

15 Telecommunication

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15.1 Executive Summary

- 15.1.1 This chapter considers the potential effects of the Proposed Development on existing and planned telecommunications infrastructure, both within the site and in the wider area, during the construction, operation and decommissioning phases.
- 15.1.2 Assessment of effects to television reception has been scoped out within the EIA Scoping Report (refer to Appendix 4.1) as the strength of the digital signal in the area, as predicted by Digital UK, and the inherently resilient nature of digital television broadcasting mean that there is a low risk of interference with domestic television reception from a wind energy development at this location. This has therefore not been assessed in this chapter.
- 15.1.3 The telecommunications assessment, as informed by current guidelines and legislation, has been undertaken through consultation with the appropriate consultees, namely Atkins, Arqiva, JRC and Ofcom. No effects on telecommunications from the construction, operation or decommissioning of the Proposed Development were identified.
- 15.1.4 Although no effects on telecommunication links have been identified, should an effect arise it will be mitigated through consultation with the operator and could include micro-siting of turbines. Otherwise, no mitigation measures are deemed necessary.
- 15.1.5 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.

15.2 Introduction

- 15.2.1 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 in this chapter include telecommunication links and microwave links.
- 15.2.2 A wind farm has the potential to degrade signal performance if sited within or near to the path between a transmitter and its intended receiver. 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.
- 15.2.3 Digital transmitter power increases to around ten times previous levels at digital switchover. This improvement greatly increases the availability and robustness of digital terrestrial reception. To date, there are no known cases of wind turbine interference with digital television reception post digital switchover.
- 15.2.4 Since 2010, Central Scotland, including North Ayrshire where the Proposed Development is located, has been fully switched over to digital television. Digital signals are considered less susceptible to disruption from reflections and do not suffer from ghosting.
- 15.2.5 Digital UK is the independent, not-for-profit organisation leading the process of digital TV switchover in the UK and provides coverage predictions for digital television (Digital UK, 2019). A general rule of thumb indicates that the better the predicted reception, the better the protection against interference. This is currently the most reliable information on signal strength, and hence vulnerability to interference.
- 15.2.6 The closest television transmitter to the Proposed Development is the Rothesay transmitter on the Isle of Bute, which has switched to digital transmission only. The digital signal from the Rothesay transmitter is predicted by Digital UK as 'Good' reception for the nearest adjacent property to the Proposed Development (Digital UK, 2019). Given the strength of the digital signal in the area and

the inherently resilient nature of digital television reception, we consider that there is a low risk of any interference from a wind energy development at this location on domestic television reception. Therefore, the impact of the Proposed Development on domestic television reception is scoped out of further assessment.

15.2.7 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.

15.2.8 Ofcom can 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 (Ofcom, 2009). For scanning telemetry systems, Joint Radio Company (JRC) provide notice of whether any part of the wind farm falls within 1 km of the path between terminals, or the terminals themselves, of any fixed link system operating between 450 to 470 MHz (Ofcom, 2009).

15.3 Legislation, Policy and Guidelines

15.3.1 The assessment has been informed by relevant legislation, policy and guidelines. The policies set out include those from the North Ayrshire Council (NAC) Local Development Plan (LDP) and Local Development Plan 2 (LDP2); Planning Advice Notes (PANs); and other relevant guidance. Of relevance to the telecommunications assessment presented within this chapter, regard has been had to the following policies and guidance:

- Wireless Telegraphy Act (2006);
- LDP Policy PI 9 (NAC, 2014);
- LDP2 Policy 29 (NAC, 2019);
- PAN 62 Radio Telecommunications (2001); and
- Tall structures and their impact on broadcast and other wireless services (Ofcom, 2009).

15.4 Consultation

15.4.1 Consultation was undertaken with relevant 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.

Table 15.1 Consultee Responses

Consultee	Response	Actions
Atkins	No Objection	No further action is required
Arqiva	No Links Affected	No further action is required
JRC	Proposal Cleared	No further action is required
Spectrum Licensing	No Response	A response is awaited at the time of writing

15.5 Assessment Methodology and Significance Criteria

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

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15.5.2 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 behalf of the mobile service providers, the utility companies, the emergency services and occasionally by small private networks.

15.5.3 The impact assessment has been conducted through consultation with the operators of these systems, as set out in Section 15.4. Ofcom (via Spectrum Licensing) manages the allocation of frequencies and holds a database of licenced 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.

15.5.4 Any impact on aviation and radar was out of the scope of this chapter and is covered separately in Chapter 13.

15.6 Baseline Conditions

15.6.1 The baseline was established by consultation with Spectrum Licencing, JRC on behalf of the electricity and gas utilities, Atkins on behalf of the water utilities, and Arqiva. The consultation responses are detailed in Section 15.4. The consultation process identified no links in the vicinity of the Proposed Development.

15.7 Receptors Brought Forward for Assessment

15.7.1 As no links were identified, no receptors have been brought forward for assessment, and no impacts are anticipated from the Proposed Development.

15.8 Cumulative Assessment

15.8.1 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.

15.9 Summary

15.9.1 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.

15.9.2 Consultations have been conducted with JRC, who operate on behalf of the UK fuel and power sector; Atkins, who operate on behalf of water utilities; and Arqiva, who assess impacts on micro link paths between transmitters.

15.9.3 Consultation was sought from Ofcom (via Spectrum Licencing) but no response was received.

15.9.4 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	None identified	No effect	N/A

15.10 References

Digital UK (2019). Digital UK Coverage Checker. Available at:
<http://www.digitaluk.co.uk/coveragechecker/>

NAC – North Ayrshire Council (2014). *North Ayrshire Council Local Development Plan*. Available at:
<https://www.north-ayrshire.gov.uk/planning-and-building-standards/ldp/local-development-plan.aspx>

NAC – North Ayrshire Council (2019). *Adopted Local Development Plan*. Available at:
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Ofcom (2009). *Tall structures and their impact on broadcast and other wireless services*. Available at: <https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/fixed-terrestrial-links>

Scottish Government (2001). *Planning Advice Note: PAN 62 Radio Telecommunications*. Available at: <https://www2.gov.scot/Publications/2001/09/pan62/pan62->

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