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5. EIA PROCESS 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 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 **Volume 2, Chapter 1: Introduction and Background**, 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:
- Scottish Government Planning Advice Note (PAN) 1/2013 (revision 1.0)²⁰;
 - Planning Circular 1/2017²¹; and
 - IEMA's guidance documents on environmental assessment practice including Environmental Impact Assessment Guide to: Delivering Quality Development²².
- 5.2.3 An overview of the guidance and methodology adopted for each technical study is provided within the respective technical chapters of this EIA Report. The proposed methodologies for the assessment of likely significant effects for each topic area covered in the technical chapters within this EIA Report have been the subject of consultation with statutory and non-statutory consultees through the publication of, and consultation on, the "Netherton Hub Environmental Impact Assessment: Scoping Report", published in October 2023. The scope of the EIA Report has been informed by and is based on the Scoping Opinion discussed further within **Volume 2, Chapter 6: Scope and Consultation** of this EIA Report and associated appendices.

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 where appropriate, non-statutory consultees; and
 - identification of sensitive receptors.

²⁰ Scottish Government, (2013, revised 2017). Planning Advice Note 1/2013 (revision 1.0): Environmental Impact Assessment.

²¹ Scottish Government, (2017). Planning Circular 1/2017: Environmental Impact Assessment Regulations 2017.

²² IEMA, (2016). Environmental Impact Assessment Guide to: Delivering Quality Development.

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 – where the effect occurs for a limited period of time (e.g. the construction period) and the change for a defined receptor can be reversed.
- Permanent – where the effect represents a long-lasting change for a defined receptor.
- Direct – where the effect is a direct result (or primary effect) of the Proposed Development.
- Indirect – a knock-on effect which occurs within or between environmental components, 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 the Proposed Development, 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, or where effects caused by the combination of a number of effects from the Proposed Development alone on a particular receptor, may collectively cause a more significant effect than individually (see also **Section 5.5** of this chapter).
- Beneficial – an effect beneficial to one or more environmental receptors.
- Adverse – a detrimental, or adverse, effect on one or more environmental receptors.

5.4.2 Where a more appropriate definition of the above terms is applicable to a technical discipline this is clearly outlined within the technical chapters 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 receptors in the study area would be significant or not significant, and, adverse or beneficial. Receptor should be defined as meaning the factors of the natural and 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 technical 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 environmental factors/receptors and (in terms of determining residual effects) the extent to which mitigation and enhancement can reduce or reverse adverse effects. In addition, further considerations 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;
- the compatibility of the Proposed Development with the provisions of legislation and planning policy; and
- reversibility and duration of the likely effect.

5.4.6 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 generally used high, medium, low, and negligible criteria, as outlined in the columns of **Table 5-1** below and defined within each of the technical chapters.

5.4.7 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 generally used high, medium, low, and negligible criteria, as outlined in the rows of **Table 5-1** below and defined within each of the technical chapters within this EIA Report.

- 5.4.8 Determining the classification of effects has been assessed taking account of the predicted magnitude of change and the sensitivity of the receptor/receiving environment, as shown in **Table 5-1**, and defined within each of the technical chapters of this EIA Report to determine an overall significance of effect.

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. Therefore, unless otherwise stated in the technical chapters of this EIA Report, effects that are classified as moderate or above are considered to be significant. Effects classified as below moderate are considered to be not significant.
- 5.4.10 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 or adverse; and indirect or direct.
- 5.4.11 In terms of the duration of an effect, short-term has been considered as 2 year(s) (or below), a medium-term effect has been considered to be between 2 and 10 years in duration and a long-term effect has been considered to be greater than 10 years in duration. Any variation to these definitions arising, for example, from differences in assessment methodology or guidance is explained in technical chapters 8 to 15.

5.5 Cumulative Effects

- 5.5.1 In accordance with the EIA Regulations, the assessment has considered 'cumulative effects'. There are two aspects to cumulative effects, defined as follows:
- In-combination effects: the combined effect of the Proposed Development together with other reasonably foreseeable future developments (taking into consideration effects at the site preparation and earthworks, construction and operational phases); and
 - Effects interactions: the combined or synergistic effects caused by the combination of a number of effects from the Proposed Development alone on a particular receptor (taking into consideration effects at the site preparation and earthworks, construction and operational phases), which may collectively cause a more significant effect than individually. A theoretical example is the combination of disturbance from dust, noise, vibration, artificial light, human presence and visual intrusion on sensitive fauna (e.g. certain bat species) adjacent to a construction site.

