Environmental Impact Assessment (EIA) Report

LT384 Tealing to Westfield Overhead Line (OHL) 400 kV Upgrade

November 2024

VOLUME 2: CHAPTER 15 - CUMULATIVE EFFECTS

Figures (Volume 3 of this EIA Report)

There are no figures associated with this chapter.

Appendices (Volume 4 of this EIA Report)

There are no Appendices associated with this chapter.

15. CUMULATIVE EFFECTS

15.1 Introduction

Staged Approach

15.1.1 The assessment of cumulative effects is a requirement of the EIA Regulations, which state that likely significant effects should cover cumulative effects of the proposed development, as well as the cumulation of effects with other existing and/or approved developments. As discussed in Chapter 5: EIA Approach and Methodology, Section 5.5 (Volume 2), the approach to cumulative assessment includes both interactive cumulative effects (intra) and in combination cumulative effects (inter).

15.1.2 The approach to cumulative assessment has been refined following issue of the Scoping Report, with a staged approach to cumulative assessment having been developed, as follows:

1. **Interactive cumulative assessment for the Proposed Development (intra):** The interactive effects caused by the combination of a number of effects from the Proposed Development on key receptors, such as communities, designated areas or ecosystems. This includes effects at site preparation and earthworks, construction and operational phases. These collectively may cause a more significant effect than individually;
2. **Interactive cumulative assessment for associated SSEN Transmission developments (intra)** (those SSEN Pathway to 2030 projects that are in geographical proximity to the Proposed Development): The interactive effects caused by the combination of a number of effects from the Proposed Development and associated SSEN Transmission developments on a particular receptor. This includes effects at site preparation and earthworks, construction and operational phases; and,
3. **In combination (inter) cumulative assessment for other SSEN Transmission and third-party developments**: The combined effects from the Proposed Development, associated SSEN Transmission developments and other reasonably foreseeable developments. This includes effects at site preparation and earthworks, construction and operational phases.

15.1.3 The reasoning behind the addition of Stage 2 (the Proposed Development and associated SSEN Transmission developments) is that SSEN Transmission are committed to considering the cumulative effects of all developments proposed as part of the Pathway to 2030 Holistic Network Design, and therefore assessing these as 'intra' is appropriate. Those projects listed in Table 155-1 and Table 155-2 and shown, indicatively, on Figure 5.1 (Volume 3) are of relevance and in geographical proximity to the Proposed Development.

15.1.4 The potential for Stage 3 (in-combination cumulative effects (inter)), has been considered in relation to other reasonably foreseeable development, which includes approved EIA development (and non-EIA development where appropriate), or those where a screening or scoping report has been submitted.

Reasonably Foreseeable Developments

15.1.5 The Scoping Report included a list of developments, in Section 3.8, Table 3-2 'Details of Developments for Consideration in Cumulative Assessment', for consideration in the cumulative assessment. All those projects listed in the Scoping Report have been assessed. However, the Kintore - Tealing 400 kV project has subsequently been included, with assessment limited in geographical scope to the general locality where the proposed line would connect to the proposed Tealing (Emmock) substation.

15.1.6 Other third-party developments have been identified, beyond those listed in the Scoping Report, throughout the assessment process and have been included within the assessment where relevant, as listed in Section 15.3. It should be noted that the SPEN TKUP Lines (Uprate to 400 kV operation) have been included in this list. Whilst

no EIA Screening or Scoping has yet been prepared for these SPEN projects, a cumulative assessment has been carried out as far as possible.

15.1.7 The list of reasonably foreseeable developments identified in the Scoping Report extended out to approximately 8 km. During the assessment process it has been considered acceptable to assess those reasonably foreseeable developments within 3 km. This has been based on professional judgement.

15.1.8 Two additional developments beyond the 3 km have been included due to their size and nature: The Tealing Solar Energy Park (ECU Ref: ECU00004882) and the Tealing Battery Storage Farm (ECU Ref: ECU00003354). These developments (identified in the Scoping Report as 'Solar Land around Gagie Kellas') were originally screened for the need for EIA as one project, each with an operating capacity of 80 MW. The two projects have been taken forward separately, with the battery storage farm now consented (December 2023) and the solar park application submitted. Due to the size of these two developments together, a cautious approach has been taken to include them in the cumulative assessment.

