

Green Hill Solar Farm Preliminary Environmental Information Report

Chapter 21 Electromagnetic Fields

Prepared by: Pager Power

Date: November 2024

PINS reference: EN010170



Contents

<u>21</u>	<u>Electromagnetic Fields</u>	<u>2</u>
21.1	Introduction	2
21.2	Consultation	2
21.3	Legislation, Planning Policy and Guidance	4
21.4	Assessment Methodology	5
21.5	Assessment Assumptions and Limitations	7
21.6	Baseline Conditions	7
21.7	Embedded Mitigation Measures	8
21.8	Assessment of Likely Impacts and Effects	9
21.9	Additional Mitigation Measures	10
21.10	Residual Effects	10
21.11	Cumulative Effects	10
21.12	Summary	11
<u>References</u>		<u>12</u>



21 Electromagnetic Fields

21.1 Introduction

- 21.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents the findings of the work undertaken to date concerning the potential impacts of Electromagnetic Fields from the underground cable routes proposed as part of the Scheme on human health.
- 21.1.2 Electromagnetic Fields (EMFs) arise from the generation, transmission, distribution and use of electricity. EMFs occur around all electronic infrastructure.
- 21.1.3 This chapter therefore focuses on the potential impacts of Electromagnetic Fields from the underground cable routes proposed as part of the Scheme on human health, during the construction and operational phases only.
- 21.1.4 **Chapter 9: Ecology and Biodiversity** considers the potential impacts associated with EMF on ecology.
- 21.1.5 For more details about the Scheme, refer to **Chapter 4: Scheme Description** of this PEIR.

Appendices and Figures

21.1.6 This chapter is supported by the following appendices in **PEIR Volume 3**:

- **Appendix 21.1** High-Level Electromagnetic Field Assessment

21.1.7 This chapter is supported by the following tables:

- **Table 21.1** Summary of Consultation and Responses;
- **Table 21.2** Sensitivity/Importance of the Identified Environmental Receptor;
- **Table 21.3** Magnitudes of EMF of Varying Degrees; and
- **Table 21.4** Impact Significance Matrix.

21.2 Consultation

21.2.1 An EIA Scoping Report was submitted to the Planning Inspectorate (PINS) in July 2024, with a formal request for Scoping Opinion. PINS subsequently issued the Scoping Opinion on the proposed scope on 30th August 2024. Consultation undertaken throughout the pre-application and scoping phase for the Scheme has informed the approach to the Electromagnetic Fields assessment and the information provided within this chapter.

21.2.2 A summary of consultation and response to the Scoping Report are outlined below in **Table 21.1**.

21.2.3 **Table 21.1: Summary of Consultation and Responses**

Consultee and Date	Response	Outcome and Any Further Steps Anticipated
The Planning Inspectorate, 30 August 2024 Scoping Opinion (Ref.8 para 3.11.1)	Electromagnetic fields (EMFs) from the underground cables during decommissioning The Inspectorate agreed that EMFs from the underground cables during decommissioning may be scoped out of further assessment on the basis that there would be no risk of EMF generation during this phase and dismantling the electrical infrastructure would eliminate any potential EMF source.	EMFs from the underground cables during decommissioning have been scoped out from further assessment.



