

Fanellan Hub 400 kV Substation and Converter Station

Environmental Impact Assessment Report

Volume 2 | EIA Report

Chapter 17 – Cumulative Effects

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CONTENTS

| | | |
|------------|--|-------------|
| 17. | CUMULATIVE EFFECTS | 17-1 |
| 17.1 | Introduction | 17-1 |
| 17.2 | Part 1 Summary of In-Combination Effects | 17-1 |
| 17.3 | Evaluation of Cumulative Effects from In-combination (Inter) Projects | 17-1 |
| 17.4 | Part 2 Effects Interactions | 17-2 |
| 17.5 | Methodology for Assessing Effect Interactions | 17-2 |
| 17.6 | Effect Interactions Assessment | 17-3 |
| 17.7 | Summary | 17-5 |

17. CUMULATIVE EFFECTS

17.1 Introduction

17.1.1 As described in **Volume 2, Chapter 5: EIA Process and Methodology**, in accordance with the EIA Regulations, the assessment has considered two types of cumulative effects:

- In-combination effects – with other existing or future Cumulative Developments that have the potential to result in significant effects in-combination with effects resulting from the Proposed Development. This type of cumulative effect has been considered in the individual topic technical **Chapters 8 to 16, Volume 2** of this EIA Report, and looks at both effects from the Proposed Development in combination with other transmission upgrades as well as other (non- transmission) third party developments with the potential for in-combination cumulative effects (referred to as Inter- developments) These developments are presented in **Volume 2, Chapter 5 EIA Process and Methodology, Table 5-2**. These effects are summarised in this chapter. A figure showing all cumulate developments is presented in **Volume 3, Figure 17.1: Cumulative Developments**.
- Effect interactions – the combined or synergistic effects caused by the combination of a number of effects from the Proposed Development and Intra developments (in this instance this is the Beaulieu-Denny overhead line diversion) on a particular receptor, or group of receptors, taking into consideration effects during construction (including the enabling works, site clearance, demolitions and earthworks), and operational phases, which may collectively cause a more significant effect than individually. A theoretical example is the cumulative 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. This approach is taken to ensure that all elements of the project elements required to construct and operate the proposed development are evaluated together where relevant to a particular sensitive receptor.

17.1.2 The approach to the assessment of cumulative effects in this Chapter therefore has two components to it. Firstly, it considers the effects from each technical topic chapter's assessment of likely significant effects of the wider transmission upgrade and third-party developments as a whole on that topic (inter-related developments as defined in Volume 2: Chapter 5: EIA process and methodology). This constitutes the in-combination effects.

17.1.3 The evaluation then separately looks at common receptors within technical chapters and any interaction between the proposed development and the intra-related development (Beaulieu-Denny OHL Diversion), this constitutes the assessment of effects interactions.

17.2 Part 1 Summary of In-Combination Effects

17.3 Evaluation of Cumulative Effects from In-combination (Inter) Projects

Summary of Environmental Topics including Cumulative Effects Assessments

17.3.1 The topics in **Table 177-** included an assessment of in-combination cumulative effects and are not considered to give rise to likely in-combination effects with other transmission and third-party projects as a result of the Proposed Development and have therefore not been considered further within the assessment.

Table 177-1 Summary of Inter- Project Cumulative Effects Assessment

| Topic | Justification |
|--|--|
| Ecology and Nature Conservation (construction and operational phase) | The assessment within Volume 2, Chapter 9: Ecology, Nature Conservation and Ornithology considers cumulative effects from Inter developments on ecological receptors. No significant cumulative effects from other transmission or third party developments have been identified. |

