voltalia

Volume 4: Non Technical Summary

Department ERM
Project: Springfield Solar Farm and BESS
Document Code: 0733745

May 2025

INDEX

PREFACE

An Environmental Impact Assessment (EIA) Report (EIAR) has been prepared by Environmental Resources Management Ltd ('ERM') on behalf of Voltalia UK Ltd (the Applicant) to accompany the Section 36 application for consent to construct and operate Springfield Solar Farm and BESS (the Proposed Development). The Proposed Development comprises a ground-mounted solar photovoltaic development with a generating capacity of up to approximately 165 Megawatts (MW) and includes a Battery Energy Storage System (BESS) with a generating capacity of up to approximately 80 MW. In addition, the Proposed Development also includes the necessary infrastructure, access roads, and landscaping to support the operation of the systems.

The EIAR has been prepared in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the EIA regulations)[1]. The content of the EIAR aligns with Schedule 4 of the EIA Regulations. The EIAR comprises four volumes as follows:

- Volume 1: Main Report;
- Volume 2: Figures;
- Volume 3: Technical Appendices; and,
- Volume 4: Non-Technical Summary.

Part 5 of the EIA Regulations requires that the EIA Report be available for public viewing:

> *"…state that the EIA report is available for inspection free of charge and the times and places at which, and the means by which, the EIA report is available for inspection".*

In line with this, the public can view the application at the following locations:

- Oldhamstocks Village Hall, Oldhamstocks, TD13 5XN (Note: There are no fixed opening times at this venue. To arrange to view the application, please contact: hallbookings@oldhamstocks.org.uk)
- Dunbar Public Library, Bleachingfield Centre, Countess Road, Dunbar, EH42 1DX (Opening times: Monday, Tuesday, Thursday and Friday 09:00 to 13:00 and 14:00 to 17:00, Wednesday 10:00 to 17:00, and Saturday 10:00 to 13:00). Please note that the library is closed from 13:00 – 14:00.

The EIA Report and supporting documentation, together with a notice of application, can be viewed on the Springfield Solar Farm project website at: https://springfieldsolarfarm.co.uk/

The application will also be available for public viewing on the Energy Consents Unit website (ECU Reference: ECU00004815) at: https://www.energyconsents.scot/. Members of the public seeking to make representations can email them to: Representations_Mailbox@gov.scot

Hard copies of the application submission may be obtained subject to a nominal charge reflecting the cost of making the relevant information available.

[1] The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 [Online] Available at: https://www.legislation.gov.uk/ssi/2017/101/contents/made (Accessed 02/04/2025)

To request a copy of the application submission please contact: springfieldsolarfarm@erm.com

1 INTRODUCTION

1.1 Purpose of this Document

1.1.1.1 An Environmental Impact Assessment (EIA) Report (EIAR) has been prepared by Environmental Resources Management Ltd ('ERM') on behalf of Voltalia UK Ltd (hereafter referred to as 'the Applicant'). The Applicant is proposing to submit an application to the Scottish Government Energy Consents Unit (ECU) for consent under Section 36 of the Electricity Act 1989 and deemed planning permission to construct and operate a ground-mounted solar photovoltaic (PV) development with a generating capacity of up to approximately 165 Megawatts (MW), Battery Electric Storage System (BESS) with a generating capacity of up to approximately 80 MW, associated infrastructure, access, and landscaping (hereafter referred to as 'the Proposed Development').

1.1.1.2 The Proposed Development is located on land approximately 7.8 kilometres (km) southeast of Dunbar and 50 metres (m) north of the village of Oldhamstocks at the closest point to the Proposed Development boundary ('the Site'). The distance from Oldhamstocks to the nearest Proposed Development infrastructure is 0.42 kilometres (km).

1.1.1.3 An EIA has been undertaken for the Proposed Development in accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, referred to hereafter as the EIA Regulations.

1.1.1.4 As required by the EIA Regulations, the EIAR describes the EIA process undertaken for the Proposed Development and presents information on the likely significant environmental effects which may occur as a result of the Proposed Development. The EIAR also informs the reader of the nature of the Proposed Development, assesses any alternatives considered, and details the measures proposed to protect the environment during site preparation, construction, operation, and decommissioning.

1.1.1.5 This Non-Technical Summary (NTS) provides a summary of the EIAR.

1.2 The Applicant

1.2.1.1 Founded in 2005, Voltalia is an experienced global renewable energy developer and Independent Power Producer (IPP) developing, constructing, and operating solar, wind, hydro, biomass, and storage projects. Voltalia has assets with 3.3GW of installed capacity, with a 16.6GW pipeline of projects globally and has a long-term commitment to, and experienced of, development in the UK.

1.2.1.2 Voltalia UK Ltd is focused on providing renewable energy schemes to help decarbonise the UK's electricity network and combat the climate crisis by supplying an affordable and renewable source of clean electricity.

1.2.1.3 The Proposed Development is one in a series of renewable energy projects which Voltalia are proposing to construct and operate in Scotland. If consented, international experience and expertise will allow Voltalia to develop their ~600MW of onshore renewables in Scotland to help achieve the current net zero targets and fight the climate crisis.

1.3 The Site

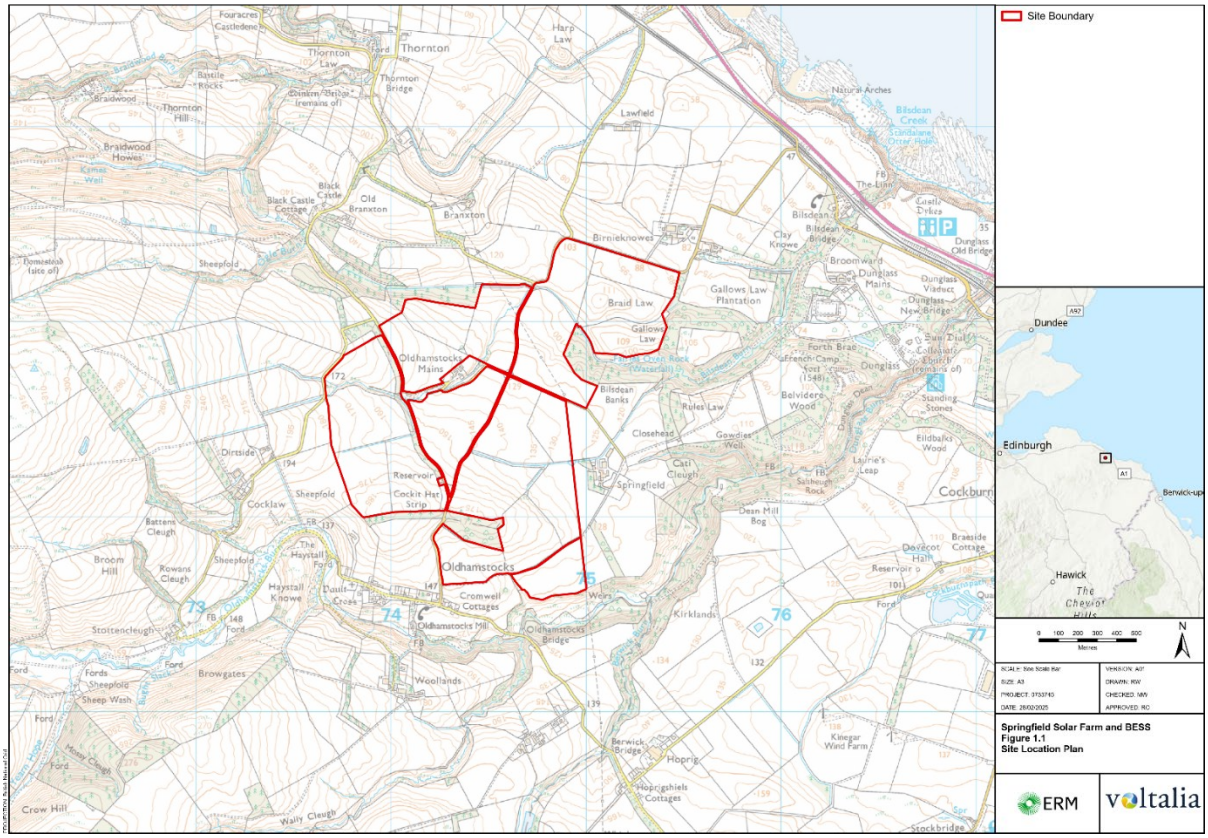
1.3.1.1 The Site is centred on National Grid Reference (NGR) NT 74514 71531 in the East Lothian Council local authority area, with the red-line boundary covering an area of approximately 184 hectares (ha) (see **Figure 1.1: Site Location Plan**).

