

## Chapter 12: Summary of Significant Effects

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## Chapter 12: Summary of Significant Effects

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## 12 Summary of Significant Effects

### 12.1 Introduction

- 12.1.1 Chapters 5 to 11 of the Environmental Impact Assessment (EIA) Report present the findings of the predicted effects of Appin 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.
- 12.1.2 In line with Schedule 4 of the EIA Regulations (Scottish Government), 2017, PAN 1/2013 (Scottish Government, 2013), and other relevant EIA guidance, the EIA Report has focused on identifying significant environmental effects (both beneficial and adverse) of the Proposed Development, during construction, operation and decommissioning (including cumulative effects).
- 12.1.3 Potential effects are assessed with the assumption that embedded mitigation<sup>1</sup> and best practice guidance are implemented. **Table 12.1 to 12.3** below summarises the predicted significant effects of the Proposed Development both prior to consideration of committed additional mitigation<sup>2</sup> (potential effects), and following the implementation of committed mitigation (residual effects). All effects are adverse unless otherwise stated.

### 12.2 Summary of Significant Effects

- 12.2.1 Prior to committed mitigation, significant effects are predicted in relation to the following topics:
- Landscape and Visual Amenity (Chapter 5);
  - Noise (Chapter 10); and
  - Transport (Chapter 11).
- 12.2.2 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:
- Geology, Hydrology and Peat (Chapter 6);
  - Ecology (Chapter 7);
  - Ornithology (Chapter 8); and
  - Cultural Heritage (Chapter 9).
- 12.2.3 Following committed additional mitigation, residual significant effects remain for the following topic:
- Landscape and Visual (Chapter 5).

### 12.3 Landscape and Visual Amenity

- 12.3.1 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 process, as described in **Chapter 3**. 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. It should be noted that the choice of viewpoints for the visual assessment aimed to provide a range of representative views within the study area. By their nature viewpoints located further away from the Proposed Development are more likely to experience non-significant effects while viewpoints close to the Proposed Development are more likely to experience significant effects.

<sup>1</sup> Embedded Mitigation are measures to avoid or reduce environmental impacts which are developed as an inherent part of the design of a project (e.g. reducing the height of a turbine) or from adoption of specific design parameters (e.g. compliance with specific buffer distances from an environmental receptor).

<sup>2</sup> Committed additional mitigation refers to measures implemented by the Applicant to avoid, remediate or alleviate adverse environmental impacts.

### Significant Landscape Effects

- 12.3.2 The assessment on landscape effects considers wind farms that are operational as well as those that are under construction as part of the baseline and is referred to as the 'primary assessment'. The assessment predicts **Significant** effects on the landscape resource of the Site itself (**Major**) during construction, operation and decommissioning. Once operational, the assessment predicts **Significant** effects on the Landscape Character Types (LCT) for:
- LCT 178 – Southern Uplands with Forest (Host LCT). **Moderate (Significant)** effect within 3 km, reducing to Minor and below (not significant) beyond.
  - LCT 166 – Upland Glens. **Moderate (Significant)** from the Shinnel Water Valley, between Appin Lodge and north of Tynron (approximately 8 km radius) but not significant beyond that distance.
  - LCT 177 – Southern Uplands. **Moderate (Significant)** effect within 5 km, reducing to Minor and below (not significant) beyond 5km.
  - LCT 175 – Foothills. **Moderate (Significant)** effect within 5 km, reducing to Minor and below (not significant) beyond 5km.
- 12.3.3 Given the varied status, and therefore uncertainty, associated with unbuilt wind farms across the Study Area, the Cumulative Landscape and Visual Impact Assessment (CLVIA) has considered two potential development scenarios:
- Scenario 1 includes, in addition to the primary assessment, wind farms that are more likely to be built as they have received planning consent.
  - Scenario 2 includes, in addition to the primary assessment and scenario 1, wind farms that are less likely to be built as they are undetermined planning applications.
- 12.3.4 Overall, for the four LCTs 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 LVIA in both Scenario 1 and Scenario 2.

### Significant Visual Effects

- 12.3.5 Significant effects are predicted for operational effects on views and visual amenity for the following viewpoints (VPs):
- VP1 – Colt Hill – **Major (Significant)**.
  - VP2 – Bail Hill Striding Arch – **Major (Significant)**.
  - VP4 – Shinnelhead – **Moderate (Significant)**.
  - VP5 – High Appin – **Major (Significant)**.
  - VP6 – Benbrack Striding Arch – **Major (Significant)**.
  - VP7 – Shinnel Water Valley near Craigencoon – **Major (Significant)**.
  - VP8 – Southern Upland Way near Cloud Hill – **Moderate (Significant)**.
  - VP10 – Auchengibbert Hill – **Moderate (Significant)**.
  - VP11 – Cairnkinna Hill – **Moderate (Significant)**.
  - VP12 – Blackcraig Hill – **Moderate (Significant)**.
  - VP14 – Cairnsmore of Carsphairn – **Moderate (Significant)**.
- 12.3.6 There are significant operational effects predicted for the following routes:
- Southern Upland Way (SUW) – **Moderate to Major (Significant)** localised effects will be experienced when travelling in both directions, and from open and higher sections of route within approximately 10 km.
  - Core Paths – **Moderate (Significant)** effects are predicted from sections of core paths with open views within 5 km.
- 12.3.7 Overall, for the 11 VPs, the SUW and Core Paths 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 LVIA in both Scenario 1 and Scenario 2.
- 12.3.8 LVIA and CLVIA effects are summarised in **Table 12.1** below.

