VOLUME 2: CHAPTER 14 – CUMULATIVE EFFECTS ASSESSMENT

14. CUMULATIVE EFFECTS ASSESSMENT

14.1 Introduction

14.1.1 This chapter summarises the potential significant cumulative effects of the Proposed Development as described in each technical chapter (Chapters 7 to 13) and provides a qualitative assessment of the potential for interactive effects. (see definitions below in Paragraph 14.1.4).

14.1.2 This chapter presents information relevant to the Proposed Development. It should be read in conjunction with **Chapter 3: Description of the Proposed Development, Chapter 5: EIA Process and Methodology** as well as **Chapters 7-13** of the EIA Report.

14.1.3 This assessment was undertaken by LUC.

14.1.4 The following terminology will be referred to throughout this chapter:

- Site: all land within the planning application (red line) boundary (**Figure 1.1: Site Location**).
- Proposed Development: The infrastructure including the platform, bays, control buildings, access tracks, drainage and landscape features and temporary construction compounds (see **Chapter 3: Description of the Proposed Development**).
- Receptor: A distinct part of the receiving environment on which effects could occur and can be the subject of specific assessments.
- Study area: the geographical area in which a given assessment would take place.
- Significant Effect: a product of the sensitivity of a receptor and the magnitude of any given impact on a receptor.
- Cumulative Effect: the effect of more than one significant effect acting on a receptor. These may be;
    - In-combination effects: effects from the Proposed Development together with effects from other reasonably foreseeable future developments.
    - Interactive effects: where different types of impact may be experienced by the same receptor for example, the possibility that a receptor may experience an impact on visual amenity, and an increase in noise, which taken together result in a more significant impact than the impacts in isolation.
- Indirect Effect: an effect arising as an adjunct to a direct significant effect, usually as a result of a complex impact pathway. An example of this, not related to the Proposed Development, would be increased ambient sulphur oxide resulting in deposition leading to acidification of soils.
- Transboundary Effect: effects associated with a development that cross political or other socio-geographical boundaries.

14.2 Scope of the Assessment

Effects Assessed

14.2.1 This chapter presents the following;

- The potential for direct significant residual (i.e., after mitigation) cumulative effects on receptors resulting from the Proposed Development during construction and when the Proposed Development is operating, in combination with other reasonably foreseeable developments in the vicinity (in-combination effects).
- The potential for different impacts on local receptors arising from the Proposed Development during construction or operation which when occurring together, interact in such a way that the effect experienced by the receptor is greater and possibly more significant (interactive effects).

Effects Scoped Out

14.2.2 In-line with the methodology set-out in **Chapter 5: EIA Process and Methodology** and the spatial scope of the study area, the following effects are scoped out:

- Indirect effects: scoped out due to the assessment in this EIAR not having identified any significant indirect effects; and
- Transboundary effects: scoped out due to the spatial extent of the significant effects identified in this EIAR not being transboundary in nature.

Study Area

14.2.3 The study area for this chapter is defined by the study area of the technical chapters it draws on as the potential for a cumulation of effects cannot exist outwith the spatial scale of the primary effects themselves. Further, the potential for synergistic effects is defined by the smallest spatial scale of any given effect that contributes to the synergy. The study areas for each technical assessment have already been defined in the relevant technical chapters and will not be replicated here.

14.3 Assessment Methodology

Legislation, Policy and Guidance

14.3.1 There is no legislation or policy directing the assessment of cumulative effects within EIA, although there is guidance from the Planning Inspectorate which is pertinent to Nationally Significant Infrastructure Projects in England and Wales. As a result, the assessment of potential synergistic cumulative effects is a qualitative assessment based on previous project experience and professional judgement.

Identification and Assessment of In-Combination and Interactive Effects

14.3.2 For in-combination effects, the assessment has considered information on the nature and characteristics of reasonably foreseeable projects, and if available, information on their possible environmental effects, which is available in the public domain, such as screening or scoping reports or information on the respective developer's websites (references are cited where relevant). Three categories of reasonably foreseeable projects have been used in this assessment, Associated SSEN Transmission Developments (see **Chapter 1: Introduction**), Other SSEN Transmission Developments and Other Third Party projects. The specific projects considered in this assessment are set out in **Table 14.2: Summary of Likely Significant In-Combination Effects** below.