1.3.1.2 The Site consists of 20 agricultural fields used for rotating arable and livestock farming, mixed with areas of woodland, and is set within a wider rural landscape. The Site is centred on a ridge, reaching approximately 177 m above sea level, with slopes down to 85 m to the north-northeast and 128 m to the south.

1.3.1.3 Major transport routes nearby include the A1 and East Coast Main Line railway, about 0.9 km to the northeast.

1.3.1.4 The surrounding settlements include Oldhamstocks (0.42 km south), Bilsdean (0.86 km east-northeast), Cockburnspath (2 km east), Innerwick (2.4 km north-northwest), and Dunbar (7.8 km north-northwest).

FIGURE 1.1 SITE LOCATION PLAN



2 SITE DESIGN AND EVOLUTION

2.1 Site Selection

2.1.1.1 Choosing a suitable site for a commercial solar farm is a complex process that balances environmental, technical, social, and commercial factors. National Planning Policy Framework (NPF4) policies guide key considerations, especially regarding renewable energy development and the protection of prime agricultural land.

2.1.1.2 The Applicant first identified the general area around the Proposed Development in 2021 as part of a wider site selection exercise across Scotland and the UK. East Lothian's coastal areas were chosen for their favourable conditions, including proximity to the National Grid, suitable topography, good sunshine levels, and accessibility via the A1.

2.1.1.3 A detailed desktop assessment screened the region to avoid internationally or nationally significant sites and followed local development plans. Because of planned offshore wind developments requiring connection near the Branxton Substation, the Applicant focused on land close to this point to reduce cable length, transmission losses, and potential environmental impacts.

2.1.1.4 Landowners in the area were contacted, and the opportunity to develop a solar farm on the Dunglass Estate was explored. Together, the Applicant and the landowner reviewed the estate to find the most suitable land, considering connection proximity, infrastructure, agricultural capability, potential generation capacity, and grid connection location.

2.1.1.5 Springfield Farm was selected because it produced fewer and lower grade crops compared to other estate areas, thereby reducing the impact on prime agricultural land. This site offered the best balance of all factors while preserving higher quality farmland elsewhere on the estate.

2.2 Design Evolution

2.2.1.1 The Proposed Development has evolved through four main design layouts to reduce potential adverse effects as much as reasonably practicable. These design changes considered embedded mitigation (i.e. measures incorporated into the design of the Proposed Development) and reflect responses to key constraints.

2.2.1.2 The layouts progressed as follows:

- Scoping Layout (August 2024)
- Revised Layout (January 2025)
- Initial Application Layout (March 2025)
- Final Application Layout (May 2025)

2.2.1.3 Each layout was developed considering factors such as visibility from sensitive locations, presence of protected habitats and species, cultural heritage sites, noise-sensitive areas, ground conditions, and key recreational routes. Constraints were identified through desk studies, site surveys, and stakeholder feedback.

2.2.1.4 The initial Scoping Layout optimised the Site's output while avoiding sensitive ecological, cultural, and residential areas by applying buffers and siting taller infrastructure in lower lying areas.

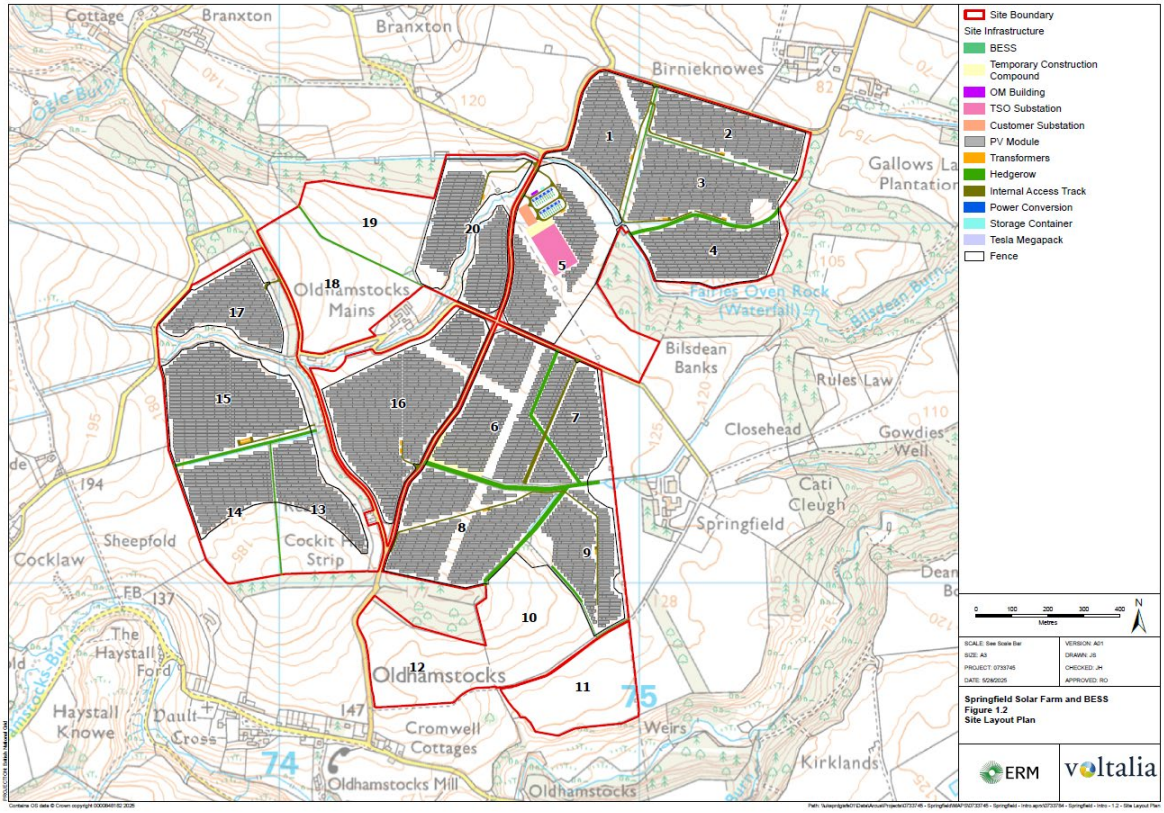
2.2.1.5 The Revised Layout responded to public consultation feedback, especially concerns about visual impact, by removing panels and infrastructure near sensitive heritage sites and residential properties, and by applying additional ecological buffers.