Consultee and Date	Response	Outcome and Any Further Steps Anticipated
<p>The Planning Inspectorate, 30 August 2024</p> <p>Scoping Opinion (Ref.8 para 3.11.2)</p>	<p>EMFs from the transformers, inverters and substations during construction, operation and decommissioning</p> <p>The Inspectorate agreed that EMFs from the transformers, inverters and substations during construction, operation and decommissioning may be scoped out of further assessment on the basis that they would be housed in protective enclosures and the transformers and PV inverters would be 'CE marked', meaning they should not generate or be affected by electromagnetic disturbance. It is also noted that the radiation from these components would be less than that from the proposed underground cables and that the maximum levels of electromagnetic radiation from the cables (where one cable lies within a trench), are predicted to be below the 1998 International Commission on the Non-Ionizing Radiation Protection (ICNIRP) reference levels for magnetic fields.</p>	<p>EMFs from these components have been scoped out and UKCA/CE marking incorporated into the electrical design (see paragraphs 21.3.2 to 21.3.5). No further consideration of PRoWs is made.</p>
<p>The Planning Inspectorate, 30 August 2024</p> <p>Scoping Opinion (Ref.8 para 3.11.3)</p>	<p>EMFs from the BESS during construction, operation and decommissioning</p> <p>The Inspectorate agreed that EMFs from the BESS during construction, operation and decommissioning may be scoped out of further assessment based on the information provided in the Scoping Report and Appendix 16 of the Scoping Report, and on the assumption that the predicted maximum magnetic field produced by the BESS(s) would be below the ICNIRP reference levels.</p>	<p>EMFs from the BESS have been scoped out from further assessment.</p>
<p>The Planning Inspectorate, 30 August 2024</p> <p>Scoping Opinion (Ref.8 para 3.11.3)</p>	<p>Assessment – EMFs from the Cable Corridor</p> <p>The predicted maximum field produced by the underground cables should be identified in the ES.</p>	<p>This is outlined in paragraph 21.8.5 to 21.8.14.</p>



21.3 Legislation, Planning Policy and Guidance

21.3.1 This section provides an overview of the legislation, planning policy and guidance against which the Scheme will be considered for Electromagnetic Fields.

Legislation

21.3.2 CE marking (Conformité Européene, or European Conformity marking) indicates that a product has been assessed by the manufacturer and deemed to meet European Union safety, health and environmental protection requirements (Ref.2). The relevant EU Directive for CE marking is Electromagnetic Compatibility Directive 2014/30/EU (Ref.3), which should ensure that electrical and electronic equipment should not generate, or be affected by, electromagnetic disturbance.

21.3.3 CE marking requirements were adopted and extended indefinitely in Great Britain until the UK left the EU in 2020.

21.3.4 From 1 January 2021, the UKCA (UK Conformity Assessed) mark started to replace the CE mark for goods sold within Great Britain, and the CE mark has continued to be required for goods sold in Northern Ireland. The government has laid legislation to continue recognition of CE marking (Ref.4). The legislation will apply indefinitely for a range of product regulations. This means businesses have the flexibility to use either the UKCA (UK Conformity Assessed) or CE marking to sell products in Great Britain (GB).

21.3.5 All proposed cables will be 'UKCA' and/or 'CE' marked.

Planning Policy

21.3.6 The National Policy Statement (NPS) for electricity networks infrastructure (EN-5) includes planning guidance for developers of nationally significant electricity network infrastructure projects (Ref.1). Paras 2.9.44 – 2.9.58, 2.10.11 – 2.10.13, and 2.11.9 – 2.11.16 are specifically related to Electric and Magnetic Fields, and have been considered within this chapter. Some of the most relevant points have been extracted below.

21.3.7 Para 2.9.45 “The intensity of both electric fields and magnetic fields diminishes with increasing distance from the source.”

21.3.8 Para 2.9.46 “Although putting cables underground eliminates the electric field, they still produce magnetic fields, which are highest directly above the cable.”

21.3.9 Para 2.9.48 to 2.9.49 “*To prevent these known effects, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) developed health protection guidelines in 1998 for both public and occupational exposure. These are expressed in terms of the induced current density in affected tissues of the body, ‘basic restrictions’, and in terms of measurable ‘reference levels’ of electric field strength (for electric fields), and magnetic flux density (for magnetic fields). The relationship between the (measurable) electric field strength or magnetic flux density and induced current density in body tissues requires complex dosimetric modelling. The reference levels are such that compliance with them will ensure that the basic restrictions are not reached or exceeded. Exceeding the reference levels does not necessarily mean that the basic restrictions will not be met; this would be a trigger for further investigation into the specific circumstances.*”

