

Note / Memo

HaskoningDHV UK Ltd.
Industry & Buildings

To: National Infrastructure Planning
From: Alternative Use Boston Projects Limited
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Subject: Response to Relevant Representation submitted by Public Health England in respect of electromagnetic fields

1 Introduction

The purpose of this document is to set out the Applicant's response to the Relevant Representation (RR) submitted by Public Health England (PHE) to the Planning Inspectorate (RR-023). This RR raised a concern over the generation of electromagnetic fields (EMF) and potential for exposure of the public. The Applicant acknowledges that this matter had not been addressed in the Environmental Statement (ES). As the conclusion of this document is that the Facility will be compliant with the appropriate guidelines in respect of electromagnetic forces and there will be no impact upon public health, it is considered that an update to the ES is not necessary.

The proposed Boston Alternative Energy Facility (the Facility) is a proposed Energy from Waste plant which will have a generating capacity of approximately 102 megawatts electric (MWe) (delivering 80 MWe to the National Grid). A grid connection point would be located within the Application Site to facilitate the net export of 80 MWe (and also an import of 5 MWe) of electricity. The proposed connection point is to the 132 kilovolt (kV) Overhead Line pylon. The grid connection infrastructure would include a primary substation to convert the site-produced power into the local 132 kV line. These works are part of Work No. 3 of Schedule One of the draft DCO (document reference 2.1, APP-005).

This technical note provides a response to the matters raised by PHE in its RR (RR-023) and also its Scoping Response letter dated 4th July 2018 (pg.124 of APP-066).

2 Matters raised and Applicant's response

2.1 Matters raised in the PHE Scoping Response 4th July 2018

In the scoping response from PHE on page 124 of the Scoping Opinion report¹, it is stated:

¹ <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010095/EN010095-000453-6.2.28.%20Scoping%20Opinion.pdf>

“Evaluation of potential impacts associated with non-ionising radiation (EMF) is not mentioned within the proposed EIA scope and should be considered.”

On pages 131-133 of the Scoping Opinion report, under “Electromagnetic Fields (EMF)”, information was provided by PHE relating to the following:

- Policy measures for the electricity industry
- Exposure guidelines
- Static magnetic fields
- Power frequency electric and magnetic fields
- Long term effects
- The Stakeholder Advisory Group on ELF EMFs (SAGE)

PHE also provided links to various policy, guidance and other documentation which the Applicant has considered.

2.2 Matters raised in the Relevant Representation 18th June 2021

“Electromagnetic Fields (EMF)

The proposal includes an electricity grid connection point and substation. PHE’s scoping response recommended that the EIA consider the public health implications of EMF exposures arising from the development in relation to the ICNIRP exposure guidelines (for the full recommendation, refer to PHE’s Scoping Response). Electromagnetic fields do not appear to have been considered.

- *We recommend public health implications of EMF exposures are addressed”.*

2.3 Applicant’s response

This matter was discussed briefly during an Air Quality Topic Meeting between the Applicant, the Environment Agency, Boston Borough Council and PHE on Tuesday 7th September 2021. This was followed up by a Teams call between the air quality expert of the Applicant and an EMF technical expert from PHE on Wednesday 8th September 2021. During the call, the various policy, advice and guidance documents relating to EMF exposure were explored and discussed and the expert from PHE indicated that the type of equipment, in terms of overhead lines and substations, would dictate whether an assessment would be required and what form it would take. At the conclusion of the call, it was agreed that the Applicant would produce a Note which would address the facility specific elements where EMF could be generated and whether adverse impacts would be expected to arise.

The UK Government’s former Department of Energy & Climate Change (DECC) published a voluntary code of practice on how to demonstrate compliance with EMF exposure guidelines in 2012². The exposure guidelines have been developed by the International Committee on Non-Ionising Radiation Protection (ICNIRP). This code of practice states, at page 4, that there are certain types of electrical supply equipment where the design is such that it is not capable of exceeding the ICNIRP exposure guidelines, with evidence as to why this is the case.

² DECC (2012) Power Lines: Demonstrating compliance with EMF public exposure guidelines
A voluntary Code of Practice.

Such types of equipment are likely to include:

- overhead power lines at voltages up to and including 132 kV;
- underground cables at voltages up to and including 132 kV; and
- substations at and beyond the publicly accessible perimeter.

The evidence for this with respect to overhead power lines and substations is held on the Energy Networks Association website³ and is reproduced *verbatim* below.

“The largest fields produced by lines at 132 kV and below are those produced by 132 kV overhead power lines with the physically largest design of pylon, operating at maximum load and minimum clearance. The largest design in current use in the UK is the L7. For this worst case line:

	Magnetic field	Electric field
L7 design 7 m clearance 1.4 kA per circuit Untransposed phasing	40 μT	3.6 kV m^{-1}
Limit Values	360 μT	9 kV m^{-1}
Conclusion	Compliant	Compliant

“All fields produced by substations are below the ICNIRP limit value of 360 μT . All present designs of substation are therefore compliant.”

The substation will be contained within the Principal Application Site boundary and will thus be remote from public access. The feed from the substation will be into an existing 132 kV overhead line. The Applicant has engaged Harlaxton Engineering Services Limited (Harlaxton) to connect the Facility to the grid. Harlaxton is a licensed Independent Connection Provider and Utility Infrastructure Provider. The electricity network at the location of the Facility is managed by Western Power Distribution, the Distribution Network Operator responsible for distributing electricity in the East Midlands Region.

On the above basis, it is concluded that the proposed electrical substation and overhead 132 kV line will be compliant with EMF exposure guidelines and will pose no risk to public health.

3 Conclusion

The electrical export and import infrastructure associated with the operation of the Facility will be designed, installed and operated by appropriately licensed entities and will, in any case, as a result of the location of the substation and the voltage of the 132 kV overhead line, be compliant with the ICNIRP public exposure limits. This compliance will ensure that there is no risk to public health.

³