Chapter 15: Summary of Significant Effects

Chapter 15
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Introduction

15.1 Chapters **6 to 14** of the Environmental Impact Assessment (EIA) Report present the findings of the predicted effects of Loch Liath Wind Farm (hereafter referred to as the 'Proposed Development') on a topic-by-topic basis. The significance of these effects has been assessed using criteria defined in the topic chapters. Where appropriate, the significance of effects has been categorised as Major, Moderate, Minor or Negligible. In the context of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'Regulations'), effects assessed as being of 'Major' or 'Moderate' significance are considered to be significant effects. Where this differs for certain topic chapters this has been clearly stated, and details are provided for how significant effects have been defined for that particular assessment.

15.2 In line with Schedule 4 of the EIA Regulations, PAN 1/2013, and other relevant EIA guidance, the EIA Report has focused on identifying significant environmental effects (both positive and adverse) of the Proposed Development, during construction and operation (including cumulatively).

15.3 **Table 15.1 to 15.5** below summarises the predicted significant effects of the Proposed Development prior to and following the implementation of committed mitigation. All effects are adverse unless otherwise stated.

Summary of Significant Effects

15.4 Prior to committed mitigation, significant effects are predicted in relation to the following topics:

- Landscape and Visual Amenity: Chapter 6;
- Geology, Hydrology, Hydrogeology and Peat: Chapter 7;
- Traffic and Transport: Chapter 12;
- Socio-economic, Recreation and Tourism (positive): Chapter 13; and
- Other Issues (Climate Change) (positive): Chapter 14.

15.5 Prior to committed mitigation, significant effects are not predicted in relation to the following topics and these are therefore not discussed further in this chapter.

- Ecology: Chapter 8;
- Ornithology: Chapter 9;
- Cultural Heritage: Chapter 10; and
- Noise and Vibration: Chapter 11.

15.6 Following mitigation, significant effects remain for the following topics:

- Landscape and Visual Amenity: Chapter 6;
- Socio-economic, Recreation and Tourism (positive): Chapter 13; and
- Other Issues (Climate Change) (positive): Chapter 14.

Landscape and Visual Amenity

15.7 It should be noted that wind turbines, as tall man-made structures, introduce features which are likely to bring about substantial landscape and visual changes. Measures to reduce effects upon the landscape resource and upon views and visual amenity are predominantly achieved through the design of the Proposed Development, as described in **Chapter 3: Site Selection and Design Strategy** and the supporting **Design and Access Statement**. As all mitigation for landscape and visual effects is embedded within the final design for the Proposed Development, all effects discussed in this section are effectively residual effects as no further mitigation is proposed.

Significant Landscape Effects

15.8 The assessment predicts significant effects on the landscape resource of the Site itself (**Major**) during construction and operation. The assessment predicts Significant effects on the Landscape Character Types (LCT) for:

- LCT 222 – Rocky Moorland Plateau – **Moderate** landscape effect locally, reducing to Minor for the whole of the LCT.

15.9 Given the varied status, and therefore uncertainty, associated with un-built wind farms across the Study Area the cumulative assessment has considered two potential development scenarios:

- Scenario 1: Higher level of certainty: the addition of the Proposed Development to a landscape with operational, under construction and consented wind farms; and
- Scenario 2: Lower level of certainty: the addition of the Proposed Development to a landscape with operational, under construction, consented and undetermined valid planning applications.

15.10 Overall, for the LCT above for which significant effects have been predicted, future cumulative effects are not judged to be of a greater significance than those of the primary Landscape and Visual Amenity Impact Assessment (LVIA) in both Scenario 1 and Scenario 2.

Significant Visual Effects

15.11 Significant effects are predicted during operation on views and visual amenity for the following viewpoints (VPs):

- Viewpoint 1: Affric Kintail Way, near Braefield (daytime) – **Moderate**. No other wind energy developments are evident from this viewpoint under Scenario 1 or Scenario 2;
- Viewpoint 2: Meall Fuar-mhonaidh – **Major** reducing to **Moderate** cumulative effects in both Scenario 1 and Scenario 2;
- Viewpoint 5: Coire Loch Trail, Glen Affric – **Moderate**, with no change in the level of cumulative visual effects under Scenario 1 or Scenario 2;
- Viewpoint 8: B862 Suidhe Viewpoint – **Moderate,** with Minor cumulative effects for both Scenario 1 and Scenario 2;
- Viewpoint 9: Meall Mor, above Glen Affric – **Moderate**, with no change in the level of cumulative visual effects under Scenario 1 or Scenario 2; and
- Viewpoint 10: Creag Dhubh (daytime) – **Moderate**, with no change in the level of cumulative visual effects under Scenario 1 or Scenario 2.

