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15. Infrastructure

15.1 Summary

- 15.1.1 This chapter addresses the potential impact of the Revised Consented Development on telecommunication, utility infrastructure, aviation and radar situated in the vicinity of Limekiln Wind Farm Section 36C Variation (hereafter known as the 'Revised Consented Development').
- 15.1.2 Based on the consultation process, and mitigation applied where required, the Revised Consented Development is predicted to have no effects on telecommunication, utility infrastructure, aviation and radar assets.
- 15.1.3 Table 15.1 below provide an overview of effects on Infrastructure against the previous 2012 and 2016 ESs, including the 2017 SI.

Table 15.1 Summary of Conclusions

2012 ES (24 Turbine Layout)	2016 ES (24 Turbine Layout)	2017 Supplementary Information (21 Turbine Layout - Consented Development)	2021 Section 36C Application (21 Turbine Layout with amended access tracks – Revised Consented Development)
No effects were identified	No effects were identified	No effects were identified	No effects are identified

15.2 Introduction and overview

- 15.2.1 The Applicant received planning permission for Limekiln Wind Farm, a 21 turbine scheme, together with associated infrastructure, on 19th June 2019 from Scottish Ministers (hereafter referred to as the 'Consented Development').
- 15.2.2 This chapter considers the potential effects of the Revised Consented Development (including the provision of micro-siting the wind turbines and related infrastructure by +/-50m) on infrastructure, telecommunications, utilities, aviation and radar. Since initial consultation began for the Consented Development, these matters have been accounted for in the iterative wind farm design process.
- 15.2.3 This design process ensured 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 scoping responses received as well as

consultation by the Applicant with organisations known to have an interest in telecommunications, utilities, aviation and radar infrastructure in the area.

15.4 Baseline information

Infrastructure

- 15.4.1 For the Consented Development an enquiry was entered into the Linesearch facility¹ 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 An enquiry was also sent to Scotland Gas Networks (SGN) in April 2012, requesting details of any SGN infrastructure located in the vicinity of the site and any mitigation measures. SGN responded in May 2012, stating that SGN has no gas mains in the area.
- 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 Revised Consented Development.
- 15.4.5 Following the 2019 consent and in particular as a result of the enabling construction works (now complete) additional consultation with Scottish Water took place. This consultation identified that two water pipes crossed the initial section of the Consented Development access track. Following a site visit from Scottish Water it was concluded that both identified pipes were in fact deep enough and so would not be effected. This section of consented track has now been constructed.

Telecommunications

- 15.4.6 For the Consented Development, no objections were raised regarding telecommunications.
- 15.4.7 No response has been received from JRC regarding the Revised Consented Development via either the scoping request or following further consultation via email.

Television and radio

- 15.4.8 The online BBC Windfarm Tool² which provides an estimate of the population numbers potentially affected by the installation of wind

¹www.linesearch.org Last accessed 5th June 2012.

²http://www.bbc.co.uk/reception/info/windfarm_tool.shtml Last accessed 13th April 2012

turbines indicated in April 2012 that no homes will be affected for which an alternative off-air service may be available and no homes would be affected for which there is no alternative off-air service.

- 15.4.9 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.

Aviation and Radar

- 15.4.10 This section assesses the potential effects of the proposed development on aviation including defence, civil and military aviation activities and infrastructure matters; both within the site and the wider study area.

- 15.4.11 Statutory consultees and other relevant non-statutory organisations were consulted as part of the EIA process to identify the baseline conditions and any matters of concern in relation to the Revised Consented Development (refer to **Appendix 3.A and Appendix 3.B**). No objections to the proposed development were identified by any of the consultees, see Table 15.2 below.

Summary

- 15.4.12 Table 15.2 below provides a summary of initial responses including from the 2012 and 2016 ES.

