

# 15 Telecommunication

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# 15 Telecommunication

## 15.1 Introduction

- 15.1.1 This chapter considers the potential effects of the Proposed Development on existing and planned television and telecommunications infrastructure, both within the site and in the wider area, during construction, operation and decommissioning.
- 15.1.2 Wind turbines like any other large structure have the potential to interfere with electromagnetic signals, which are used in a variety of communications. Relevant infrastructure given consideration included telecommunication links, television reception and microwave links.
- 15.1.3 If sited within or near to the path between a transmitter and its intended receiver a wind farm has the potential to degrade the signal performance. The two possible mechanisms for signal degradation for terrestrial transmissions are physical blocking by the structure, or reflection from the structure sides. Physical blocking will create a 'shadow' zone behind the structure where there will be a reduction in signal levels. The reflection of signals from the tower and rotating blades of wind turbines can cause complex, fluctuations in signal reception. Interference can disrupt the image resulting in a 'ghost' or delayed image on screen.
- 15.1.4 Since 2010 the North of Scotland including the Shetland Isles have been fully switched over to digital television and digital signals are considered to be less susceptible to disruption from reflections and do not suffer from ghosting. Digital transmitter powers increased to around ten times previous levels at digital switchover. At the same time digital signals were added to the relay transmitter network. These improvements greatly increased the availability and robustness of digital terrestrial reception.
- 15.1.5 The closest television transmitter to the Proposed Development is the transmitter on Fetlar which has switched to digital transmission only. There are to date, no known cases of wind turbine interference with digital television, and it is therefore considered there is a low risk of any interference from the Proposed Development on domestic television reception, and assessment of television impacts is scoped out of further assessment.
- 15.1.6 The Office of Communications (Ofcom) is the regulator for the UK communications industries and under the Wireless Telegraphy Act 2006, is responsible for dealing with any complaints regarding interference to television, radio or telecommunications. Operators of electromagnetic links will ascribe a safeguarding buffer zone around the transmitters and line of sight pathways to ensure that they remain unobstructed.
- 15.1.7 Ofcom are able to provide notice of whether any part of a development falls within 500 m of the paths between terminals, or the terminals themselves, of any fixed link system operating above 1 GHz. For scanning telemetry systems Joint Radio Company (JRC) provide notice of whether any part of the windfarm falls within 1 km of the path between terminals, or the terminals themselves, of any fixed link system operating between 450 to 470 MHz.

## 15.2 Legislation, Policy and Guidelines

- 15.2.1 The assessment has been informed by relevant legislation, policy and guidelines, details of which are provided below.
- Wireless Telegraphy Act (2006);
  - Shetland Local Development Plan (Shetland Islands Council, 2014a);
  - Shetland Local Development Plan. Supplementary Guidance – Onshore Wind Energy (Shetland Islands Council 2014b);
  - Planning Advice Note: PAN 62 Radio Telecommunications (2001); and
  - Tall structures and their impact on broadcast and other wireless services (Ofcom 2009).

## 15.3 Consultation

- 15.3.1 Consultation was undertaken with relevant statutory and non-statutory stakeholders to identify any fixed wireless links or scanning telemetry links in the area, and a summary of their responses are set out in **Table 15.1** below.
- 15.3.2 JRC, on behalf of the UK Fuel and Power Industry, assess the potential of the Proposed Development to interfere with radio systems operated by electricity and gas utilities in support of their regulatory operational requirements.
- 15.3.3 Atkins assess the potential of the Proposed Development to interfere with UHF Radio Scanning Telemetry communications operated by the Telecommunications Association of the UK Water Industry. The assessment they provide is not in relation to any Microwave Links operated by Scottish Water.
- 15.3.4 Ofcom were consulted via Spectrum Licencing as they hold a database of the network operators who have telecommunication links in the area and are able to identify the relevant consultees as part of a wind farm fixed link clearance service. As of 05/04/19 Spectrum Licencing have yet to respond, and as a result further consultation with any relevant consultees, if required, has been unable to proceed any further.

