

# **Environmental Impact Assessment (EIA)**

## **Report**

### ***LT383 Alyth to Tealing Overhead Line (OHL)***

### ***400kV Upgrade***

***November 2024***



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## VOLUME 2: CHAPTER 5 – EIA APPROACH AND METHODOLOGY

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## 5. EIA APPROACH AND METHODOLOGY

### 5.1 Introduction

5.1.1 EIA is a process that considers how a proposed development is predicted to change existing environmental conditions and what the consequences of such changes will be. It therefore informs both the project design and the decision-making processes related to the grant of development consents.

5.1.2 This chapter sets out the regulatory context for undertaking an EIA and the assessment methodology applied in the evaluation of effects, approach to mitigation and assessment of the significance of likely environmental effects. The chapter also outlines the structure of the EIA Report.

### 5.2 EIA Regulations

5.2.1 As discussed in Chapter 1: Introduction and Background (Volume 2), the EIA Report has been prepared in accordance with the EIA Regulations.

5.2.2 This EIA Report contains the information specified in Regulation 5 of, and Schedule 4 to, the EIA Regulations. The approach to the assessment has been informed by current best practice guidance, including the following:

- Planning Advice Note 1/2013: Environmental Impact Assessment. (revision 1.0)<sup>1</sup>; and
- Planning Circular 1/2017: Environmental Impact Assessment regulations<sup>2</sup>.

5.2.3 An overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters (Chapters 7 to 13 (Volume 2)) of this EIA Report, including the proposed methodologies for the assessment of likely significant effects.

5.2.4 The scope of the EIA Report has been informed by the Scoping Opinion, discussed further within Chapter 6: Scope and Consultation (Volume 2) and associated appendices (Volume 4).

### 5.3 Baseline

5.3.1 To identify the scale of likely significant effects as a result of the Proposed Development, it is necessary to establish the existing baseline environmental conditions.

5.3.2 The baseline scenario was established through the following methods, where relevant:

- site visits and surveys;
- desk-based studies;
- review of existing information;
- modelling;
- review of relevant national and local planning policies;
- consultation with the relevant statutory consultees; and
- identification of sensitive receptors.

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<sup>1</sup> Scottish Government (2013, revised 2017) Planning Advice Note 1/2013 (revision 1.0): Environmental Impact Assessment.

<sup>2</sup> Scottish Government (2017) Planning Circular 1/2017: Environmental Impact Assessment Regulations 2017.

5.3.3 It is also necessary to consider the likely future baseline environmental conditions. For this EIA, it has been assumed that the existing OHL would remain as it currently is (i.e., the “do nothing” scenario referenced in Chapter 4: Alternatives Considered (Volume 2)).

## 5.4 Assessment of Likely Significant Environmental Effects

5.4.1 For the purposes of this EIA Report the terms used in the assessment of effects are generally defined as follows:

- temporary - the effect occurs for a limited period of time and the change at a defined receptor can be reversed;
- permanent - the effect represents a long-lasting change at a defined receptor;
- direct - the effect is a direct result (or primary effect) of the Proposed Development;
- indirect - a knock-on (or secondary) effect which occurs within or between environmental components, this may include effects on the environment which are not a direct result of the Proposed Development, often occurring away from the proposals or as a result of a complex biological or chemical pathway;
- secondary – an induced effect arising from the actions or presence of a project, such as changes to the pattern of future land use or improvements to local road networks;
- cumulative - these effects may arise when more than one development of a similar scale and nature combine to create a potentially greater impact than would result from the Proposed Development alone (see also Section 5.5 below);
- beneficial – an effect beneficial to one or more environmental receptors; and
- adverse – a detrimental, or adverse, effect on one or more environmental receptors.

5.4.2 Where a more appropriate effect duration, scale or definition of the above terms is applicable to a technical discipline this is clearly outlined within the relevant technical chapters (7 to 13) in this EIA Report.

5.4.3 The result of the assessment is the determination of whether the likely effect of the Proposed Development on the receptor in the study area would be significant or not significant, and adverse or beneficial. A receptor is defined as a factor of the natural or built environment, including people and communities, that may be significantly affected by the Proposed Development. Examples include cultural heritage, landscapes, populations, animal and plant species, and the water environment.

5.4.4 Where no published standards exist, the assessments presented in the technical chapters describe the professional judgements (assumptions and value systems) that underpin the attribution of significance. For certain technical topics, such as ecology, widely recognised published significance criteria and associated terminology have been applied and these are presented in the technical chapters and associated appendices where relevant.

