Chapter 17 Summary of Residual Effects

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List of Abbreviations

Abbreviation	Description
AIL	Abnormal Indivisible Loads
CAA	Civil Aviation Authority
CEMP	Construction Environment Management Plan
CNP	Cairngorms National Park
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HET	Historic Environment Team
HMP	Habitat Management Plan
IOF	Important Ornithological Feature
LCT	Landscape Character Type
NSR	Noise Sensitive Receptor
SLA	Special Landscape Area
THC	The Highland Council

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17. Summary of Residual Effect

17.1 Introduction

17.1.1 **Table 17.1** and **17.2** provide quick reference to the significant residual environmental effects identified in the technical sections of this Environmental Impact Assessment (EIA) Report, as well as a cross reference to the relevant mitigation measures identified.

17.1.2 The residual effects are highlighted in **bold** shows where an effect is considered to be significant.

17.1.3 **Table 17.3** provides a summary of the cumulative effects of the Proposed Development in combination with other proposed, consented and operational developments within the local area

Table 17.1 – Summary of Residual Effects – Construction and Decommissioning

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Landscape and Visual					
Effects on Existing Landscape Features	Worst-case moderate minor	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case moderate minor	Adverse
Landscape Character Types	Worst-case moderate minor	Adverse		Worst-case moderate minor	Adverse
Visual Receptors within the Study Area	Worst-case minor	Adverse		Worst-case moderate minor	Adverse
Ornithology – Disturbance and/or displacement and habitat loss (breeding)					
Greylag goose	Not significant	Low adverse	Nothing in addition to embedded mitigation outlined in CEMP and HMP. (including appointment of an ECoW, following good practice guidance regarding breeding birds, and a Species Protection Plan)	Not significant	Low adverse
Hen harrier	Not significant	Moderate adverse		Not significant	Low adverse
Merlin	Not significant	Low adverse		Not significant	Low adverse
Short-eared owl	Not significant	Low adverse		Not significant	Low adverse
Curlew	Not significant	Low adverse		Not significant	Low adverse
Golden plover	Not significant	Moderate adverse		Not significant	Moderate adverse
Ecology					
Bats (disturbance/displacement)	Negligible	Adverse	Nothing in addition to embedded mitigation outlined in CEMP and HMP (including habitat enhancement and restoration measures, good practice guidance regarding protected species and pollution prevention will be followed, and an ECoW employed during construction)	Negligible	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Blanket/modified bog (indirect pollution)	Negligible	Adverse	Nothing in addition to embedded mitigation.	Negligible	Adverse
Blanket/modified bog (habitat loss)	Minor	Adverse	HMP to restore blanket bog	Minor	Beneficial
Wet heath (indirect pollution)	Negligible	Adverse	Nothing in addition to embedded mitigation.	Negligible	Adverse
Wet heath (habitat loss)	Moderate	Adverse	HMP to restore wet heath habitats	Negligible	Beneficial
Geology, Peat, Hydrology and Hydrogeology					
Detrimental impacts to on-site and downstream water quality during	Moderate & Minor/Moderate	Adverse	Nothing additional to embedded mitigation outlined in CEMP and PMP (including hydrological buffers, following good practice measures to avoid and mitigate against any identified adverse effects, and a monitoring plan)	Moderate & Moderate/Minor	Adverse
Increases to on-site and downstream flood risk as a result of poor construction practices (including poor construction of watercourse crossings).	Minor	Adverse	Nothing additional to embedded mitigation	Minor	Adverse
Impacts on peat as a result of interrupting surface and sub-surface drainage pathways.	Moderate	Adverse	Additional mitigation presented in Technical **Appendix 9.3** Peatland restoration provides opportunities for natural flood management	Moderate/Minor	Adverse
Impacts on peat stability during excavation	Moderate	Adverse	Nothing additional to embedded mitigation	Moderate	Adverse
Degradation or damage to GWDTE as a result of interrupting surface and sub-surface drainage pathways.	Moderate	Adverse	Use of bespoke infrastructure design to maintain shallow groundwater flows. Specific GWDTE information to be included in the CEMP	Moderate/Minor	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Noise and Vibration					
Construction noise including construction traffic	Scoped out of assessment	Neutral	Production and implementation of CEMP and traffic management plan	Not significant	Neutral
Cultural Heritage					
Potential direct impact on Assets 65 and 66	Negligible	Adverse	Toolbox talks; archaeological watching brief, if required by THC Historic Environment Team (HET).	Negligible	Adverse
Traffic and Transport					
A9 Users	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, Temporary
Residents in Dulnain Bridge	Moderate / Minor	Adverse	Implementation of Construction Traffic Management Plan including adoption of a voluntary speed limit of 15 mph for all construction vehicles through Dulnain Bridge, provision of construction traffic road signage, convoy escorts for AIL movements, provision of localised road improvement works.	Minor	Adverse, Temporary
Socio-Economics, Tourism and Recreation					
£12.5 million and 174 job years in Highland and Moray	Minor	Beneficial	N/A	Minor	Beneficial
£26.9 million and 375 job years in Scotland	Negligible	Beneficial	N/A	Negligible	Beneficial
Aviation and Radar					
Effects on aviation and radar interests	Negligible	Neutral	Aviation lighting will be installed as soon as practicable on erected turbines.	Negligible	Neutral