2.2.1.6 The Initial Application Layout included detailed plans for solar panels, BESS units, and habitat mitigation, further refining infrastructure placement to reduce cultural heritage and visual impacts.

The Final Application Layout, presented in this report and shown in **Figure 2.1: Site Layout Plan**, further increased buffer distances from residences, reduced the number of battery units and inverters, relocated key infrastructure to avoid flood risk areas, and made minor adjustments to protect watercourse buffers

2.2.1.7 This iterative design process demonstrates ongoing efforts to balance progress towards achieving renewable energy and climate targets with environmental, social, and technical considerations.

FIGURE 2.1 SITE LAYOUT PLAN



3 DEVELOPMENT DESCRIPTION

3.1 Development Components

3.1.1.1 The Proposed Development will generate up to approximately 165 MW of electricity from solar panels and store up to approximately 80 MW using battery units. It includes the construction and operation of solar panels, battery storage, and related infrastructure to support renewable energy production.

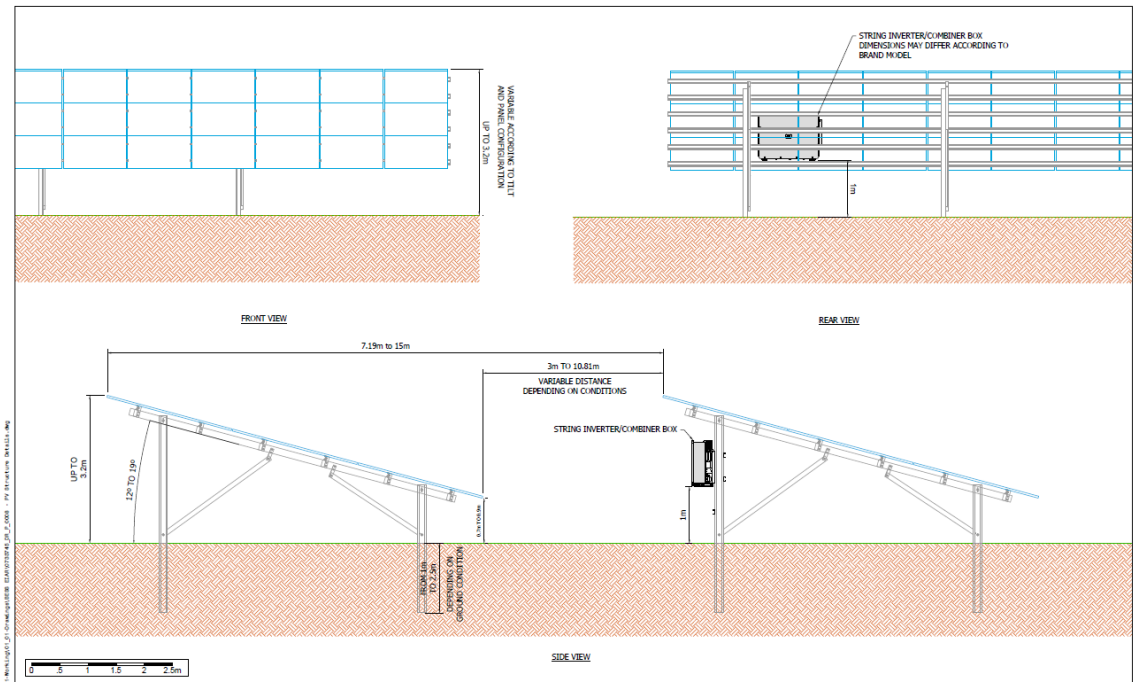
3.1.1.2 The layout of the Proposed Development is shown in **Figure 2.1** of this document and **Figure 3.1** of **Volume 2** of the EIAR.

3.1.1.3 Details of the components within the Proposed Development are provided in **Table 3.1**:

TABLE 3.1 DESCRIPTION OF THE PROPOSED DEVELOPMENT COMPONENTS

COMPONENT	DETAILS
Solar PV Array	The Proposed Development will primarily consist of solar panels. The exact number to be installed will depend on the technology available at procurement. Enough panels will be installed to generate up to 165 MW. Each panel consists of individual photovoltaic (PV) cells mounted on aluminium frames, tilted up to 25 degrees from horizontal. Panels will stand between 0.8 m (lowest edge) and 3.2 m (highest edge) above ground. They will be supported on steel piles driven into the ground. However, where ground conditions or archaeology require, panels may be mounted on surface-level concrete footings to reduce underground disturbance. See **Figure 3.1,** below, for an illustration of the solar PV array infrastructure.
Central Inverters	16 central inverters will be placed throughout the Proposed Development to transfer electricity from the solar PV array to the substation. Each inverter will measure up to 2.93 m in height, 12.55 m in length, and 3 m in width.
Battery Energy Storage System	40 BESS units, each up to 2.4 m wide, 6 m long, and 3 m high, will be placed at approximately NGR 748 720. Each unit will be supported by 6 concrete bases, with parts of them standing up to 0.2 m above the ground and going as deep as 3 m below the ground.
Customer Substation Electrical Infrastructure	A 132kV and 33kV Electrical Substation will be located at approximately NGR 748 720
Access Tracks	Access tracks for the construction and operation of the Proposed Development will be 5 m wide, with an additional 1 to 1.5 m of space on either side of the track.

FIGURE 3.1 SOLAR PV ARRAY STRUCTURE



3.1.2 Grid connection

3.1.2.1 The Proposed Development will connect to the already consented Branxton Substation, located about 1.2 km north of the Site.

3.1.2.2 The Transmission Network Operator (TSO) will be responsible for designing, assessing, and obtaining permission for this connection.

3.1.2.3 The grid connection does not form part of the application for the Proposed Development, and its environmental effects will be considered as part of any future application for consent to be made by the TSO.

3.2 Construction Phase

3.2.1.1 The construction period for the Proposed Development will last approximately 18 months. The start date will depend on when consent is granted and grid availability. Construction activities will occur between 07:00 and 19:00 on weekdays, and 07:00 to 13:00 on Saturdays, except for emergency working.

3.2.1.2 The construction will be managed by an Infrastructure Contractor appointed by the Applicant, who will oversee environmental management on-site.

3.2.1.3 An outline Construction Environmental Management Plan (oCEMP) has been developed and is presented as **Technical Appendix 3.1**. A detailed CEMP will be finalised prior to the beginning of construction. The CEMP will detail all measures required during construction to avoid and minimise environmental harm. These measures cover aspects such as training, working hours, water and waste management, and noise control.

3.3 Operational Phase

3.3.1.1 The Proposed Development is expected to operate for up to 40 years, starting from when the generating infrastructure is fully energised. During this period, qualified contractors will manage the maintenance of the site. This will primarily involve activities such as vegetation control, upkeep of the equipment and infrastructure, replacement of any faulty components, and ongoing monitoring to ensure the system operates efficiently.

3.4 Decommissioning Phase

3.4.1.1 When the solar farm reaches the end of its operational life, it will be safely decommissioned. All equipment, such as solar panels, frames, wiring, and transformers, will be removed and either recycled or disposed of in line with best practices at that time.

3.4.1.2 Decommissioning impacts are expected to be similar to or smaller than those during construction, as many activities will simply reverse earlier work. Materials like glass, aluminium, and copper will be recovered, with over 85% of the panel mass likely to be recycled. Future improvements in recycling technology may further increase recovery rates.