5.4.5 The assessment of significance has considered the magnitude of change (from the baseline conditions), the sensitivity of the affected environment/receptors and (in terms of determining residual effects) the extent to which mitigation and enhancement will reduce or reverse adverse effects. In addition, further influences such as those listed below have been factored into the assessment using professional judgement:

- likelihood of occurrence;
- geographical extent;
- the value of the affected resource;
- adherence of the proposals to legislation and planning policy; and
- reversibility and duration of the effect.

- 5.4.6 The magnitude (scale) of change for each effect has been identified and predicted as a deviation from the established baseline conditions, for the construction and operational phases of the Proposed Development. The scale used high, medium, low, and negligible criteria, as seen in Appendix 5.1 (Volume 4).
- 5.4.7 The sensitivity of the receptor / receiving environment to change has been determined using professional judgement, consideration of existing designations (such as Sites of Special Scientific Interest (SSSIs)) and quantifiable data, where possible. The scale uses high, medium, low, and negligible criteria, as seen in Table 5-1 below and defined within each of the technical chapters (7 to 13) in this EIA Report.
- 5.4.8 To determine an overall significance of effect, each effect has been assessed taking account of the predicted magnitude of change and the sensitivity of the receptor as shown in Table 5-1 below and defined within each of the technical chapters of this EIA Report.

Table 5-1 Matrix for Determining the Significance of Effects

		Sensitivity of Receptor/Receiving Environment to Change/Effect			
		High	Medium	Low	Negligible
Magnitude of Change/Effect	High	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

- 5.4.9 Major and moderate effects are considered to be significant in the context of the EIA Regulations. Minor and negligible effects are not considered significant.
- 5.4.10 Specific criteria have been adopted for certain technical assessments in accordance with widely recognised EIA guidelines published by professional bodies (such as for landscape and visual impact assessment and the assessment of ecological effects) where applicable, these will be provided in the respective technical chapters.
- 5.4.11 The characteristics of an effect will vary depending on the duration of the activity causing the effect, the sensitivity of the receptor and the resultant change. It is therefore necessary to assess whether the effect is temporary or permanent; beneficial and adverse, and indirect or direct. Effects that are temporary are usually reversible and generally confined to the construction period.

## 5.5 Cumulative Effects

### *Staged Approach*

- 5.5.1 In accordance with the EIA Regulations, the assessment has considered “cumulative effects”. The assessment of cumulative effects is a key part of the EIA process and is concerned with identifying circumstances in which a number of potential and/ or predicted effects from the Proposed Development alone or in combination with separate existing or future development projects could combine to cause a significant effect on a particular receptor. Cumulative effects have been assessed within each technical chapter in this EIA Report and summarised in Chapter 14: Cumulative Effects (Volume 2).

5.5.2 The approach to cumulative assessment has been refined following issue of the Scoping Report, with a staged approach to cumulative assessment having been developed, as follows:

1. **Interactive cumulative assessment for the Proposed Development (intra):** The interactive effects caused by the combination of a number of effects from the Proposed Development on key receptors such as communities, designated areas or ecosystems. This includes effects at site preparation and earthworks, construction and operational phases. These collectively may cause a more significant effect than individually.
2. **Interactive cumulative assessment for associated SSEN developments (intra)** (those SSEN Pathway to 2030 projects that are in geographical proximity to the Proposed Development): The interactive effects caused by the combination of a number of effects from the Proposed Development and associated SSEN developments on a particular receptor. This includes effects at site preparation and earthworks, construction and operational phases.
3. **In combination (inter) cumulative assessment for other SSEN and 3<sup>rd</sup> party developments:** The combined effects from the Proposed Development, associated SSEN developments and other reasonably foreseeable developments. This includes effects at site preparation and earthworks, construction and operational phases.

5.5.3 The reasoning behind the addition of Stage 2 (the Proposed Development and associated SSEN developments) is that SSEN are committed to consider the cumulative effects of all developments proposed as part of the Pathway to 2030 Holistic Network Design, and therefore assessing these as 'intra' is appropriate. Those projects listed in Table 5-2 Stage 2: Interactive (intra) cumulative assessment for Associated SSEN Developments

5.5.4 and Table 5-3 are of relevance and in geographical proximity to the Proposed Development.

5.5.5 The potential for Stage 3 (in-combination cumulative effects (inter)), has been considered in relation to other reasonably foreseeable development which includes approved EIA development (and non-EIA development where appropriate), or those where a screening or scoping report has been submitted.

