

Green Hill Solar Farm

EN010170

Environmental Statement

Chapter 21: Electromagnetic Fields

Prepared by: Pager Power

Date: May 2025

Document Reference: APP/GHXXX

APFP Regulation 5(2)(a)



Contents

<u>21</u>	<u>Electromagnetic Fields</u>	<u>4</u>
21.1	Introduction	4
21.2	Consultation	5
21.3	Legislation, Planning Policy and Guidance	7
21.4	Assessment Methodology and Significance Criteria	10
21.5	Assessment Assumptions and Limitations	12
21.6	Baseline Conditions	13
21.7	Embedded Mitigation Measures	13
21.8	Assessment of Impacts and Effects	14
21.9	Additional Mitigation Measures	16
21.10	Residual Effects	16
21.11	Cumulative Effects	16
21.12	Summary	16
<u>References</u>		<u>19</u>



Issue Sheet

Report Prepared for: Green Hill Solar Farm
DCO Submission

Chapter 21: Electromagnetic Fields

Prepared by

Name: Ayda Yates

Job title: Technical Analyst at Pager Power

Approved by

Name: James Plumb

Job title: Senior Technical Analyst

Revision	Date	Prepared by	Approved by
Original	23/05/2025	AY	JP



21 Electromagnetic Fields

21.1 Introduction

- 21.1.1 This Chapter presents the findings of the Environmental Impact Assessment (EIA) concerning the potential Electromagnetic Fields (EMFs) impacts of the Scheme.
- 21.1.2 EMFs arise from the generation, transmission, distribution and use of electricity. EMFs occur around all electronic infrastructure. This Chapter therefore focuses on the potential impacts of Electromagnetic Fields from the electronic infrastructure proposed as part of the Scheme, during the construction and operational phases only.
- 21.1.3 The following aspects are considered within the EMF assessment process:
- Overview of baseline conditions;
 - Reference to relevant guidance, regulations, and exposure limits regarding EMF and human health;
 - Description of the assessment methodology and assumptions;
 - Overview of potential EMF impacts on human health during the construction and operation phases from electric cables, transformers and inverters, substation and BESS;
 - Outline of embedded and site-specific mitigation measures to reduce EMF exposure; and
 - Overview of residual effects on human health following the application of mitigation measures.
- 21.1.4 For project description details, please refer to **Chapter 4: Scheme Description [EN010170/APP/GH6.2.4]** of this Environmental Statement (ES).
- 21.1.5 This Chapter has been prepared by Pager Power (see Statement of Competence [EN010170/APP/GH6.3.1.1]).

Appendices and Figures

- 21.1.6 This Chapter is supported by the following appendices:
- **Appendix 21.1** High-Level Electromagnetic Fields Assessment
- 21.1.7 This Chapter is supported by the following tables:
- **Table 21.1: Relevant Scoping Opinion Comments**
 - **Table 21.2: Statutory Consultation Comments**
 - **Table 21.3: Sensitivity of the Identified Environmental Receptor**
 - **Table 21.4: Magnitudes of EMF of varying degrees**
 - **Table 21.5: Impact Significance Matrix**
 - **Table 21.6: Summary of Residual Effects for Electromagnetic Fields**



21.2 Consultation

Scoping Opinion

- 21.2.1 An EIA Scoping Report was submitted to the Planning Inspectorate (PINS) in July 2024 (Ref 21.1), with a formal request for a Scoping Opinion. PINS subsequently issued the Scoping Opinion on 30th August 2024 (Ref 21.2).

Table 21.1: Relevant Scoping Opinion Comments

Consultee and Date	Comment	How has the comment been addressed	Location of response in Chapter
The Planning Inspectorate, 30 August 2024 Para 3.11.1	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.	This is presented in Section 21.1.2 of this Chapter.
The Planning Inspectorate, 30 August 2024 Para 3.11.2	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	EMFs from these components have been scoped out and UKCA/CE marking incorporated into the electrical design.	This is presented in Sections 21.1.2 and 21.3.2 of this Chapter.