14.3.3 It has been assumed that, unless the Proposed Development has been predicted to give rise to a significant effect, it would be unlikely that a significant cumulative effect would arise from the Proposed Development when combined with other projects. Nevertheless, the potential cumulative interactions are set out in each chapter so that the rationale for the assessment is transparent.

14.3.4 **Table 14.1: Summary of Predicted Significant Effects** demonstrates that significant effects arising from the Proposed Development have been predicted only with reference to landscape receptors and visual receptors. No significant effects have been predicted on other environmental assets or receptors, which is a consequence of the generally localised scale of impact and the generally low sensitivity of environmental receptors, resulting in impacts which are generally low/minor or negligible.

Table 14.1 – Summary of Predicted Significant Effects

Impact category	Summary of predicted significant effects
Landscape Effects	• Effects on the landscape character of the Site during construction and once operational. • Effects on the Dipslope Farmland Landscape Character Type during construction and once operational, within the area defined by the minor road to the north and west of the Site, the minor road at Balnuith in the east, and by the low ridge at Hillhouses and existing substations in the south and southeast • Effects on the Lowland Ridge Landscape Character Type from the southern slopes of Balkello Hill and Craigowl Hill during the construction phase only.
Effects on views and visual amenity	• Views represented by VP3, located on a minor road that flanks the Site to the north, near the property of Dunian. The view is representative of views experienced by residential receptors along the minor road, including at Dunian and Balkemback Cottages. It is also representative of views experienced by road users travelling along the road. The effect on the viewpoint is assessed to be significant during the construction phase and once the Proposed Development is operational. • Views represented by VP9, located on the minor road immediately east of the Site at the road junction where a minor road turns off towards Balnuith in the east. This viewpoint is representative of views experienced by users of the local road network, including those travelling to and from Balnuith. The effect on the viewpoint is assessed to be significant during the construction phase and once the Proposed Development is operational. • Views from the Kirkton of Tealing Core Path, which runs to the east of the Site, where the effect on views is assessed as significant during construction and once operational, from

Impact category	Summary of predicted significant effects
	points <500m from the Site. Views from points beyond this distance are not assessed as significant. • Views from higher elevations along the Prieston to Glen Ogilvie Core Path, near Prieston Hill, are predicted to be significant during the operations phase. Views from other sections of this Core Path are not assessed as significant.
Effects on heritage assets	None predicted
Effects on protected species	None predicted
Effects on water resources	None predicted
Effects on traffic and access	None predicted
Effects on noise sensitive receptors	None predicted

14.3.5 In the absence of information of the physical characteristics of the reasonably foreseeable projects considered in the cumulative effects assessment, given the fact they are no larger in footprint than the Proposed Development, from the information that is available, and given that their environmental settings are broadly similar to that of the Proposed Development, it is reasonable to assume that their environmental effects would largely be similar in character and significance to those of the Proposed Development. The respective planning applications for each of the projects will identify in due course these detailed assessments.

14.3.6 It is therefore reasonable to assume that where low/minor/negligible effects have been predicted for the Proposed Development, it is likely to be the case that similar effects will be predicted for the "other" foreseeable projects. As a result, major effects on heritage assets, protected species and water resources are unlikely. In the case of traffic and noise, the Proposed Development is predicted to generate levels of traffic and noise (at noise sensitive receptors) well below the thresholds used to define a significant effect. Given the nature of the foreseeable projects, it is very unlikely that these would give rise to traffic or noise levels, after all mitigation has been applied, which when combined with the Proposed Development, would exceed these thresholds.

14.3.7 Clearly, without more information on the characteristics of the foreseeable projects identified, it is not possible to be definitive. **Table 14.2: Summary of Likely Significant In-Combination Effects** below summarises the assessment of cumulative effects based on the professional experience and judgement of the EIA team (see **Chapter 2: The EIA Team**).

14.3.8 No additional research or data collection has been undertaken to inform this assessment, other than that set out in the individual technical chapters and the review of publicly available information on foreseeable projects, as indicated above.

Assessment Assumptions and Limitations

14.3.9 As indicated above, the identification and assessment of cumulative effects has been based on professional judgement by assessors experienced in the assessment of environmental effects.

14.3.10 Assessing in-combination effects has been informed using information on the nature and character of foreseeable projects available in the public domain and professional experience of the nature and likely scale of environmental impacts such projects might give rise to.

