

EIA Report Chapter 10: Telecommunications

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Client: Constantine Wind Energy (UK) Ltd

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10 Telecommunications

10.1 Introduction

This chapter will consider the potential effects from the Proposed Development on telecommunications infrastructure. Wind turbines have the potential to affect television reception, fixed telecommunication links and utilities during operation. These impacts include but are not limited to:

- Physical obstructions;
- Adverse effects on overall performance of Communications, Navigation and Surveillance (CNS) equipment;
- Interference with electromagnetic signals and potentially affecting television reception and fixed telecommunication links.

10.2 Legislation, Policy and Guidance

Guidance for assessing the potential impact of wind turbines on infrastructure is given in:

- Scottish Government (2014) 'Scottish Planning Policy, Subject Policy: Development Management';
- Ofcom (2009) 'Tall Structures and their Impact on Broadcast and other Wireless Systems';
- BBC & Ofcom (2006) 'The Impact of Large Buildings and Structures, including Wind Farms, on Terrestrial Television Reception';
- Healthy and Safety Executive – GS 6 (2012) 'Avoiding Danger from Overhead Powerlines';
- Healthy and Safety Executive – HS(G) 47 (2014) 'Avoiding Danger from Underground Services';
- Energy Networks Association (ENA) (Issue 1:2012) 'Separation between Wind Turbines and Overhead Lines – Principles of Good Practice' (the "ENA Guidance")

Siting turbines close to existing powerline infrastructure requires a clearance buffer to be applied. Energy Networks Associations (ENA) provides guidance in its 'Separation between Wind Turbine and Overhead Lines'¹ guidance document, which notes that the minimum horizontal distance between the pivot point of the turbine and an overhead line corridor is greater than either:

- The tip height of the turbine + 10%; or
- The tip height of the turbine + 1.7m (<33kV),
- The tip height of the turbine + 4m (400kV).

'Separation between Wind Turbine and Overhead Lines' also gives guidance on what separation distance is necessary between turbines and overhead lines to avoid the turbine's wake effect causing damage to overhead lines through increased wind-induced conductor motion. National Grid research has shown that impacts can be deemed negligible at distances of:

- 3 x turbine rotor diameter.

¹ [Separation between Wind Turbine and Overhead Lines](#) - Accessed 29/01/2024

10.3 Methodology and Consultation

Consultation was undertaken with appropriate stakeholders to identify any potential impacts on telecommunication and utilities/services infrastructure during or post-construction and discuss potential mitigation options where necessary. These stakeholders are listed in **Table 10.1** and **Table 10.2** below. The Ofcom Spectrum Portal² was used to assess whether any existing fixed microwave/radio links would be impacted by the wind turbines during operation. From the service, the Licensee Company of any nearby fixed links is identified and contacted by the applicant following which the extent of the potential impact is identified and mitigation agreed upon.

10.4 Assessment of the Predicted Impacts and Effects

The Site is in rural Harris, approximately 4.6km north-west of Tarbert and 480m northwest of the A859. Two 33kV transmission lines run alongside the A859 (see **Figure 10.1**), ensuring the wake effect emitted by the Proposed Development does cause damage to these was a key constraint for the design of the Site.

10.4.1 Telecommunications

A list of identified stakeholders is provided in **Table 10.1** below.

Table 10.1 – Telecommunications Infrastructure

Consultee	Response	Nature of Impact	Date of Consultation	Date of Response
Ofcom Spectrum Portal	No links identified	N/A	01/12/2023	N/A
Joint Radio Company Limited	No objection / No infrastructure impacted by the Proposed Development	N/A	01/12/2023	04/12/2023
Atkins Global	No objection / No infrastructure impacted by the Proposed Development	N/A	01/12/2023	05/12/2023
Telefonica	No response at the time of submission	N/A	22/12/2023	N/A

Ofcom has primary responsibility for regulating broadcasting, telecommunications, and postal industries in the UK. The Ofcom Spectrum Information Portal³ identified that there are no fixed links within 2.5km of the closest relative turbine to be constructed as part of the Proposed Development. Following consultation, it has been confirmed that the Proposed Development will affect no Scottish Power or Scotia Gas Networks fixed microwave/radio infrastructure.

A telecommunications mast has been identified 426m southeast of T1. It is believed that the operator of this mast is Telefonica, however, the mast was not present on the Ofcom Spectrum Information Portal despite Telefonica's network being fully present on the portal, nor were any fixed links going to or from it, hence it is assumed that the mast is not currently operational. Telefonica were contacted on 22/12/2023 and 05/03/2024 to request their consultation; however, no response has been received. Due to the lack of available information regarding the operation of the mast or data regarding potential links to or from it the assessment of impact cannot be carried on further. If the mast is not operational, as available data suggests, the Proposed Development will have no

² [Ofcom Spectrum Information Portal](#) - Accessed 04/01/2024

impact on it while in that state. Due to the lack of communication from Telefonica, it is not thought that an objection will be raised.

Therefore, it is anticipated that the Proposed Development will not result in interference with any telecommunications infrastructure.

