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TABLES

Introduction

9.1 **Chapter 9: Other Considerations** of the Environmental Impact Assessment (EIA) Report for the Proposed Development assesses potential impacts of the application layout of the Proposed Development in relation to:

- shadow flicker;
- climate and carbon balance;
- aviation;
- noise and vibration;
- traffic and transport;
- risk of accidents and other disasters;
- population and human health;
- air quality;
- telecommunications and other infrastructure;
- television reception; and
- waste and environmental management.

9.2 This Supplementary Environmental Information (SEI) chapter supplements **Chapter 9** of the EIA Report and notes any changes to the assessment of the considerations above in relation to the revised layout. The methodology employed in this SEI Chapter is as set out in **Chapter 9** of the EIA Report and should be read in conjunction with this chapter.

9.3 This SEI chapter is accompanied by the following SEI Technical Appendices (TAs):

- **SEI TA9.1**: Transport Statement Update;
- **SEI TA9.3**: Noise Assessment Update; and
- **SEI TA9.4**: Carbon Calculator Update.

9.4 **EIA TA9.2** (Construction Traffic Management Plan) remains unchanged and valid for the revised layout of the Proposed Development.

Consultee Responses to EIA Report

9.5 **Table 9-1** provides a summary of the consultation responses to the application layout of the Proposed Development related to those topics outlined in **paragraph 9.1**. A reply to the consultee responses is also provided in **Table 9-1**.

Table 9-1: Consultee Responses

Consultee	Summary of Key Issues	Responses to Comments
Ministry of Defence (MOD)	The 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 turbiens in this area has the	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
	potential to introduce a physical obstrution to low flying aircraft operating in the area. To address this impact, and given the location and scale of the development, the MOD require conditions are attached 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 accurately charted to allow deconfliction. As a minimum the MOD would require that the turbines are fitted with an infra-red (IR) beacon. Subject to the conditions detailed in Appendix A, the MOD has no objection to the proposed development.	
NATS	This development will degrade the performance of our radar at Tiree however the developer states within their Schedule of Mitigation that a mitigation has been agreed with NATS and this "could be secured by a suitably worded condition". NATS can confirm this statement and therefore happy to not object to the proposal on this basis.	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 Ben Sca Wind Farm which would ensure that no unacceptable impact on the radar would result.
The Highland Council (THC) Transport Planning Team	Detailed comments included in the Transport Planning team's response, but these are addressed in **SEI TA9.1: Transport Statement Update** and are not replicated here.	An updated Transport Statement for the revised layout of the Proposed Development has been provided in **SEI TA9.1**.
THC Environmental Health Officer (EHO)	No objection - standard wind farm conditions restricting the noise levels to the agreed limits apply.	Noted. An updated noise assessment for SEI design amendments has been provided in **SEI TA9.3: Noise Assessment Update**

Design Amendments

9.6 The design amendments from the Proposed Development application layout (as detailed in the EIA Report) relevant to the assessment of other considerations are detailed in **SEI Chapter 1**, and include:

- removal of Turbine 1 (T1) and associated foundation and crane hardstanding; and
- update to Outline Habitat Management Plan (HMP).

Revised Figures

9.7 In order to update the graphic information previously issued with the EIA Report, the following revised figures have been produced for the SEI, which supersede the corresponding EIA Figures:

- **SEI Figure 9.1**: Shadow Flicker Results; and

- **SEI Figure 9.3.1**: Noise Sensitive Receptors.

Assessment of Design Amendment Effects

Shadow Flicker

9.8 Based on predictive modelling technique and assuming the worst-case scenario, **EIA Chapter 9** reported that no shadow flicker effects were likely to occur at Upperglen (the only property within the study area) due to its location, orientation and distance from the proposed turbines. The removal of T1 results in no change to the assessment of shadow flicker for the Proposed Development due to its location at the end of the string of turbines, furthest south from Upperglen.

Climate and Carbon Balance

9.9 The carbon payback period of the Proposed Development has been revised based on the amendments detailed in **paragraph 9.6**.

9.10 The detail for the Proposed Development that was input to the Scottish Government Windfarm Carbon Assessment Tool and presented as **Technical Appendix 9.4: 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.

9.11 The full results of the carbon calculator are presented in **SEI TA9.4: Carbon Calculator**.

9.12 A summary of the revised anticipated carbon emissions and carbon payback of the Proposed Development is provided in **Table 9-2**.

Table 9-2: CO_2 Emissions and Payback Time

Result	Exp.	Min.	Max.
Net emissions of carbon dioxide (t CO_2 eq.)	94986	56730	107210
Carbon Payback Time			
Coal-fired electricity generation (years)	0.8	0.46	0.9
Grid-mix of electricity generation (years)	3.6	2.1	4.1
Fossil fuel - mix of electricity generation (years)	1.7	1.02	2.0
Ratio of CO_2 eq. emissions to power generation (g/kWh) (TARGET ratio by 2030 (electricity generation) < 50 g/kWh)	18	11	21

9.13 The calculations of total carbon dioxide (CO_2) emission savings and payback time for the Proposed Development indicates the overall payback period of a wind farm with eight turbines with an average (expected) installed capacity of 4.5MW each would be approximately 1.7 years, when compared to the fossil fuel mix of electricity generation.

9.14 The potential savings in CO_2 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:

- 121,801 tonnes of CO_2 per year over coal-fired electricity (approximately 4.9 million tonnes assuming a 40 year lifetime for the purposes of the carbon calculator);
- 26,680 tonnes of CO_2 per year over grid-mix of electricity (approximately 1.1 million tonnes assuming a 40 year lifetime for the purposes of the carbon calculator); and
- 54,649 tonnes of CO_2 per year over a fossil fuel mix of electricity (2.2 million tonnes assuming a 40 year lifetime for the purposes of the carbon calculator).

9.15 The overall anticipated carbon payback time for the revised layout of the Proposed Development (compared to a fossil fuel mix of electricity generation) is 1.7 years. This is slightly less than, although comparable to, the 1.8 year anticipated carbon payback time as assessed and presented in the EIA Report for the application layout.

9.16 The potential CO_2 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

9.17 The removal of T1 would not fundamentally affect the position conveyed by the MOD and NATS as outlined in **Table 9-1**.

9.18 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.

9.19 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 Ben Sca Wind Farm which would ensure that no unacceptable impact on the radar would result.

Noise and Vibration

9.20 An updated noise assessment for the revised layout of the Proposed Development has been provided in **SEI TA9.3: Noise Assessment Update.**

Traffic and Transport

9.21 An updated Transport Statement for the revised layout of the Proposed Development has been provided in **SEI TA9.1: Transport Assessment Update**.

Other Topics

9.22 Due to the nature of the amendments to the Proposed Development layout by removal of one turbine and associated foundation and crane hardstanding, 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 9** of the EIA Report.

Summary of Changes to the Significance of Effects

9.23 No changes to the shadow flicker effects are identified.

9.24 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 slightly lower carbon payback period for the revised layout, of 1.7 years compared to 1.8 years as presented in the EIA Report, does not materially alter the Proposed Development's expected carbon saving potential.

Conclusions

9.25 The SEI design amendments will not result in any change to the significance of effects as presented in **Chapter 9** of the EIA Report and do not materially alter the Proposed Development's expected carbon saving potential.