Cottam Solar Project: Written Summary of the Applicant's Oral Submissions & Responses at Issue Specific Hearing 3 and Responses to Action Points
December 2023

Biodiversity: impacts from Electro-Magnetic Fields

The developer continues to use reference to human health standards when discussing EMF in the context identified in WR's put forward on the effect of EMF on Marine Life, Flora and Fauna, Wildlife and Biodiversity.

Risk Assessment of EMF impacts on Fish

Response to item 2.1.2

There are WHO standards, noted in the WR's, in respect of high voltage cables connected to the National Grid. If there are standards (recommended or otherwise) which identifies no legal requirement for shielding EMF's from underground cables then please identify them and the relevant design standards that have been met for all cabling.

Response to item 2.1.3.

How many other NSIP's are there, which will have a large accumulation of High Voltage Cables passing under a major river with a significant effect of EMF on especially Marine Life?

Response to item 2.1.4.

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. Electric fields are produced from lower voltage, higher frequency low power lines. Hence, the electric fields referred to indicate they are lower voltage, low power lines which would not emit EMF's and would not need protection by cable sheathing and substrate.

Response to item 2.2.1.

Has the developer now accepted that the effects of anthropogenic EMFs in the environment?

Response to item 2.2.2.

The Literature review on the potential effects of electromagnetic fields and subsea noise from marine renewable energy developments on Atlantic salmon, sea trout and European eel. Scottish Natural Heritage (Year of publication: 2010) includes the following extracts:

1. The availability and quality of the information on which to base the review was found to be limited with respect to all aspects of the fish's migratory behaviour and activity, both before and after MRE development; this makes it difficult to establish cause and effect.
2. The main findings were S. salar and A. anguilla can use the earth's magnetic field for orientation and direction-finding during migrations. S. trutta juveniles, and close relatives of S. trutta, respond to both the earth's magnetic field and artificial magnetic fields.
3. Current knowledge suggests that EMFs from subsea cables and cabling orientation may interact with migrating eels (and possibly salmonids) if their migration or movement routes take them over the cables, particularly in shallow waters (<20m). The effect, if any, could be a relatively trivial temporary change in swimming direction, or potentially a more serious avoidance response or delay to migration.

4. S. salar, S. trutta and A. anguilla are likely to encounter EMF from subsea cables either during the adult movement phases of life or their early life stages during migration within shallow, coastal waters adjacent to the natal rivers.
5. A number of gaps in understanding exist, principally whether S. salar, S. trutta and A. anguilla respond to the EMF and/or the noise associated with marine renewable energy developments (MREDs) in Scottish waters.

Response to item 2.2.3
EMF's are generated from high power 400v cables. The electric fields referred to are from the species themselves and, as identified, used for prey detection. The conclusion, by the developer, that the species are not understood to be receptive to EMF's due to the attenuation electrical fields by cable casing and soil is not correctly perceived or proven. EMF's will not be stopped or mitigated by cable casing and soil.

Response to item 2.2.4
It is accepted that the Earth's natural magnetic fields are used for navigation. However, what must be considered is the effect of many high voltage cables, not just from this Scheme, but others using the same river crossing where the significant cumulative effect must be considered now!

Response to item 2.2.5.
Whether the fish be adult or sub-adults, they would still be subject to the effect of EMF!

Response to item 2.2.6.
This a very subjective response from the developer: "it is believed" …"unlikely to be found"….. "considered unlikely". The effect of EMF will be across the whole of the riverbed above the cable crossing. The length of the riverbed does not enter into the discussion!
Again, it does not matter whether the eels be adult or sub-adults, they would still be subject to the effect of EMF!

Response to item 2.2.7
The exposure to EMF will not be reduced through appropriate burial of the cable. The developer has again failed to identify how, through "appropriate" burial of the cable, this will be achieved?

Will the ExA consider these additional responses along with previous WR's submitted please?

Roy Clegg