21.3.10 Para 2.9.51 “*The levels of EMFs produced by power lines in normal operation are usually considerably lower than the ICNIRP 1998 reference levels. For electricity substations, the EMFs close to the sites tend to be dictated by the overhead lines and cables entering the installation, not the equipment within the site.*”

21.3.11 Para 2.9.54 “*In March 2004, the National Radiological Protection Board (now part of NIHP CRCE), published advice on limiting public exposure to electromagnetic fields. The advice recommended the adoption in the UK of the EMF exposure guidelines published by ICNIRP in 1998.*”

21.3.12 Para 2.9.55 “*These guidelines also form the basis of the Control of Electromagnetic Fields at Work Regulations 2016. Resulting from these recommendations, government policy is that exposure of the public should comply with the ICNIRP 1998 guidelines. The electricity industry*



has agreed to follow this policy. Applications should show evidence of this compliance as specified in 2.10.11.”

21.3.13 Para 2.10.12 “*Where it can be shown that the line will comply with the current public exposure guidelines and the policy on phasing, no further mitigation should be necessary.*”

21.3.14 Para 2.11.16 and Page 34 present a simplified route map for dealing with EMFs.

Guidance

UK Government Advice

21.3.15 The UK Government advice (Ref.5) on exposure to electromagnetic fields in the everyday environment, including electrical appliances in the home and mobile phones has been considered.

21.3.16 The UK Government advice and guidance on public exposure limits to EMF radiation, including NPS EN-5, is designed to comply with the 1998 ICNIRP (International Commission on the Non-Ionizing Radiation Protection) guidelines (Ref.6) in terms of the 1999 EU Recommendation. In 2010 ICNIRP produced new guidelines but these have not yet been incorporated into UK Policy. The new guidelines will not apply in the UK unless the Government make a specific decision to introduce them. The ICNIRP 2010 limits allow for higher public exposures, so continuing to follow the ICNIRP 1998 guidelines ensures lower public limits are applied.

21.3.17 The public exposure limits in UK policy define reference levels for electric and magnetic fields. Where field levels exceed these reference levels in significantly occupied spaces, further investigation is warranted.

21.3.18 In the UK, the public limits apply where the time of exposure is significant, rather than anywhere and everywhere where the public have access. This specifically refers to residential properties and properties where members of the public spend an appreciable proportion of their time.

21.3.19 Public Health England (Ref.9) provides detailed guidance on the content of Environmental Statements for applications under the Nationally Significant Infrastructure Planning regime, which includes consideration to electromagnetic fields.

International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines

21.3.20 This PEIR chapter has considered the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines published in 1998, as has the associated **Volume 3, Appendix 21.1** High-Level Electromagnetic Field Assessment.

21.3.21 The reference limits presented within the ICNIRP guidelines have been used when considering residential properties and places of work.

21.4 Assessment Methodology

21.4.1 The methodologies described in the following section have been developed in line with the appropriate policy and industry guidance for assessing potential effects for Electromagnetic Fields from the underground cable routes proposed as part of the Scheme.

Study Area

21.4.2 The Study Area includes the Cable Route Search Area and its immediate vicinity. The intensity of both electric fields and magnetic fields diminishes with increasing distance from the source (Ref.1).

Impact Assessment Methodology

21.4.3 The locations of existing residential properties and places of work within the Study Area have been considered as receptors.

21.4.4 The latest electrical design of the Scheme has been considered, noting that the cable specifications and locations have not been fixed and are subject to change.



- 21.4.5 Within **Volume 3, Appendix 21.1**, reference calculations have been undertaken to determine whether setback distances from these receptors are required for the proposed cable routes.
- 21.4.6 If setback distances are required, these will be considered in the design of cable specifications and routes.
- 21.4.7 Only direct effects on these receptors have been assessed there are no known significant indirect effects from EMF from underground cable routes on human health.

Sensitivity of Receptors

- 21.4.8 The nature or sensitivity of all identified environmental receptors, as well as the magnitude of impact on those receptors will be described as high, medium, low or negligible. This is set out in the context of EMF below in **Table 21.2**.

