14. CUMULATIVE ASSESSMENT

14.1 Introduction

14.1.1 This chapter considers the potential cumulative environmental effects as a result of the Proposed Development in accordance with Schedule 4, paragraph 5(e) of the Environmental Impact Assessment (EIA) Regulations[1]. The purpose of the assessment is to assess whether the combination of multiple effects upon a common receptor would result in an effect of greater significance than the individual effects alone (as reported in **Technical Chapters 6-13**).

14.1.2 As set out in **Chapter 5: Methodology (EIAR Volume 2)**, there are two aspects to the cumulative assessment which have been considered in this EIA report, in-combination effects, and effect interactions.

14.2 In-Combination Effects

Other Developments

14.2.1 In-combination effects are the combined effect of the Proposed Development together with other reasonably foreseeable developments ('other developments'), taking into consideration effects at the site preparation and earthworks, construction and operational phases.

14.2.2 A search for other developments was undertaken on 17 November 2021 and reviewed 20 March 2022. This considered developments recorded as consented (under construction or not yet constructed), those in planning and those within the public domain, deemed reasonably foreseeable, within 10 km[2] of the proposed substation. In addition to this, **Chapter 7: Ornithology** will consider any other relevant (as above) developments within Natural Heritage Zone 14 "Argyll West and Islands".

14.2.3 A list of considered developments is provided below and shown, indicatively, in **Figure 14.1 (EIAR Volume 3a)**:

- Creag Dhubh to Inveraray 275 kV Overhead Line (Pre-planning, reasonably foreseeable as part of the Argyll and Kintyre 275 kV Strategy[3]);
- Inveraray to Crossaig 275 kV Overhead Line Reinforcement (18/1700/S37; under construction);
- Creag Dhubh Substation (In-planning - awaiting determination; adjacent SSEN development);
- ITE/ ITW[4] connection[5] to Creag Dhubh Substation from existing 132 kV Taynuilt to Inveraray OHL (Pre-planning, reasonably foreseeable as part of the Argyll and Kintyre 275 kV Strategy, adjacent SSEN development;
- Blarghour Wind Farm, Land 7 km north west of Inveraray (ECU00005267; consented 29 October 2021);
- Blarghour Wind Farm Connection Project (Pre-planning, reasonably foreseeable as part of the Argyll and Kintyre 275 kV Strategy);
- New Hydro Connection at Maltlands, Inveraray, Argyll (18/00061/PP; consented November 2018);
- Eas A Ghail Inverlochy by Dalmally Hydropower scheme (19/00535/PP; addition of three intakes to the existing hydropower scheme);
- Hydropower scheme, land north of Edenonich, Dalmally (18/02654/PP; in-construction, likely completed);

[1] UK Government (2017) The Town and Country planning (Environmental Impact Assessment) (Scotland) regulations 2017. Available at: https://www.legislation.gov.uk/ssi/2017/102/contents

2 Based on professional judgement of technical specialists.

[3] SSEN Transmission (2021), Argyll and Kintyre 275 kV Strategy. Online: https://www.ssen-transmission.co.uk/projects/argyll-and-kintyre-275kv-strategy/.

[4] Inveraray to Taynuilt East and Inveraray to Taynuilt West.

[5] The ITE/ ITW connection would be the subject of Permitted Development. The development would comprise two terminal towers at the Creag Dhubh Substation and the temporary diversion of the existing OHL from Taynuilt to Inveraray, which would be in place for over 6 months. There would also be two tower changes on the existing 132 kV OHL to replace the existing towers with angle towers.

- Meteorological mast land 1.5 km north west of Ladyfield Cottage, Ladyfield Forest (20/02178/PP; consented March 2021);
- Erection of telecommunications equipment compound with 25 m lattice tower, land east of Keeper's Cottage, Cladich (19/02207/PP; consented February 2020);
- Succoth Forest track, Dalmally (21/01295/PNFOR; consented 2021);
- Succoth Forest track, Dalmally (18/02018/PNFOR and 21/00106/PNFOR; consented 2021);
- Allt Fhuaran Succoth Forest track (21/01022/PNFOR; consented 2021);
- Forest track land opposite Kilchurn Castle View Point (18/02659/PNFOR; consented 2019);
- Kenachreachan forest access track (17/00302/PNF; constructed); and
- Commercial forestry schemes, including, but not limited to, the M23: Keppochan East and Tullich Indicative LTFP within which the RLB Site is located[6].