| Topic | Justification |
|---|--|
| Ornithology (construction and operational phase) | The assessment within Volume 2, Chapter 10: Ornithology considers cumulative effects from Inter developments on ornithological species. The assessment concludes that all interconnecting projects will adopt the same mitigation measures as the Proposed Development and that given the same developer is responsible, significant cumulative effects from other transmission and third party developments are not predicted. Further, it is also assumed that it is unlikely that construction activities will occur simultaneously, which will also reduce any potential effects. |
| Cultural Heritage (construction and operational phase) | The assessment within Volume 2, Chapter 10: Cultural Heritage notes that while there is the potential for cumulative effects on four heritage assets as a result of the proposed Beaulieu-Blackhill-Peterhead (BBNP) 400kV Overhead Line (OHL), these effects in combination are not greater than those presented for the proposed development alone. |
| Traffic and Transport (construction and operational phase) | As outlined in Volume 2, Chapter 11: Traffic and Transport it is not anticipated that there will be any inter-related effects with other relevant developments (all transmission projects) in the area as construction activities can be coordinated by SSEN Transmission. The implementation of the CTMP would also serve to mitigate any significant cumulative effects of construction traffic. |
| Hydrology, Hydrogeology, Geology and Soils (construction and operational phase) | All effects in relation to hydrology, hydrogeology, geology and soils receptors are assessed within Volume 2: Chapter 12: Hydrology, Hydrogeology, Geology and Soils . Given that no significant residual effects have been identified associated with the Proposed Development, and assuming effective 'source' controls for each individual development and good practice methodology, significant cumulative effects from transmission and third party developments are not anticipated. |
| Forestry | The assessment within Volume 2, Chapter 13: Forestry notes that sufficient information on tree removal is not currently available for the proposed BBNP or Spittal – Loch Buidh – Beaulieu (SLBB) OHLs nor any third party developments. However, it is not anticipated that any in combination effects would be greater than those presented for the proposed development alone. |
| Socio-economics, Tourism and Recreation | The assessment within Volume 2, Chapter 16: Socio-Economics, Tourism and Recreation considers all effects on socio-economics, tourism and recreation. Cumulative effects on recreation and tourism resources are not anticipated to be significant and within the capacity of users to withstand. |
| Noise | As noted in Volume 2: Chapter 9 Noise , cumulative effects on noise, from the relevant inter-related developments and the Proposed Development are considered not significant. |
| Landscape and Visual Amenity | The three developments considered to have permanent significant effects in combination with the Proposed Development are the proposed new Beaulieu to Spittal 400 kV OHL and Beaulieu to Peterhead 400 kV OHL which would connect into the Proposed Development, and the proposed Beaulieu to Denny 400 kV OHL Diversion and tie-in required for the Proposed Development. |

17.4 Part 2 Effects Interactions

17.5 Methodology for Assessing Effect Interactions

17.5.1 There are three key stages in the effect interactions methodology:

Step A: Screening of Sensitive Receptors

17.5.2 A screening of sensitive receptors (as identified in each of the technical chapters (**Volume 2, Chapters 8 to 16**)) is undertaken to determine whether any have the potential to be exposed to more than one type of residual

effect (within an individual technical topic assessment and/or across multiple technical topic assessments) during either the construction or operation phases of the Proposed Development and Intra Development. These sensitive receptors are termed 'Common Receptors' and are taken forward to Step B of the assessment.

Step B: Determine Common Receptor's Residual Effects

- 17.5.3 Of the Common Receptors identified in Step A, those that have two or more non-Negligible residual effects are identified and taken forward to Step C of the assessment.

Step C: Assessment of Cumulative Effects

- 17.5.4 An assessment of the overall significance of the effect interactions on Common Receptors identified at Step B is undertaken. The assessment is based on information provided within the topic assessments, as well as professional judgement. The assessment considers the nature of the residual effects acting on the identified Common Receptors and determines whether or not these residual effects, acting in-combination, significantly magnify the overall residual effects on specific receptors. Receptors are assessed at a spatial scale consistent with that of the chapters.

Significance Criteria

- 17.5.5 Each of the specialist environmental assessments reported in chapters 8 to 16 (**EIA Report, Volume 2**) has identified effects which may occur as result of the Proposed Development, ranging from **Negligible** or **Minor** (not significant) to **Moderate** and **Major** (significant), unless otherwise stated in the technical chapters¹. The significance classifications for effect interactions are detailed in **Table 17-1**. Moderate and above are considered to be significant.

Table 17-2 Effect Interactions Significance Criteria

| Significance Category | Definition of Effect |
|-----------------------|--|
| Major | Adverse or Beneficial effects that are a significant magnification of potentially wide-ranging effects on receptors/resources that are already predicted to occur. |
| Moderate | Adverse or Beneficial effects that are a significant magnification of localised effects on receptors/resources that are already predicted to occur. |
| Minor | Adverse or Beneficial effects that would only lead to a localised (not significant) magnification of effects on a receptor/resource. |
| Negligible | No effects or effects that are beneath the level of perception, within normal bounds of variation or within the margin of forecasting error. |

17.6 Effect Interactions Assessment

Step A: Screening of Sensitive Receptors

- 17.6.1 Common Receptors identified for inclusion in this assessment, alongside their relevant corresponding topics, are detailed in **Table 17-1**.

Table 17-1 Common Receptors

| Common Receptors | Environmental Topics |
|--|--|
| Existing residents in surrounding area | Landscape and Visual (Visual Amenity) Noise and Vibration (Noise) Traffic and transportation |

¹ Some technical chapters use different terminology to assign significance, for example, the Cultural Heritage assessment uses 'Slight' not 'Minor' and 'Neutral' not 'Negligible', however the same effect interaction principles apply.

| Common Receptors | Environmental Topics |
|--|---|
| Recreational users/tourism attractions | Landscape and Visual (Visual Amenity) Socio-Economics (recreation and tourism) Traffic and transportation |
| Road users | Landscape and Visual (Visual Amenity) Traffic and Transportation |

17.6.2 Based on the methodology detailed above, **Table 15-5** through **Table 15-8** present the potential for interactions of individual effects during the construction works, and once the Proposed Development is complete and operational, respectively.