## 12.4 Noise

- 12.4.1 During operation, suitable mitigation will be implemented to ensure that operational noise levels do not exceed the required threshold ensuring that there will be no residual significant effects.
- 12.4.2 Noise effects are summarised in **Table 12.2** below.

## 12.5 Transport

- 12.5.1 During construction, **Major** effects are predicted for C35S users and residents, B729 users and residents as well as core path network users; **Major / Moderate** effects are predicted for A713 users and residents, as well as residents in Dalmellington and New Cumnock; **Moderate** effects are predicted for B741 users and residents; and **Moderate / Minor** effects are predicted for residents of Carsphairn.
- 12.5.2 The implementation of suitable mitigation measures, including a Construction Traffic Management Plan (CTMP) during construction will result in these effects reducing to **minor** and not-significant residual effect.
- 12.5.3 Transport effects are summarised in **Table 12.3** below.

## 12.6 Interrelated Effects

- 12.6.1 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:
- There are potential relationships between effects on geology, hydrology 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 GPPs, SuDS, buffers etc) there is considered to be no significant residual effect on water quality of the downstream watercourses. Therefore, effects on fisheries remain scoped out of this assessment (see **Chapter 6** and **Chapter 7**).
  - 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 7**.
  - 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 5**, **Chapter 10** and **Chapter 11**) are predicted due to such an interaction.

## 12.7 Summary

**Table 12.1 – Summary of Significant Effects Landscape and Visual Amenity**

Receptor	Primary LVIA Assessment Findings	Scenario 1 Cumulative Assessment	Scenario 2 Cumulative Assessment
Effects of Construction (and decommissioning) on The Site	<b>Major (significant)</b>	N/A	N/A
Operational effects on Landscape Receptors			
The Site	<b>Major (significant)</b>	N/A	N/A
178 - Southern Uplands with Forest (Host LCT)	<b>Moderate (significant) landscape effects within 3 km</b> , reducing to Minor and below (not significant) beyond	<b>Moderate (significant) landscape effects within 3 km</b> , reducing to Minor and below (not significant) beyond	<b>Moderate (significant) landscape effects within 3 km</b> , reducing to Minor and below (not significant) beyond. To the immediate north-west of the Site, and under this scenario, it is recognised that Lorg and Eucharhead Wind Farms is likely to exert a stronger influence over the landscape.
LCT 166 – Upland Glens	<b>From the Shinnel Water Valley, between Appin Lodge and north of Tynron (approximately 8 km radius), Moderate</b>	<b>From the Shinnel Water Valley, between Appin Lodge and north of Tynron, Moderate (significant) landscape effects. From</b>	<b>From the Shinnel Water Valley, between Appin Lodge and north of Tynron, Moderate (significant) landscape effects. From other areas of the LCT</b>

