Novar 1 Wind Farm Repowering

Chapter 13 - Intra-Project Cumulative Effects

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13 Intra-Project Cumulative Effects

13.1 Introduction

13.1.1 The EIA Regulations require that all significant effects of a Proposed Development are taken into account, including cumulative effects. Regulation 4(2)(e) of the EIA Regulations 2017 requires project proponents to assess "*the interaction between the factors*."

13.1.2 The Institute of Environmental Management and Assessment (IEMA) Guidance[1] (now the Institute for Sustainability and Environmental Professionals) identifies two types of cumulative effects which are summarised below:

- **Inter-project effects**: combined or additive effects generated from the Proposed Development, together with other planned or likely foreseeable developments, and also referred to as 'cumulative effects'; and
- **Intra-project effects**: combined effects of different types of impact or 'impact interactions', for example, the combined effects arising from noise, dust and visual impacts during the construction of the Proposed Development on a particular sensitive receptor such as a neighbouring residential dwelling. Each of these when considered in isolation may have a limited effect, but when taken together the sum may be greater than the parts and result in a significant residual effect.

13.1.3 This chapter reports on the intra-project effects only, with inter-project effects considered within each technical chapter of this EIAR (**Chapters 5 to 12, EIAR Volume 2**).

13.2 Methodology

13.2.1 There is no established EIA methodology for assessing and quantifying the intra-project or in-combination effects of individual effects on sensitive receptors. Accordingly, the approach to the assessment of interactions of environmental effects (intra-project combined effects) has considered the changes in baseline conditions at common sensitive receptors i.e., those receptors that have been identified as likely to experience effects from more than one topic due to the Proposed Development. The methodology adopted for this assessment is summarised below.

13.2.2 The first stage of the assessment is to undertake a review of the residual effects identified in the individual environmental topic chapters (**Chapters 5 to 12, EIAR Volume 2**). These are the effects identified following implementation of embedded design mitigation, and additional mitigation. The review considers significant and non-significant effects as the interaction of several non-significant effects on a receptor could result in a significant in-combination effect. This has been considered with the application of professional judgement.

13.2.3 Common receptors across the topic chapters, where those receptors are likely to experience effects across more than one topic have been identified. Only receptors that are expected to experience more than one potential effect have been included in the assessment (e.g., noise and visual). Receptors predicted to be affected by only a single effect (e.g., only noise) have been excluded because it is unlikely for an effect interaction to occur.

13.2.4 The evaluation at the receptor level has considered:

- previously identified sensitivity/importance/value;
- the magnitude of change at the common receptor; and
- duration and reversibility of any interaction.

13.2.5 The focus of the evaluation has been on identifying a combined level of effect likely to be experienced and whether this is significant or not.

[1] Institute of Environmental Management and Assessment. The State of Environmental Impact Assessment Practice in the UK. 2011.

13.2.6 The study area for the assessment of intra-project combined effects has been informed by the study areas and relevant guidance for the individual topic assessments. The spatial extent of potential effects is used when considering in-combination effects to determine where effects may interact and which receptors may be affected.

13.2.7 Consideration has been given to the potential for multiple effect interactions to arise for each of the identified receptors across the decommissioning of the Novar 1 Wind Farm and the construction, operation and decommissioning of the repowered wind farm. An assessment has been undertaken, considering the scope for all effects to interact, spatially and temporally, to create intra-project effects.

13.2.8 The assessment of effects within **Chapter 6: Cultural Heritage**, **Chapter 7: Ecology, Chapter 8: Ornithology** and **Chapter 9: Hydrology, Hydrogeology, Geology and Soils (EIAR Volume 2)** inherently considers the potential in-combination effects on a particular receptor. For example, when considering the effects on bats: all of the potential effects, which may include but not be limited to, light spill, disturbance, noise, habitat loss, are considered when the effects on bats are concluded. **Chapter 6: Cultural Heritage**, **Chapter 7: Ecology**, **Chapter 8: Ornithology** and **Chapter 11: Hydrology, Hydrogeology, Geology, Soil and Peat (EIAR Volume 2)** have therefore been scoped out of the assessment and are not considered further within this chapter.

13.2.9 **Chapter 12: Aviation** (**EIAR Volume 2**) identified no residual effects so has not been considered further in this chapter.

13.2.10 This chapter focuses on the potential interactions between the remaining technical chapters; **Chapter 5: Landscape and Visual Amenity**, **Chapter 10: Noise** and **Chapter 11: Traffic and Access** (**EIAR Volume 2**).

13.3 Assessment of Intra-Project Effects

Identification of Residual Effects and Receptors

13.3.1 Table 13.1 identifies all potential residual effects on relevant groups of sensitive receptors from the Proposed Development, as previously identified through the individual topic assessments. It defines anticipated effects across both the decommissioning of the existing Novar 1 Wind Farm and the construction and operation of the repowered wind farm, further identifying anticipated effect interactions during each of these phases.