15.12 **Moderate** effects are predicted locally during operation on the settlement of Balnain reducing to Minor (not significant) for the settlement as a whole. No other wind energy developments are evident from this viewpoint under Scenario 1 or Scenario 2.

15.13 There are significant operational effects predicted for short sections of the following routes:

- B862: **Moderate** effects from localised sections near the Suidhe viewpoint, reducing to Minor (not significant) elsewhere. Minor and not significant cumulative effects are predicted under Scenario 1 and 2.
- Affric Kintail Way: **Moderate** effects near Braefield approximately 5.6 kilometres (km) from the Proposed Development, reducing to Not Significant (Minor) elsewhere. No additional cumulative visual effects are precited under Scenario 1 or Scenario 2.
- Caledonia Way cycle route and the South Loch Ness Trail – **Moderate** effects near localised sections near the Suidhe viewpoint and along the eastern shore of Loch Ness within approximately 13 to 17km of the Proposed Development, reducing to minor elsewhere. Minor and not significant cumulative effects are predicted under Scenario 1 and 2.
- Rights of way which cross the Site (Other Route - H/HI53/1; Recorded Right of Way HI/HI67/1; Other Route HI/HI71/1; and Other Route HI/HI70/1) – **Moderate** effects are predicted, with no change in the level of cumulative visual effects under Scenario 1 or Scenario 2.

15.14 Significant landscape and visual effects, including cumulative effects are summarised in **Table 15.1**.

Geology, Hydrology, Hydrogeology and Peat

15.15 The effects of the Proposed Development infrastructure are assessed as being Minor to **Moderate** adverse effects with regards to peat disturbance, and **Moderate** for infrastructure located on peat (>0.5 metres (m) average depth) where excavation is required:

- **Moderate** for excavated infrastructure on average shallow peat T3, T5, T7, T10, T11, T12 and T13, the met mast, some of the substation, a very small area of the borrow pit and some excavated track sections.
- **Moderate** for excavated infrastructure on small deep peat areas: approximately 140m of main access approach, approximately 50m of the section between T9 and T10 and approximately 50m on the approach to T11.

15.16 Mitigation proposed includes appropriate reuse of peat onsite with preference for concurrent restoration of erosional gullies and degrading peat areas and subsequently for construction restoration. In addition, implementation of an **Outline Peat Management Plan** (OPMP) (provided in outline in **Appendix 7.3** and **Outline Restoration and Enhancement Plan** (OREP) (**Appendix 8.5**). Mitigation measures reduce the effects to Minor and Not Significant due to the use of excavated peat for restoration of actively degrading areas of peat which is a positive enhancement to current conditions. The restoration work proposed in the OREP will also have knock-on benefits for ecology and ornithology.

15.17 Geology, Hydrology, Hydrogeology and Peat effects are summarised in **Table 15.2**.

Traffic and Transport

15.18 The maximum traffic effect associated with construction of the Proposed Development is predicted to occur in Month 8 of the programme. During this month, an average of 78 Heavy Goods Vehicles (HGV) movements is predicted per day and it is estimated that there would be a further 52 car and light van movements per day to transport construction workers to and from the Site.

15.19 Effects on HI17 Route Users is predicted as **Major** for severance, pedestrian amenity and fear and intimidation and **Major / Moderate** for pedestrian delay and accidents and safety .

15.20 It should be noted that the effects relate solely to the peak of construction activities and that the construction period is short lived and the effects transitory in nature.

15.21 The following measures will be implemented to mitigate any adverse effects of construction traffic during the construction phase:

- Construction Traffic Management Plan;
- Abnormal Load Transport Management Plan;
- Access Management Plan (AMP); and
- A Staff Sustainable Access Plan.

15.22 Residual effects are all Minor and not significant. Traffic and Transport Effects are summarised in **Table 15.3**.