Consultee and Date	Comment	How has the comment been addressed	Location of response in Chapter
	or be affected by electromagnetic disturbance.		
The Planning Inspectorate, 30 August 2024 Para 3.11.3	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.	EMFs from the BESS have been scoped out.	This is presented in Section 21.1.2 of this Chapter.
The Planning Inspectorate, 30 August 2024 Para 3.11.4	The predicted maximum field produced by the underground cables should be identified in the ES.	EMFs from the proposed cable route corridor and associated cable configurations have been assessed.	This is presented in Section 21.7 of this Chapter, and the assessment itself is presented in Appendix 21.1: High-Level Electromagnetic Fields Assessment

Statutory Consultation

- 21.2.2 Further consultation in response to formal pre-application engagement was undertaken through the Preliminary Environmental Information Report (PEIR).



Table 21.2 outlines the statutory consultation responses relating to EMF and how these have been addressed through the ES.

Table 21.2: Statutory Consultation Comments

Consultee and Date	Comments	How has this comment been addressed	Location of response in the ES
North Northamptonshire Council December 2024	NNC would support further surveys to be carried out regarding electromagnetic fields as part of the ES when the route of the cable corridor has been confirmed and agree that conservative set back distances should be implemented into the cable design to mitigate EMF impact.	The finalised EMF assessment in the ES reflects the confirmed Cable Route Corridor. Conservative setback distances have been incorporated into the design where necessary, ensuring no significant EMF impacts on nearby receptors.	This is presented in Section 21.8 of this Chapter.
Mears Ashby Parish Council 12 th December 2024	BESS electromagnetic fields and fire risks are well documented. BESS units are liable to catch fire, requiring colossal amounts of water to extinguish, leading to consequential contaminated run-off to local water courses. Concern in regard to distance to Mears Ashby and heritage assets.	The Planning Inspectorate agreed that EMFs from the substations and BESS could be scoped out, as they will be housed in protective enclosures and located at safe distances from receptors. Nonetheless, the finalised EMF assessment considered these components and confirmed that they will produce EMF levels well below the ICNIRP public exposure limits, with no significant impacts anticipated.	This is presented in Section 21.1.2 and Table 21.1: Relevant Scoping Opinion Comments within this Chapter.

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 is considered for EMF.



Legislation

Electromagnetic Compatibility Regulations 2016

- 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 21.3). The Electromagnetic Compatibility Regulations 2016 (Ref 21.4) implemented the relevant EU Directive for CE marking, the Electromagnetic Compatibility Directive 2014/30/EU (Ref 21.5). The Regulations 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 Regulations also continue recognition of CE marking in the UK. 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) (Ref 21.6).
- 21.3.5 All proposed cables and associated electrical equipment will be 'UKCA' and/or 'CE' marked

Planning Policy

National 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 21.9). 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. EMFs can have both direct and indirect effects on human health, aquatic and terrestrial organisms"*
- 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 2.9.58 *“There is little evidence that exposure of crops, farm animals or natural ecosystems to transmission line EMFs has any agriculturally significant consequences.”*
- 21.3.14 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.”*
- 21.3.15 Para 2.11.13 *“Undergrounding of a line would reduce the level of EMFs experienced, but high magnetic field levels may still occur immediately above the cable.”*
- 21.3.16 Para 2.11.16 and Page 34 present a simplified route map for dealing with EMFs, focusing on overhead lines.

Local Planning Policy

- 21.3.17 EMFs are not specifically referenced in local planning policy.

Guidance

UK Government Advice

- 21.3.18 The UK Government advice (Ref 21.7) on exposure to Electromagnetic Fields in the everyday environment, including electrical appliances in the home and mobile phones has been considered.
- 21.3.19 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 21.8) 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.

21.3.20 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.

21.3.21 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 to properties where members of the public spend an appreciable proportion of their time.

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

21.3.22 This ES Chapter has considered the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines published in 1998, as has the associated Appendix 21.1 High-Level Electromagnetic Field Assessment.

21.3.23 The reference limits presented within the ICNIRP guidelines have been used when considering residential and non-residential properties and other locations where members of the public may congregate.

21.4 Assessment Methodology and Significance Criteria

21.4.1 The methodologies described in the following section have been developed in line with the relevant guidance for assessing potential significant effects.

Study Area

21.4.2 The Study Area includes the Cable Route Corridor and its immediate vicinity. The assessment is focussed on the electrical infrastructure within the Sites. The intensity of both Electric Fields and Magnetic Fields diminishes with increasing distance from the source.

Impact Assessment Methodology

21.4.3 The EMF assessment considers the locations of the underground Cable Route Corridor and the proximity of receptors such as residential properties, workplaces, and Public Rights of Way (PRoWs).