15.1.9 The final list of developments to be considered in the cumulative effects assessment was frozen three months prior to publication to allow sufficient time to compile the EIA Report.

Scoping Opinion

15.1.10 No additional projects were identified in the Scoping Opinion for inclusion in the cumulative assessment. The Scottish Ministers recommended that the cumulative assessment include not only approved EIA development, but also EIA and non-EIA OHL or substation infrastructure that is associated with SSEN ASTI Transmission projects. The Strathmartine Community Council, in their response to the Scoping Report, also requested that the cumulative assessment for the Proposed Development include the impacts of the entire TKUP project (the Kintore - Tealing 400 kV Connection and SPEN upgrades from Westfield to Longannet / Mosmorran). The wider ASTI projects have been assessed as part of the Stage 2: Interactive cumulative assessment for associated SSEN developments (intra) and the SPEN upgrades as part of Stage 3: In combination (inter) cumulative assessment for other SSEN and third-party developments.

15.2 Interactive (intra) Cumulative Assessment

15.2.1 Cumulative effect interactions are the interactive effects caused by the combination of a number of effects on a particular receptor, which may collectively cause a more significant effect than individually.

Stage 1: Interactive (intra) Cumulative Assessment for the Proposed Development

15.2.2 For Stage 1, the approach to the assessment of effect interactions considers the changes in baseline conditions at common sensitive receptors (i.e., those receptors that have been assessed by more than one technical topic) due to the Proposed Development. The assessment is based upon significant residual effects only (moderate or major significant effects).

15.2.3 An overall assessment of the cumulative effects on identified common sensitive receptors has been made using professional judgement and the technical information provided in Chapters 7 to 14 (Volume 2).

15.2.4 As detailed in Chapter 16: Summary of Effects (Volume 2), no residual significant effects have been identified for the Proposed Development. It is therefore concluded that no significant effect interactions are anticipated.

Stage 2: Interactive (intra) Cumulative Assessment for Associated SSEN Developments

15.2.5 As identified in Chapter 5: EIA Approach and Methodology, SSEN are committed to consider the cumulative effects of all developments proposed as part of the Pathway to 2030 Holistic Network Design. The approach

adopted is to consider those Pathway to 2030 projects within geographical proximity to the Proposed Development which include:

- Alyth to Tealing 275 kV OHL upgrade;
- Tealing (Emmock) substation;
- Kintore - Tealing 400kV Connection (limited in geographical scope to the general locality where the proposed line would connect to the proposed Tealing (Emmock) substation); and,
- Alyth-Tealing and Tealing-Westfield OHL Tealing (Emmock) substation tie-ins and associated tower dismantling.

15.2.6 All of these projects are at different stages of design development. The Tealing-Westfield 275 kV OHL upgrade has been running concurrently with the Proposed Development and therefore detailed information is available on the predicted effects which has been reflected in the assessment set out below. None of the other projects have submitted an EIA Report at the time of writing, with only the Tealing (Emmock) substation having progressed to Scoping stage. The Stage 2 cumulative assessment therefore has been based on the information available and the professional judgment of technical topic specialists.

15.2.7 Each technical topic has considered these developments within the respective chapter (Chapters 7 to 14 (Volume 2)) and this has been collated below in Table 155-1 and their location shown, indicatively, on Figure 5.1 (Volume 3). Further detail on each development is provided in Chapter 5: EIA Approach and Methodology (Volume 2).

Table 155-1 Stage 2: Interactive (intra) cumulative assessment for Associated SSEN Developments