**Table 15.1 - Consultee Responses**

Consultee	Response	Actions
Joint Radio Company	No Links Affected	No further action is required
Atkins	No Objection	No further action is required
Spectrum Licencing	No response	A response is awaited at the time of writing.

## 15.4 Assessment Methodology

- 15.4.1 This section describes the methods by which the key baseline conditions were identified and how the potential effects of the Proposed Development on these has been assessed.

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- 15.4.2 Interference with mobile phone networks and other wireless data networks can occur through the interference of microwave and UHF band fixed links. These are operated by or on the behalf of the mobile service providers, the utility companies, the emergency services and occasionally by small private networks.
- 15.4.3 The impact assessment has been conducted through consultation with the operators of these systems, as set out in section 15.3 above. Ofcom (via Spectrum Licencing) manages the allocation of frequencies and holds a database of licensed links. Ofcom does not comment on impacts or consider mitigation, which must be conducted in direct discussions with the system operators if links are identified.
- 15.4.4 Any impact on aviation radar was out with the scope of this chapter and is covered separately in **Chapter 13** (Aviation and Radar).

## 15.5 Baseline Conditions

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- 15.5.1 The baseline was established by consultation with Spectrum Licencing, and with JRC on behalf of the electricity and gas utilities, and Atkins on behalf of the water utilities. The consultation responses

are detailed in section 15.3 above. The consultation process determined that there are no telecommunication links close to the Proposed Development.

## 15.6 Potential Effects

### ***Construction***

- 15.6.1 No electromagnetic interference (EMI) effects are anticipated to occur during construction of the Proposed Development. Given that any occurrence of EMI effect during the short commissioning period would replicate itself during operation of the Proposed Development, it is considered appropriate to consider the commissioning activities as part of the operational stage of the Proposed Development.

### ***Operation***

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- 15.6.2 The consultation undertaken did not identify any telecommunication links in the vicinity of the Proposed Development.

### ***Decommissioning***

- 15.6.3 No EMI effects are anticipated to occur during the decommissioning and restoration phase of the Proposed Development.

## 15.7 Mitigation

- 15.7.1 Although no effects on telecommunication links have been identified, should an effect arise this will be mitigated through consultation with the operator and could include micro-sighting of turbines. No effects are anticipated to occur during construction, operation or decommissioning of the Proposed Development, therefore no mitigation measures are deemed necessary.

## 15.8 Residual Effects

- 15.8.1 There are not anticipated to be any residual effects during the construction, operation or decommissioning phases of the Proposed Development with respect to telecommunications.

## 15.9 Cumulative Effects

- 15.9.1 As the Proposed Development will not impact any telecommunication links, the Proposed Development will not have any cumulative effects on telecommunication links with other developments.

## 15.10 Summary

- 15.10.1 This chapter has considered the potential effects of the Proposed Development on existing and planned telecommunications infrastructure. It has not considered any effects on aviation radar as this has been covered separately in **Chapter 13** (Aviation and Radar).
- 15.10.2 Consultations have been conducted with Ofcom (via Spectrum Licencing), JRC who operate on behalf of the UK fuel and power sector, and Atkins who operate on behalf of water utilities.
- 15.10.3 No objections were raised to the Proposed Development with regards to telecommunications infrastructure. No effects were identified and therefore no mitigation measures are deemed necessary.

**Table 15.2 – Summary of Effects**

Description of Effect	Significance of Potential Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial/ Adverse		Significance	Beneficial/ Adverse
Construction/Operation/Decommissioning					
Effects on telecommunication	No effect	N/A	None required	No effect	N/A

**Table 15.3 – Summary of Cumulative Effects**

Receptor	Effect	Cumulative Developments	Significance of Cumulative Effect	
			Significance	Beneficial/ Adverse
Effects on telecommunication	No effect	Other wind farm developments	No effect	N/A

## 15.11 References

Ofcom (2009). *Tall structure and their impact on broadcast and other wireless services*. Available at: [https://www.ofcom.org.uk/data/assets/pdf\\_file/0026/63494/tall\\_structures.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0026/63494/tall_structures.pdf)

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