Table 21.2: Sensitivity of the Identified Environmental Receptor

Sensitivity	Definition
High	A receptor that requires exceptional isolation or shielding from EMFs of any kind, e.g. high-grade medical or scientific equipment
Medium	A receptor that routinely experiences varying EMFs within a regulated range with no adverse impacts, e.g. humans, pacemakers and intra-cardiac defibrillators (Ref.7)
Low	A receptor that is largely unaffected by EMFs of any kind
Negligible	A receptor where there will be no discernible effect and therefore is not considered

- 21.4.9 Sensitivity: All of the identified environmental receptors are designated as Medium sensitivity because people experience EMFs from a man-made environment regularly. Levels of EMF exposure are usually controlled by legislative limits placed on the design and manufacture of electrical products and infrastructure (see CE and UKCA marking legislation outlined in section 21.3 of this chapter).

Magnitude of Impacts

- 21.4.10 The magnitude of effect upon a receptor is predominantly dependent on the following factors:
 - The predicted EMF level;
 - The duration that a receptor may be exposed to the EMF; and
 - The receptor’s setting e.g. a dwelling, office or PRow.

- 21.4.11 **Table 21.3** below gives more detail on the magnitude of impacts.

Table 21.3: Magnitudes of EMF of varying degrees

Magnitude	Definition
High	If a person could be subjected to EMF which was above the human health limit with respect to their setting as per ICNIRP guidance
Medium	If a person could be subjected to EMF which was above the reference health limit but below the human health limit with respect to their setting as per ICNIRP guidance e.g. increased exposure limits based on a person’s profession
Low	If a person could be subjected to EMF which was below the reference health limit with respect to their setting as per ICNIRP guidance
Negligible	If no measurable EMF could be experienced by any person



Assessment of Significance

21.4.12 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity. This impact significance matrix is set out below in **Table 21.4**.

Table 21.4: Impact Significance Matrix

Sensitivity	High	Medium	Low	Negligible
Magnitude				
High	Major	Major/Moderate	Moderate	Minor
Medium	Major/Moderate	Moderate	Moderate/Minor	Minor
Low	Moderate	Moderate/Minor	Minor	Negligible
Negligible	Moderate/Minor	Minor	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

21.4.13 Overall, effects are considered to be significant in EIA terms if the resultant significance of effect as per **Table 21.4** is moderate or higher.

21.4.14 If the resultant significance of effect as per **Table 21.4** is Moderate/Minor, the significance in EIA terms will be subject to professional judgement.

21.5 Assessment Assumptions and Limitations

21.5.1 This preliminary assessment is based on the baseline and Scheme design information available at the time of writing this chapter. A full assessment is being undertaken as part of the EIA; the assessment will be developed and refined following statutory consultation and as additional information becomes available, the final assessment presented within the ES.

21.5.2 Where the Scheme designs and details are either not yet known or incomplete at this stage, either assumptions have been made based on professional judgment using a conservative approach. This assessment is an iterative process and will be both expanded and made more specific as designs are further developed. This process will be carried out in conjunction with relevant consultees and third parties, if necessary, to achieve the most robust outcome.

21.5.3 The methodology for Electromagnetic Fields has considered the following assumptions:

- The exact cable route locations are unconfirmed, so the Cable Route Search Area and immediate vicinity have been considered; and
- The exact cable specifications are not finalised, so the latest electrical design has been considered and the most significant source of EMF has been taken forward for assessment (400kV underground cables).

21.6 Baseline Conditions

21.6.1 This section describes the baseline environmental characteristics for the Scheme and surrounding areas with specific reference to Electromagnetic Fields.

Existing Baseline

21.6.2 The existing baseline conditions are derived from a desk-based review of the available aerial and street view imagery of the site area undertaken as a part of the **Volume 3, Appendix 21.1** study.

21.6.3 There are existing cable routes and electrical infrastructure within the Study Area and surrounding areas. These will have associated electromagnetic fields.