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Alyth – Tealing 275 kV OHL upgrade	A	Ecology	No significant residual effects.	The insignificant nature of effects of this scheme, also an OHL upgrade with only slight impacts on habitats and associated fauna, similar to the slight effects of the Proposed Development, suggests that cumulative effects would remain slight and insignificant. Therefore, no likely significant cumulative effects.	None.
		Ornithology	No significant residual effects.	No likely significant cumulative effects.	None.
		Forestry	Forestry present, no significant residual effects.	Potential for minor cumulative effects.	None.
		Cultural Heritage	No signficant residual effects and no physical impacts on any common assets.	No likely significant cumulative effects.	None.
		Traffic and Transport	No significant residual effects.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Intra Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of construction traffic management plans (CTMPs) will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	No significant residual effects.	Construction of the Alyth-Tealing OHL may cause additional sediment laden surface run-off, increased risk from pollution (chemical and oil spills) and increased aquatic habitat disruption. Impacts are thought to be associated with the construction phase, with only minor cumulative effects during operation from maintenance. Therefore, no likely significant cumulative effects.	None.
		Noise and Vibration	No significant residual effects.	Cumulative noise with the proposed upgraded Alyth to Tealing 400 kV OHL has been considered. The Proposed Development and the Alyth to Tealing OHL are 1.6 km apart at the nearest point. Cumulative noise is predicted to be negligible and therefore not significant.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Landscape Character and Visual Impact	No significant residual effects.	As outlined in Chapter 7: (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Tealing (Emmock) substation	B	Ecology	Not available.	Footprint of development entirely within agricultural fields of low ecological value. The small loss of agricultural fields to this substation, and negligible permanent loss to the Proposed Development, is of no consequence given the great abundance of such fields throughout the region. Therefore, no likely significant cumulative effects.	None.
		Ornithology	Not available.	The Scoping Report determined that effects on ecological receptors within and using the Site are anticipated and have some potential to be significant. However, in terms of cumulative effects, no likely impact pathways have been identified for European Sites as a result of this proposed development. There is potential significant effects from loss of habitat and habitat modification, or disturbance to lapwing as a result of this proposed development, though the habitats present are considered to have lower BTO wader sensitivity ratings. Negligible cumulative effects expected. Therefore, no likely significant cumulative effects.	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumulative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumalative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Intra Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Hydrology, Hydrogeology and Geology	Not available.	Construction of the Tealing (Emmock) substation may cause additional sediment laden surface run-off, increased risk from pollution (chemical and oil spills) and increased aquatic habitat disruption. Impacts are thought to be associated with the construction phase, with only minor effects during operation from maintenance. Therefore, no likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	Tealing (Emmock) substation is a source of noise in the Study Area associated with the Proposed Development. The Proposed Development is assessed for worst-case noise in wet conditions. In these conditions, the background noise is raised due to rainfall, therefore, operational noise from Tealing (Emmock) substation will be less prominent and likely to have a negligible impact on NSRs when considered cumulatively with the operational noise from the Proposed Development. Receptors that are within 500 m of the Proposed Development are at least 2 km from Tealing (Emmock) Substation. These cumulative receptors are unlikely to exceed wet background noise with contributions from Tealing (Emmock) substation and the Proposed Development. The worst-case noise effects of Tealing (Emmock) Substation are assessed in dry conditions, where noise from the Proposed Development is negligible. Therefore, cumulative noise in dry and wet conditions is not significant.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Kintore- Tealing 400 kV Connection	C	Ecology	Not available.	Like the Proposed Development, this scheme appears to largely affect agricultural fields with limited impact on plantation. Habitat loss would be similarly slight compared to the surrounding resource, with similarly slight impacts on fauna, with no impacts likely to be significant. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Ornithology	Not available.	Information not available. However, avoidance and mitigation measures similar to those to be implemented by the Proposed Development will be implemented and no likely residual significant effects. Therefore, no likely significant cumulative effects	None.
		Forestry	Not available.	Forestry present, potential for minor cumulative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumalative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Intra Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Construction of the OHL and two associated substations may cause additional sediment laden surface run-off, increased risk from pollution (chemical and oil spills) and increased aquatic habitat disruption. Impacts are thought to be associated with the construction phase, with only minor effects during operation from maintenance. Therefore, no likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	Receptors were considered where noise from the Kintore to Tealing 400 kV OHL line could cause cumulative impact with the Proposed Development and the Alyth to Tealing OHL. As a Tier 1 assessment which compares noise to a 34 dBA limit, receptors were assessed where the combination of wet noise from the conductors of the three relevant OHLs would exceed 34 dBA. There are no NSRs that are within this range. Cumulative noise from the Kintore-Tealing 400 kV OHL is therefore deemed as not significant.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Alyth-Tealing and Tealing-Westfield OHL Tealing (Emmock) substation tie-ins and associated tower dismantling	D	Ecology	Not available.	Towers are located within agricultural fields of poor ecological value. Any impacts would be at a small scale and highly localised so are unlikely to be significant. The affected habitat is agricultural fields with very limited loss compared to the surrounding resource, with similarly slight impacts on fauna. Therefore, no likely significant cumulative effects.	None.
		Ornithology	Not available.	Information not available. However, avoidance and mitigation measures similar to those to be implemented by the Proposed Development will be implemented and no likely residual significant effects. Therefore, no likely significant cumulative effects.	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumalative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumalative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Intra Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Construction of associated tie-ins and tower decommissioning may lead to increased risk from pollution. Some minor disruption to the earthworks may be required for tower decommissioning. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Noise and Vibration	Not available.	The noise from the proposed OHLs has been estimated at each NSR, and the total cumulative noise predicted from existing OHLs. Four NSRs have shown to require further analysis. All other NSRs predict negligible impact. The four NSRs are situated in Jeanfield (Jeanfield Farm, Jeanfield Steadings, Jeanfield Farmhouse, and East Jeanfield Farm). An evaluation of worst-case noise contributions has been performed for existing and proposed OHLs. All noise impacts at these locations are predicted to be dominated by the noise from the Tealing-Westfield 400 kV OHL upgrade. NSRs at Jeanfield will not be impacted by tie-ins, tie-backs, or diversions and therefore predicted impact is negligible. Operational noise has been assessed and any potential significant effects identified would result from cumulative noise from existing or proposed future OHLs. Operational noise from the tie ins, tie backs and temporary diversions is predicted to be negligible. Therefore, no significant effects are likely for operational noise.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.

