



Chapter 16: In- Combination Effects

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16 IN-COMBINATION EFFECTS

16.1 Introduction

- 16.1.1.1 Each chapter of the EIAR has presented its assessment of the Development's potential effects on existing environmental receptors. However, some receptors may be affected by multiple, different effects either in-combination at the same time, or across different phases of the Proposed Development. These interrelationships or in-combination effects may mean that while one effect taken in isolation may not have a significant effect on a given receptor, several effects considered together may result in a significant in-combination effect. This will depend on the nature of the effects in question.
- 16.1.1.2 This chapter of the EIAR addresses the requirements of Schedule 4 Regulation 5 (e) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 by identifying where, and assessing the significance of, different effects combine to create an in-combination effect upon a receptor.

16.2 Methodology

- 16.2.1.1 Residual effects assessed as "negligible" (with a magnitude described as "no detectable or material change" or "barely discernible change") in other chapters of this EIAR are considered not to have the potential to contribute to in-combination effects and are therefore not considered in this assessment. Consequently, this assessment considers any residual effect with a magnitude of minor or above as having the potential to lead to in-combination effects.
- 16.2.1.2 Project lifetime effects, which are effects on a single receptor across multiple project phases are considered within each technical chapter.
- 16.2.1.3 Only receptors that are predicted to be the subject of more than one potential effect have been included in the assessment. Receptors predicted to be the subject of only a single effect are excluded because there is considered to be no potential for an in-combination effect to take place.
- 16.2.1.4 It should be noted that uncertainty in the assessment of effects, for most of the technical chapters in this EIAR, is dealt with by making conservative, or worst-case, assumptions.
- 16.2.1.5 As this assessment considers the in-combination effects of multiple individual effects, it is based on there being multiple worst cases simultaneously, which in turn is likely to be overly conservative.
- 16.2.1.6 There are no specific guidelines on how the assessment of in-combination effects should be undertaken, and so a qualitative approach has been used, using the results of the individual assessments, and based on professional judgement. Note that the assessment of the interaction effect may come to a different conclusion than the effect on the individual topic, as it is the combination of effects that are being assessed.
- 16.2.1.7 The sensitivity of receptors has been assessed as set out in the individual **Chapters 6 to 15** of this EIAR, and therefore, residents within the vicinity of the Site are considered to have a high sensitivity. Due to the qualitative nature of the assessment presented, in-combination

effects quoted within this EIAR chapter are only presented as either Significant or Not Significant.

16.3 Potentially Affected Receptors

16.3.1 Human Receptors

- 16.3.1.1 For the Proposed Development, the receptors potentially affected by changes to landscape and visual environment, the setting of archaeology and cultural heritage assets, noise and vibration, traffic and transport, and glint and glare have all been identified as human receptors e.g. people such as residents and recreational users.
- 16.3.1.2 Cultural heritage receptors (visitors to historic sites) have the potential to experience in-combination effects with landscape and visual effects. However, the potential effects of these have been discussed explicitly in **Chapter 7: Archaeology and Cultural Heritage** and so have not been considered within this chapter of the EIAR.

16.3.2 Non-Human Receptors

- 16.3.2.1 Receptors of effects assessed in other disciplines vary, with most being flora, fauna, or aquatic resources. Full details of these potential receptors are set out in the respective technical chapters of the EIAR.
- 16.3.2.2 Hydrological receptors (principally waterbodies and private water supplies) have the potential to be affected by substantial changes in ground conditions and geology, and from traffic and transport activities during construction and operation (e.g., fuel and oil spills). The Private Water Supply Risk Assessment (found within **Chapter 9: Water Resources and Flood Risk**) takes into account hydrological receptors, and hence this potential interrelationship is already accounted for. The potential for pollution events to be caused by vehicles related to the Proposed Development, and other on-site activities is explicitly assessed, and mitigation is proposed in **Chapter 9: Water Resources and Flood Risk**.
- 16.3.2.3 Ecological and Ornithological Receptors have the potential to be affected by changes in habitats, and by construction or operational noise (as disturbance) These effects are explicitly assessed in **Chapter 8: Ecology and Nature Conservation**. Hence the potential in-combination effects on ecological and ornithological receptors are already accounted for.

