

15. Infrastructure

15.1 Summary

- 15.1.1 This chapter addresses the potential impact of the Proposed Development on Telecommunication, Utility infrastructure, Aviation and Radar situated in the vicinity of Lochluichart Wind Farm Extension II (hereafter known as 'the Proposed Development').
- 15.1.2 Consultation has been carried out with organisations who own or operate infrastructure close to the proposed wind farm site. The results have shown that there is electricity utility infrastructure within the site boundary, and that *micro-siting/embedded mitigation* in the design of the scheme was required.
- 15.1.3 There are no microwave links which will be impacted by the Proposed Development
- 15.1.4 Based on the consultation process, and mitigation applied where required, the Proposed Development is predicted to have no effects on infrastructure.

15.2 Introduction and overview

- 15.2.1 This section considers the potential effects of the Proposed Development (including the provision of micro-siting the wind turbines and related infrastructure by +/-50m) on infrastructure, telecommunications, utilities, aviation and radar. These matters have been investigated through consultation with the relevant system operators and accounted for in the iterative wind farm design process.
- 15.2.2 This design process ensures that wherever possible, turbines are located in areas where there would be no effects on infrastructure, telecommunications, utilities, aviation and radar interests. Where this is not possible, agreement is reached with the providers of such services for alternative arrangements to be made so that these services will not be affected by the wind farm.

15.3 Methodology

Assessment scope and approach

- 15.3.1 The infrastructure, telecommunications, utilities, aviation and radar assessment is largely based on consultation by Infinergy with a number of organisations known to have an interest in telecommunications, utilities, aviation and radar infrastructure in the area.
- 15.3.2 The Lochluichart Wind Farm and Lochluichart Wind Farm Extension schemes (hereafter referred to as 'the Operational Schemes'), received 'No Objections' during the planning process from infrastructure related consultees.
- 15.3.3 During 2017 (response to the Scoping Report can be found in Appendix 2.B) and subsequently in 2018, Infinergy undertook a desk-based consultation exercise to establish the baseline relating to infrastructure owned or managed by the following organisations:

- Joint Radio Company Limited (JRC);
- 'Linesearchbeforeyoudig';
- Ofcom (Spectrum licensing);
- Ericsson (on behalf of EE Limited);
- Vodafone;
- Telefonica UK Limited;
- Atkins;
- British Telecom;
- Scotia Gas Networks;
- Scottish and Southern Energy; and
- Scottish Water.

15.4 Baseline information

Infrastructure

15.4.1 An enquiry was entered into the Linesearchbeforeyoudig facility which "provides a single point of contact for all initial enquiries relating to the apparatus owned and/or operated by our Members, which now totals over 30,000 kms of assets such as buried underground transmission gas/oil pipelines and fibre optic cable ducts". The results of this enquiry showed that the proposed wind farm was not in the zone of interest for any of the Linesearch members which includes National Grid gas and electricity transmission networks (not including local high-pressure gas pipelines).

15.4.2 Scottish and Southern Energy (SSE) provides an online mapping service¹ which provides details of low voltage and high voltage underground electricity cables and overhead lines along with associated infrastructure. This service was utilised to check if any electrical plant or infrastructure is present in the vicinity of the Proposed Development and if any mitigation measures will be required.

15.4.3 Consultation with the SSE online mapping service showed that there is SSE infrastructure present within the site boundary and in close proximity to the proposed wind turbines.

15.4.4 The location of this infrastructure was identified and mapped during the design process for the Proposed Development.

Telecommunications

15.4.5 Extensive desk-based consultations revealed that there are no microwave links which could be potentially affected by the Proposed Development.

15.4.6 A response was received on 26th February 2018 stating that JRC: "this proposal cleared with respect to radio link infrastructure operated by...the local electricity utility and Scotia Gas Networks...".

Television and radio

15.4.7 The BBC Windfarm Tool is no longer available to assess the potential number of users that could be affected by a particular wind farm proposal.

Summary

15.4.8 **Table 15.1** below provides a summary of initial responses.

Table 15.1 Consultees Relevant to this Assessment

| Consultee | Response | Objection |
|------------------------------|--|-----------|
| Telecommunications | | |
| BBC (Wind farms tool) | BBC Windfarm assessment tool is no longer available to developers. | N/A |
| British Telecoms Operate | Studied the proposed wind farm and concluded that the wind farm should not cause interference to BT's current and presently planned radio networks. | No |
| Ofcom (Spectrum Licensing) | Identified one microwave link within 3 km radius of the centre of the proposed wind farm, operated by SSE plc. They provided contact details and recommended contacting the fixed link operator. | No |
| Atkins Ltd. | Examined the proposal with respect to UHF Radio Scanning Telemetry on behalf of the UK Water Industry (excluding Scottish Water) and concluded that they have no objection to the proposed development. | No |
| JRC | Objection based on the location of one SSE plc microwave link within 1km of the proposed wind farm. Further consultation was completed in June 2012 and JRC do not object to the proposed development. | No |
| Scottish Water | Confirmed that they have no microwave links in the area that would be affected by the proposed development. | No |
| Vodafone | Confirmed that they have no microwave links in the area that would be affected by the proposed development. | No |
| Ericsson | Confirmed that they have no microwave links in the area that would be affected by the proposed development. | No |
| Telefonica | Confirmed that they have no microwave links in the area that would be affected by the proposed development. | No |
| Infrastructure | | |
| Linesearch | Details of the proposal were entered into www.linesearch.org , based on formal response and no response from listed members, no assets in proximity to the Proposed Development. | No |
| Scotland Gas Networks | Indicated that there are no SGN gas mains within the vicinity of the proposed wind farm. | No |
| Scottish Water | Infrastructure drawings were purchased from Scottish Water which showed that there is no water or wastewater infrastructure within the site boundary. | No |
| Scottish and Southern Energy | Accessed online mapping facility at: http://north.sse-mapping.net/ngis/street_works.html Results showed that there are high voltage underground cables in the vicinity of the proposed development, relating to the Lochluichart Wind Farm. By embedding mitigation into the design of the Proposed Development, no objections are anticipated. | N/A |
| Aviation & Radar | | |