21.6.4 The Scheme will not use any of the existing cable routes or other associated electrical infrastructure present within the Scheme boundary. Therefore no field work/site surveys have been undertaken to understand the existing baseline conditions with respect to Electromagnetic Fields and human health, and there are no future field work/site surveys currently proposed.



21.6.5 Therefore, the focus of the assessment will be primarily on the Scheme's proposed electrical infrastructure.

Future Baseline

21.6.6 This section considers changes to the baseline conditions, described above, that might occur in the absence of the Scheme and during the time period over which the Scheme would be in place. The future baseline scenarios are set out in **Chapter 2: EIA Process and Methodology**.

21.6.7 In the absence of the Scheme, it is considered there will be no change to the future baseline for Electromagnetic Fields. The baseline details above (including existing cable routes and other associated electrical infrastructure) are not anticipated to change in the absence of the Scheme.

21.7 Embedded Mitigation Measures

21.7.1 The way that potential environmental effects have been or will be prevented, avoided or mitigated to reduce residual effects to a minimum, in accordance with the mitigation hierarchy, through design and/or management of the Scheme is outlined in this section and will be taken into account as part of the assessment of the potential effects.

21.7.2 There are no relevant Management Plan(s) to control EMF effects on human health.

21.7.3 The following embedded mitigation measures for construction/operation have been incorporated into the Scheme design, with detailed proposals and locations to be submitted with the DCO application.

Embedded Construction Mitigation Measures

21.7.4 Mitigation measures during the construction phase may include minimum setback distances between receptors and electrical cables during construction activities. This will be confirmed once the detailed design of the cable specifications and routes are fixed, and these have been reviewed against the legislation and guidance outlined in Section 21.3.

21.7.5 There are no overhead lines planned as part of the Scheme. This is material as underground cables significantly reduce the risk of significant EMF impacts upon human health.

21.7.6 Based on the currently proposed design, no embedded construction mitigation measures are deemed necessary as irrespective of where the cables will be located within the Cable Route Search Area, they will be designed so that, even with or without a setback for example, the maximum levels of electromagnetic radiation received at existing residential properties, places of work, and ProWs, from the proposed cable routes during construction will be below ICNIRP reference levels (Ref.6).

Embedded Operational Phase Mitigation Measures

21.7.7 All proposed cables will be 'UKCA' and/or 'CE' marked.

21.7.8 Electrical fields from the underground power cables will be shielded by the surrounding cable duct and the conducting soil.

21.7.9 Electrical equipment and infrastructure proposed as part of the scheme will be maintained in accordance with manufacturer and other applicable guidelines.

21.7.10 When the cable design is finalised, minimum setback distances between receptors and electrical cables will be implemented if required. This will be confirmed once the detailed design of the cable specifications and routes are fixed, and these have been reviewed against the legislation and guidance outlined in Section 21.3.

21.7.11 Based on the current design of the Scheme, no other embedded operation mitigation measures are deemed necessary as the Scheme will be designed so that the maximum levels of electromagnetic radiation received at existing residential properties, places of work, and ProWs, from the proposed cable routes during operation will be below ICNIRP reference levels (Ref.2).



21.8 Assessment of Likely Impacts and Effects

21.8.1 Taking into account the embedded mitigation measures as detailed in Section 21.6, the potential for cable routes proposed as part of the Scheme to generate effects has been assessed using the methodology as detailed in Section 21.4 of this Chapter. In the sections below, associated impacts and effects during the construction and operational phases of the scheme are discussed.

Construction phase

21.8.2 Through construction activities, the Scheme will introduce underground cable routes into the environment. The cable routes will not be powered during construction, or at least not be operating at full capacity. Therefore, the effects of EMFs from the cable routes during construction will be less than or equal to the effects during operational phase, which represents a worst-case scenario.

21.8.3 The programme for construction is yet to be finalised, the cables in the Scheme will not be powered during construction, or at least not operating at full capacity. The Scheme will be designed so that the maximum levels of electromagnetic radiation received at existing residential properties and places of work from the proposed cable routes during construction will be below ICNIRP reference levels (Ref.6).