Decommissioning of Novar 1 Wind Farm and construction of repowered wind farm

Table 13.1 Summary of Intra-Project Effects - Decommissioning and Construction Phases

Receptor	Residual Effect*	Potential for Intra-Project Effects
Residential properties in proximity to the Site	<u>Landscape and Visual Amenity</u> Visual effects on settlements: • Boath (Moderate/Minor) • Strath Rusdale (Moderate/Minor) <u>Noise</u> Construction noise effects on nearby residential receptors (Negligible to minor) <u>Traffic and Access</u> Impacts associated with traffic on, residents along B9176, B817 and residents of Evanton (Negligible to minor).	Yes, potential for in-combination effects

Table 13.1 Summary of Intra-Project Effects - Decommissioning and Construction Phases		
Users of recreational routes	Traffic and Access Traffic impacts on core path and National Cycle Network (NCN) users (Negligible to minor). Landscape and Visual Amenity Visual amenity effects on users of recreational routes (Moderate).	Yes, potential for in-combination effects
Sensitive Viewpoints	Landscape and Visual Amenity Visual effects from: • Viewpoint 16 Ben Wyvis (Moderate) • Viewpoints 1 (Beinn Dearg), 2 (Carn Salachaidh), 10 (Beinn Tharsuinn), 22 (Tom Ban Mor) and 23 (Diebidale Ridge) (Moderate/Minor)	No potential for in-combination effects.
Users of the public road network	Noise Noise effects on surrounding properties near B817 and B9176 (Minor adverse). Traffic and Access Traffic impacts on residents and users of B817 and B917 (Negligible to minor). Landscape and Visual Amenity Visual amenity effects on users of public road network (Moderate).	Yes, potential for in-combination effects
Designated Sites	Landscape and Visual Amenity Effects on Ben Wyvis Special Landscape Area (SLA) (Moderate/Minor).	No potential for in-combination effects.
Landscape Fabric	Landscape and Visual Amenity Changes to fabric of the landscape due to the construction activities on Site (Moderate/Minor).	No potential for in-combination effects.

13.3.2 There is potential for intra-project cumulative effects on residential properties close to the Site. These effects could arise from increased construction traffic on local roads, views of the repowered wind farm as it is being constructed, and temporary increases in noise from construction plant, machinery and traffic. However, visual impacts would be temporary and limited to residential properties near Boath and Strath Rusdale. Noise effects would be minimised through embedded good practice measures, and restrictions on equipment operating times near sensitive receptors. Traffic impacts on residential receptors would be managed through the Construction Traffic Management Plan (CTMP) to minimise impacts as far as practicable. As these effects would be short-term, temporary and would cease following construction, the overall intra-project effect on residential properties is considered reversible and Not Significant.

13.3.3 There is potential for intra-project cumulative effects on users of recreational routes. Temporary traffic movements could impact on core path and National Cycle Network users, alongside visual amenity effects associated with construction of repowered wind farm. However, traffic effects would be negligible to minor adverse and managed through the CTMP, while visual amenity effects would be temporary, fully reversible and limited to the construction period. As these effects would be short-term, reversible and would cease following construction, the overall intra-project effect on users of recreational routes is considered Not Significant.

13.3.4 There is the potential for intra-project cumulative effects on the users of public road network, specifically the B817 and B9176, from increased traffic, changes to visual amenity and temporary increase of noise generation during the construction phase. However, the maximum changes in traffic noise levels on these routes would remain below 3 dB(A), which is a short-term change in traffic noise and is considered a minor impact. Traffic effects would be managed through the implementation of the CTMP to minimise impacts as far as practicable. Construction traffic impacts are transitionary in nature and would cease once construction is complete. Visual amenity effects would arise from views of construction activity but would be temporary and fully reversible. Overall, the intra-project effect on the public road network is considered temporary, reversible and Not Significant.

Operation of repowered wind farm

13.3.5 Traffic and access has been scoped out of the assessment for the operational phase, as effects are expected to be negligible.

13.3.6 Operational turbine noise immission levels comply with the ETSU-R-97 criteria recommended in Scottish planning policy; therefore, operational noise effects are not significant.

13.3.7 Residual effects for the operational phase of the Proposed Development have only been identified in **Chapter 5: Landscape and Visual Amenity (EIAR Volume 2)**, so there is no potential for in-combination effects.

Decommissioning of repowered wind farm

13.3.8 Traffic flows during the decommissioning phase for the repowered wind farm would be lower than those associated with the construction phase. The traffic effects during the decommissioning phase for the repowered wind farm and associated infrastructure can only be fully assessed closer to that period. The construction phase therefore represents a worst-case assessment and as such, the decommissioning phase has been scoped out of the intra-project cumulative assessment.

13.3.9 Both landscape and noise effects during the decommissioning of the repowered wind farm would be short-term adverse, temporary, reversible and not significant. Therefore, no intra-project effects are predicted.

Conclusions

13.3.10 The Proposed Development would generate some intra-project effects on sensitive receptors during the decommissioning of the Novar 1 Wind Farm and the construction of the repowered wind farm. However, following the implementation of standard environmental control measures these intra-project residual effects would not be significant.