Assessment of In-combination Effects

14.2.4 In combination effects have been assessed within each of the Technical Assessments (**Technical Chapters 6-13**) and have therefore not been presented within this Chapter. However, a summary is provided given the nature and location of the cumulative schemes. Significant in-combination effects are likely to arise in respect of the following:

- Potential loss of Ancient Woodland, as an irreplaceable resource, in-combination with the Blaghour Wind Farm Connection, Forest access tracks in Succoth Forest and Near Kilchurn Castle, and the Inveraray to Crossaig 275 kV OHL Reinforcement.
- Locally significant impacts on the character of the Craggy Upland – Argyll LCT, the significant effects occurring at locations in close proximity to the Proposed Development. The in-planning developments of Creag Dhubh – Inveraray 275 kV OHL and Creag Dhubh substation would be viewed within the context of existing transmission infrastructure and while it would intensify the presence of OHL structure within the landscape, these significant effects would be high localised and contained. Additionally, there would be localised significant cumulative effects arising from the sequential views of operational and in-planning developments, and the Proposed Development on the character of the Craggy Upland – Argyll LCT, and views from the A819.

14.2.5 Potential impacts during the construction stage, such as those relating to hydrology and hydrogeology, peat, ecology and ornithology, transport and noise, would be managed through the implementation of the Construction Environmental Management Plan (CEMP) and associated management plans (e.g. CTMP, PMP & HMP). As the Applicant for the cumulative schemes as part of the wider Argyll and Kintyre 275 kV Strategy (Creag Dhubh Substation, Creag Dhubh to Inveraray OHL and ITE/ITW Connection), these potential impacts would be managed collectively by the Applicant via the implementation of the CEMPs and management plans.

14.3 Effect Interactions (Intra-cumulative)

14.3.1 Cumulative effect interactions are the combined or synergistic effects caused by the combination of a number of effects on a particular receptor (taking into consideration effects at the site preparation and earthworks, construction, and operational phases), which may collectively cause a more significant effect than individually.

14.3.2 The approach to the assessment of the 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 residual effects only (considered to be effects of minor or greater significance i.e. excluding negligible effects).

[6] Given the study area comprises large amounts of commercial forestry which are subject to ongoing felling and restocking works, the technical assessments have considered the commercial forestry schemes either as part of the future baseline scenario or as a cumulative scheme, as appropriate.

14.3.3 An overall assessment of the cumulative effects on identified common sensitive receptors has been made using professional judgement and the technical information provided in **Technical Chapters 6-13**.

14.3.4 The residual effects of the individual topics on common sensitive receptors are presented in during construction **Table 14.1** (during construction) (**Table 14.2** (operational). The potential for effect interactions are then discussed in the text following the table.

14.3.5 Only residual effects with the potential for effect interactions are considered, i.e. where there are common sensitive receptors with other distinctly different topics.

14.3.6 The following technical topics are therefore excluded from **Table 14.1**:

- Ornithology.

14.3.7 The following technical topics are therefore excluded from **Table 14.2**:

- Biodiversity; and Transport.

14.4 Assessment of Effect Interactions

14.4.1 Potential effect interactions identified during the construction and operational phases of the Proposed Development are illustrated in **Tables 14.1** and **14.2**, and discussed in Section 14.4.2 and 14.4.5 below.

Table 14.1: Cumulative Effect Interactions: Residual Effects on common Receptors – Construction

Likely Residual Effects		Receptor and Receptor Groups											
		GWDTEs	Sensitive Habitats (excluding GWDTEs)	Protected Species	Landscape Fabric	Designated Landscapes	Residential Properties	Transport Routes	Recreational Receptors	Cultural Heritage Asset	Surface Water and Groundwater	Private Water Supplies	Commercial Forest
Biodiversity (Chapter 6)	Disturbance and loss of habitats												
LVIA/RVAA (Chapter 8)	Visual impacts to landscape fabric, designated landscapes and visual amenity												
Cultural Heritage and Archaeology (Chapter 9)	Where there may be a direct physical effect on a heritage asset.												
Hydrology, Hydrogeology, Geology and Soils (Chapter 10)	Impacts to water quality and indirect effects on aquatic habitats and species from accidental chemical pollution												
	Impact on aquatic ecology or fluvial morphology from sediment mobilisation, watercourse crossings												
	Alteration to surface water flows and runoff												
	Impacts to water quality of private water supplies												
Forestry (Chapter 11)	Woodland Removal												
	Impacts to commercial forestry from loss of forest due to windthrow, effect on woodland management and LTFP, and effect on access for felling												
Noise (Chapter 12)	Impact of construction noise												
Traffic and Transport (Chapter 13)	Accident risk from increase in traffic												
Potential for Intra-Cumulative Effects		Yes	Yes	Yes	No	No	Yes	Yes	No	No	No	No	No

Note – only residual effect of minor significance of greater are highlighted in the above table.