14.3.11 The assessment draws on existing assessments and, as such, inherits any limitations of the initial assessments that are described in each respective chapter.

14.4 Summary of Likely Significant In Combination Cumulative Effects

14.4.1 **Table 14.2: Summary of Likely Significant In Combination Cumulative Effects** below summarises the likely significant cumulative in-combination effects of the Proposed Development with other foreseeable projects.

Table 14.2: Summary of Likely Significant In Combination Cumulative Effects

	Landscape and visual impact	Cultural heritage	Ecology	Ornithology	Hydrology	Traffic and Access	Noise
Associated SSEN Transmission Projects							
Kintore to Tealing 400 kV OHL	In combination, the Proposed Development and the Kintore to Tealing 400 kV OHL are predicted to have significant cumulative impacts on the character of the three landscape types considered during construction and once commissioned. Significant cumulative visual effects are also predicted during construction, albeit limited to the locations represented by Viewpoints 1, 2 and 3. No significant cumulative visual effects are predicted once the Proposed Development is operational, given the maturity of the landscape design.	In combination, the Proposed Development and the Kintore to Tealing 400 kV OHL will not have significant cumulative effects upon heritage assets considered as part of the EIA for the Proposed Development although there is the potential for the OHL to have a significant effect upon the Balkemback Cottage Stone Circle (SM 2868) in isolation.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, the Proposed Development and the Kintore to Tealing 400 kV OHL will not have significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and surface water quality and flood risk.	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not have a significant cumulative effect.	No significant cumulative effects from noise are predicted during construction or once operational

	Landscape and visual impact	Cultural heritage	Ecology	Ornithology	Hydrology	Traffic and Access	Noise
Alyth to Tealing Tie-in	Significant cumulative effects on landscape are predicted, as above. During construction, significant cumulative visual effects are predicted at locations represented by VPs 1, 2,3,5 and 9 and from the minor road network. These would diminish once operational, to effects at VP2,3,5,9 and on the minor road network immediately adjacent to the Site but not at locations more distant.	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and surface water quality and flood risk.	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not have a significant cumulative effect.	No significant cumulative effects from noise are predicted during construction or once operational
Westfield to Tealing Tie-in	No significant cumulative landscape effects are predicted, as a result of the small construction footprint of the tie-in and the limited overlap of construction works. Significant cumulative visual effects are limited to locations represented by VP4 and 9 and on the adjacent minor road network. Effects once operational would be limited to VP9 and the	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not	No significant cumulative effects from noise are predicted during construction or once operational

	Landscape and visual impact	Cultural heritage	Ecology	Ornithology	Hydrology	Traffic and Access	Noise
	adjacent road network.				surface water quality and flood risk.	have a significant cumulative effect.	
Emmock to Tealing Tie-ins	No significant cumulative landscape effects are predicted during construction or once operational. Significant cumulative visual effects are predicted at VP4 and the adjacent minor road network during construction and once operational.	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and surface water quality and flood risk.	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not have a significant cumulative effect.	No significant cumulative effects from noise are predicted during construction or once operational
Other SSEN Transmission Developments							
400kV upgrade of the existing 275kV Alyth to Tealing OHL	No significant landscape or visual effects are predicted in either the construction or operational phase.	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during	No significant cumulative effects from noise are predicted during construction or once operational

	Landscape and visual impact	Cultural heritage	Ecology	Ornithology	Hydrology	Traffic and Access	Noise
				raptors and breeding birds.	groundwater and surface water quality and flood risk.	construction will not have a significant cumulative effect.	
400kV upgrade of the existing 275kV Tealing to Westfield OHL	No significant landscape or visual effects are predicted in either the construction or operational phase.	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and surface water quality and flood risk.	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not have a significant cumulative effect.	No significant cumulative effects from noise are predicted during construction or once operational
Other Third Party Projects							
Fithie Energy Park	No significant cumulative landscape or visual effects are predicted during the construction of the Proposed Development when combined with the Energy Park. Once commissioned, localised significant landscape effects are predicted as a result of the intensification of	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes	No significant cumulative effects from noise are predicted during construction or once operational