Socio-economic, Recreation and Tourism

15.23 The Applicant will provide annual community benefit fund contributions. The fund could be used by local community groups to secure long-term economic benefits and will act as a significant contribution to meeting local developmental aspirations. The Applicant will pay £5,000 per MW equivalent of installed capacity per annum of operation into the fund. This equates to £429,000[1] of income per annum, or over £15.0 million over the 35-year operational life of the Proposed Development, subject to the eventual turbine type installed and capacity installed. Therefore, a **Moderate** (positive) effect is predicted for the Proposed Development in relation to direct economic benefits during operation. Socio-economic, Recreation and Tourism effects are summarised in **Table 15.4**.

[1] 85.8MW x £5,000.

Other Issues: Climate Change Mitigation and Adaptation

15.24 During operation **Moderate** (positive) effects are precited for carbon losses and carbon offsetting (climate change mitigation). This increases to a **Major (**positive) effect for cumulative operational effects. No mitigation is proposed.

15.25 Climate Change Mitigation and Adaptation effects are summarised in **Table 15.5.**

Interrelated Effects

15.26 The EIA Regulations (Schedule 4, Paragraph 5) require that EIA Reports consider the interrelationships between aspects of the environment likely to be significantly affected by a development. It is considered that the following effects are interrelated:

- A number of heritage assets (**Chapter 10: Cultural Heritage)** are also discussed in the LVIA in **Chapter 6: Landscape and Visual Amenity**. As detailed in **Chapter 10**, the Cultural Heritage assessment and LVIA consider different kinds of receptors and effects, and hence can come to differing conclusions on levels of effect relating to the same heritage asset without this indicating an error in either assessment.
- There is a correlation between the sensitivity of viewpoints used for recreation and tourism and the landscape and visual assessment of the Proposed Development from these viewpoints within the wider 45km landscape and visual Study Area, with the assessment of effects in **Chapter 13: Socio-Economics, Tourism and Recreation** relating to the assessment of visual effects in **Chapter 6**. Whilst the assessment of such interrelated effects is presented within **Chapter 13**, the assessment necessarily relates to the assessment in **Chapter 6**. It should be noted, however, that not all viewpoints are at locations which represent recreational and tourism interests.
- There is also some correlation between potential effects on recreational amenity resulting from noise effects during construction. Effects on noise are considered in **Chapter 11: Noise and Vibration** and **Chapter 12: Traffic and Transport** for construction traffic noise.
- There are potential relationships between effects on geology, hydrology, hydrogeology and peat and effects on ecology. Specifically, excessive levels of suspended sediment in watercourses as a result of construction activities can have an indirect effect on watercourse ecology and fish. However, with embedded and additional site-specific mitigation (e.g. adherence to Guidelines for Pollution Prevention (GPPs), SuDS, buffers etc.) there will be no significant residual effect on water quality of downstream watercourses. Therefore, effects on fisheries remain scoped out of this assessment (see **Chapter 8: Ecology**). In addition, changes to hydrology resulting from the Proposed Development could result in effects on groundwater dependent terrestrial ecosystems (GWDTEs), peatland habitats, aquatic habitats and other ecological receptors (for example, due to disruption of the hydrological processes that sustain GWDTEs). The potential for such interrelated effects has informed the assessment presented in **Chapter 7: Geology, Hydrology, Hydrogeology and Peat** and **Chapter 8**. The peatland restoration work proposed will also have beneficial on habitats and the species they support as detailed in the OREP in **Appendix 8.5**.
- There may be interrelationships between effects on ecology and ornithology in relation to the loss or reduction in quality of suitable habitats for breeding, or indirect effect on foraging due to the changes in conditions for prey items. The relevant effects in this respect have been considered for the purposes of the ornithological assessment presented in **Chapter 9: Ornithology**.
- There is the potential for a variety of effects of different kinds (particularly visual, noise and transport-related effects) to interact in a manner that influences the experience of residential amenity. The potential for such interactions has been taken into account within the EIA process for the Proposed Development. No effects beyond those reported within the relevant EIA Report chapters (**Chapter 6**, **Chapter 11** and **Chapter 12**) are predicted due to such an interaction.