	Significant
	Locally Significant
	Adverse, Not Significant (minor residual effect)
	Cumulative Effects

14.4.2 As shown in **Table 14.1**, effect interactions are likely to arise at the following receptors/receptor groups:

- Ground Water Dependent Terrestrial Ecosystems (GWDTEs) – whilst there is potential for effect interactions between Biodiversity and Hydrology, Hydrogeology, Geology and Soils, the technical assessment presented within **Chapter 6: Biodiversity (EIAR Volume 2)** has already considered hydrological and hydrogeology effects to GWDTEs. Accordingly**, no further effect interactions** are predicted above what is stated in **Chapter 6.**
- Sensitive Habitats (excluding GWDTEs) – Intra-Cumulative effects have been identified for Ancient Woodland. However, the impact being assessed is the same (i.e. the loss of Ancient Woodland) and therefore there is **no residual effect** above what is reported in **Chapter 6** and **Chapter 11: Forestry (EIAR Volume 2**).
- Protected Species – there is potential for intra-cumulative effects on protected species from Biodiversity, Forestry and Hydrology impacts. The Hydrology and Forestry Chapters do not identify Protected Species as a sensitive receptor (this is dealt with in Chapter 6 Biodiversity). However, impacts to hydrology and forestry affect the habitats that support Protected Species, and as such, it is considered there are potential for intra-cumulative effects. In terms of Hydrology, potential impacts to water quality would be mitigated through the Construction Environmental Management Plan (CEMP) (**Technical Appendix (TA) 2.2 Outline CEMP, EIAR Volume 4**) and associated management plans. The technical assessment presented within **Chapter 6: Biodiversity** and **Chapter 11**: **Forestry (EIAR Volume 2**) has already considered the effects of the loss of woodland and other habitats on protected species. Accordingly, **no further effect interactions** are predicted above what is stated in **Chapter 6** and **Chapter 11.**
- LVIA/RVAA - Residential Properties – there is potential for intra-cumulative effects to residential receptors from visual and noise impacts. However impacts would be limited to a small number of receptors (five receptors - RVA 01 - 05) subject to both visual and noise impacts. Furthermore, construction noise is predicted to fall below the noise limit for all receptors (refer to **Chapter 12: Noise and Vibration, EIAR Volume 2**). Accordingly, the **intra-cumulative impacts would be negligible and not significant.**
- Transport Routes/Recreational Receptors – potential for intra-cumulative effects to road users as a result of visual impacts and increased accident risk. However, visual impacts from roads would be generally contained, with open views only experience for a short period of time, and would be mitigated through the CEMP (**TA 2.2 Outline CEMP, EIAR Volume 4**) and associated management plans, such as reinstatement of temporary site compounds following construction to avoid sustained effects. Traffic impacts would be managed through the implementation of the Construction Traffic Management Plan (CTMP) to minimise impacts as far as practicable. Accordingly, **intra-cumulative effects would be negligible and not significant.**

Table 14.2: Cumulative Effect Interactions: Residual Effects on Common Receptors – Operational Period

Likely Residual Effects		Receptor and Receptor Groups									
		Birds	Landscape Character Type	Landscape Designations	Cultural Heritage Assets	Viewpoints (VP)	Residential Properties	Transport Routes	Recreational Receptors	Surface water and groundwater flows	Commercial Forestry
Ornithology (Chapter 7)	Collision risk										
LVIA/RVAA (Chapter 8)	Visual impacts to landscape fabric, designated landscapes and visual amenity										
Cultural Heritage (Chapter 9)	Impacts to setting of heritage assets										
Hydrology, Hydrogeology, Geology and Soils (Chapter 10)	Alteration to surface water flows and runoff										
Forestry (Chapter 11)	Impacts on forest land-use management										
Noise (Chapter 12)	Impact of operational noise										
Potential for Intra-Cumulative Effects		No	No	Yes	No	No	Yes	No	No	No	No

14.4.3 Note – only residual effect of minor significance of greater are highlighted in the above table.

14.4.4

	Significant
	Locally Significant
	Adverse, Not Significant (minor residual effect)
	Cumulative Effects

14.4.5 As shown in **Table 14.2**, effect interactions are likely to arise at the following receptors/receptor groups:

- Landscape Designations and Cultural Heritage Assets: there is potential for intra-cumulative effects to Ardanaiseig House GDL from visual and setting impacts. The technical assessment presented within **Chapter 8: LVIA and RVAA** and **Chapter 9: Archaeology and Cultural Heritage (EIAR Volume 2)** has already considered the effects on the views and setting of this designation. Accordingly, no further effect interactions are predicted above what is stated in Chapter 8 and Chapter 9.
- Residential Properties – potential for intra-cumulative effects to residential receptors from visual and noise impacts. However impacts would be limited to small number of receptors (five receptors - RVA 01 - 05) subject to both visual and noise impacts. Furthermore, operational noise results show that the entirety of receptors along the OHL would receive a rating of 'no observable reaction' for dry conditions, with an impact magnitude of Negligible for wet conditions. Accordingly, the intra-cumulative impacts would be **negligible and not significant.**

14.4.6 Overall, from the assessment of intra-project cumulative effects, the Proposed Development would result in intra-cumulative effects to the Ardanaiseig House GDL as a result of visual impacts and impacts to the setting of the designated landscape. However, the intra-cumulative effect would be no greater than Minor Adverse and **not significant.** Accordingly, no further mitigation is required.