17.6.3 The likely residual environmental effects, as identified within this EIA Report, Volume 2 are listed for each topic in relation to receptor groups that have the potential to be affected by the Proposed Development, have been presented across the top row. The tables present a colour coded assessment (see **Table 17-2**) of the residual effects for each receptor, or receptor group, and where this has highlighted the potential for effect interactions, consideration has been given as to whether there is potential for any resultant effect interaction cumulative effects, which is stated in the bottom row of each table.

Table 17-2 Coding for Residual Effects

| | | | |
|------------------|-----|---------------------|-----|
| Major Adverse | --- | Major Beneficial | +++ |
| Moderate Adverse | -- | Moderate Beneficial | ++ |
| Minor Adverse | - | Minor Beneficial | + |

Step B: Residual Effects on Common Receptors

17.6.4 A summary of residual effects from each chapter, on the common receptor is shown in **Table 17-3** through **15-8**. While the Traffic and Transportation Chapter identifies common receptors, significant residual effects are not predicted and have not been included in step C below.

Table 17-3 Construction – Residual Effects on Common Receptors

| Likely Residual Effect | Common Receptors |
|---|---|
| Topics/ Impacts | Existing residents in surrounding area |
| Visual Amenity | --- |
| Construction Noise | - |
| Potential for effect interaction cumulative effect? | Yes |

Table 17-4 Operation – Residual Effects on Common Receptors

| Likely Residual Effect | Common Receptors |
|---|---|
| Topics/ Impacts | Existing residents in surrounding area |
| Visual Amenity | --- |
| Operational Noise | - |
| Potential for effect interaction cumulative effect? | Yes |

Table 17-7 Construction – Residual Effects on Common Receptors

| Likely Residual Effect | Common Receptors |
|------------------------|--|
| Topics/ Impacts | Recreational features/tourist attractions |

| Likely Residual Effect | Common Receptors |
|---|------------------|
| Visual Amenity | --- |
| Socio-economics (tourism and recreation) | - |
| Potential for effect interaction cumulative effect? | Yes |

Table 17-8 Operation – Residual Effects on Common Receptors

| Likely Residual Effect | Common Receptors |
|---|---|
| Topics/ Impacts | Recreational features/tourist attractions |
| Visual Amenity | --- |
| Socio-economics (tourism and recreation) | - |
| Potential for effect interaction cumulative effect? | Yes |

Step C: Assessment of Cumulative Effects

17.6.5 Step B identified two potential interactions in both the construction phase and operational phase respectively.

17.6.6 As shown in **Table 17-3** through **Table 17-48**, when considering the residual environmental effects for each technical topic, it has been assessed that effect interactions have the potential to occur for residents in the surrounding area, in relation to visual amenity and noise impacts related to construction and operational activities as well as on recreation features/tourist attractions in relation to visual amenity and noise during construction and operation phases.

Construction

17.6.7 Residents surrounding the Site and users of recreation facilities/tourist attractions will experience an interaction of effects due to the combination of noise impacts and changes to visual amenity. However, as the construction noise interaction would be temporary, intermittent and short-term, the predicted effect interaction with the significant residual effects on visual amenity would be **Minor Adverse** (not significant) on receptors surrounding the Site.

Operation

17.6.8 Residents surrounding the Site and users of recreation facilities/tourist attractions will experience an interaction of effects due to the combination of noise impacts and visual amenity. However, the noise excess is limited to the operation of external cooling equipment and the Applicant has committed to meeting required noise limits. As a result, the expected temporary, intermittent and short-term noise would not lead to a significant residual effect. Therefore, the appraised effect interaction would be limited to a **Minor Adverse** (not significant) on receptors surrounding the Site as the effects of operational noise would not lead to a significant magnification in interaction with the significant residual effects resulting from visual amenity.

17.7 Summary

17.7.1 In relation to cumulative effects from inter-related cumulative developments on technical disciplines, one technical area (Landscape and Visual Amenity) identified significant cumulative effects in combination with the Proposed Development.

17.7.2 The assessment of Cumulative Effects (Effect Interactions) identified two potential receptors likely to see a measurable effect interaction from the Proposed Development and the Beauldy-Denny OHL diversion (associated development). This being residential receptors in the vicinity of the Site and recreational features and tourist attractions. The assessment of effect interaction has concluded no significant effects, with residual

effects being limited to **Minor Adverse** (not significant) on residential receptors and recreational features and tourist attractions in both the construction and operation phases.