Application by Cottam Solar Project Limited ("the Applicant") for an Order granting Development Consent for the proposed Cottam Solar Project ("the Proposed Development'').

by email to cottamsolarproject@planninginspectorate.gov.uk

Foreword

I believe I am a capable person to make comment on this subject. I am a qualified engineer with 15 years as a Business Development Manager in the civil service, in industries employing 15,000 disabled people with turnover of £200 million. Following this, for almost 40 years, I worked in private industry designing, installing and commissioning sound and communication systems using Electromagnetic Fields (EMF), most notably in the 2012 Olympic venues. I am also a former member of a BSI Committee on Fire protection and a former member of the Institute of Sound and Communication Engineers.

Comments:

In June 2023 the Planning Inspectorate stated that "we are not going to be examining these NSIP applications under a combined examination by a single Examining Authority (ExA) and any pertinent matters that still need to be addressed at the behest of the **individual Examining Authorities for these cases.**

This situation cannot rest easily with the ExA of Cottam Solar Park, especially in respect of the cable crossings under the Rivers Trent and Till and by the decision by the Secretary of State (SoS) to grant the Gate Burton Energy Park approval.

The ExA of Cottam Solar Park and the SoS are **"between a rock and a hard place",** faced with a decision that's already been taken (at Gate Burton) and a consideration of the same situation now involving monitoring and gathering information on the effects of Electromagnetic Fields (EMF) on fish habituating the Rivers Trent and Till.

Let me try and put some reasoning with the information in front of us.

The EA are rightly concerned and of the view that they cannot give an assurance that there will be no risk to the endangered and protected species of fish from the effects of EMF and put forward a programme of monitoring pre and post construction over a three-year period which has been accepted and agreed by the Applicant.

The Effect of EMF on Fish

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.

Atlantic salmon Salmo salar (hereafter salmon), Sea Trout, European Eel, River Lamprey and Sea Lamprey all use the River Trent to complete migratory journeys. The Humber Special Area of Conservation (SAC) lists River Lamprey and Sea Lamprey, and we know that both species use the River Trent to spawn, laying their eggs in suitable gravels upstream of the proposed cable corridor. Research suggests that the strongest effects from EMF will most likely occur during the embryonic or larval stages of species settling on the bottom of the river.

Additionally, the behavioural and physiological responses to EMF in salmon have the potential to impact long-distance migrations due to the increased sources of artificial EMF from renewable energy installations within riverine and marine environments. The extent of risks to juvenile Lamprey and migratory salmon from EMFs should be explored in a risk assessment to determine whether the

risk from the project, or cumulative risk if the project is to share the cable crossing with other projects, is **significant enough that it needs to be mitigated**.
The EA suggests that there has been little research on the Impact of EMF on fish, but that is not so. For almost 100 years there have been many research papers, and these are referenced, documented and detailed in my previously submitted Written Representations.
The potential impacts from EMF are dependent on the intensity of the emission, current type, cable characteristics, power transmitted and other surrounding environmental factors a risk assessment would evaluate whether the EMF associated with the proposed development is likely to have any impacts on fish.

How EMF works.