21.4.4 Effects of Electromagnetic Fields upon fish and aquatic life have been considered in Chapter 9: Ecology and Biodiversity **[EN010170/APP/GH6.2.9]**

21.4.5 Within Appendix 21.1: High-Level Electromagnetic Field Assessment, reference calculations have been undertaken to determine whether setback distances from these receptors are required for the proposed Cable Route Corridor. These calculations consider direct buried cables with a depth of 0.9m below the surface.

21.4.6 Assessment of the proposed underground cable routes are based on the cable route centreline, as this is most representative of the likely impacts. Where setback distances are required, the final cable route will be located outside of the relevant setbacks.



21.4.7 Where setback distances are required, these will be incorporated into the detailed design of cable specifications and routes, and secured within the OCEMP [EN01070/APP/GH7.1].

21.4.8 Only direct effects on these receptors have been assessed as there are no known significant indirect effects from EMF from underground cable routes on human health. Underground cables typically cause a negligible electric field above ground, and as such no indirect effects are predicted. Magnetic fields are not known to cause significant indirect effects.

Sensitivity of Receptors

21.4.9 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 in **Table 21.3**.

Table 21.3: 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 21.10).
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.

21.4.10 All of the identified environmental receptors are designated as Medium sensitivity because people experience EMFs from a man-made environment regularly. No facilities have been identified within the search area which are likely to use sensitive scientific or medical equipment which may be effected by EMFs.

Magnitude of Impacts

21.4.11 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.

21.4.12 **Table 21.4** below gives more detail on the magnitude of impacts.

Table 21.4: 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.



Magnitude	Definition
Medium	If a person could be subjected to EMF for a significant duration 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 for a significant duration 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

- 21.4.13 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 21.5**.

Table 21.5: 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	Negligible	Negligible	Negligible	Negligible
Neutral	Neutral	Neutral	Neutral	Neutral

- 21.4.14 Overall, effects are considered to be significant in EIA terms if the resultant significance of effect as per **Table 21.5** is Moderate or higher.
- 21.4.15 If the resultant significance of effect as per **Table 21.5** is Moderate/Minor, professional judgement will be applied to judge the rating.

21.5 Assessment Assumptions and Limitations

- 21.5.1 The methodology for assessing EMF has considered the following assumptions:
- The High-Level Electromagnetic Field Assessment **[EN010170/APP/GH6.3.21.1]** is based on the finalised electrical design available at the time of writing. It incorporates the confirmed Cable Route Corridor and an optimised electrical design, reflecting the Scheme's definitive configuration. No further iterations are anticipated;
 - Where optionality exists within the electrical design, the assessment adopts a worst-case scenario for magnetic field strengths, factoring in the highest voltage cables and cumulative trench configurations; and
 - No fieldwork was required as the assessment is based on desk-based calculations, aerial imagery, and the finalised cable design.



21.6 Baseline Conditions

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

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 High-Level Electromagnetic Field Assessment [EN010170/APP/GH6.3.21.1].
- 21.6.3 The Scheme is located on predominantly agricultural land. There are existing cable routes, including a 400kV National Grid transmission overhead line, and electrical infrastructure within the Study Area and surrounding areas as outlined on the Crossing Schedule [EN010170/APP/GH7.18]. These will have associated Electromagnetic Fields. The Scheme will connect to the Grendon National Grid substation, however this will not significantly increase EMF effects outside of the substation.
- 21.6.4 Existing electrical infrastructure will comply with the reference levels and respect any required setback distances, significant cumulative impacts are not predicted based on the relative locations of existing and proposed electrical infrastructure relative to the receptors. Therefore, no field work/site surveys have been undertaken to understand the existing baseline conditions with respect to Electromagnetic Fields.
- 21.6.5 Therefore, the focus of the assessment is primarily on the Scheme's proposed electrical infrastructure, rather than any existing 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** [EN010170/APP/GH6.2.2].
- 21.6.7 In absence of the Scheme, it is considered there will be no change to the future baseline for Electromagnetic Fields. The baseline details as presented 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 impacts will be prevented, avoided or mitigated to reduce impacts to a minimum 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. Proposed environmental enhancements are also described where relevant.
- 21.7.2 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).
- 21.7.3 The following embedded mitigation measures for the construction/operation phase have been incorporated into the Scheme's design.