3.4.1.3 Detailed plans for decommissioning will be developed closer to the end of the Proposed Development's life, taking into account the latest regulations and technology. The Proposed Development will be decommissioned in accordance with a decommissioning, restoration and aftercare plan to be agreed with the local authority.

4 EIA METHODOLOGY

4.1 Introduction

4.1.1.1 An EIA is a formal process used to evaluate how a proposed development might affect the environment. It ensures that decisions about the project are made with full knowledge of its potential environmental impacts. This section outlines how the EIA was carried out for the Proposed Development, including who was consulted, how the environment was studied, and how potential effects were assessed.

4.2 Assessment Methodology

4.2.1.1 The EIA followed a structured and step-by-step approach. It began with selecting the site and determining whether an EIA was needed. This was followed by consultations, environmental studies, and identifying possible impacts. The design of the Proposed Development was adjusted throughout to reduce negative effects, as discussed in Section 2: Site Design and Evolution. The process also included considering future conditions, assessing the significance of impacts, and preparing a formal report, the EIAR.

4.2.1.2 The assessment process for most topics involved using information on baseline conditions (from desk-based studies and field surveys) to evaluate the sensitivity of receptors. The magnitude of the impacts of the Proposed Development on the identified receptors was then analysed to determine the level of environmental effect and its significance in the context of the EIA regulations. Where adverse environmental effects were identified, additional mitigation measures were applied, where possible, to avoid or reduce adverse effects. The level of residual effect, following the application of additional mitigation, was then stated. Cumulative effects of the Proposed Development interacting with other developments, as well as in-combination effects of the Proposed Development on single receptors were also assessed. The assessment was carried out in line with the EIA Regulations and other applicable legislation, policy and good practice guidance.

4.3 Consultation

4.3.1.1 Consultation was a key part of the EIA process. It involved engagement with local authorities, government bodies, environmental organisations, and the public. Early discussions helped define the scope and focus of the assessment. Technical consultations with consultees like Historic Environment Scotland, East Lothian Council's Planning Archaeologist, SEPA, and the Council's Environmental Health Officer helped refine survey methods and address key issues. Public consultation events and meetings with community groups and stakeholders ensured local views were considered in the design and assessment of the Proposed Development.

4.4 Technical Assessment

4.4.1.1 Specialist studies were carried out on topics such as noise, ecology, water, landscape, and traffic. Each study followed a clear method to understand current conditions and predict how the Proposed Development might change them. The assessments considered short-term effects during construction and long-term effects during operation. They also looked at how different environmental factors might combine to create larger impacts. Where

possible, the project design was adjusted to avoid or reduce negative effects and good practice measures adopted (called “embedded mitigation”).

4.5 The EIAR

4.5.1.1 The EIAR brings together all the findings of the EIA. It includes detailed chapters on each environmental topic, explains how the assessment was done, and outlines the legal and policy background. The EIAR was prepared in line with the EIA Regulations and other applicable legislation, policy and good practice guidance.

4.6 Assumptions and Limitations of EIA

4.6.1.1 Some assumptions had to be made, such as expecting nearby land use to stay the same unless development had already been approved. The EIA also relied on the best available data at the time, which may change. Limitations include the fact that environmental conditions can shift over time, and that the assessment of cumulative effects depends on the availability of information about other developments.

5 POLICY AND LEGISLATIVE CONTEXT

5.1.1.1 Applications for consent for the construction and operation of an electricity generating station with a capacity exceeding 50 MW must be submitted to the Scottish Ministers under Section 36 of the Electricity Act 1989 for determination. If Scottish Ministers grant consent under Section 36 of the Electricity Act 1989, deemed planning permission may also be granted under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

5.1.1.2 The Proposed Development is located within East Lothian Council's administrative area. Scottish Ministers will take the Council's response into account when determining Section 36 applications.

5.1.1.3 **Volume 1: Chapter 5: Policy and Legislative Context** sets out the climate change legislation and planning policy framework relevant to the Proposed Development. This includes international and national climate change legislation, as well as national and local level planning policies. These will be material considerations in the decision-making process.

5.1.1.4 National Planning Framework 4 (NPF4) sets out national planning policies. East Lothian Council's Local Development Plan (LDP) contains local planning policies. Whilst the Council is not the decision-making body, it is an important consultee and its opinion on an application, based on these policies, will be taken into account by Scottish Ministers when deciding whether to grant or refuse consent for the Proposed Development.

5.1.1.5 **Volume 1: Chapter 5** does not include an assessment of the Proposed Development against relevant policy, as this is included under the Planning Statement and is separate from this EIAR.

6 LANDSCAPE AND VISUAL

6.1.1.1 **Volume 1: Chapter 6: Landscape and Visual Impact Assessment** (LVIA) describes the existing landscape and views and considers the significance of the landscape and visual effects arising from the Proposed Development.

6.1.1.2 Design of the Proposed Development has taken account of development management advice provided in East Lothian Council policy and planning guidance. Solar panels will be set back from field edges that border local roads and paths to reduce visibility from these routes while reinforcement and management of existing hedgerows, along with new hedgerows and woodland planting, will over time increase the degree of screening in closer proximity views. Improvements to existing hedgerows within the Application Site, will provide a long-term enhancement to some of the locally characteristic features and the landscape fabric of the Site.

6.1.1.3 The Proposed Development straddles the boundary between the Innerwick Coast and Eastern Lammermuir Fringe Landscape Character Areas (LCA – a distinct, recognisable and consistent pattern of elements in the landscape). There will be changes to character within the Application Site and up to 0.3 km across undeveloped areas in some directions, where open views will be possible. In the context of these extensive character areas, these changes affect a relatively limited area. Overall, the effects on these landscape character areas, through all stages of the Proposed Development are Moderate and are considered to be **Not Significant** in the context of the EIA regulations.

6.1.1.4 The most affected visual receptors will be users of local roads and paths and residents within around 0.4 km of the Proposed Development where frequent, close proximity views of solar panels and other infrastructure (substation, BESS, fences) will occur. These will sometimes be filtered or screened by roadside hedgerows, trees and woodland belts within the area, increasingly so as proposed landscape mitigation grows to provide additional screening. However, more open and elevated views looking down onto the Proposed Development from some more elevated locations in this area will remain through all stages and give rise to significant changes to views. Overall, the effects on these visual receptors within around 0.4 km are Major/moderate and are considered to be **Significant** in the context of the EIA regulations.

6.1.1.5 Beyond the immediate vicinity of the Proposed Development, the degree of visibility will rapidly reduce and where more distant views are possible, they will feature only very small parts of the Proposed Development, and effects will not be significant. Overall, the effects on visual receptors beyond around 0.4 km range from Moderate to Minor/minimal and are considered to be **Not Significant** in the context of the EIA regulations.

6.1.1.6 **Figure 6.1**, below, provides an illustrative photomontage for a view of the Proposed Development, at year 1 following construction, from the public road in the vicinity of Cocklaw, looking east.

6.1.1.7 The Proposed Development falls partly within Special Landscape Area (SLA – a local landscape designation recognising the particular value of landscapes in maintaining a distinctive sense of place) 4: Monynut to Blackcastle. There will be localised changes to the identified special qualities of this valued landscape, including the landscape pattern and colours, scenic value experienced from local roads, and views towards the sea. However, due to the localised extent of changes, the effects arising, at all stages of the Proposed

Development, are Moderate and are considered to be **Not Significant** in context the of the EIA regulations. No other designated landscapes will be notably affected by the Proposed Development.