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Other Issues					
Land Use	Not Significant	Adverse	The land not required for siting of the infrastructure of the Proposed Development will be reinstated as agricultural grazing.	Not Significant	Adverse
Telecommunications	Negligible	Neutral	N/A	Negligible	Neutral

Table 17.2 – Summary of Residual Effects – Operation

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Landscape and Visual					
Landscape Character Types (LCT) within which the proposed turbines are located *During daylight hours*	Worst-case major *Within 3 km to the west, to the southern boundary of the LCT and 6 km east* **Significant**	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case **major** within 3 km to the west, to the southern boundary of the LCT and 6 km east **Significant**	**Adverse**
Landscape Character Types within which the proposed turbines are located *During hours of darkness*	Worst-case moderate major *Within 3 km to the west, to the southern boundary of the LCT and 6 km east* **Significant**	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case **major** within 3 km to the west, to the southern boundary of the LCT and 6 km east **Significant**	**Adverse**
Other Landscape Character Types *During daylight hours*	Worst-case moderate major *Within approximately 5 km* **Significant**	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case **moderate major** *Within approximately 5 km* **Significant**	**Adverse**
Other Landscape Character Types *During hours of darkness*	Worst-case moderate *Within approximately 5 km* **Significant**	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case **moderate** *Within approximately 5 km* **Significant**	**Adverse**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Visual assessment viewpoints *During daylight hours*	**Significant** effects on 7 of the 16 representative viewpoints	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	**Significant** effects on 7 of the 16 representative viewpoints	**Adverse**
Visual assessment viewpoints *During hours of darkness*	**Significant** effects on 5 of the 16 representative viewpoints	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	**Significant** effects on 5 of the 16 representative viewpoints	**Adverse**
Residential Properties within 2 and 5 km of the Proposed Development *During daylight hours*	**Significant** effects at 5 of the assessed properties	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	**Significant** effects at 5 of the assessed properties	**Adverse**
Residential Properties within 2 and 5 km of the Proposed Development *During hours of darkness*	**Significant** effects at 2 of the assessed properties	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	**Significant** effects at 2 of the assessed properties	**Adverse**
Settlements within 5 and 10 km of the Proposed Development *During daylight hours*	Worst-case minor Not significant	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case minor Not significant	Adverse
Settlements within 5 and 10 km of the Proposed Development *During daylight hours*	Worst-case minor Not significant	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case minor Not significant	Adverse
Settlements within 5 and 1 km of the Proposed Development *During hours of darkness*	No effects Not significant	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	No effects Not significant	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Recreational Walking Routes *During daylight hours*	Worst-case moderate Not significant	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case moderate Not significant	Adverse
Recreational Walking Routes *During hours of darkness*	Worst-case moderate minor Not significant	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case moderate minor Not significant	Adverse
Roads *During daylight hours*	Worst-case major **Significant** *Within approximately 1 km of the north-east corner of the site*	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Worst-case **major** **Significant**	**Adverse**
Drynachan, Lochindorb and Dava Moors Special Landscape Area	**Significant** *In the central part of the SLA to approximately 3 km to the west, to the southern boundary of the SLA where it meets the CNP and approximately 5 km to the east and north.*	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	**Significant** *In the central part of the SLA to approximately 3 km to the west, to the southern boundary of the SLA where it meets the CNP and approximately 5 km to the east and north.*	**Adverse**
Ornithology – Disturbance and/or displacement (breeding)					
Hen harrier	Not significant	Low adverse	Heather management measures to enhance suitable breeding habitat away from turbine area.	Not significant	Low beneficial