15.3 Stage 3: In-combination (inter) Cumulative Assessment

15.3.1 In-combination effects are the combined effect of the Proposed Development, the associated SSEN Developments (Table 155-1) and other reasonably foreseeable developments (taking into consideration effects at the stages of site preparation and earthworks, construction and operation).

15.3.2 As discussed in the 'Reasonably Foreseeable Developments' section above, the following proposed developments have been considered as part of this Stage 3 in-combination (inter) cumulative assessment:

- Muir of Pert Energy Storage Facility;
- Moatmill Bridge Tealing Energy Storage Facility;
- Tealing Solar Energy Park;
- Tealing Battery Energy Storage Farm;
- Solar Farm at land 500 m east of Stoneygroves Liff;
- Battery Energy Storage at Cordon Farm, Abernethy;
- Jamesfield Energy Storage Facility;
- Balnuith Farm BESS (Tealing);
- Fithie Energy Park BESS;
- Myreton BESS; and,
- SPEN TKUP Lines (Uprate to 400kV operation).

15.3.3 Each technical topic has considered these developments within the respective chapter (Chapters 7 to 14 (Volume 2)) and this has been collated below in Table 155-2 and shown, indicatively, on Figure 5.1 (Volume 3). Further detail on each development is provided in Chapter 5: EIA Approach and Methodology (Volume 2).

Table 155-2 Stage 3: In-combination (inter) cumulative assessment for Other SSEN and 3rd Party Developments