FIGURE 6.1 PHOTOMONTAGE (YEAR 1) PROPOSED DEVELOPMENT FROM THE PUBLIC ROAD IN THE VICINITY OF COCKLAW LOOKING EAST

7 ARCHAEOLOGY AND CULTURAL HERITAGE

7.1.1.1 **Volume 1: Chapter 7: Archaeology and Cultural Heritage** describes the existing historic baseline of the Proposed Development and its surroundings. The assessment describes Direct/Indirect and Setting Impacts predicted to result from the Proposed Development as well as embedded mitigation intended to reduce any such impacts and their effects. Direct impacts occur where an asset is removed or damaged as a direct result of a development activity whilst indirect impacts are subsequent effects of an activity on an asset and setting impacts are generally visual and affect the cultural significance of an asset. The assessment considers the significance of the effects on archaeology and cultural heritage arising from the Proposed Development.

7.1.1.2 The design of the Proposed Development has taken account of the known heritage resource as well as the potential for additional, currently unknown heritage assets within the Site. Where possible, Direct/Indirect Physical Impacts have been avoided through changes to Site layout and/or foundation design. Where impacts or the potential for impacts are predicted, embedded mitigation is intended to reduce the magnitude of impact and effect to levels that are considered to be Not Significant in terms of EIA regulations. In relation to Setting Impacts, the Proposed Development has considered how individual assets derive cultural significance, where setting contributes to cultural significance, and how to avoid or limit impacts to key views to and from assets. In relation to designated assets the opinions of Historic Environment Scotland and East Lothian Council have been sought.

7.1.1.3 The assessment has identified eight assets within the Site boundary, consisting of two assets identified within East Lothian Council Historic Environment Record or Historic Environment Scotland datasets and six further assets identified through geophysical survey. Designated assets include Scheduled Monument SM5891 Oldhamstocks Mains, enclosure and Oldhamstocks Conservation Area CA288. The remaining six assets are non-designated. These eight assets date from the Later Prehistoric period through to the Post-Medieval period. The assessment identified a high potential for further unknown Late Prehistoric assets and Post-Medieval assets to be present within the site boundary. There is a moderate potential for Early Prehistoric and Medieval assets. The potential for all other periods is considered low or negligible. Following the implementation of embedded mitigation, Direct/Indirect Physical Impacts would be considered **Not Significant** in the context of the EIA regulations. Any such impacts would however be permanent.

7.1.1.4 The assessment identified 36 designated assets for a detailed assessment of Setting Impacts. No non-designated assets were identified as warranting assessment. Assets considered most sensitive to changes in Setting were Oldhamstocks Conservation Area CA288 and a series of Late Prehistoric Scheduled Monuments within 1 km of the Site, of which SM5891 and SM5892 were the nearest to new infrastructure.

7.1.1.5 In relation to Oldhamstocks Conservation Area CA288, design changes were made to reduce Setting Impacts from key viewpoints that contributed to the scenic value of the Conservation Area, namely from around Cocklaw and views facing south-east over the Oldhamstocks Burn valley, in south facing views from the northern approach to the Conservation Area from Branxton, and in north facing views over and across the Oldhamstocks Burn valley from Woollands farm. In order to reduce Setting Impacts, panels and infrastructure were removed, with panels being pulled to the north of the thin band of copse woodland at Cockit Hat Strip, in fields north of Oldhamstocks. Additionally, panels

have been removed from the eastern limit of the Conservation Area and offset by 325 m from the Conservation Area.

7.1.1.6 In relation to SM5891 and SM5892, infrastructure has been repositioned or removed from fields surrounding or located between these two scheduled monuments in order to maintain the rural character around the scheduled monuments and to maintain views between these associated Late Prehistoric settlement sites.

7.1.1.7 The assessment identified Minor adverse effects to the cultural significance of SM5891 and SM5892 resulting from Setting Impacts; however, these effects are considered **Not Significant** in the context of EIA regulations. Setting Impacts will persist throughout the operational lifetime of the Proposed Development but will be fully reversible following decommissioning. Setting Impacts to all other assessed assets were also considered **Not Significant**.

7.1.1.8 **Figure 7.1**, below, provides an illustrative photomontage for a view of the Proposed Development, at year 1 following construction, from Oldhamstocks Enclosure (SM5891) looking east.

7.1.1.9 Overall, all Archaeology and Cultural Heritage effects are considered **Not Significant** in the context of EIA regulations.

FIGURE 7.1 PHOTOMONTAGE (YEAR 1) PROPOSED DEVELOPMENT FROM OLDHAMSTOCKS ENCLOSURE (SM5891) LOOKING EAST

8 ECOLOGY AND NATURE CONSERVATION

8.1.1.1 **Volume 1: Chapter 8: Ecology and Nature Conservation** considers effects on sites, habitats and species recognised as Important Ecological Features (IEFs). Following the completion of ecological surveys and a desk study, badger and breeding birds were considered IEFs and scoped into the assessment of effects.

8.1.1.2 A Habitat Regulations Appraisal (HRA) follows NatureScot guidance to assess whether the Proposed Development could harm protected European nature sites. A HRA was carried out in respect of the following designated sites:

- Firth of Forth Special Protection Area (SPA);
- Firth of Forth Ramsar;
- Outer Firth of Forth and St. Andrew's Bay Complex SPA;

8.1.1.3 The HRA determined that likely significant effects upon the Outer Firth of Forth and St. Andrew's Bay Complex SPA because of the Proposed Development can be ruled out. In addition, the HRA determined that there would be no adverse effect upon the integrity of the Firth of Forth SPA / Ramsar from the Proposed Development.

8.1.1.4 Habitats within the Site are dominated by farmland habitats such as grazing pasture and arable fields. Hedgerows and woodland are present, but these will be avoided by the Proposed Development. The landscape design of the Proposed Development includes a total of 120.37 ha of wildflower meadow, and 1168 m of new hedgerow. These habitats will replace existing farmland habitats and will benefit badger and breeding birds; as well as other species such as bats. This means that during operation the Proposed Development is considered to provide permanent, **Significant beneficial** effect at the Site level in respect of Ecology and Ornithology and will provide a net positive for biodiversity in accordance with National Planning Framework (NPF)4.

8.1.1.5 It has been assessed that effects of the Proposed Development upon IEFs will be negligible and **Not Significant** in the context of the EIA Regulations following the provision of embedded mitigation measures including:

- Development within 5 m of hedgerows, 10 m of watercourses, 15 m of ancient woodland and Root Protection Zone of retained trees will be avoided;
- Development will avoid all areas of woodland;
- Mammal gates will be added to the periphery fence line to maintain badger passage within the Site;
- Lighting proposals will be designed to minimise potential for disruption to nocturnal animals, such as bats and badger, e.g., motion sensitive lighting, direction lighting and use of shields;
- A suitably qualified Ecological Clerk of Works to provide ecological advice and support to the Principal Contractor throughout construction;
- Pre-construction surveys to be undertaken for protected and priority species to inform the scope of any supporting Species Protection Plans (SPPs) or Precautionary Methods

of Works (PMoW) that will form part of a Construction Environment Management Plan (CEMP); and

- During the construction phase, avoidance and mitigation measures for IEFs will be implemented via a CEMP, which will be developed by the Principal Contractor.

8.1.1.6 A net positive approach for biodiversity has been considered within the design, and enhancements incorporated into the design of the landscaping for the proposed Development. This is captured within the outline Landscape and Biodiversity Management Plan (oLBMP) (**Technical Appendix 3.2: oLMBP**).