16.4 Assessment of Potential Effects

16.4.1 Human Receptors

- 16.4.1.1 Human receptors considered within this Chapter for potential in-combination effects are those found within the 30-35 dB noise contour area (see **Figure 12.3**). The selection of this study area is because inside of the 35 dB noise contour area (e.g. the area in which Development noise may exceed 35 dB), noise effects would likely be of minor magnitude or above. Given that noise effects would potentially be the most likely to lead to in-combination effects consideration of a wider study area is scoped out.

Residents

Construction Phase

- 16.4.1.2 Within the 35dB noise contour areas, following application of embedded mitigation, properties are found to experience effects that would be considered to be **Not Significant** under EIA regulations resulting from noise and vibration, as assessed in **Chapter 12: Noise and Vibration**. However, two properties (Bowshiel Farm Cottages, and Bowshiel Farmhouse) are anticipated to experience minor adverse effects during this period.
- 16.4.1.3 Major/Moderate Adverse, and therefore **Significant**, Landscape and Visual effects are anticipated during the construction phase on receptors using Public Right of Way BB84 (within the Site) and the Southern Upland Way (0.3 km east of the Site), as assessed in **Chapter 6: Landscape and Visual**.
- 16.4.1.4 Minor adverse (Noise and Vibration), and Major/moderate adverse (Landscape and Visual) impacts are predicted during the construction phase of the Proposed Development. While receptors may experience these effects in-combination, it is assessed that these potential effects would be **Not Significant** in the context of the EIA Regulations, due to the temporary and reversible nature of these construction effects.

Operational Phase

- 16.4.1.5 During the operational Phase of the Proposed Development, it is anticipated that residents within 0.4 km of the Site boundary will have the potential to experience **Significant** (Moderate adverse) Landscape and Visual effects during the operational phase of the Proposed Development.
- 16.4.1.6 The assessment of operational noise in **Chapter 12: Noise and Vibration** found that minor adverse effects are anticipated at Penmanshiel Farm Cottages, Blackburn Farm Cottages, Bowshiel Farm Cottages, and Bowshiel Farmhouse.
- 16.4.1.7 In-combination effects between Landscape and Visual and Noise and Vibration on residents at are possible. It is considered that the impacts of these individual effects (as assessed in the individual technical chapters of the EIAR) are Not Significantly altered when they are considered in-combination. Additionally, as landscape mitigation (as described in **Technical Appendix 3.2: outline Landscape and Biodiversity Mitigation Plan**) matures, the magnitude of these effects will be expected to lessen (**Chapter 6: Landscape and Visual**). Therefore, any new in-combination effects are predicted to be **Not Significant** under EIA terms.

Road Users

Construction

- 16.4.1.8 **Chapter 11: Traffic and Transport** considers the potential effects arising from traffic and transport changes of due to the Proposed Development on the identified receptors during the construction phase. Traffic and transport effects are assessed **Not Significant** under EIA regulations, with peak construction traffic comprising a negligible component of overall road capacity.
- 16.4.1.9 Construction traffic noise was assessed to be negligible and therefore not significant in **Chapter 12: Noise and Vibration**, during the construction phase. It should also be noted that

motorised vehicle users of these roads would not be susceptible to noise effects; therefore, the potential construction noise effects would only be applicable to walkers, cyclists, and other non-motorised vehicle road users.

- 16.4.1.10 For the roads assessed in **Chapter 11: Traffic and Transport** and **Chapter 12: Noise and Vibration** of the EIAR, no significant effects on road users (motorised or non-motorised) are predicted. Therefore, **No Significant** in-combination effects are identified.

Operational Phase

- 16.4.1.11 During the operational phase of the Proposed Development, road users will principally experience visual effects. Road users travelling in motorised vehicles will not be affected by noise from the Proposed Development. No in-combination effects for users of motorised vehicles are therefore likely to arise.

- 16.4.1.12 For non-motorised road users, while they will also experience noise effects during operation of the Proposed Development in addition to visual effects, these users are transient in the area. As a result, any effects experienced will be of short duration and temporary, and not assessed as giving rise to a significant in-combination effect.

- 16.4.1.13 **No Significant** in-combination effects are anticipated

16.5 Summary

- 16.5.1.1 Potential in-combination effects have been assessed within the separate technical chapters of this EIAR.
- 16.5.1.2 Of those that are not considered elsewhere following the assessment presented above, it is considered that **No Significant** in-combination effects will be experienced in the context of The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (EIA Regulations).