In-combination effects

- 5.5.2 The future developments that have broadly been considered with respect to in-combination effects within this EIA Report are listed in **Table 5-2** (see also **Volume 3, Figure 15.1: Cumulative Developments**). Such developments (referred to as 'Cumulative Developments') include those for which consent has been granted, or future development for which it is reasonable to assume, at the date that the list of Cumulative Developments is frozen, that the developer will proceed with an application for consent, and where sufficient information is available to undertake an informed cumulative assessment. The final list of Cumulative Developments has been frozen three months prior to publication of the EIA Report to allow sufficient time to compile the EIA Report. Each individual topic based technical chapter within Volume 2 of this EIA Report (**chapters 8 to 14**) consider the in-combination effects of the Proposed Development.
- 5.5.3 A study area of 3 km from the Proposed Development has been used to identify Cumulative Developments for all environmental topics. In addition, the Traffic and Transport topic have included an additional Cumulative Development within their assessment (**Table 5-2, ID7**) which is located outside of the 3 km study area, but in proximity to the likely

construction traffic network for the Proposed Development, which has the potential for significant effects due to generating construction traffic in-combination with the Proposed Development.

- 5.5.4 This study area has been adopted for the assessment as the majority of the study areas for each of the individual environmental topic assessments is 3 km or less, and therefore it is considered very unlikely that significant effects would occur to receptors beyond a 3 km in isolation or in-combination with other Cumulative Developments (with the exception of the aforementioned traffic and transport construction traffic network).
- 5.5.5 It should be noted that the SSEN Transmission overhead line (OHL) and underground cable (UGC) Cumulative Developments included with the cumulative assessment (**Table 5-2, ID 1 to 4**) are at an earlier stage than would normally be included within an EIA cumulative assessment (i.e. they are still appraising options and have not formally been submitted as an application for planning at the time of writing). However, as these proposed developments are closely associated with this Proposed Development (as outlined in **Volume 2, Chapter 1, Section 1.4 The need for EIA**), and considered as reasonably foreseeable by the Applicant, they have been included within the in-combination cumulative assessment.
- 5.5.6 The limitations of including these SSEN Transmission Cumulative Developments within the assessment at an earlier stage is that the final alignments for the OHLs and UGCs have not yet been confirmed, although route options are known and have been considered. As such, detailed environmental assessment has not yet been completed of a confirmed alignment, and as a result the likely significant effects and any proposed mitigation have not been identified at this stage, to inform this cumulative assessment. Therefore, this cumulative assessment has been based on the available information known at this stage for these developments – this is presented in **Table 5-2**.
- 5.5.7 It is expected that the Netherton Hub will subsequently be considered as part of the cumulative in-combination assessments for these Cumulative Developments when final alignments have been established, including an assessment of likely significant effects and appropriate mitigation.