Receptor	Primary LVIA Assessment Findings	Scenario 1 Cumulative Assessment	Scenario 2 Cumulative Assessment
	<b>(significant) landscape effects.</b> From other areas of the LCT effects will fall below threshold of significance.	other areas of the LCT effects will fall below threshold of significance.	effects will fall below threshold of significance.
LCT 177 – Southern Uplands	<b>Moderate (significant) landscape effects within 5 km (from the unit to the north of the Site),</b> reducing to Minor and below (not significant) beyond.	Minor and below (not significant).	Minor and below (not significant).
LCT 175 – Foothills	<b>Moderate (significant) landscape effects within 5 km (from the unit to the south of the Shinnel Water valley),</b> reducing to Minor and below (not significant) beyond.	<b>Moderate (significant) landscape effects within 5 km (from the unit to the south of the Shinnel Water valley),</b> reducing to Minor and below (not significant) beyond.	<b>Moderate (Significant) landscape effects within 5 km (from the unit to the south of the Shinnel Water valley),</b> reducing to Minor and below (not significant) beyond.
<b>Operational effects on Visual Receptors</b>			
VP1 - Colt Hill (0.5 km)	<b>Major (significant)</b>	<b>Major (significant)</b>	<b>Major (significant)</b>
VP2 - Bail Hill, Striding Arch (0.9 km)	<b>Major (significant)</b>	<b>Major (significant)</b>	<b>Major (significant)</b>
VP4 – Shinnelhead (1.6 km)	<b>Moderate (significant)</b>	<b>Moderate (significant)</b>	Minor (not significant)
VP5 - High Appin (2 km)	<b>Major (significant)</b>	<b>Major (significant)</b>	<b>Major (significant)</b>
VP6 - Benbrack, Striding Arch (2.9 km)	<b>Major (significant)</b>	<b>Major (significant)</b>	<b>Moderate (significant)</b>
VP7 - Shinnel Water Valley near Craigencoon (3.5 km)	<b>Major (significant)</b>	<b>Major (significant)</b>	<b>Major (significant)</b>
VP8 - Southern Upland Way near Cloud Hill (6.7 km)	<b>Moderate (significant)</b>	Minor (not significant)	Minor (not significant)
VP10 - Auchengibbert Hill (8.1 km)	<b>Moderate (significant)</b>	<b>Moderate (significant)</b>	Minor (not significant)
VP11 - Cairnkinna Hill (8.4 km)	<b>Moderate (significant)</b>	Minor (not significant)	Minor (not significant)
VP12 - Blackcraig Hill (9.4 km)	<b>Moderate (significant)</b>	Minor (not significant)	Minor (not significant)
VP14 - Cairnsmore of Carsphairn (10.9 km)	<b>Moderate (significant)</b>	<b>Moderate (significant)</b>	<b>Moderate (significant)</b>
Southern Upland Way	<b>When travelling in both directions, and from open and higher sections of the route within approximately 10 km, a Moderate to Major (significant) effect is predicted. Whilst significant, these effects will be very localised in nature.</b>	<b>Significant sequential effects will remain from open and upland sections of the SUW to the south-west of the Site (and to the south of Lorg Wind Farm) within approximately 3 km.</b> Beyond this, and given the relationship with consented wind farms, effects will fall below the threshold of significance.	<b>Significant sequential effects will remain from open and upland sections of the SUW to the south-west of the Site (and to the south of Lorg Wind Farm) within approximately 3 km.</b> Beyond this, and given the relationship with consented and proposed wind farms, effects will fall below the threshold of significance.
Core Paths within 5 km	<b>Moderate effects are predicted from the Core Path network, from sections with open views, within 5 km.</b>	<b>Given proximity, effects will remain similar to those assessment in the primary assessment.</b>	<b>Given proximity, effects will remain similar to those assessment in the primary assessment.</b>

**Table 12.2 – Summary of Significant Effects Noise**

<b>Noise</b>			
<b>Predicted Effect</b>	<b>Significant</b>	<b>Mitigation</b>	<b>Significance of Residual Effect</b>
Impacts at residential receptor (NAL1) due to noise generated by the operation of the Proposed Development	<b>Significant</b>	Mode management for certain wind speeds and wind directions. Turbine control system (subject to selection of final turbine).  Consideration of an alternative turbine could eliminate the requirement for mode management.	Not Significant

**Table 12.3 – Summary of Significant Effects Transport**

<b>Transport</b>			
<b>Predicted Effect</b>	<b>Significant</b>	<b>Mitigation</b>	<b>Significance of Residual Effect</b>
C35S Users / Residents	<b>Major - Significant</b>	Implementation of CTMP, Staff Travel Plan, AIL Transport Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements and provision of localised road improvement works.	Minor - Not Significant
B729 Users / Residents	<b>Major - Significant</b>	Implementation of CTMP, Staff Travel Plan, AIL Transport Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements and provision of localised road improvement works.	Minor - Not Significant
A713 Users / Residents	<b>Major / Moderate - Significant</b>	Implementation of CTMP, Staff Travel Plan, AIL Transport Management Plan, provision of construction traffic road signage and convoy escorts for AIL movements.	Minor - Not Significant
B741 Users / Residents	<b>Moderate - Significant</b>	Implementation of CTMP, Staff Travel Plan and provision of construction traffic road signage.	Minor - Not Significant
Residents in Dalmellington	<b>Major / Moderate - Significant</b>	Implementation of CTMP, Staff Travel Plan, AIL Transport Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements and provision of localised road improvement works.	Minor - Not Significant
Residents in Carsphairn	<b>Moderate / Minor - Significant</b>	Implementation of CTMP, Staff Travel Plan, AIL Transport Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements and provision of localised road improvement works.	Minor - Not Significant
Residents in New Cumnock	<b>Major / Moderate - Significant</b>	Implementation of CTMP, Staff Travel Plan and provision of construction traffic road signage	Minor - Not Significant
Core Path Network Users	<b>Major - Significant</b>	Implementation of CTMP, Staff Travel Plan, AIL Transport Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements and implementation of an OAMP.	Minor - Not Significant

## 12.8 References

Scottish Government, 2013, Planning Advice Note 1/2013: Environmental Impact Assessment, available [online] at: <https://www.gov.scot/publications/planning-advice-note-1-2013-environmental-impact-assessment/documents/>

Scottish Government (2017). The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017. Available at: <https://www.legislation.gov.uk/ssi/2017/101/contents/made>