8.1.1.7 Overall, adverse effects on Ecology and Nature Conservation receptors are considered **Not Significant** in the context of EIA regulations, while biodiversity enhancements embedded within the design are considered to be **Significant beneficial** at the Site level.

9 WATER RESOURCES

9.1.1.1 **Volume 1: Chapter 9: Water Resources and Flood Risk** identifies and evaluates the potential effects of the Proposed Development on water resources and flood risk during the construction and operational phases. The assessment considers effects on watercourses and surface water features, groundwater protected areas (hydrogeology), flood risk, private water supplies, public water assets, protected bathing water areas, and designated sites. The assessment has been based on both desk-top studies and site survey.

9.1.1.2 The main potential effects associated with the Proposed Development relate to the construction phase, which would involve the installation of the solar panels, construction of the substation foundations, and placement of the BESS units. Such activities could result in changes to the quantity of surface water and groundwater; pollution of surface water, groundwater, and bathing waters; changes to flooding within and downstream of the Site; and water quality and quantity changes to private and public water supplies.

9.1.1.3 The design of the Proposed Development has sought to avoid impacts to water resources and flood risk (embedded mitigation). This includes locating infrastructure at set distances from watercourses, locating infrastructure out of flood risk areas, and maintenance of on-site vegetation. **Chapter 9: Water Resources and Flood Risk** sets out mitigation which will be needed during construction and operation such as further private water supply surveys and adherence to specific environmental protection measures which will be in line with the appropriate industry guidance.

9.1.1.4 When accounting for this embedded mitigation, the water resources and flood risk assessments concluded there would be **No Significant effects** during the construction and operational phases of the Proposed Development.

9.1.1.5 There are two other developments within the same catchment area as the watercourses on-site. However, the timing of construction for this Proposed Development and the other developments do not overlap, therefore no cumulative impacts to water resources and flood risk are anticipated.

10 GEOLOGY AND SOILS

10.1.1.1 **Volume 1: Chapter 10: Geology and Soils** presents an assessment of potential significant impacts to the geology and soils environment associated with the construction, operation and decommissioning of the Proposed Development. This assessment has been based on detailed desk studies and information from the UK Habitat Classification site surveys (detailed in **Chapter 8, Technical Appendix 8.1: Habitat Survey Report**) to confirm the absence of peat-forming vegetation across the Proposed Development.

10.1.1.2 This Chapter assesses the potential effects relating to the loss and compaction of soils, soils as a waste material, potential effects relating to solid geology and potential effects relating to the disturbance of contaminated land associated with former land uses. A Phase 1 Contaminated Land Report has been undertaken as part of this assessment, focused on the northern area of the Proposed Development which is situated within a Coal Mining Reporting Area. Due to the absence of mapped Class 1 and 2 priority peatland across the Proposed Development, and results from the UK Habitat Classification surveys that confirmed no peat-forming vegetation is present across the Proposed Development, peat has not been identified as a sensitive receptor within this assessment.

10.1.1.3 Mitigation measures relating to the soils and geology environment, during construction and operational phases, are embedded through the design and adoption of good practice measures during construction to ensure that disturbance of geology and soils is avoided or minimised. Detailed embedded mitigation measures and good practice methods and guidelines are set out in **Chapter 3, Technical Appendix 3.1: outline Construction Environmental Management Plan (oCEMP**).

10.1.1.4 Following implementation of these mitigation measures, no potential residual effects have been identified that will impact the soils and geology across the Proposed Development in relation to loss and compaction of soils, soils as a waste material, or impacts on geology and contaminated land. Therefore, all factors addressed are considered Negligible and **Not Significant** in the context of the EIA regulations.

11 TRAFFIC AND TRANSPORT

11.1.1.1 **Volume 1: Chapter 11: Traffic and Transport** assessed the traffic impacts associated with the construction of the Proposed Development on the surrounding public road network. It is anticipated that construction of the Proposed Development will run for approximately 18 months.

11.1.1.2 The main approach considered in this assessment assumes that solar panels, battery energy storage containers and supporting infrastructure along with the material required for construction will be transported by Heavy Goods Vehicles. In addition, it is expected that a small number of components will be transported to the Site as abnormal loads. The Study Area for the Transport Statement includes roads within the local road network in and around Oldhamstocks and Bilsdean including the U220, U246, C120, U218 and the C122, as well as along the A1(T) between Thorntonloch and Cockburnspath roundabout. **Figure 11.1**, below, provides a plan showing the proposed route to site for construction traffic.

11.1.1.3 Baseline traffic flow information was obtained from data published by the Department for Transport for the A1(T) at Bilsdean. Traffic count data was not available for the non-trunk roads however the theoretical capacity of these roads in the Design Manual for Roads and Bridges was used to outline typical vehicle movements per day.

11.1.1.4 The Site is broadly divided into 8 development parcels and a single access point off the C120 is proposed for the construction phase. Construction vehicles will then access the different parcels via temporary crossing points. Following construction, each parcel will be accessed via dedicated access points off the public road. Each of the proposed Site Entrance junctions have been designed to accommodate the largest type of vehicle anticipated at the Site. Each entrance has also been assessed for visibility against the Design Manual for Roads and Bridges standard.

11.1.1.5 The construction of the Proposed Development would lead to a temporary increase in traffic volumes on the Study Area road network during the construction phase. The maximum traffic impact during the construction period is predicted to occur in Month 12 where approximately 76 two-way vehicle movements consisting of 48 car/van movements and 28 HGV movements on average will be made to the Site. Traffic volumes would decrease considerably outside the peak period of construction. This short-term increase in traffic flow is considered to be **Not Significant** in terms of the existing traffic flow and capacity on routes approaching the Site.

11.1.1.6 Traffic management measures have been proposed to help minimise and offset any potential impact of the temporary increase in traffic flows and to ensure the safe operation on the approach to Site during construction. The mitigation measures will be included as part of a Construction Traffic Management Plan (CTMP) for the Site which will be prepared and submitted to East Lothian Council and Transport Scotland for approval prior to the commencement of construction works. Central to this is the implementation of a delivery management system to ensure that the deliveries are spread out across the week and across the day to minimise any potential disruption. Hauliers will be required to contact the relevant Site representative (e.g., banksman) to give an indicative delivery time to ensure that the delivery space and banksmen (if required) are ready for their arrival on Site.