Embedded Construction and Operation Mitigation Measures

- 21.7.4 During the construction phase, the electrical cables will only be powered during commissioning. It will be ensured that cables have been located respecting the recommended setback distances before commissioning begins.
- 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 the Scheme is designed so that the maximum levels of electromagnetic radiation received at existing residential properties, places of work, and ProWs, from the proposed Cable Route Corridor during operation will be below ICNIRP reference levels (Ref 21.8).
- 21.7.7 All proposed cables and associated electrical infrastructure 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 guidelines.
- 21.7.10 A minimum setback distance of 5 metres has been recommended for sections of the Cable Route Corridor, ensuring a safe distance between receptors and electrical cables. This recommendation is fully adhered to, as the closest identified dwelling to the proposed cable route centreline (including any optional sections) is located over 17 meters away (Figure 10 [EN010170/APP/GH6.3.21.1]).

21.8 Assessment of Impacts and Effects

Construction Phase

- 21.8.1 Through construction activities, the Scheme will introduce EMF sources into the environment. Construction machinery may produce some EMFs but these will not be significant and will be below ICNIRP reference levels.
- 21.8.2 The Scheme will not be powered during construction, except during the testing and commissioning process. Therefore, the effects of EMFs from the Cable Route Corridor during construction will be less than or equal to the effects during operational phase.
- 21.8.3 The electrical design ensures that the cable routes are positioned such that no receptors, where people spend an extended period of time, including residential properties, places of work, experience electromagnetic radiation levels exceeding ICNIRP reference levels during construction. This is achieved by adhering to the recommended setback distances.

Significance of Effect

- 21.8.4 Considering the above, construction effects will be less than or equal to the operational effects. The construction effects have therefore not been separately



assessed, but to ensure a worst-case scenario has been considered, the results of the operational phase assessment will be applied to the construction phase.

Operational Phase

- 21.8.5 During the operation of the Scheme, the cable routes are a source of EMF in the environment.
- 21.8.6 The Scheme is designed to ensure that the maximum levels of electromagnetic radiation received at existing residential properties, workplaces, and Public Rights of Way (PRoWs) from the Cable Route Corridor during operation remain below the ICNIRP reference levels (Ref 21.8).
- 21.8.7 The full assessment is contained within the High-Level Electromagnetic Field Assessment **[EN010170/APP/GH6.3.21.1]**.
- 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. As confirmed in NPS EN-5, electric fields are easily blocked by fences, shrubs and buildings. As such, putting cables underground means that there are no electric fields above ground associated with underground cables (Ref 21.9 paragraph 2.9.46).
- 21.8.9 Information from the Electricity Networks Association (Ref 21.10) indicates that the maximum magnetic field level at 1 metre above ground for a direct-buried single underground cable, positioned 0.9m below ground level, remains below ICNIRP reference levels (Ref 21.8). The estimated maximum magnetic field for a single 400kV underground cable is 96.17 micro-Teslas, while the reference level is 100 micro-Teslas.
- 21.8.10 However, for sections of the cable route where multiple high-voltage cables are installed within a single trench, the combined magnetic field has been assessed and, in some cases, exceeds the ICNIRP reference level. The highest estimated exceedance occurs where cumulative trench configurations reach up to 102.18 micro-Teslas, surpassing the 100 micro-Tesla reference limit. To mitigate this, a minimum setback distance of 5 metres has been recommended for these sections to ensure compliance with exposure limits. This mitigation is adhered to, as the closest dwellings are located over 17 metres from the Cable Route Corridor, ensuring compliance with ICNIRP reference levels.
- 21.8.11 For users of PRoWs, any radiation effects are expected to be minimal due to their transient exposure as these are not continually occupied, rather they are moving receptors, as opposed to residential dwellings and workplaces.

Equipment replacement

- 21.8.12 Equipment replacement would involve the temporary deactivation of electrical infrastructure, therefore EMF during these activities will be lower than during normal operation. 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.
- 21.8.13 Given the temporary nature of equipment replacement and the fact that setback distances will continue to be adhered to, no exceedances of ICNIRP reference levels are expected.



Significance of Effects

- 21.8.14 Based on the assessment in the High-Level Electromagnetic Field Assessment [EN010170/APP/GH6.3.21.1], the magnitude of impact is low. The significance of the EMF effects during the operational phase and periods of equipment replacement is considered **Minor Adverse** and therefore not significant, as the levels of EMF are predicted to fully comply with ICNIRP reference thresholds.
- 21.8.15 During the construction phase, effects will be less than or equal to the operational effects. The significance of EMF effects during construction is considered **Minor Adverse** and therefore not significant.