#### ***Reasonably Foreseeable Developments***

5.5.6 The list of reasonably foreseeable developments identified in the Scoping Report extended out to approximately 8 km. During the assessment processes it has been considered acceptable to assess those reasonably foreseeable developments within 3km. This has been based on professional judgement. Two additional developments beyond the 3 km have been included due to their size and nature, the Tealing Solar Energy Park (ECU reference: ECU00004882) and the Tealing Battery Storage Farm (ECU reference: ECU00003354), These developments (identified in the Scoping Report as 'Solar Land around Gagie Kellas') were originally screened for the need for EIA as one project, each with an operating capacity of 80 MW. The two projects have been taken forward separately with the battery storage farm now consented (December 2023) and the solar energy park application submitted. Due to the size of these two developments together, a cautious approach has been taken to included them in the cumulative assessment. The final list of development to be considered in the cumulative effects assessment was frozen three months prior to publication to allow sufficient time to complete the EIA Report.

5.5.7 All those projects listed in the Scoping Report have been assessed, however the Kintore - Tealing 400 kV project has subsequently been included, with assessment limited in geographical scope to the general locality where the new line connects to the Emmock substation. It should be noted that the SPEN TKUP Lines (Uprate to 400kV operation) have not been included in this list given the distance of this project (approximately 40km south-west) from the Proposed Development. An assessment of the cumulative impacts associated with the SPEN TKUP Lines has been carried out as far as possible within the Tealing to Westfield 400kV OHL Upgrade EIA.

5.5.8 No additional projects were identified in the Scoping Opinion for inclusion in the cumulative assessment. The ECU recommended that the cumulative assessment include not only approved EIA development, but also EIA and non-EIA OHL or substation infrastructure that is associated with SSEN ASTI Transmission projects. As referenced above, the impacts of the wider ASTI projects have been assessed as part of the interactive (intra) cumulative assessment (Stage 2) for associated SSEN developments within this chapter.

5.5.9 The staged approach allows for cumulative effects to be identified for the Proposed Development on its own, then those with the wider Pathway to 2030 projects and this assessment is then taken forward into the final in-combination assessment with other wider SSEN and 3<sup>rd</sup> Party Developments. Each topic chapter assesses Stages 2 and 3 within the relevant chapter (Chapters 7-13 (Volume 2)). Chapter 14: Cumulative Effects (Volume 2) presents the interactive cumulative assessment (Stage 1) for the Proposed Development and collates the assessment of Stages 2 and 3 together for all assessment topics.

5.5.10 The location of each development in Table 5-2 Stage 2: Interactive (intra) cumulative assessment for Associated SSEN Developments

Table 5-2 Stage 2: Interactive (intra) cumulative assessment for Associated SSEN Developments

Development	Ref. on Figure 5.1	Location	Description	Status
Tealing-Westfield 400 kV OHL upgrade	A	Tealing-Westfield/ Glenrothes	Upgrade of approximately 38 km of an existing 275 kV OHL between Tower 182 (west of Tealing Substation) and the licence boundary with Scottish Power Energy Networks (SPEN) (Westfield/ Glenrothes) (midspan between Towers 66 and 65) to enable operation at 400 kV.	EIA Report in preparation (alongside the EIA Report for the Proposed Development.
Tealing (Emmock) substation	B	Near Emmock Road, Tealing	Construction of a new 400 kV substation	Scoping Report submitted
Kintore-Tealing 400 kV Connection (also known as TKUP)	C	Kintore-Tealing	Construction of a new 400 kV OHL between Kintore and Tealing.	In Preparation – no screening or scoping submitted.
Alyth-Tealing and Tealing- Westfield OHL Tealing (Emmock) substation tie-ins and associated tower dismantling	D	Tealing	Construction of a new OHL originating from the Alyth-Tealing OHL between Tower 680 and Tower 682, , as well as the Proposed Development between Tower 180 and Tower 182 (likely Tower 181), connecting to the proposed Tealing (Emmock) substation. This will enable the removal of redundant OHL between Tower 680/682 and 180/182, and the existing Tealing Substation.	In Preparation – no screening or scoping submitted.

Table 5-3 Stage 3: In-combination (inter) cumulative assessment for Other SSEN and 3rd Party Developments

Development	Ref. on Figure 5.1	Location	Description	Status
Muir of Pert Energy Storage Facility	E	Muir of Pert Farm, Tealing, Dundee DD4 0Q	Energy storage facility up to 50 MW, compound of equipment, access, fencing, security	Proposal of Application and EIA Screening Request submitted.