Table 15.2 Consultees Relevant to this Assessment

Consultee	Response	Objection
2012		
Telecommunications		
BBC (Wind farms tool)	Indicated that the development is likely to interfere with Rumster forest transmitter with the result that 0 homes may be affected for which an alternative off-air service may be available.	No
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

Consultee	Response	Objection
Scottish Water	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 . Result showed that no linesearch members were in the zone of interest.	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/raswa001/html/frame_set_1.html Results showed that there is no low or high voltage underground cables or overhead lines in the vicinity of the proposed development.	No
Aviation		
Ministry of Defence (MoD)	Stated that have no concerns with the proposal. Requested that turbines are fitted with aviation lighting which should be 25 candela omni-directional red lighting, or infrared lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration.	No
2016		
Telecommunications		
JRC	'This proposal is cleared with respect to radio link infrastructure operated by the local utility'.	No
Aviation		
MOD	'MOD have no objection to the proposal' In the Interests of the air safety the MOD requests that the development is fitted with MOD accredited aviation safety lighting. The cardinal turbines should be fitted with combination 25 candela omni-directional red lighting and infra-red lighting, the perimeter turbines should be fitted with 25 candela omni-directional red lighting and infra-red lighting with an optimised flash pattern of 60 flashes per minute of 200ms to 500ms duration at the highest practicable point.	No
NATS/NERL	The proposed development has been examined from a safeguarding aspect and does not conflict with our safeguarding criteria. No objection.	No
CAA	Identify the appropriate aviation consultees as: NATS/NERL MOD Wick Airport	N/A

Consultee	Response	Objection
Highlands and Islands Airport Limited	The development is outside the safeguarded area around the airport.	No
2021		
Telecommunications		
JRC	No response at time of writing	N/A
Infrastructure		
Linesearch	Details of the proposal were entered into www.linesearch.org . Result showed that no linesearch members were in the zone of interest.	No
Scotland Gas Networks	Indicated that there are no SGN gas mains within the vicinity of the proposed wind farm.	No
Scottish Water	Following the 2019 consent and in particular as a result of the enabling construction works (now complete) consultation with Scottish Water took place. Consultation concluded that two water pipes crossed the initial section of access track. Following a site visit from Scottish Water it was concluded that both pipes of concern were in fact deep enough and so would not be effected.	No
Aviation		
MOD	<i>"Subject to the provision of appropriate lighting, the MOD has no concerns in relation to the proposal."</i>	No
NATS/NERL	<i>"NATS (En Route) Public Limited Company ("NERL") has no safeguarding objection to the proposal"</i>	No
Highlands and Islands Airport Limited	<i>"Highlands and Islands Airports Limited would have no objections to the pr-/oposal"</i>	No
CAA	No response at time of writing	N/A

Predicted Trends in the Absence of Development

15.4.13 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 Revised Consented 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

15.4.14 In some cases, service providers have not responded to the consultations sent out by the Applicant. Generally, where consultees do not respond, it is presumed their services are unaffected by the Revised Consented Development.

15.4.15 There is the possibility that the consultation process has not picked up some services. 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 are no telecommunication, utility infrastructure, aviation or radar assets that would be affected by the proposed development. As such, the layout of the scheme did not require refinement in response to matters assessed in this chapter.

15.6 Predicted effects of the scheme

15.6.1 Consultation in 2012 revealed a single telecommunication asset that could potentially be affected by the proposed development. However, after further discussions and analysis, the system operator responsible for the asset concluded that no effects would result as a consequence of the construction, operation or decommissioning of the proposed development. JRC were consulted again as part of the scoping process for the Revised Consented Development but as of yet have not responded. No other effects were identified

15.7 Mitigation and enhancement measures

15.7.1 No mitigation in relation to telecommunications, utility infrastructure, aviation and radar is required since no significant effects have been identified.

15.7.2 However, in light of consultation with the MoD and in the interest of safety the Applicant agrees, to fit the proposed development with MoD accredited aviation lighting.

15.8 Assessment of residual effects

During construction

15.8.1 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. Should it be required, mitigation to remedy a reduction in television reception is widely available. The Applicant would commit to remedy any confirmed effect by way of an appropriately worded planning condition

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.