21.8.4 The significance of effect is considered minor and therefore not significant.

Operational phase

21.8.5 The effects of EMFs from the cable routes during maintenance and replacement activities will be less than or equal to the effects during operational phase, which represents a worst-case scenario.

21.8.6 During the operation of the Scheme, the cable routes will be a source of EMF in the environment.

21.8.7 The Scheme will be designed so that the maximum levels of electromagnetic radiation received at existing residential properties, places of work, and ProWs, from the proposed cable routes during operation will be below ICNIRP reference levels (Ref.6).

21.8.8 There are no overhead cables planned as part of the Scheme. This is material as underground cables significantly reduce the risk of significant EMF impacts upon human health. There are no electric fields above ground associated with underground cables (Ref.1 paragraph 2.9.46).

21.8.9 The latest electrical design for the Scheme has been considered below and in **Volume 3, Appendix 21.1**.

21.8.10 It is understood from information previously available from the Electricity Networks Association (Ref.7) that the maximum magnetic field level at 1 metre above ground, for a direct buried single underground cable 0.9m below ground level, is below ICNIRP reference levels (Ref.6). The estimated maximum magnetic field is 96.17 micro-Teslas, and the reference level is 100 micro-Teslas. This is considering a 400kV underground cable, which represents the maximum assumed voltage for underground cables in the Scheme and also represents the maximum possible voltage (and worst-case scenario) for underground cables. No setback distances are required for these cables, and it follows that no setback distances are required for any direct buried single cables at 0.9m below ground level or lower.

21.8.11 The electrical design considers the possibility of multiple cables within a single trench along sections of the cable route. No specific data is available for the magnetic field levels for such a configuration. However, it is considered that this scenario could potentially result in a cumulative impact on the resultant magnetic field intensity. Since the precise voltages and quantity of cables within the cable trenches are still awaiting confirmation, it cannot yet be confirmed whether the reference limits may be exceeded. This will be confirmed in the Environmental Statement following further design refinement.

21.8.12 Where this design is used, conservative setback distances using a worst-case approach will be recommended and implemented as far as reasonably practicable into the cable design, so that the maximum levels of electromagnetic radiation received at existing residential properties and



places of work from the proposed cable routes during operation will be below ICNIRP reference levels.

21.8.13 The impact of electromagnetic fields pertaining to the Cable Corridor will be scoped into the Environmental Statement regarding direct effects of EMF during construction and operation of the Scheme.

21.8.14 Considering the above the significance of effect is minor, and therefore not significant.

21.9 Additional Mitigation Measures

21.9.1 The Scheme will use underground power cables and suitable setback distances (if necessary) so that the maximum levels of electromagnetic radiation received at existing residential properties and places of work from the proposed cable routes during operation will be below ICNIRP 1998 reference levels (Ref.6).

21.9.2 At this stage, no additional mitigation measures for the Scheme are considered to be required given that no significant adverse effects are expected given the embedded mitigation measures as detailed in **Section 21.6**. However, this will be investigated further when the electrical design of the Scheme has been fixed.

21.10 Residual Effects

21.10.1 This section summarises the residual significant effects of the Scheme following the implementation of embedded mitigation as outlined in Section 21.6 of this chapter.

21.10.2 Whilst at this stage of the project residual effects have not been assessed in detail, it is anticipated that through the use of the embedded mitigation measures, the Scheme will result in no significant residual adverse EMF effects on human health. The ES will give consideration to the potential residual EMF effects on human health from the final electrical design.

21.11 Cumulative Effects

21.11.1 The ES will give consideration to potential cumulative effects of the Scheme and other relevant projects within the vicinity of the Scheme on a single receptor/resource.

21.11.2 A list of cumulative projects can be found in **Volume 3, Appendix 2.2** of the PEIR, the list will be reviewed and refined in preparation of the DCO application submission through further consultation and will be presented and assessed in the ES.

Predicted Cumulative Effects of Electromagnetic Fields during Construction

21.11.3 The cables in the Scheme will not be powered during construction, or at least not operating at full capacity. Therefore, the effects during construction will be less than or equal to the effects during operation and therefore cumulative effects are not considered during construction.

