would be distributed throughout the solar arrays alongside transformers.</p> <p>The key differences between string inverters and centralised inverters are that:</p> <ul style="list-style-type: none"> • String inverters can be mounted directly to the solar arrays and do not require foundations or footings – centralised inverters do require foundations or footings; • String inverters are more expensive to install than centralised inverters, but can be more efficient and can result in lower downtime losses; and • String inverters have a lower sound power level – centralised inverters have a higher sound power level. <p>The Applicant is looking to maintain flexibility as to the type of technology utilised in the Scheme, with a final decision on approach expected to be made at the detailed design stage following a grant of development consent. This will enable the Applicant to select the most efficient and economic technology at the time.</p> <p>Both string inverters and centralised inverters have therefore been assessed in this ES.</p>

3.7 References

¹ Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). Available at: <https://assets.publishing.service.gov.uk/media/65a7864e96a5ec0013731a93/overarching-nps-for-energy-en1.pdf> [Last Accessed: 19 September 2025]