Written Response to ExA Questions on Cottam Solar Project

ExA Questions 2.13.11 EMF, CottamSolar Project.

I refer to my previous WR on the Impact of EMF on Marine Life, Flora and Fauna, and Biodiversity in the West Burton Solar Project and would further add the following representations.

The developer has chosen to comment on human life and has not made any consideration of the significant impact of EMF on marine life, flora and fauna with wildlife, and biodiversity, where all the later are intrinsically linked to each other.

A myriad of cable runs in the project resulting in connections carrying up to 400Kv to transport electricity from the solar panels to the National Grid using transformers, inverters etc., all of which transmit EMF's.

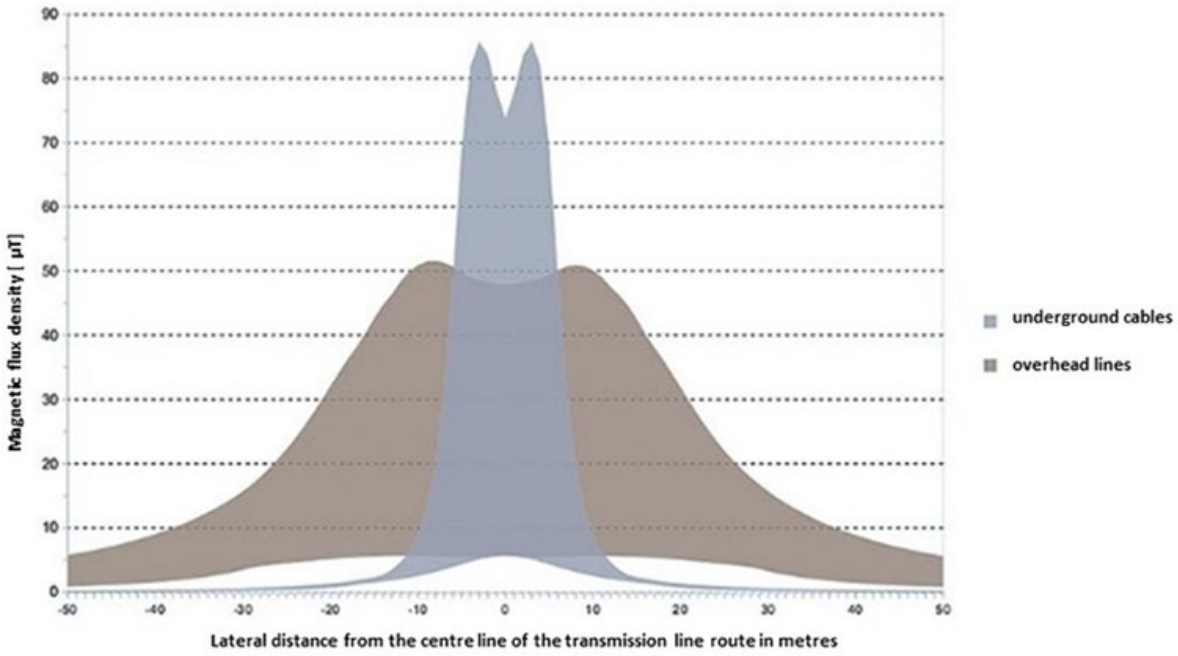
The WR shows that the magnetic fields created on the development site will be significantly stronger, and the effect of EMF will be distanced further away by at least 7 metres.

A magnetic field measuring 57.5 milligauss immediately beside a 230 kilovolt transmission line measures just 7.1 milligauss at 100 feet, and 1.8 milligauss at 200 feet, according to the World Health Organization in 2010.

An Electromagnetic Field is a circular vector field that radiates out centrally from its stronger central core with a magnetic influence on moving electric charges, electric currents, and magnetic materials.

The electromagnetic fields will not be mitigated or stopped by covering over or burying. In effect, the EMF will at its core, distanced 5.0 metres below the riverbed, have a magnetic flux density of 50 - 70 uT, with an effective band width across the River Trent calculated at 12 metres.

The diagram below shows the effect of EMF field strength set against underground and overhead cables and lateral core and illustrates the maximum values expected at the examined route sections during maximum operating conditions of a SINGLE typical 400kV power line.



The effect of EMF will be significantly impacted by any additional power line cable crossings of the River Trent and other watercourses.

The Impact of EMF on Marine Life, Flora and Fauna and Biodiversity are well researched, documented and detailed in the WR's submitted previously.

The Water Framework Directive, the IUCN Red List, the OSPAR, the European Eel Regulations (100/2007), the Eels(England and Wales) Regulations, the Canal Rivers Trust and the Notts Biological & Geological Records Centre list threatened, endangered and protected marine species including the Allis Shad, Brook Lamprey, Bullhead, Common / European Sturgeon, Crucian Carp, Eel, River Lamprey, Sea Lamprey, Smelt, Spined Loach, Twaite Shad, White Clawed Crayfish, Brown Trout and the Atlantic Salmon all found in the Rivers Trent and Till.

Many species of flora and fauna, because of unique physiologies and habitats, are sensitive to exogenous EMF in ways that surpass human reactivity, are highly variable, largely unseen, and a possible contributing factor in species extinctions.

EMF has an adverse effect on orientation, migration, food finding, reproduction, mating, nest and den building, territorial maintenance, defence, vitality, longevity and survivorship itself.
Wildlife loss is often unseen and undocumented until tipping points are reached.

Is the Developer, Examiner and the Secretary of State satisfied that there is no risk to any protected species from the effect of EMF and its features because of this and other similar Project?

