

TECHNICAL MEMORANDUM

CLIENT	Selwyn District Council	PROJECT	Review of EMFs from proposed solar array at 1352 Homebush Road, Darfield
CLIENT CONTACT	Jane Anderson	PROJECT NO	C050930005
REVIEWED BY	Steve Pearce	DATE	31 October 2024
		PREPARED BY	Isobel Stout

**Introduction**

Pattle Delamore Partners Limited (PDP) has been engaged by Selwyn District Council to undertake a review of the information related to public exposure to low frequency electromagnetic fields (EMFs) supplied with the application for a new solar array at 1352 Homebush Road, Darfield.

The scope of PDP's review included the following:

- Review of the application document with respect in particular to the location of inverters, transformers, batteries and power cables.
- Review of Appendix 15: Electric and Magnetic Fields Assessment, EMF Services Ltd.

This memorandum specifically relates to low frequency electric and magnetic field strengths.

Review Summary

Appendix 15: Electric and Magnetic Fields Assessment, EMF Services is a comprehensive and thorough assessment of both the individual components and totality of the proposed solar array. The standard required by Rule EI-REQ7 in the Partially Operative Selwyn District Plan (POSP) for exposure to this kind of EMF will be met by the proposal.

Findings

The Darfield solar array is expected to make an indiscernible difference to EMF levels outside the site.

On this basis, EMFs from the Darfield solar array will not adversely affect the health of the public and any EMF effect from the array would be negligible.

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Specialist Review Comments

The proposed array is surrounded by open farmland the north and east. the Fonterra factory to the west and State Highway 73 and Homebush Road to the south. There is an existing electrical substation belonging to the network provider Orion, on the Fonterra factory site.

The proposed site at Darfield is made up of some 188,000 solar panels arranged in rows. Ten sets of twin inverters are spaced out across the site, and these collect the direct current (DC) generated from the panels and convert it to alternating current (AC). A specific transformer area is noted on the landscape plan together with the location for the batteries and a site office with carparking. The transformers alter the voltage to meet and match what the electricity network provider needs at the substation situated adjacent to the Fonterra factory.

The solar panels will produce a very small electric field and only when the sunlight is strong enough. Similarly, the inverters will produce small and localised fields during sunlight hours.

Cables from the inverters take the power to the substation and battery area. Low frequency field strengths are not affected by being underground or overhead.

The batteries provide storage for times when power is needed overnight or there is little sunlight. They can also help in 'buffering' the flow of electricity depending on the requirements of the wider network. The batteries are most likely to be held in fireproof containers that have heat and smoke detectors, and fire suppression systems built into them.

The largest field strengths are likely be found around the transformers.

None of the fields surrounding any of the infrastructure shown on the plans would be discernible beyond the site boundary.

As this is the case, there is no electromagnetic field risk to public health.

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