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Muir of Pert Energy Storage Facility	E	Ecology	Not available.	No significant effects identified through Screening Request, no likely signficant cumulative effects.	None.
		Ornithology	Not available.	No significant effects identified ithrough Screening Request, no likely signifcant cumulative effects.	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumalative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumalative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	The construction of the energy storage facility has the potential to have a cumulative noise impact due to the equipment and increased traffic. If the construction works are coincidental, once a contractor has been appointed, a detailed construction noise management plan must be updated to include working times, activities and a schedule. There is the potential for activities that are associated with the construction of the Energy Storage Facility site that take place concurrently to raise the noise above either the 65 dB	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
				daytime noise limit or the 55 dB evening and weekend limit at the Alyth-Tealing OHL NSRs. Therefore, it is possible for cumulative construction noise to result in major effect which is significant. Cumulative construction noise is required to be controlled through an updated assessment by the Principal Contractor, and a CNMP. Therefore, with the appropriate mitigation, residual effects are likely to be minor and not significant. Cumulative operational noise as above. The site is 3 km from the OHL, where NSRs relevant to the site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the Energy Storage System would be low and considered to have negligible impact.	
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Moatmill Bridge Tealing Energy Storage Facility	F	Ecology	Not available.	Given its small size and the agricultural nature of the affected land indicated there will likely be no likely significant cumulative effects	None.
		Ornithology	Not available.	The proposed development site would measure around 3.8 ha and comprises agricultural land. Situated approximately 1.6 km from the Proposed Development. No likely significant cumulative effects	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumulative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	Cumulative construction and operational noise as per Muir of Pert analysis above. The site is 3 km from the OHL, where NSRs relevant to the site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the Energy Storage System would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Tealing Solar Energy Park	G	Ecology	According to the Preliminary Ecological Appraisal, the habitats within the boundary of this development are agricultural and of	No likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
			low ecological value. Other ecological features of greater value were found but beyond the boundary of the project.		
		Ornithology	The ecology documents submitted with this application do not refer to ornithology. However, solar farms generally have limited impacts on bid species, and habitat measures described in the Biodiversity Management Plan for this project are likely to benefit bird species.	No likely significant cumulative effects	None.
		Forestry	No forestry present	No likely significant cumulative effects.	None.
		Cultural Heritage	No physical impacts on any common assets.	No physical impacts on any common assets, no likely significant cumalative effects..	None.
		Traffic and Transport	Information from the Transport Statement has been included in the cumulative transport assessment.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	No EIA completed, however from assessment completed, significant effects are considered unlikely.	No likely significant cumulative effects.	None.
		Noise and Vibration	No EIA completed, however from assessment completed, significant effects are considered unlikely.	Cumulative construction and operational noise as per Muir of Pert analysis above. The site is 4 km from the OHL, where NSRs relevant to the site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the Energy Park would be low and considered to have negligible impact.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Tealing Battery Energy Storage Farm	H	Ecology	According to the Preliminary Ecological Appraisal for this project, it is sited on an arable field of low ecological value. No evidence of protected species was recorded.	No likely significant cumulative effects.	None.
		Ornithology	The Preliminary Ecological Appraisal Report for this project states that the site is of low value to birds and is likely to support only common and widespread species. A variety of habitat enhancement measures are proposed that will benefit bird species, including grassland/wildflower establishment, and planting of native shrubs and hedgerow.	No likely significant cumulative effects.	None.
		Forestry	No forestry present.	No likely significant cumulative effects.	None.
		Cultural Heritage	No physical impacts on any common assets.	No physical impacts on any common assets, no likely significant cumulative effects..	None.
		Traffic and Transport	Information from the Transport Statement has been included in the cumulative transport assessment.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Hydrology, Hydrogeology and Geology	No EIA completed, however from assessment completed, significant effects are considered unlikely.	No likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	Cumulative construction and operational noise as per Muir of Pert analysis above. The site is 4 km from the OHL, where NSRs relevant to the site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the Energy Storage Farm would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3k m of the targeted elements of the Proposed Development included within the LVIA.	None.
Solar Farm at land 500 m East of Stoneygroves Liff	I	Ecology	Preliminary Ecological Appraisal and BNG reviewed. Unlikely to have any significant effects. Effects are most likely to be beneficial; BNG assessment suggests biodiversity value of the site will almost double as a result of the proposed development. Impacts on bats could not be ruled out, however, due to the nature and scale of works, any effect is unlikely to be significant.	No likely significant cumulative effects	None.
		Ornithology	From the preliminary ecological appraisal, the following is discussed	No likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
			which would be relevant with regards cumulative effects with the Proposed Development: Wintering geese may be impacted by the proposed development. There are local SPAs and SSSIs sites within 20 km of the Site, and as such, geese and wader species observed within the Site over winter are likely to be associated with these designated areas. However, information from NatureScot indicates that the loss of this potential winter goose feeding site would not have a significant impact of the SPA geese. The high tide winter bird surveys recorded a single woodcock feeding in an area within the northwest of the Site boundary. This indicates waders from the local SPA and SSSI sites are using this Site. However, due to only a single individual being recorded and the similar habitat surrounding the Site, it is unlikely the proposed development will impact the populations of the local designated sites.		
		Forestry	Not available	No forestry present therefore no likely significant cumalative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Cultural Heritage	No physical impacts on any common assets.	No physical impacts on any common assets, no likely significant cumulative effects..	None.
		Traffic and Transport	Information from the Transport Statement has been included in the cumulative transport assessment.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Flood Risk Assessment and Surface Water Management Plan show no relevant significant effects for hydrology, hydrogeology and geology.	No likely significant cumulative effects predicted due to relevant distance.	None