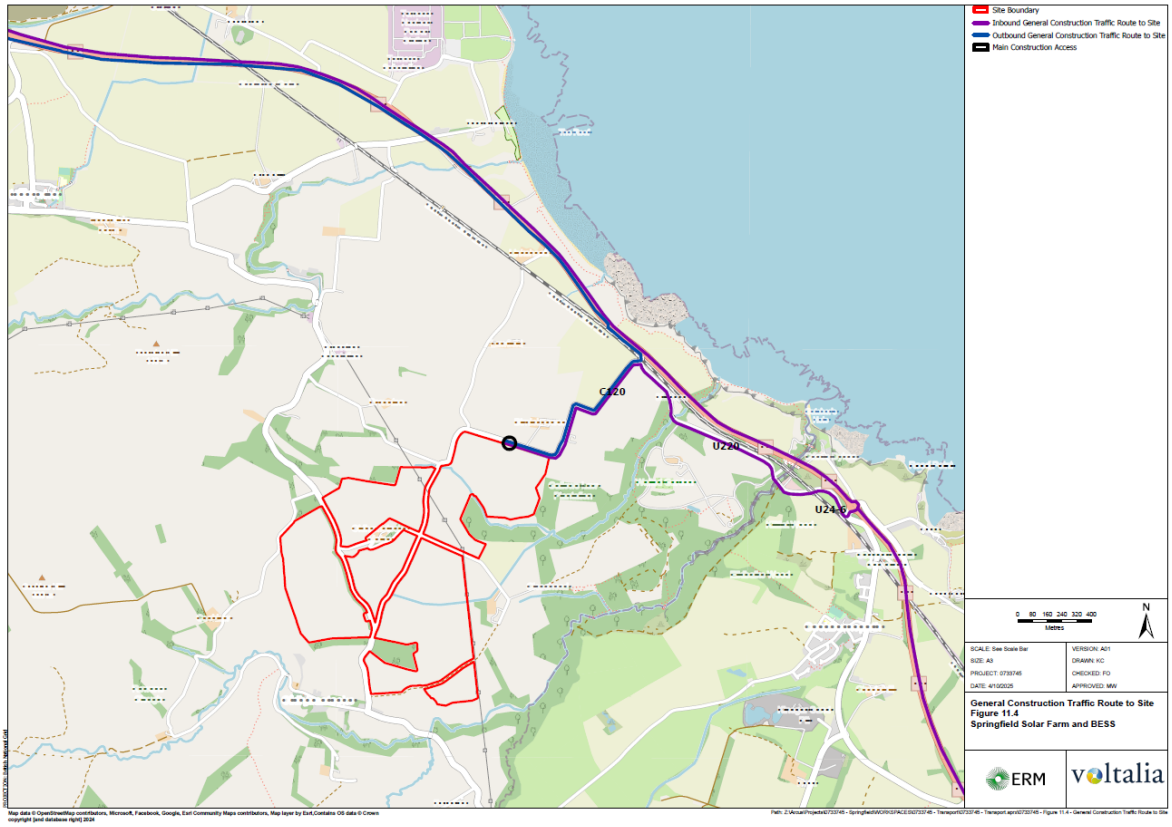
11.1.1.7 Impacts from the operation and maintenance phase of the Proposed Development consisting of between 10 - 15 Light Goods Vehicles per year is considered minimal

(significantly less than the construction phase) and therefore a detailed assessment has not been undertaken.

11.1.1.8 Impacts during decommissioning are anticipated to be similar to those during construction, however, prior to decommissioning of the Proposed Development, a traffic assessment would be undertaken with the relevant consultees to agree the mitigation implemented via a Decommissioning Traffic Management Plan, when baseline environment (including traffic levels) for that time can be more accurately defined.

11.1.1.9 Overall, the level of traffic associated with the Proposed Development will not have significant effects on the surrounding road network, given its temporary nature, low volume relative to existing flows, and the implementation of appropriate traffic management measures.

FIGURE 11.1 CONSTRUCTION TRAFFIC ROUTE TO SITE



12 NOISE AND VIBRATION

12.1.1.1 **Volume 1: Chapter 12: Noise and Vibration** assesses the potential for significant noise and vibration effects arising from the construction, operation and decommissioning of the Proposed Development in accordance with relevant local and national policy, guidance and standards.

12.1.1.2 No significant vibration generating equipment is expected to be required during operation. Traffic movements to and from the Site during operation are expected to be minimal. Therefore, detailed assessment of these aspects of the Proposed Development has been scoped out. In addition, noise and vibration effects during decommissioning are expected to be no greater than those generated during the construction phase.

12.1.1.3 The potential for significant construction noise and vibration effects has been assessed in accordance with established standards (BS 5228 – Code of Practice for noise and vibration control on construction and open sites).

12.1.1.4 Noise Sensitive Receptors (NSRs) were identified using Ordnance Survey data and baseline noise monitoring was carried out at four representative monitoring locations that were agreed with the Council's Environmental Health Officer (EHO). Noise modelling was then carried out to determine the noise effects of the Proposed Development upon the NSRs.

12.1.1.5 The results of the modelling show construction noise effects are considered to be Negligible and **Not Significant**, except at NSR 4 (Springfield Farm), NSR 7 (Cocklaw Cottages), NSR 8 (Oldhamstocks Mains Cottages), and NSR 9 (Oldhamstocks Mains Farmhouse). At these properties, the results show Minor adverse effects during the foundations and civils phase of construction, which are considered to be **Not Significant**.

12.1.1.6 Construction vibration impacts predicted at NSR 8 and NSR 9 are considered minor and **Not Significant**.

12.1.1.7 Construction traffic noise effects are considered to be negligible and **Not Significant** on all roads.

12.1.1.8 The potential for significant operational noise effects has been assessed in accordance with BS 4142. Noise modelling has been carried out using a 3D software modelling package (SoundPLAN). The results of the modelling show operational noise effects are considered to be Negligible and **Not Significant**, except at NSR1 (2 Old Branxton Cottages), NSR 2 (Branxton Farmhouse), NSR 7 (Cocklaw Cottages), NSR 8 (Oldhamstocks Mains Cottages), and NSR 9 (Oldhamstocks Mains Farmhouse). At these properties, the adverse effects are considered to be Minor and **Not Significant**.

12.1.1.9 The potential for cumulative noise effects has also been considered for developments within 1 km of the Proposed Development. The potential for significant effects is considered unlikely for cumulative developments beyond this distance. The cumulative effect from the Proposed Development and Branxton Substation on adjacent NSRs (NSR1, NSR2, and NSR3) is considered to be Minor and **Not Significant** in the context of the EIA regulations. The cumulative effect from the Proposed Development and Branxton BESS on the adjacent NSR (NSR10) is considered to be Negligible and **Not Significant** in the context of the EIA regulations.

12.1.1.10 Overall, the effects from Noise and Vibration are considered to be **Not Significant** in context of the EIA regulations.

13 SOCIO-ECONOMICS, LAND USE, TOURISM AND RECREATION

13.1.1.1 **Volume 1: Chapter 13: Socio-Economics, Land Use, Tourism and Recreation** provides a socio-economic, land use, tourism and recreation baseline for defined study areas and assesses the likely significant effects arising from the construction, operation, maintenance and decommissioning phases of the Proposed Development. The construction, operation and decommissioning of the Proposed Development will create employment and will contribute to productivity, measured by Gross Value Added (GVA), both directly and within the supply chain, benefiting the local economy of East Lothian. Whilst operational employment would be minor, the jobs created would be for the duration of the operational phase, i.e. 40 years, and would therefore be a long-term benefit to the local economy. These effects are considered to be Minor beneficial and therefore **Not Significant** under EIA regulations.

13.1.1.2 There would be temporary loss of agricultural land within the Site boundary for a period of 40 years; however, this loss would be reversible after decommissioning. The effect on food production and the wider agricultural sector is considered to be Minor and **Not Significant** in the context of EIA regulations. There may be opportunities for some grazing to continue around the solar array during the lifespan of the Proposed Development.

13.1.1.3 There would be effects on amenity for users of core paths in the immediate area surrounding the site during construction. Amenity effects would not be significant, and it is not anticipated that there would be any significant effects for the tourism sector more widely, including as a result of additional demand from construction workers for tourist accommodation.

13.1.1.4 As much of the land is currently used for growing crops, it is assumed that this existing recreational use of the land is limited to East Lothian Core Path 12, field boundaries, and areas of woodland within the site. Where it applies, the right of responsible access would be maintained as far as is practicable during the operational period. However, during construction, public access to some parts of the site may be restricted temporarily for safety and security purposes.