Table 15.1: Summary of Significant Effects Landscape and Visual Amenity

Landscape and Visual Amenity		
Predicted Effect	**Significance of Residual Effect**	**Cumulative Effect**
Construction Effects		
The Site	**Major (significant)**	n/a

Landscape and Visual Amenity		
Predicted Effect	**Significance of Residual Effect**	**Cumulative Effect**
Operational Effects on Landscape Character		
The Site	**Major (significant)**	n/a
Rocky Moorland Plateau – Inverness (LCT 222), host	**Moderate (significant)** for localised extents of LCT Minor (not significant) for LCT as a whole	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant)
Operational Effects on Views and Visual Amenity		
Viewpoint 1 - Affric Kintail Way, near Braefield (daytime)	**Moderate (significant)**	n/a
Viewpoint 2 - Meall Fuar-mhonaidh	**Major (significant)**	Scenario 1: **Moderate (significant)** Scenario 2: **Moderate (significant)**
Viewpoint 5 - Coire Loch Trail, Glen Affric	**Moderate (significant)**	Scenario 1: **Moderate (significant)** Scenario 2: **Moderate (significant)**
Viewpoint 8 - B862 Suidhe Viewpoint	**Moderate (significant)**	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant)
Viewpoint 9 - Meall Mor, above Glen Affric	**Moderate (significant)**	Scenario 1: **Moderate (significant)** Scenario 2: **Moderate (significant)**
Viewpoint 10 - Creag Dhubh (daytime)	**Moderate (significant)**	Scenario 1: **Moderate (significant)** Scenario 2: **Moderate (significant)**
Operation Effects on Settlements		
Balnain	**Moderate (significant)** for localised extent of settlement Minor (not significant) for the settlement as a whole	n/a
Operational Effects on Routes		
B862	**Moderate (significant)** for localised extent of route Minor (not significant) for route as a whole	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant)
Affric Kintail Way	**Moderate (significant)** for localised extent of route Minor (not significant) for route as a whole	Scenario 1: Minor (not significant) Scenario 2: Minor (not significant)
The Caledonia Way cycle route and the South Loch Ness Trail	**Moderate (significant)** for localised extent of route Minor (not significant) for route as a whole	Scenario 1: Minor/ not significant Scenario 2: Minor/ not significant
Rights of way which cross the Site (Other Route - H/HI53/1; Recorded	**Moderate (significant)**	Scenario 1: **Moderate (significant)**
Right of Way HI/HI67/1; Other Route HI/HI71/1; and Other Route HI/HI70/1)		Scenario 2: **Moderate (significant)**

Table 15.2: Summary of Significant Effects Geology, Hydrology, Hydrogeology and Peat

Geology, Hydrology, Hydrogeology and Peat			
Predicted Effect	**Significant**	**Mitigation**	**Significance of Residual Effect**
Construction Effects			
Disturbance of Peat: Peat Resource	Minor to **Moderate** (for peat excavation)	Appropriate reuse of peat onsite with preference for concurrent restoration of erosional gullies and degrading peat areas and subsequently for construction restoration. Implementation of OPMP and OREP measures including peatland enhancement to offset effects.	Minor (not Significant) Mitigation reduces the level of significance due to the use of excavated peat for restoration of actively degrading areas of peat which is a positive enhancement to current conditions

Table 15.3: Summary of Significant Effects Traffic and Transport

Receptors	Potential Effect	Significance of Effect	Significance of Residual Effect
'HI17 Route Users (see route on **Figure 13.1**)	Severance	**Major (Significant)**	Minor Not significant
	Pedestrian Delay	**Major / Moderate (Significant)**	Minor Not significant
	Pedestrian Amenity	**Major (Significant)**	Minor Not significant
	Fear & Intimidation	**Major (Significant)**	Minor Not significant
	Accidents & Safety	**Major / Moderate (Significant)**	Minor Not significant

Table 15.4: Summary of Significant Effects Socio-economic, Recreation and Tourism

Socio-economic, Recreation and Tourism			
Predicted Effect	**Significant**	**Mitigation**	**Significance of Residual Effect**
Operation Effects			
Direct Economic Benefits	**Moderate (positive)**	None	**Moderate (positive)**

Table 15.5: Summary of Significant Effects Other Issues

Other Issues: Climate Change Mitigation and Adaptation			
Predicted Effect	**Significant**	**Mitigation**	**Significance of Residual Effect**
Operation Effects			
Carbon Losses and Carbon Offsetting (climate change mitigation)	**Moderate (positive)**	None	**Moderate (positive)**
Cumulative Operation Effects			
Carbon Losses and Carbon Offsetting (climate change mitigation)	**Major (positive)**	None	**Major (positive)**