Predicted Cumulative Effects of Electromagnetic Fields during the Operational Phase

21.11.4 Cumulative effects have been considered within Section 4.5 of **Volume 3, Appendix 21.1**.

21.11.5 Cumulative effects are theoretically possible from the proposed cabling in combination with other solar developments that are consented, under construction or operational. However, it is not expected that there will be any significant cumulative effects with other known solar schemes. This is because of the substantial distances between the developments and the absence of any known possibility for high-voltage cables to overlap.

21.11.6 Significant cumulative effects from the proposed cabling in combination with the use of household items are not expected. Electrical household appliances will add to the overall exposure of electromagnetic fields; however, these levels should still remain below the recommended exposure limit, due to the lower voltages of the appliances, and are not used constantly, providing only a temporary addition to the resultant electromagnetic field levels.

21.11.7 The electrical design is considering multiple high-voltage cables within a single trench along certain sections of the cable route. This could lead to a cumulative effect on the resulting magnetic field intensity. As the voltages and number of cables within the cable trenches are yet to be



confirmed for the Scheme, there is insufficient information to prove that the reference limits would not be exceeded. The ES will give further consideration of the potential cumulative effects of multiple cables within a single trench if this is implemented into the final design.

In-combination effects

- 21.11.8 There are considered to be no in-combination effects on human health from inter-topic relationships that would cumulatively impact the Scheme; however, the ES will give consideration to the potential in-combination effects from the final electrical design of the Scheme on human health.

21.12 Summary

- 21.12.1 This chapter of the PEIR has identified the existing environment in relation to Electromagnetic Fields and has outlined the assessment work undertaken to date concerning the potential impacts on human health of Electromagnetic Fields from the cable routes during the construction and operation phases.
- 21.12.2 The ES will give consideration to the potential effects of EMF from the final electrical design of the Scheme on human health.
- 21.12.3 The Scheme will be designed in a way that will mitigate any EMF impacts with respect to human health. It is anticipated that through the use of embedded mitigation measures, the Scheme will result in no significant adverse Electromagnetic Field effects on human health.



References

- Ref.1 National Policy Statement for electricity networks infrastructure (EN-5). Available at <https://assets.publishing.service.gov.uk/media/65a78a5496a5ec00d731abb/nps-electricity-networks-infrastructure-en5.pdf>
- Ref.2 European Union safety, health and environmental protection requirements for CE marking. Available at https://europa.eu/youreurope/business/product-requirements/labels-markings/ce-marking/index_en.htm
- Ref.3 Electromagnetic Compatibility Directive 2014/30/EU for CE marking. Available at https://ec.europa.eu/growth/sectors/electrical-engineering/emc-directive_en
- Ref.4 UK Guidance on UKCA marking. Available at [Using the UKCA marking - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/collections/using-the-ukca-marking)
- Ref.5 UK Government advice on exposure to electromagnetic fields in the everyday environment, including electrical appliances in the home and mobile phones. Available from: <https://www.gov.uk/government/collections/electromagnetic-fields>
- Ref.6 1998 ICNIRP (International Commission on the Non-Ionizing Radiation Protection) guidelines. Available at <https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf>
- Ref.7 Industry body for the companies which run the UK and Ireland's energy networks. Available at www.emfs.info
- Ref.8 PINS Scoping Opinion. Available at <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010170/EN010170-000002-GHSF%20-%20Scoping%20Opinion.pdf>
- Ref.9 Public Health England (2021) Advice on the content of environmental statements accompanying an application under the Nationally Significant Infrastructure Planning Regime. Available at: <https://www.khub.net/documents/135939561/390856715/Advice+on+the+content+of+environmental+statements+accompanying+an+application+under+the+Nationally+Significant+Infrastructure+Planning+Regime.pdf/a86b5521-46cc-98e4-4cad-f81a6c58f2e2?version=1.0&t=1615998516658&download=true>