		Noise and Vibration	Noise Impact Assessment shows no relevant significant effects for noise and vibration.	Cumulative construction and operational noise as per Muir of Pert analysis above. The site is over 2 km from the OHL, where NSRs relevant to the site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the Energy Storage System would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Battery Energy Storage at Cordon Farm, Abernethy	J	Ecology	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Ornithology	Not available.	No EIA screening request or opinion. However, relatively small size of project means that significant cumulative effects is unlikely.	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumalative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumulative effects..	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	Cumulative construction and operational noise as per Muir of Pert analysis above. Therefore, cumulative impacts due to the Battery Energy Storage System would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Jamesfield Energy Storage Facility	K	Ecology	Preliminary Ecological Appraisal Reviewed. No significant effects are anticipated on affected habitats Only minor effects on protected species are likely given relatively small scale.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects.	None.
		Ornithology	Based on the desk study data with regards to the known distribution of pink-footed geese within the Site and surrounding area, and the nature and scale of the Proposed Development, it is concluded that significant effects on Natura sites are unlikely. A Habitats Regulations Appraisal or further studies such as wintering bird surveys, should therefore not be required. NatureScot have been consulted and have confirmed that they agree with this assessment. They have advised that mitigation (screening or similar) should be used if construction works are carried out during the winter period (mid-October to March inclusive) to minimise potential disturbance impacts.	No likely significant cumulative effects.	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumulative effects.	None.
		Cultural Heritage	No physical impacts on any common assets.	No physical impacts on any common assets, no likely significant cumulative effects..	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Traffic and Transport	Information from the Transport Statement has been included in the cumulative transport assessment.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor..
		Hydrology, Hydrogeology and Geology	No EIA completed, however from assessment completed, significant effects are considered unlikely.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	None.
		Noise and Vibration	Noise Impact Assessment shows no relevant significant effects for noise and vibration.	Cumulative construction and operational noise as per Muir of Pert analysis above. Worst-case results from the proposed BESS site will occur in dry conditions, which is where the OHL noise is at a minimum. In wet conditions, the OHL noise is elevated. In these conditions, the background noise is increased due to the rainfall, which would make the effects of the other developments such as the BESS development less likely to have an impact on the relevant receptors. Therefore, cumulative impacts due to the BESS would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
	L	Ecology	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
Balnuith Farm BESS (Tealing)				small scale of the development. Therefore, no likely significant cumulative effects.	
		Ornithology	Given the agricultural use of the site, the location of the development, and the opportunity to create landscape features, provide landscape buffers and habitat improvements, it is not considered that any impacts would be significant in the context of the EIA regulations.	No likely significant cumulative effects.	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumulative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumulative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	None.
		Noise and Vibration	Not available.	Cumulative construction and operational noise as per Muir of Pert analysis above.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
				The site is 2 km from the OHL, where NSRs relevant to the BESS site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the BESS would be low and considered to have negligible impact.	
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Fithie Energy Park BESS	M	Ecology	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively small scale of the development. Therefore, no likely significant cumulative effects	None.
		Ornithology	Not available.	No Screening Opinion available. However, relatively small size of project means that significant cumulative effects are unlikely. .	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumulative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumulative effects..	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
				Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	
		Noise and Vibration	Not available.	Cumulative construction noise as per Muir of Pert analysis above. The battery storage containers will be fitted with air conditioning units and the operation of the facility, as a whole, may create noise. While recognising there are other noise generating uses in the vicinity of the site, there are a small number of properties which may be adversely affected by noise from the development. Worst-case results from the proposed BESS site will occur in dry conditions, which is where the OHL noise is at a minimum. In wet conditions, the OHL noise is elevated. In these conditions, the background noise is increased due to the rainfall, which would make the effects of the other developments such as the BESS development less likely to have an impact on the relevant receptors. The site is approximately 2 km from the OHL, where NSRs relevant to the BESS site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the BESS would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
Myreton BESS	N	Ecology	Not available.	Affected habitats are primarily of low ecological value. Only minor effects on protected species are likely given relatively	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
				small scale of the development. Therefore, no likely significant cumulative effects	
		Ornithology	Not available.	It is not considered that the proposal has the potential to have significant effects on any existing environmental designations in the wider area due separation distance and the relatively small size of the site. Avoidance and mitigation measures similar to those to be implemented by the Proposed Development will be implemented and no likely residual significant effects. Therefore, no likely significant cumulative effects	None.
		Forestry	Not available.	No forestry present therefore no likely significant cumulative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumulative effects.	None.
		Traffic and Transport	Not available.	Cumulative assessment has been undertaken in Chapter 12 (Volume 2) for all Inter Developments and indicates that there is the potential for cumulative moderate effects if, in the worst case, all developments were constructed at the same time.	Mitigation through co-ordination of CTMPs will manage any cumulative effects, reducing moderate effects to minor.
		Hydrology, Hydrogeology and Geology	Not available.	Cumulative impacts associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors.	None.
		Noise and Vibration	Not available.	Cumulative construction and operational noise as per Muir of Pert analysis above. The site is 2 km from the OHL, where NSRs relevant to the BESS site will have negligible impacts from the OHL. Therefore, cumulative impacts due to the BESS would be low and considered to have negligible impact.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.
SPEN TKUP Lines (Uprate to 400kV operation)	O	Ecology	Not available.	The insignificant nature of effects of this scheme, also an OHL upgrade with only slight impacts on habitats and associated fauna, similar to the slight effects of the Proposed Development, suggests that cumulative effects would remain slight and insignificant. Therefore, no likely significant cumulative effects.	None.
		Ornithology	Not available.	Information not available. However, avoidance and mitigation measures similar to those to be implemented by the Proposed Development will be implemented and no likely residual significant effects. Therefore, no likely significant cumulative effects.	None.
		Forestry	Not available.	Forestry present, potential for minor cumulative effects.	None.
		Cultural Heritage	Not available.	No physical impacts on any common assets, no likely significant cumulative effects..	None.
		Traffic and Transport	Not available.	No information available on required access tracks, therefore it has not been possible to include within the cumulative assessment undertaken in Chapter 12 (Volume 2).	None.
		Hydrology, Hydrogeology and Geology	Not available.	Potential minor cumulative effects associated with the construction phases of both developments due to their relative proximity. Impacts could include increased sediment-laden runoff and contaminated runoff into water receptors. No likely significant cumulative effects.	None.