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Merlin	Not significant	Negligible	Heather management measures to enhance suitable breeding habitat away from turbine area.	Not significant	Low beneficial
Short-eared owl	Not significant	Negligible	Heather management measures to enhance suitable breeding habitat away from turbine area.	Not significant	Low beneficial
Curlew	Not significant	Low adverse	Peatland restoration to enhance suitable breeding habitat away from turbine area.	Not significant	Low beneficial
Golden plover	Not significant	Low adverse	Peatland restoration to enhance suitable breeding habitat away from turbine area.	Not significant	Low beneficial
Ornithology – Collision Risk					
Greylag goose	Not significant	Low adverse	N/A	Not significant	Low adverse
Pink-footed goose	Not significant	Low adverse	N/A	Not significant	Low adverse
Whooper swan	Not significant	Low adverse	N/A	Not significant	Low adverse
Golden eagle	Not significant	Low adverse	N/A	Not significant	Low adverse
Hen harrier	Not significant	Low adverse	Heather management measures to enhance suitable breeding habitat away from turbine area.	Not significant	Low adverse
Merlin	Not significant	Low adverse	Heather management measures to enhance suitable breeding habitat away from turbine area.	Not significant	Low adverse
Red kite	Not significant	Low adverse	N/A	Not significant	Low adverse
Curlew	Not significant	Low adverse	N/A	Not significant	Low adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Ecology					
Common and soprano pipistrelle (collisions)	Moderate	Adverse	Nothing in addition to embedded mitigation.	Moderate	Adverse
Myotis sp. bats (collisions)	Minor	Adverse	Nothing in addition to embedded mitigation.	Minor	Adverse
Brown long-eared bats (collisions)	Negligible	Adverse	Nothing in addition to embedded mitigation.	Negligible	Adverse
Geology, Peat, Hydrology and Hydrogeology					
Increases to on-site and downstream flood risk as a result of degradation of infrastructure and/or poor maintenance/monitoring of infrastructure.	Minor (on-site) Negligible (downstream)	Adverse	Additional mitigation presented in Technical **Appendix 9.3** Peatland restoration provides opportunities for natural flood management	Minor/Negligible (on-site) Negligible (downstream)	Adverse
Impacts on peat as a result of interrupting surface and sub-surface drainage pathways.	Slight	Adverse	Additional mitigation presented in Technical **Appendix 9.3** Peatland restoration provides opportunities for natural flood management.	Negligible	Adverse
Impacts on peat stability as a result of infrastructure	Slight	Adverse	Nothing additional to embedded mitigation	Slight	Adverse
Degradation or damage to GWDTE as a result of interrupting surface and sub-surface drainage pathways.	Moderate/Minor	Adverse	Maintenance of bespoke drainage during operation to maintain flows to be outlined in the CEMP	Minor	Adverse
Noise and Vibration					
Operational noise from wind turbines	Not significant	Adverse	N/A	Not significant	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Operational noise from non-turbine fixed plant	Not significant	Adverse	Specification of plant such that noise limits are met at NSRs	Not significant	Adverse
Cultural Heritage					
Effects of the setting of Lochindorb Castle (Asset 17)	Moderate	Adverse	N/A	**Moderate**	**Adverse**
Effects on the settings of designated assets (Assets 3and 20)	Moderate	Adverse	N/A	**Moderate**	**Adverse**
Effects on the settings of designated assets (Assets 18-19, 22-24, 29-30 and 34-37)	Negligible to minor	Adverse	N/A	Negligible to minor	Adverse
Traffic and Transport					
Transport movements during operation.	Negligible	Neutral	N/A	Negligible	Neutral
Socio-Economics					
£0.7 million and 11 jobs in Highland and Moray	Negligible	Beneficial	N/A	Negligible	Beneficial
£1.0 million and 17 jobs in Scotland	Negligible	Beneficial	N/A	Negligible	Beneficial
Fuel Poverty reduction in local area	Moderate	Beneficial	Community benefit to address fuel poverty	**Moderate**	**Beneficial**
Payment of non-domestic rates of £0.7 million	Negligible	Beneficial	N/A	Negligible	Beneficial
Effect on local tourism economy	Negligible	N/A	Outdoor Access Plan – an outline Plan provided in **Appendix 3.2**, to be consulted upon and finalised prior to construction.	Negligible	N/A

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Aviation and Radar					
Effects on aviation, radar and telecommunication interests	Negligible	Neutral	Aviation lighting will be installed. The location of erected turbines will be notified to the CAA and Defence Geographic Centre for inclusion in relevant obstacles data bases	Negligible	Neutral
Other Issues					
Land Use	Negligible	Neutral	N/A	Negligible	Neutral
Telecommunications fixed links.	Negligible	Neutral	N/A	Negligible	Neutral

Table 17.3 – Summary of Cumulative Effects

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Landscape and Visual - Scenario 1 - Other consented schemes are also considered to be operational					
Landscape Character	No change to the judgements of the effects on landscape character which the Proposed Development would bring about.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse
In-combination Visual Effects	No change to the judgements of the effects on visual amenity which the Proposed Development would bring about.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse
Sequential Cumulative Visual Effects	No change to the judgements of the effects on visual amenity which the Proposed Development would bring about.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse
Landscape and Visual – Scenario 2 - Other consented and in-planning schemes are considered to also be operational					
Landscape Character	The addition of the Cairn Duhie scheme would reduce the extent of significant effects in a north-easterly direction from 6 km to 4 km. The addition of Clash Gour, Berry Burn Extension, Rothes III and Corrigarth II schemes would result in no change to the significant landscape character effects identified for the Proposed Development	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Combined Landscape Character Effects of all other operational, consented and proposed schemes	LCT291 – Open Rolling Lowland No additional significant cumulative effects	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse
In-combination Visual Effects	The addition of the Cairn Duhie has the potential to result in significant cumulative effects to a very small number of dwellings. The addition of Clash Gour, Berry Burn Extension, Rothes III and Corrigarth II schemes would result in no change to the previous assessment of the effects on visual amenity which the Proposed Development would bring about.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse
Sequential Cumulative Visual Effects	The addition of the Cairn Duhie has the potential to result in significant cumulative effects to short stretches of the A939, A940 and B9007 The addition of Clash Gour, Berry Burn Extension and Rothes III schemes would result in an additional sequential cumulative effect on the A939, A940 and the Dava Way. However, it is not considered that this effect would be significant.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Combined cumulative visual effects of all other operational, consented and proposed schemes	It is not considered that the addition of the Proposed Development would be such as to result in the overall cumulative impact of turbines being dominant or oppressive in views from this area.	Adverse	No additional mitigation – consideration of landscape and visual matters was inherent in the design process	Judgements would remain unchanged	Adverse
Ornithology					
All IOFs	Not significant	Adverse	N/A	Not significant	Adverse
Ecology					
Common and soprano pipistrelle (collisions)	Moderate	Adverse	N/A	Moderate	Adverse
Myotis sp. bats (collisions)	Minor	Adverse	N/A	Minor Adverse	
Geology, Peat, Hydrology and Hydrogeology					
Cumulative Hydrological Effects	Negligible	Adverse	No additional mitigation	Negligible	Adverse
Noise and Vibration					
Cumulative noise from the operation of consented and proposed local wind energy developments.	Not Significant	Adverse	Operational monitoring to ensure compliance, with the option of selective constraint for the Proposed Development if found necessary.	Not Significant	Adverse

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Cultural Heritage					
On all assets	Minor	Adverse	N/A	Minor	Adverse
Traffic and Transport					
It is considered that there will be no significant cumulative effects on traffic and transport.					
Socio-Economics					
Development of a significant local renewable energy supply chain.	Minor	Beneficial	No mitigation necessary.	Minor	Beneficial
Enable community to secure more funding and investment into the area	Minor	Beneficial	No mitigation necessary.	Minor	Beneficial
Aviation and Radar					
It is considered that there will be no significant cumulative effects on aviation, radar or telecommunication interests as a result of the Proposed Development.					
Other Issues					
Land Use	Negligible	Neutral	N/A	Negligible	Neutral
Telecommunications	Negligible	Neutral	N/A	Negligible	Neutral