21.9 Additional Mitigation Measures

- 21.9.1 No additional mitigation measures for the Scheme are required as no significant adverse effects have been identified.

21.10 Residual Effects

- 21.10.1 Through the use of the embedded mitigation measures outlined above and the implementation of well-established good industry practices, the Scheme will result in no significant residual adverse EMF effects on human health.

21.11 Cumulative Effects

- 21.11.1 A list of cumulative projects can be found in **Appendix 25.1 [EN010170/APP/GH6.3.25.1]** of the ES. A summary of Cumulative effects from EMF is listed within **Chapter 25: Cumulative Effects [EN010170/APP/GH6.2.25]** of this ES.

Cumulative effects

- 21.11.2 There are not considered to be any likely significant cumulative effects in conjunction with other developments.

In-combination effects

- 21.11.3 There are considered to be no in-combination effects from inter-topic relationships following respective mitigation that would cumulatively impact the Scheme.

21.12 Summary

- 21.12.1 This Chapter of the ES identifies the existing environment in relation to EMF and outlines the assessment work undertaken to date regarding the potential impacts on human health from EMF associated with the Cable Route Corridor during the construction and operation phases of the Scheme.
- 21.12.2 The Scheme has been designed to mitigate any EMF impacts on human health. With the use of embedded mitigation measures and the implementation of well-established good industry practices, it is concluded that the Scheme will result in no significant adverse EMF effects on human health.

**Table 21.6: Summary of Residual Effects for Electromagnetic Fields**

Receptor	Description of Impact	Sensitivity of Receptor	Magnitude of Impact	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Additional Mitigation Measures	Residual Effect (with additional mitigation)
Construction Phase							
Residential Dwellings	EMFs are predicted which would be below the ICNIRP reference thresholds	Medium	Low	Setback distances will be utilised from receptors where required	Minor Adverse	N/A	Minor Adverse
Operational Phase							
Residential Dwellings	EMFs are predicted which would be below the ICNIRP reference thresholds	Medium	Low	Cables will be CE and/or UKCA marked A minimum setback distance of 5 metres has been recommended for sections of the Cable Route Corridor, ensuring a safe distance between receptors and electrical cables	Minor Adverse	N/A	Minor Adverse



Receptor	Description of Impact	Sensitivity of Receptor	Magnitude of Impact	Embedded Mitigation	Significance of Effect (with embedded mitigation)	Additional Mitigation Measures	Residual Effect (with additional mitigation)
Decommissioning Phase							
Residential Dwellings	No impact predicted	Medium	Negligible	N/A	No Impact	N/A	Negligible



References

- Ref 21.1 Green Hill Solar Farm (2024) Scoping Report. Available at: [EN010170-000012-GHSF - Scoping Report.pdf](#)
- Ref 21.2 Scoping Opinion: Proposed Green Hill Solar Farm. Available at: <https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN010170-000002-Scoping%20Opinion%202017%20EIA%20Regs.pdf>
- Ref 21.3 European Union safety, health and environmental protection requirements for CE marking. Available at [REDACTED]
- Ref 21.4 The Electromagnetic Compatibility Regulations 2016. Available at: <https://www.legislation.gov.uk/uksi/2016/1091/contents>
- Ref 21.5 Electromagnetic Compatibility Directive 2014/30/EU for CE marking. Available at [REDACTED]
- Ref 21.6 UK Guidance on UKCA marking. Available at [Using the UKCA marking - GOV.UK \(www.gov.uk\)](#)
- Ref 21.7 UK Government advice on exposure to electromagnetic fields in the everyday environment, including electrical appliances in the home and mobile phones. Available at: <https://www.gov.uk/government/collections/electromagnetic-fields>
- Ref 21.8 1998 ICNIRP (International Commission on the Non-Ionizing Radiation Protection) guidelines. Available at [REDACTED]
- Ref 21.9 National Policy Statement for electricity networks infrastructure (EN-5). Available at <https://assets.publishing.service.gov.uk/media/65a78a5496a5ec000d731abb/nps-electricity-networks-infrastructure-en5.pdf>
- Ref 21.10 Industry body for the companies which run the UK and Ireland's energy networks. Available at [REDACTED]