Development	Ref. on Figure 5.1	Environmental Assessment Topic	Residual Significant Effects (if known) / information from any available sources on likely significant effects	Cumulative Assessment	Additional Mitigation
		Noise and Vibration	Not available.	Cumulative construction noise as per Muir of Pert analysis above. The nature and occurrence of the operational noise of the SPEN TKUP lines will be the similar to the Proposed Development. The uprating of the SPEN TKUP lines is likely to increase operational noise at nearby NSRs. Noise at NSRs is assessed by calculating noise from the nearest line and associated conductor type. The SPEN TKUP OHL has been assessed for the span between towers 65 and 67, assuming a similar conductor type (400 kV Twin Totara). The noise is assessed to be low impact at the nearby NSRs. At these NSRs the SPEN TKUP line will be dominant and the Proposed Development is not predicted to increase noise by a significant amount to which the cumulative assessment predicts significant impacts. Any significant impacts are likely to be assessed in the SPEN TKUP Lines noise assessment. Therefore, cumulative impacts due to the SPEN TKUP lines would be low and considered to have negligible impact.	None.
		Landscape Character and Visual Impact	Not available.	As outlined in Chapter 7 (Volume 2), assessment of cumulative landscape and visual effects have been scoped out of this assessment as none of the identified schemes are located within 3 km of the targeted elements of the Proposed Development included within the LVIA.	None.

15.4 Conclusion

15.4.1 This cumulative assessment chapter has considered both intra and inter cumulative effects and determined that there are no interactive or in combination cumulative effects associated with the Proposed Development.