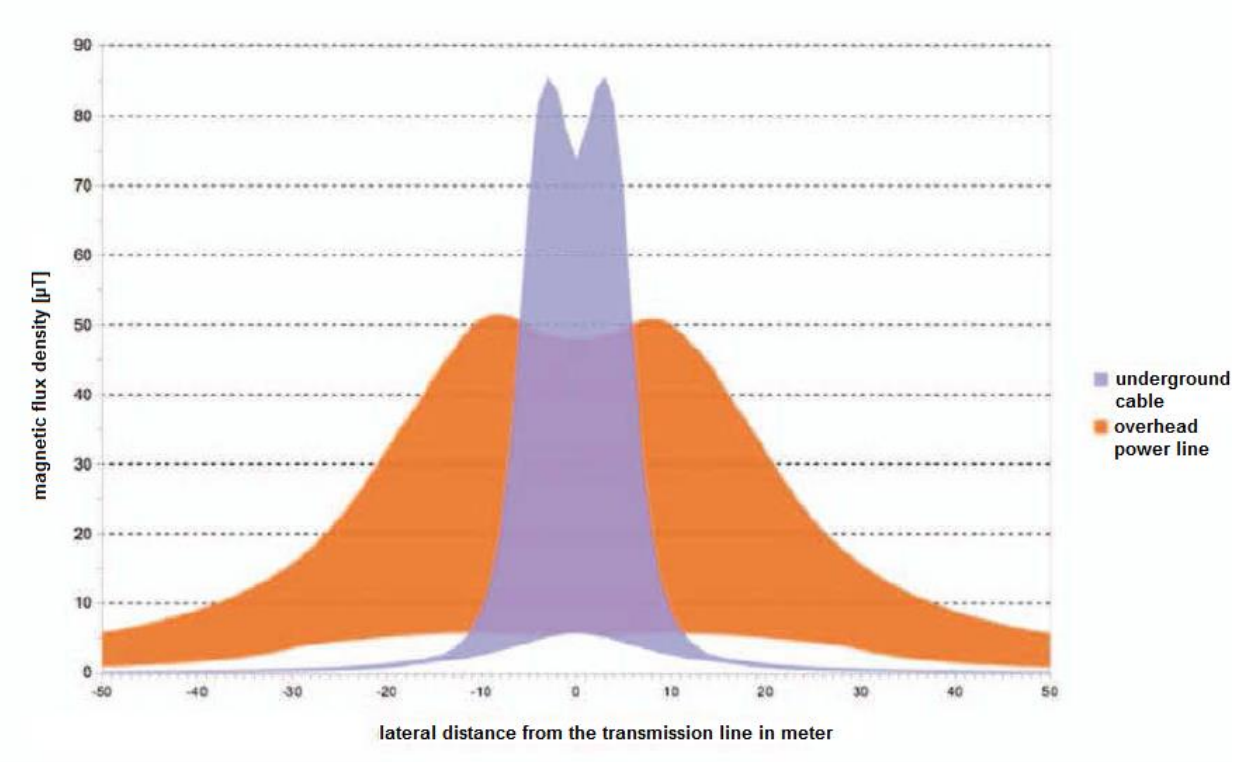
EMF'S result from high voltage power line (400 Kv). As current moves through a power line, it creates a magnetic field called an electromagnetic field. The strength of the EMF is proportional to the amount of electrical current passing through the power line and at a low frequency wavelength. A high-tension power line creates a much higher energy electromagnetic field that is still low in frequency. High voltage power lines in the UK have a minimum height requirement of 7.3 metres to ensure EMF safety levels.

The magnetic fields created on the 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 following figure illustrates that the ground-level magnetic fields of underground cables decrease much more quickly with distance than those of a corresponding overhead power line; however, they can be significantly higher directly above the underground cable.



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This identifies that EMF's 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.
This is for a single high voltage cable crossing underground. Additional cables will significantly increase the effectiveness of EMF.

So, we have information about the types of endangered and protected fish habituating the rivers Trent and Till and the differing effect of EMF on them. The possible area that remains is whether the 5M burying of the cables crossing will mitigate or stop EMF.

The three-year programme of monitoring and gathering information pre and pro construction put forward by the EA and accepted by the Applicant does not appear to determine this and leaves unanswered questions.

If, the programme identifies a risk to the fish from EMF will the operational Cottam Solar Project be immediately stopped until a solution is found?

There are other considerations:

The applicant should set up an alternative programme which simply includes the burial of a high voltage cable to a 5M depth and record the readings of EMF.

Or consider the alternative of using overhead cables to cross the rivers?

What is important is the protection of the fish. Will the ExA, SoS and the applicant be content that there will be no risk to the endangered and protected species of fish and their legal risk in complying with statutory requirements.

Please confirm receipt of my submission.

Roy Clegg