2. Written Response to ExA Questions on Cottam Solar Project

ExA Questions 2.1.20 COMAH, Cottam Solar Project.

COMAH

There are growing concerns about the use of Lithium-ion batteries in large scale applications, especially as Battery Energy Storage Systems (BESS) linked to renewable energy projects and grid energy storage.
These concerns arise from the simple consideration that large quantities of energy are being stored, which if released uncontrollably in fault situations could cause major damage to health, life, property and the environment.

BESS are not currently regarded by HSE as regulated under the COMAH.

The reason the COMAH regulations should apply is the scale of evolution of toxic or inflammable gases that will arise in BESS "fires".

Applicability of the COMAH (Control of Major Accident Hazard) Regulations 2015
The governing criteria for application of the COMAH Regulations [17] are:
1. The presence of hazardous materials, or their generation, "if control of the process is lost."
2. The quantity of such hazardous materials present or that could be potentially generated.

The COMAH regulations (2015): COMAH regulates establishments with quantities of dangerous substances (categorised as toxic, flammable or environmentally damaging) that are present above defined thresholds. The substances do not need to be present in normal operation. If dangerous substances could be generated "if control of the process is lost", the likely quantity generated thereby must be considered. If the mass of dangerous substances that could be generated in loss of control exceeds the COMAH thresholds, the Regulations apply.

There is no doubt that hazardous substances such Hydrogen Fluoride (an Acute Toxic controlled by COMAH) would be generated in a BESS accident (i.e., in "battery fires"). Similarly highly Inflammable Gases (also controlled by COMAH) would be evolved even if the atmosphere remained oxygen-free. Depending on the size of the "establishment" these could be produced in sufficient quantities to be in the scope of COMAH.

Application to grid-scale BESS:

The Regulations refer to "a dangerous substance which it is reasonable to foresee may be generated during loss of control of the processes". Both Flammable Gases (P2) and Acute Toxics (H1 and H2) are certainly "reasonable to foresee" in thermal runaway incidents which are now well-documented.

The evolution of regulated, named and categorised hazardous substances from Li-ion battery cells in thermal runaway is also well-documented. A “worst credible accident” would have to consider that the entire inventory of Li-ion cells would be destroyed in a single BESS cabin at least. Cabin-to-cabin propagation should also be considered.

The Regulations apply to the entire “establishment”, controlled by a single operator. Whilst the individual BESS compounds at Sunnica might be regarded as separate establishments, it is less reasonable that individual BESS cabins should be regarded as separate “establishments”.

They are separate “installations” but “establishment” means the entire area under control of an “operator”. Only if the most stringent safeguards were in place to ensure that the disastrous consequences of cabin-to-cabin propagation of “battery fires” could not conceivably occur, could it be argued that dangerous substances, exceeding the COMAH thresholds in quantity, were not “reasonable to foresee being generated during loss of control of the process”.
It is believed the COMAH regulations apply to BESS and that the approach of HSE is wrong.Will the ExA recognise the importance of the need for a responses from the HSE.

Roy Clegg

The ExA's second written questions and requests for information (ExQ2) Cottam Solar Project.

ExQ	Question	R Clegg Response
2.1.13	**Requirement 21 (Decommissioning and Restoration)** Please explain why WLDC considers Requirement 21 should include a trigger mechanism for decommissioning in the event that the Proposed Development ceases to generate electricity for a period of 12 months. Please provide any suggested wording.	See response in my Written Representation on: Decommissioning the Cottam Solar Project: Regulations /Precedents/Conditions, Precedent Reference 2.
2.1.14	Requirement 21 (Decommissioning and Restoration). Please comment on WLDC's suggested trigger mechanisms (as set out in its Written Summary of Oral Submissions at ISH5 [REP3-057]	See response in my Written Representation on: Decommissioning the Cottam Solar Project: Regulations /Precedents/Conditions, Precedent Reference 2.
DDCO and other consents		
2.1.20	The ExA notes that a number of amendments were made to the dDCO at Deadline 3 to address drafting points raised by interested parties at previous deadlines or hearings. All interested parties are invited to submit details of any drafting points previously raised that they consider have not been addressed by the Applicant to date.	1, Will the ExA respond please? To my Written Response to Questions on Cottam Solar Project ExA Questions 2.1.20 COMAH, Cottam Solar Project. 2. Will the ExA ensure that there will be NO financial burden on the public and the local community in the event that the solar project fails and that the financial risk must be dealt with by the incumbent landowner and the asset owner? See my WR on decommissioning.
EMF		
2.13.11	The Environment Agency's views are sought on the submitted 'Risk Assessment on EMF Impacts on Fish' document which is appended to the Applicant's Written Summary of the Applicant's Oral Submission and responses at Issue Specific Hearing 3 and Responses to Action Points [REP3-034]. The Applicant is also asked to confirm whether this has the potential to have a bearing on the revised Information to Support a Habitats Regulations Assessment document [REP3-024] submitted at Deadline 3, as regards the sea and river lamprey.	See my Written Response to ExA Questions on Cottam Solar Project ExA Questions 2.13.11 EMF, Cottam Solar Project.
Biodiversity and the Habitats Regulations Assessment	Natural England's views are sought on the Revised Information to Support a Habitat Regulations Assessment document [REP3-024], which has been updated to include the Humber Estuary Ramsar site.	There appears to have been no consideration of the impact of EMF on Flora and Fauna or Biodiversity and Habitats as not in my previous Written Representations. Will the ExA respond please?