	Landscape and visual impact	Cultural heritage	Ecology	Ornithology	Hydrology	Traffic and Access	Noise
	electrical infrastructure locally. Significant visual cumulative impacts are predicted at VP4 and 9, once the Proposed Development is operational and from Emmock Road and the Core Path 207.			SPAs, Schedule 1 raptors and breeding birds.	Development namely groundwater and surface water quality and flood risk.	generated during construction will not have a significant cumulative effect.	
Balnuith BESS	Significant cumulative effects are predicted during construction and once operational on the Dipslope Farmland landscape (LCT387) but not on the other landscape types. Significant visual effects are limited to those locations represented by VP4.	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted during construction or once operational.	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and surface water quality and flood risk.	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not have a significant cumulative effect.	No significant cumulative effects from noise are predicted during construction or once operational
Myreton BESS	Cumulative effect on landscape arising from the Proposed Development and the Myreton BESS are predicted to be the same as those described above for	No significant cumulative effects upon buried archaeological remains, or the setting of designated heritage assets are predicted	No significant cumulative effects upon badger, bats, otter or beaver are predicted during construction or once operational.	In combination, there will be no significant cumulative effects upon ornithology either during the construction or once operational. This includes all	In combination the Proposed Development will not have significant cumulative effects upon hydrological resources either during construction or once	The in combination assessment in the Traffic and Access Chapter only considers the construction phase as the Proposed Development will generate minimal	No significant cumulative effects from noise are predicted during construction or once operational

	Landscape and visual impact	Cultural heritage	Ecology	Ornithology	Hydrology	Traffic and Access	Noise
	Fithie Energy Park. No cumulative visual effects are predicted however, during either development phase.	during construction or once operational.		ornithological receptors considered in the assessment of the Proposed Development namely qualifying species of SPAs, Schedule 1 raptors and breeding birds.	operational. This includes all hydrological resources considered in the assessment of the Proposed Development namely groundwater and surface water quality and flood risk.	traffic during the operational phase. In combination with the Proposed Development, the traffic volumes generated during construction will not have a significant cumulative effect.	

14.5 Assessment of Likely Significant Interactive Effects

14.5.1 As defined above in paragraph 14.1.4, an interactive effect may arise where two or more impacts of different types affect the same receptor. **Table 14.2: Summary of Predicted Significant Effects** summarises all significant impacts identified in this EIA Report.

14.5.2 As presented within this EIAR and summarised in Table 14.1 – Summary of Predicted Significant Effects it is evident that the only interactive effects arising from the Proposed Development are where landscape impacts and visual impacts both occur in the same location. This would occur where receptors that experience a significant change in the view are also located within a landscape that will experience a significant effect.

14.5.3 These potential significant interactive effects have been identified at VP3 and VP9 and from locations along the minor road network surrounding the Site and along the Kirkton of Tealing Core Path. These three locations are all within the local area of the Dipslope Farmland Landscape Character Type (see **Figure 7.3a: Landscape Character Types**) where significant effects are predicted. The section of the Prieston to Glen Ogilvie Core Path where significant visual effects are assessed does not lie within a landscape that would experience a significant effect.

14.5.4 Visual impacts are a function of a change in the view that is experienced by receptors (people), whereas impacts upon landscape character are focused instead upon how a landscape's properties may be changed as a result of a development. Guidelines for Landscape and Visual Impact Assessment, 3rd Edition ('GLVIA3')[1] highlights the importance of distinguishing between effects on landscape, and effects on views. It defines the components of Landscape and Visual Impact Assessment (LVIA) as:

"*1. Assessment of landscape effects: assessing effects on the landscape as a resource in its own right;*

2. Assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people."

14.5.5 Therefore, visual impacts do not necessarily have a consequential impact upon landscape character and vice versa. A significant impact upon a landscape receptor does not mean that a significant impact will be experienced by the visual receptor.

14.5.6 Therefore, there are no interactive significant effects upon these receptors beyond the significant impacts in isolation that have already been identified.

14.6 Conclusion

14.6.1 Due to the nature and location of the Proposed Development as well as the Embedded and Applied mitigation, already integrated into the assessment, significant in-combination effects are anticipated only with respect to Landscape & Visual receptors. The effect on Landscape & Visual receptors in the cumulative effect assessment is a residual (post mitigation) effect and cannot be reduced further. Likely significant in-combination effects are therefore predicted.

14.6.2 Interactive impacts that have been considered are those resulting from impacts on both landscape character and impacts on views and visual amenity. No significant synergistic effects in respect of other environmental characteristics and receptors have been predicted.

[1] Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition.