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## Introduction

- 15.1 **Chapter 15: Other Considerations**, of the Environmental Impact Assessment (EIA) Report assesses the potential impacts of the application layout of the Proposed Development in relation to:
- shadow flicker;
  - climate and carbon balance;
  - aviation;
  - risk of accidents and other disasters;
  - population and human health;
  - air quality;
  - telecommunications and other infrastructure;
  - television reception; and
  - waste and environmental management.
- 15.2 This Supplementary Environmental Information (SEI) Chapter supplements **Chapter 15** of the EIA Report. The methodology employed in this SEI Chapter is as set out in **Chapter 15** of the EIA Report and should be read in conjunction with this chapter.
- 15.3 **SEI TA15.1** accompanies this chapter, providing updated results of the carbon calculator as a result of the revised layout of the Proposed Development.

## Consultee Responses to EIA Report

- 15.4 **Table 15-1** provides a summary of the consultation responses to the application layout of the Proposed Development related to those topics outlined in **paragraph 15.1**. A reply to the consultee responses is also provided in **Table 15-1**.

**Table 15-1: Consultee Responses**

Consultee	Summary of Key Issues	Responses to Comments
<b>Ministry of Defence (MOD)</b>	The Proposed Development falls within Low Flying Area 14 (LFA 14), an area within which fixed wing aircraft may operate as low as 250 feet or 76.2 meters above ground level to conduct low level flight training. The addition of turbines in this location has the potential to introduce a physical obstruction to low flying aircraft operating in this area. To address this impact, and given the location and scale of the development, the MOD require conditions are added to any consent issued requiring that the development is fitted with aviation safety lighting and that sufficient data is submitted to ensure that structures can be adequately charted to allow deconfliction. Suggested conditions wording are set out in Appendix A. As a minimum the MOD would require that the perimeter turbines are fitted with 25cd visible or infra-red (IR) lighting.	It is accepted that planning conditions relating to aviation and infra-red lighting for the Proposed Development will be employed, should it be consented.

Consultee	Summary of Key Issues	Responses to Comments
<b>NATS (National Air Traffic Services)</b>	<p><u>Predicted Impact on Tiree RADAR</u></p> <p>Terrain screening available will not adequately attenuate the signal, and therefore this development is likely to cause false primary plots to be generated. A reduction in the RADAR's probability of detection, for real aircraft, is also anticipated.</p> <p><u>En-route operational assessment of RADAR impact</u></p> <p>Prestwick Centre ATC: Unacceptable</p> <p>Military ATC: Acceptable</p> <p><u>En-route Navigational Aid</u></p> <p>No impact is anticipated.</p> <p><u>En-route Radio Communication Assessment</u></p> <p>No impact is anticipated.</p>	<p>An agreement is being entered into between NATS (En-Route) Plc, NATS (Services) Ltd (NATS) and the Applicant for the design and implementation of an identified and defined mitigation solution in relation to the Balmeanach Wind Farm which would ensure that no unacceptable impact on the radar would result.</p>
<b>Highlands and Islands Airport Authority (HIAL)</b>	<p>This development would not infringe the safeguarding criteria and operation of Benbecula Airport. Therefore, Highlands and Islands Airports Limited has no objections to the proposal.</p>	<p>Noted</p>

## Design Amendments

15.5 The amendments to the Proposed Development which are considered relevant to the topics covered in this Chapter are:

- removal of Turbine 1 (T1), associated track to T1 and associated foundation and crane hardstanding;
- amendments to the track layout to reduce the length of track required, remove spurs and turning heads where possible and reorientate crane hardstandings to reduce effects on peat;
- the relocation of the substation to within the area of Borrow Pit 3.
- inclusion of the proposed link track to be part of the Proposed Development in the event that the consented Ben Sca Wind Farm does not get built;
- addition of the permanent construction compound (Compound 1) to the south of the A850, to ensure that the proposed link track would be able to be built to the site (in the absence of the consented Ben Sca Wind Farm); and
- update of the Outline HMP in **SEI TA8.5: OHMP Update**.

## Revised Figures

15.6 **Chapter 15: Other Considerations** of the EIA Report did not include any associated Figures; therefore, no updates are required.

## Assessment of Design Amendment Effects

### Shadow Flicker

- 15.7 The removal of T1 results in no change to the assessment of shadow flicker for the Proposed Development as the nearest residential receptor (9 Balmeanach) is to the south, closest to Turbine 8 (T8). The location of T8 has not changed and therefore the conclusion that no shadow flicker effects would result from the Proposed Development remains valid.

### Carbon Balance

- 15.8 The carbon payback period of the Proposed Development has been revised based on the amendments detailed in **paragraph 15.5**.
- 15.9 The detail for the Proposed Development that was input to the Scottish Government Windfarm Carbon Assessment Tool and presented as **Technical Appendix 15.1: Carbon Calculator** of the EIA Report, has been updated. At the time of writing the online version of the 'carbon calculator' was unavailable due to a technical fault. In its absence, the Scottish Government has advised that an excel spreadsheet (for the purposes of development, testing and trialling) which mimics the online version should be used in lieu of the online tool to present the payback period of the wind farm.
- 15.10 The full results of the carbon calculator are presented in **SEI TA15.1: Carbon Calculator**.
- 15.11 A summary of the revised anticipated carbon emissions and carbon payback of the Proposed Development is provided in **Table 15-2**.

**Table 15-2: CO<sub>2</sub> Emissions and Payback Time**

Result	Exp.	Min.	Max.
Net emissions of carbon dioxide (t CO <sub>2</sub> eq.)	128379	23176	237876
<b>Carbon Payback Time</b>			
Coal-fired electricity generation (years)	0.9	0.15	1.7
Grid-mix of electricity generation (years)	4.1	0.7	7.7
Fossil fuel - mix of electricity generation (years)	2.0	0.34	3.8
Ratio of CO <sub>2</sub> eq. emissions to power generation (g/kWh) (TARGET ratio by 2030 (electricity generation) < 50 g/kWh)	21	4	40

- 15.12 The calculations of total carbon dioxide (CO<sub>2</sub>) emission savings and payback time for the Proposed Development indicates the overall payback period of a wind farm with 9 turbines with an average (expected) installed capacity of 4.5MW each would be approximately 2 years, when compared to the fossil fuel mix of electricity generation.
- 15.13 The potential savings in CO<sub>2</sub> emissions due to the Proposed Development replacing other electricity sources over the lifetime of the wind turbines (assumed to be 40 years for the purpose of the carbon calculator) are approximately:

- 142,153 tonnes of CO<sub>2</sub> per year over coal-fired electricity (approximately 5.7 million tonnes assuming a 40 year lifetime for the purposes of the carbon calculator);
- 31,138 tonnes of CO<sub>2</sub> per year over grid-mix of electricity (approximately 1.2 million tonnes assuming a 40 year lifetime for the purposes of the carbon calculator); and
- 63,781 tonnes of CO<sub>2</sub> per year over a fossil fuel mix of electricity (2.6 million tonnes assuming a 40 year lifetime for the purposes of the carbon calculator).

- 15.14 The overall anticipated carbon payback time for the revised layout of the Proposed Development (compared to a fossil fuel mix of electricity generation) is 2 years. This is the same as the 2 year anticipated carbon payback time as assessed and presented in the EIA Report for the application layout.
- 15.15 The potential CO<sub>2</sub> emissions savings are also similar for the revised layout of the Proposed Development, compared to the figures presented in the EIA Report for the application layout.

## Aviation

- 15.16 The removal of T1 would not fundamentally affect the position conveyed by the MOD and NATs as outlined in **Table 15-1**.
- 15.17 As noted, it is accepted by the Applicant that planning conditions relating to aviation and infra-red lighting for the Proposed Development will be employed, should it be consented.
- 15.18 An agreement is being entered into between NATS (En-Route) Plc, NATS (Services) Ltd (NATS) and the Applicant for the design and implementation of an identified and defined mitigation solution in relation to the Balmeanach Wind Farm which would ensure that no unacceptable impact on the radar would result.

## Other Topics

- 15.19 Due to the nature of the amendments to the Proposed Development layout outlined in **paragraph 15.5**, it is not considered necessary to reassess the effects on 'risk of accident and other disasters', 'population and human health', 'air quality', 'telecommunications and other infrastructure', 'television reception' and 'waste and environmental management'. The predicted effects on these areas remain unchanged from those set out in **Chapter 15** of the EIA Report.

## Summary of Changes to the Significance of Effects

- 15.20 No changes to the shadow flicker effects are identified.
- 15.21 The purpose of the carbon balance calculation has been to determine the carbon payback period, and therefore the benefits of the Proposed Development in this regard, rather than an effect as such. The carbon payback period for the revised layout is predicted to be approximately 2 years, the same figure predicted in the EIA Report, therefore the Proposed Development's expected carbon saving potential is unaffected by the changes to the layout.

### Conclusions

- 15.22 The SEI design amendments will not result in any change to the significance of effects as presented in **Chapter 15** of the EIA Report and do not materially alter the Proposed Development's expected carbon saving potential.