Development	Ref. on Figure 5.1	Location	Description	Status
			cameras, landscaping, tree planting, demolition of derelict buildings and other associated works.	
Moatmill Bridge Tealing Energy Storage Facility	F	Land at Moatmill Bridge, Tealing	Energy storage facility up to 50 MW, compound of equipment, meter building, fencing, security cameras, new belt of native trees and landscaping.	Proposal of Application submitted.
Tealing Solar Energy Park	G	Near Duntrune, DD4 OPR	Application for Installation of a solar energy park of approximately 100 MW and all associated infrastructure.	Application submitted 17/11/2023
Tealing Battery Energy Storage Farm	H	Land to the north-east of Gagie Home Farm, Duntrune, DD4 OPR	Application for Installation of an 80 MW Battery Energy Storage Facility and associated infrastructure.	Application Consented 13/12/2023
Fithie Energy Park Battery Energy Storage System (BESS)	I	Land to the north-west of Tealing Substation	Construction and Operation of up to 1400 MW battery energy storage system (BESS) and associated infrastructure.	Screening Report submitted ECU00005034
Ark Hill Wind Farm Extension	J	Approximately 2.5 km north-east of Alyth-Tealing	Extension of Ark Hill Wind Farm consisting of the erection of 4 wind turbines measuring a maximum height of 89.5 m (to blade tip) with a rotor diameter of 71 m, the formation of access tracks and associated hardstanding areas, set down areas, construction compound, electrical substation and borrow pit.	Application validated 21/10/2021, awaiting decision
Balnuith Farm BESS (Tealing)	K	Balnuith Farm, Tealing, DD4 ORE	The construction and operation of a battery energy storage facility for the storage of up to	Screening Opinion issued 06/09/2023

Development	Ref. on Figure 5.1	Location	Description	Status
			a 249 MW of electricity together with associated infrastructure, substation, security fencing, CCTV, security lighting and landscaping.	
Myreton BESS	L	Land to the south of Tealing Substation	A proposed battery energy storage system with an installed capacity of around 750 MW.	Screening Report submitted 20/02/2024

## 5.6 Approach to Mitigation

5.6.1 Mitigation measures are identified to prevent, reduce or remedy any potentially significant adverse environmental effects identified, beyond that already taken into account as normal good practice (i.e. embedded mitigation for example the CEMP). Such measures would be implemented during detailed design, construction and / or operation of the Proposed Development. Each technical chapter of this EIA Report details the measures recommended to mitigate identified likely significant effects, and a summary of the recommended mitigation measures is provided in Chapter 16: Schedule of Environmental Commitments (Volume 2).

5.6.2 Any remaining predicted effects after taking into account available mitigation measures are known as 'residual effects'. This assessment takes into account the mitigation as specified in the EIA Report to identify the residual effects, based on the assumption that the identified mitigation is implemented. The residual predicted effects are discussed for each potential effect that has not been scoped out of the assessment and a significance level identified.

## 5.7 EIA Quality

5.7.1 In accordance with Regulation 5(5) of the EIA Regulations, by appointing AECOM to coordinate the EIA Report for the Proposed Development, SSEN Transmission has ensured that the EIA Report has been prepared by competent experts. The EIA Report has been compiled and approved by professional EIA practitioners at AECOM, holding relevant undergraduate and post-graduate degrees, and membership of the Institute of Environmental Management and Assessment (IEMA). The EIA Report meets the requirements of the IEMA EIA Quality Mark scheme. This is a voluntary scheme operated by IEMA that allows organisations to make a commitment to excellence in EIA and to have this commitment independently reviewed on an annual basis. In addition, SSEN Transmission and AECOM can confirm that each of the topic-based impact assessment chapters has been prepared by competent experts, with the details being provided in Appendix 5.1 (Volume 4) of the relevant qualifications, any professional memberships of the authors and any applicable code of practice followed in their assessment work. The following summary is provided of the specialist consultants appointed by SSEN Transmission for this EIA Report:

- EIA Coordination – AECOM;
- Ecology – AECOM;
- Ornithology – AECOM;
- Forestry – AECOM;
- Cultural Heritage – AECOM;

- Traffic and Transport – AECOM;
- Hydrology, Hydrogeology and Soils – AECOM; and
- Noise and Vibration – Wood plc.

## 5.8 Supporting Documents

5.8.1 A Planning Statement is also included with the application as supporting information. The Planning Statement considers the compatibility of the Proposed Development in the context of existing and emerging development plan and national energy and planning policies.

5.8.2 Other separate supporting documents include a Pre-application Consultation (PAC) Report, an Electric and Magnetic Field (EMF) Study and a Socio-Economic Assessment.