13.1.1.5 There is the potential for socio-cultural effects associated with temporary changes in demographics and additional demand for services during construction, and changes in local identity and sense of place associated with changes in land use, impacts on traditional local industries, and environmental effects during construction and operation. However, the assessment has concluded that these effects would be considered **Not Significant**.

13.1.1.6 Overall, the effects from Socio-economics, Land Use, Tourism and Recreation are considered **Not Significant** in the context of the EIA regulations.

14 GREENHOUSE GAS

14.1.1.1 **Chapter 14: Greenhouse Gas** responds to stakeholder requests to complete and include a Greenhouse Gas (GHG) assessment in the EIAR for the Proposed Development.

14.1.1.2 The Proposed Development will provide renewable energy which when operational will support the decarbonisation of the UK electricity generation and the UK Government's net zero ambitions by avoiding or displacing the combustion of GHG emissions from other forms of more GHG intensive grid-connected electricity in the UK (such as gas-fired combined-cycle gas turbine (CCGT) power stations).

14.1.1.3 To understand the impact of the GHG emissions associated with the Proposed Development a GHG assessment was completed. This involved the assessment of the GHG emissions from the construction, operation and decommissioning of the Proposed Development alongside the GHG emissions avoided by the generation of renewable electricity.

14.1.1.4 The GHG assessment estimated that the life cycle of the Proposed Development would emit around 399,000 tCO_2e. When compared with the relevant UK Carbon Budgets these emissions would not impact the UK climate targets and Carbon Budgets. Therefore, it was concluded that the likely impact of the Proposed Development's construction, operation and decommissioning on the climate is consistent with the IEMA definition '**negligible'** and '**Not Significant'.**

14.1.1.5 The GHG assessment also identified that over the Proposed Development's 40-year lifetime it would avoid around 2,200,000 tCO_2e by displacing or reducing GHG emissions from the equivalent UK grid generation. The GHG assessment concluded that the Proposed Development would provide a net climate benefit, by offsetting around 1,801,000 tCO_2e, consistent with the IEMA definition '**beneficial'** and '**Significant**'.

15 OTHER ISSUES

15.1.1.1 **Volume 1: Chapter 15: Other Issues** of this EIAR provides an assessment of the following topics:

- Glint and Glare - the potential for the Photovoltaic (PV) panel array to reflect light in such a way that it creates a glare effect for road users, rail traffic, aviation receptors such as planes and fixed receptors such as residential properties and commercial buildings;
- Human Health - in terms of the potential for impacts from Electro-Magnetic Fields (EMF); and
- Major Accidents and Disasters - the potential for an incident at the Proposed Development e.g. a fire to cause environmental harm, and the potential for other developments in the vicinity to be particularly affected by such an incident at the Proposed Development.

15.1.1.2 A Glint and Glare assessment (see **Volume 3: Technical Appendix 15.1**) was undertaken by SLR Consulting Ltd. This assessment considered the potential for effects upon road and rail users within 3 km of the Proposed Development, aviation receptors within 10 km, and ground-based receptors within 3 km. No aviation receptors were identified within the 10 km study area.

15.1.1.3 The potential for effects on rail users was deemed negligible, due to the short intensity and duration of any glare on moving trains. For road user receptors, routes 1 and 2 (two country lanes that run adjacent to and through the Proposed Development) were found to be significant, if left unmitigated.

15.1.1.4 Embedded mitigation for glint and glare impacts includes enhancing existing hedgerows around the solar array Site to provide natural screening. These strengthened hedgerows will fill gaps in vegetation that currently allow glare to be visible to road users. With the implementation of the above mitigation glint and glare effects to road users of routes 1 and 2 and fixed receptors will be minimal and **Not Significant**.

15.1.1.5 **Volume 3: Technical Appendix 15.2** presents a full assessment of the potential for EMF effects in terms of safe levels of EMF for human exposure. Components of the Proposed Development that can contribute to EMF emissions include the underground power cables, overhead powerlines, transformers, PV inverters and the distribution substation. EMF emissions from all of these components were found to be below levels where human health effects could occur and therefore are **Not Significant**.

15.1.1.6 The assessment of Major Accidents and Disasters considered:

- The potential for Major Industrial Accidents;
- The potential for battery fire in the Battery Energy Storage Systems (BESS);
- The potential for accidental detonation of any Unexploded Ordnance (UXO) present on site; and
- The potential for damage to existing utilities as a result of the Proposed Development.

15.1.1.7 For Major Industrial Accidents, the assessment found that with the inclusion of mitigation (the inclusion of emergency response procedures in the Construction Phase Plan, incorporation of fire suppression systems, development of a Battery Safety Management Plan, and implementation of health, safety, and fire prevention and control procedures), the likelihood of significant effects arising either as a result of a major accident at the nearby Torness Nuclear Plant, or as an exacerbation of effects from an incident at the Proposed Development, are unlikely to occur and the risks are managed to an acceptable level.

15.1.1.8 The risk of fire, either from thermal runaway, lightning strike, electrical fault or arson, is considered to be low. This risk is further reduced by the robust health and safety procedures and Fire Prevention and Control procedures provided for in the Proposed Development design. Additionally, embedded mitigation includes buffer zones around the BESS containers, safety procedures for fire prevention and control, regular maintenance and incident response plans, which all make the risk of a fire, and any significant effects, unlikely.

15.1.1.9 A geophysical survey will be undertaken prior to any construction works to identify any UXO on site. Should any be found, there is a risk that accidental detonation can occur during removal, so mitigation will include the survey itself, the requirement for a UXO management plan as part of the CEMP, and access to geophysical and magnetometer data throughout the survey. Therefore, the risk of significant effects arising is unlikely.

15.1.1.10 Damage to existing utilities on site during construction could cause harm to workers via e.g. high voltage utility strike, damage to equipment, risk to National grid stability and disruption to communities dependent on those utilities. Engagement and consultation with utilities owners has been undertaken, and the known locations and alignments of utilities will be reviewed prior to construction to ensure any utility strike is avoided. Good working practices will be followed to manage the risk to any currently unknown, unmapped minor utilities.

16 IN-COMBINATION EFFECTS

16.1.1.1 **Volume 1: Chapter 16: In-combination Effects** assesses the combined effects of the Proposed Development on environmental receptors. While individual effects assessed in earlier chapters may not be significant on their own, this chapter identifies where multiple effects may interact simultaneously or across different phases, potentially resulting in significant combined impacts. This assessment fulfils the requirements of Schedule 4 Regulation 5(e) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

16.1.1.2 The assessment identifies people living near or using the area around the Proposed Development as the main receptors potentially affected by changes related to landscape, noise, traffic, and visual impacts. Other affected receptors, such as wildlife and water resources, are assessed separately in relevant technical chapters.

16.1.1.3 During construction, a few nearby properties may experience minor noise and visual effects, but these impacts are temporary and reversible, and no significant new combined effects are expected.

16.1.1.4 In operation, some residents close to the site may notice moderate visual changes and minor noise effects; however, these impacts are not expected to combine significantly, especially as planned landscape mitigation matures over time.

16.1.1.5 Road users, including drivers and non-motorised users, are unlikely to experience significant combined impacts from traffic, noise, or visual changes during construction or operation.

16.1.1.6 Overall, this assessment concludes that **No Significant** in-combination effects on human or environmental receptors are expected from the Proposed Development.