Table 5-2 Cumulative Developments

ID	Development Name and Type	Application Status (Application Reference)	Description and distance/direction to the Netherton Hub
1	Spittal to Peterhead HVDC UGC (SSEN Transmission)	Permitted Development. Currently assessing route options.	<p>Installation of approximately 13 km HVDC UGC between north of St. Fergus (near to Rattray) and the Proposed Development. It is expected the UGC would connect to the Netherton Hub from the west/northwest of the Site. It is expected that the UGC would largely be installed using an open cut technique, with several joint positions evenly spaced along the route with link pillars above ground or buried in UGC cables to house the earth connections and fibre optic joint for system monitoring.</p> <p>During construction, horizontal directional drilling techniques are likely to be used for some watercourse crossings, and areas where open cut techniques are challenging or unsafe. A cable construction corridor of approximately 50 m is likely to be used to facilitate the works in providing safe access and access for operatives, plant and materials, cut-off drainage, soil stripping and storage, temporary track road, and the main ducting and cabling works.</p>
2	Eastern Green Link 3 HVDC UGC (SSEN Transmission)	Permitted Development. Currently assessing route options.	<p>Installation of approximate 9 km HVDC UGC between Sandford Bay and the Proposed Development. It is expected the UGC would connect to the Netherton Hub from the west of the Site, with the UGC routing to the south of the Site.</p> <p>It is expected that the UGC would largely be installed using an open cut technique, with several joint positions evenly spaced along the route with link pillars above ground or buried in UGC cables to house the earth connections and fibre optic joint for system monitoring.</p> <p>During construction, horizontal directional drilling techniques are likely to be used for some watercourse crossings, and areas where open cut techniques are challenging or unsafe. A cable construction corridor of approximately 50 m is likely to be used to facilitate the works in providing safe access and access for operatives, plant and materials, cut-off drainage, soil stripping and storage, temporary track road, and the main ducting and cabling works.</p>
3	Netherton/Peterhead 400 kV OHL Diversion and Repurposing (SSEN Transmission)	Currently assessing route options in advance of submitting a planning application.	<p>To connect the proposed 400 kV substation at the Netherton Hub to the existing transmission network, it is proposed to divert the OHL connection between the existing 400 kV substation at New Deer and existing 400 kV substation at Boddam, to the Netherton Hub. This would involve removing and replacing some existing OHL towers, however at this stage the extent of OHL tower removal is unknown and therefore the OHL towers have been shown on the landscape visualisations to present a worst case scenario with all towers remaining. It is expected the diverted OHL would connect to the Netherton Hub from the south/southwest of the Site.</p> <p>At this stage a preferred alignment for the OHL to connect in to the Proposed Development is known (as shown in Volume 3, Figure 15.1 Cumulative Developments).</p>

ID	Development Name and Type	Application Status (Application Reference)	Description and distance/direction to the Netherton Hub
			The OHL route out of the Proposed Development towards Peterhead is still being developed and therefore this is not considered outwith the Site Boundary as there is insufficient information to complete a robust cumulative assessment of the connection. However, the location of a proposed OHL tower within the Site Boundary is known and therefore this has been considered within the cumulative assessment.
4	Beauly to Blackhillock to New Deer to Peterhead 400 kV OHL (SSEN Transmission)	Route alignment options stage in advance of submitting a planning application.	<p>A proposed double circuit steel structure 400 kV OHL to connect into new substation sites at Beauly, Blackhillock, New Deer and Netherton, approximately 192 km in length. It is expected to connect to the Netherton Hub from the west of the Site.</p> <p>It would comprise steel lattice towers to connect the OHLs. At this stage it is expected that the towers would be 57 m in height on average, although tower heights may be increased where local topography dictates in order to achieve sufficient clearance distances. The span lengths between towers would vary depending on topography and altitude but would be approximately 350 m apart. Exact heights of and the distances between towers would be determined after a detailed line survey and confirmed prior to submission of a planning application.</p>
5	Green Volt Offshore Windfarm, installation of onshore infrastructure	Approved (Aberdeenshire Council Planning Reference: APP/2023/1454)	Approved proposal for the onshore transmission infrastructure to connect to an offshore windfarm. These would include a cable route approximately 35 km in length running east to west from the Landfall approximately 1.3 km north of Peterhead to a proposed substation compound southwest of New Deer. The cable route would run approximately 2 km north of the Proposed Development.
6	Bridgend Quarry Extension of quarry – Extraction of Rock	Approved (Aberdeenshire Council Planning Reference: APP/2020/0897)	Approved proposal for the extraction of rock from Bridgend Quarry. The site is approximately 2 km northwest of the proposed Netherton Hub site. The rock extraction would amount to approximately 240,000 tonnes over a period of 5 years, with the quarry extension widening the existing quarry bowl eastwards and westwards.
7	Residential Mixed-Use Development Comprising up to 800 Residential Homes*	Awaiting decision (Aberdeenshire Council Planning Reference: APP/2022/0369)	Residential mixed-use development comprising up to 800 residential homes (25 % affordable), a local neighbourhood centre, land reserved for employment purposes, a primary school and a possible future rail halt, associated roads and drainage infrastructure, new landscaping and open spaces and a local nature reserve.

*Included within the Traffic and Transport cumulative assessment only.

Effect interactions

- 5.5.8 The potential effect interactions as a result of the Proposed Development are considered within **Volume 2, Chapter 15 – Cumulative Effects (Effect Interactions)**.

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 Construction Environment Management Plan (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 **Volume 2, Chapter 17: Schedule of Environmental Mitigation**.
- 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.