10.4.2 Television

A 2009 Ofcom report states that: ‘Technologies such as analogue television are quite seriously affected by signal reflections, which can give rise to an effect known as ‘ghosting’. Ghosting (or delayed image interference) is where a pale shadow or shadows appear to the right of the main picture on viewers’ television screens.’, this, and other signal interference, can occur to houses within a few kilometres of the development if their TV ariels are oriented towards the turbines. The 2009 Ofcom report goes on to state that: ‘Digital television signals are much better at coping with signal reflections, and digital television pictures do not suffer from ghosting.’

Following the digital switchover in 2009 and the cessation of analogue television signals being broadcast, any potential impacts are considered to be greatly reduced and therefore it is not expected that there will be any significant effects on television as a result of the Proposed Development.

10.4.3 Utilities and Services

A services search was undertaken using LinesearchbeforeUdig⁴ (LSBUD) which is a utilities and asset search service. This provides a single point of contact for all enquiries relating to the apparatus owned and/or operated by the asset owners protected by LSBUD. This includes underground and overhead transmission/distribution electricity networks, transmission/distribution gas networks, oil pipelines, and fibre optic networks. Additionally, a desk-based study was undertaken using satellite imagery and Google Street View to identify infrastructure not owned by LSBUD’s list of consultees. The identified infrastructure is presented in **Table 10.2** below.

Table 10.2 - Utilities/Services

Utilities/Services	Response	Nature of Impact	Date of Consultation	Date of Response
Scotia Gas Networks	No objection / No infrastructure impacted by the Proposed Development	N/A	01/12/2023	01/12/2023
SS Energy Networks	Fiber Optic cable identified able identified 33kV transmission line identified Consented 132kV transmission line identified	Potential danger during construction. Potential damage to the transmission lines.	01/12/2023	01/10/2023
Satellite Imagery	Telecommunications Mast identified	Potential electromagnetic interference.	14/12/2023	14/12/2023

While the Site falls within the operational boundaries for Scotia Gas Networks, subsequent consultation revealed no utilities/services assets are present within the Site.

The identified fiber optic cable (see **Figure 10.1**) serves the existing turbines. This cable is to be re-used to serve the Proposed Development. Prior to the commencement of construction work on the Proposed Development,

⁴ [LinesearchbeforeUdig](#) - Accessed 06/12/2023

workers will be made aware of its presence and guidelines laid out in HS(G)47 Avoiding Danger From Underground Services⁵ will be followed during the works.

At the closest instance, the turbines of the Proposed Development are 277m from the two 33kV distribution lines to the southwest, identified in **Figure 10.1**. The ENA considers that the turbulent wake emitted from turbines located over 3 times their blade diameter from overhead lines will have a negligible impact on the overhead lines, the turbine's blade diameter is 54m. As the separation distance between the distribution line and the turbines exceeds 162m the Proposed Development will have no impact on the distribution line.

SSEN has consent for a 132kV transmission line running from Stornoway to Harris to replace the existing 33kV lines which pass near the Site. At the closest instance, the line is 260m from the Proposed Development, the Proposed Development will therefore have no impact on the transmission line.

The identified 33kV transmission lines cross over the access track, which is part of the abnormal loads route. If, following an SPEN GS6 assessment, it is identified that there will not be sufficient clearance between the payload and the OHL, relocation of the relevant lines may be necessary. The relocation of OHLs will be conducted safely ahead of abnormal loads delivery and in consultation with key stakeholders.

10.5 Mitigation

10.5.1 Telecommunications Infrastructure

As it has been identified that there are no operational fixed microwave/radio links within the Site, no mitigation measures are required, unless later consultation indicates otherwise.

10.5.2 Television

As it is not expected that there will be any significant effects on television as a result of the Proposed Development, no mitigation measures are required.

10.5.3 Utilities and Services

To ensure compliance with the HSE requirements laid out in Guidance Note GS6, SSEN will be requested to conduct a GS6 assessment to determine the clearance distance. If the max height of the payload conflicts with the clearance distance, OHLs may have to be relocated, the relocation of OHLs will be conducted safely ahead of abnormal loads delivery, and in consultation with key stakeholders.

The fiber optic cable that serves the existing turbines will continue to serve the Proposed Development; construction work is not anticipated to conflict with this cable. To ensure unanticipated conflict with this cable is avoided, the guidance in HS(G)47 Avoiding Danger From Underground Services will be followed during construction.

10.6 Summary

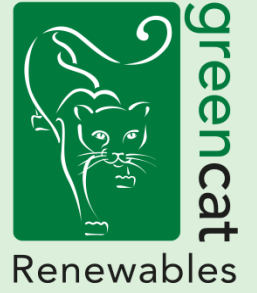
The Applicant will work closely with telecommunications operators to ensure that there are no unacceptable impacts on potentially unidentified links.

No impacts are anticipated on television infrastructure.

A GS6 assessment will be undertaken post-consent to ensure sufficient clearance distance from the identified 11/33kV lines crossing the access track.

⁵ [HS\(G\)47 Avoiding Danger From Underground Services](#) – Accessed 14/12/2023

The assessment demonstrates that the Proposed Development, following recommended mitigation, will not compromise any telecommunications, television, or utilities infrastructure.



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