| Consultee | Response | Objection |
|------------------|---|---------------------|
| MoD | Stated 'they may have concerns about the proposal'. | 'May have concerns' |
| HIAL | Despite providing, on 29/03/18, the additional information (LOS Report) requested in response to concerns raised in their Scoping Response 20/04/17, HIAL have still not yet formally responded despite repeated attempts to elicit a response. | Not anticipated |
| NATS/NERL | The Proposed Development has been examined from a safeguarding aspect and does not conflict with safeguarding criteria. No objection. | No |

Predicted Trends in the Absence of Development

15.4.9 On the basis of consultations undertaken, no details of additional planned infrastructure, telecommunications, utilities, aviation and radar developments in the vicinity of the development site have been received. If the Proposed Development was consented and built, any future developments would be required to take account of the presence of wind turbines in their implementation.

Information gaps

15.4.10 In some cases, service providers have not responded to the consultations sent out by Infinergy. Generally, where consultees do not respond, it is presumed their services are unaffected by the proposed development.

15.4.11 There is the possibility that the consultation process has not picked up some services. However, the process has however been as inclusive as possible.

15.5 Topic specific design evolution

Scheme layout response to potentially significant effects

15.5.1 Consultation indicates that there is electricity infrastructure within or in close proximity to the site that requires mitigation of the Proposed Development layout.

15.5.2 There is a 33kV powerline which runs located in cable trenches which run alongside the existing access tracks for the Operational Schemes.

15.5.3 The turbine and related site infrastructure has involved embedded mitigation to avoid any potential impacts on this infrastructure, and is located at its nearest point, from Turbine T4, approximately 170m from the 33kV powerline.

15.5.4 Consultation indicates there is no gas or water infrastructure located in within or in close proximity to the site that requires alteration of the Proposed Development layout.

15.5.5 A micro-siting provision has been requested as part of the planning application for the Proposed Development whereby any wind turbine and

related infrastructure can be moved by up to 50m, taking into consideration known environmental and technical constraints. This provision will be used to respond to any additional unforeseen infrastructure constraint.

- 15.5.6** Consultation indicates there are no microwave links located in close proximity to the Proposed Development that require alteration of the Proposed Development.
- 15.5.7 Consultation with MoD indicates they "...*may have concerns.*" about the Proposed Development. Based on the MoD responses to the Operational Schemes, it is anticipated that the MoD will not object to the Proposed Development
- 15.5.8 HIAL were not forthcoming in their response to the Proposed Development, despite providing in March 2018 the additional information requested in their scoping response in the form of a Line of Sight report (see Appendix 15A).
- 15.5.9 It is not expected, based on the HIAL responses to the Operational Schemes through the planning process, that HIAL will object to the Proposed Development.

15.6 Predicted effects of the scheme

- 15.6.1 With the exception of the 33kV SSE infrastructure, there has been no infrastructure identified within or in close proximity to the proposed development, there are no predicted effects of the scheme.
- 15.6.2 As there are no fixed microwave links in proximity to the Proposed Development, therefore there are no predicted effect of the scheme on microwave links.

15.7 Mitigation and enhancement measures

- 15.7.1 As a result of the location of the 33kV SSE infrastructure, mitigation was embedded into the design layout for the Proposed Development to avoid any impacts.
- 15.7.2 No other mitigation is required since there are is no other infrastructure present within the Proposed Development boundary.

15.8 Assessment of residual effects

During construction

- 15.8.1 There are no microwave links in the vicinity of the proposed wind farm, therefore there are no predicted residual effects.

During Operation

- 15.8.2 If a reduction in television reception quality occurs in the surrounding area, it is most likely to be noticed when the Proposed Development becomes operational.

Effects during decommissioning

15.8.3 There are no predicted residual effects on infrastructure, telecommunications, utilities, aviation and radar during decommissioning of the proposed wind development.

Cumulative effects

15.8.4 All potential effects in respect of telecommunications, infrastructure, utilities, aviation and radar are anticipated to have been mitigated therefore no cumulative effects will arise.

15.9 References

Linesearchbeforeudig online: www.linesearchbeforeudig.co.uk, last accessed 25th June 2018.

SSE online mapping facility: http://north.sse-mapping.net/ngis/street_works.html, last accessed 3rd September 2018.
