



COMMUNITY INFORMATION SHEET

Data centres and electromagnetic fields (EMF)

A plain-English explainer for communities near data centre developments

What is EMF?

Anything that uses mains electricity creates low-frequency magnetic fields — your fridge, wiring and hairdryer included. Larger sources are power lines, substations and transformers. A data centre brings this kind of electrical equipment together, so people understandably ask about it. These fields are measured in milligauss (mG).

What does the science actually say?

Health authorities have looked at this for decades. The summary position is honest and reassuring: **there is a weak statistical association** between very long-term exposure to higher household magnetic fields (above about 3–4 mG on average) and childhood leukaemia, which is why the fields are officially classed as “possibly carcinogenic.” But the link is **not proven**: it isn’t supported by laboratory studies, there’s no known biological mechanism, and the most recent research shows the signal getting weaker. The World Health Organization and Australia’s radiation authority (ARPANSA) advise there is **no established health risk** at the levels people normally encounter.

The numbers, in milligauss (mG)

Situation	Typical magnetic field
Inside a typical home, day to day	0.1 – 2 mG
The level discussed in health studies	about 3 – 4 mG (long-term average)
Right at a substation fence or wall	about 10 – 20 mG — dropping to background within a metre or two
The official safety limit (ICNIRP / ARPANSA)	2,000 mG

In other words, the official safety limit sits about 500 times above the level health researchers even discuss — and what reaches a home is usually ordinary background.

What does this mean for a data centre near you?

The single most important fact: how much field reaches a home depends on distance and design — not on how big the data centre is in megawatts.

The fields fall away very quickly with distance and can be reduced further by good design — siting the substation and transformers centrally and away from boundaries, using underground cabling, and arranging the wiring so the fields cancel out. Where a data centre sits in an established industrial precinct with good separation from housing — as is typical in Tasmania — the field at the nearest homes is expected to be at everyday background levels.

What good practice looks like

- Fields at nearby homes, schools and public areas are designed to be as low as reasonably practicable — preferably below 3–4 mG.
- An independent expert models the fields before approval, at the facility's full size.
- Background levels are measured before construction, and again once the facility is running.
- Results are reported publicly in plain units (mG and μ T), with mitigation required if anything exceeds the target.
- High-current equipment is kept well away from homes and public spaces.

Frequently asked questions

Is EMF from a data centre dangerous?

At the levels that reach homes, health authorities (WHO and ARPANSA) find no established risk. The fields fall away quickly with distance, and at an industrial site with buffers to housing they sit at everyday background.

What about the cancer studies I've heard about?

Some studies found a weak statistical link with childhood leukaemia where the long-term average household field is above about 3–4 mG. That is why the fields are officially classed “possibly carcinogenic” — but the link is not proven, has no known biological mechanism, and the most recent research shows it getting weaker.

Doesn't a bigger data centre mean more EMF for us?

No. How much field reaches a home depends on distance and design, not on the size in megawatts. Larger facilities are managed by placing the electrical equipment centrally, bringing power in at higher voltage (which means lower current), and using good cable design — so the field at the boundary can stay at background regardless of size.

How close is too close?

There is no single “safe distance” — it depends on the equipment and layout. Fields typically drop to background within a couple of metres of a substation wall. The protection comes from setback plus design, confirmed by measurement.

How will we know it is safe?

Independent experts model the fields before approval, the background is measured before construction, and it is measured again once the facility is running. The results are published in plain units (mG and μT), and if anything exceeds the target it must be fixed.

Is this the same as phone, wi-fi or 5G EMF?

No — different thing. This sheet is about low-frequency (50 Hz) magnetic fields from power equipment. Phones, wi-fi and 5G are higher-frequency radio waves covered by separate standards.

Who sets the rules?

Australia follows the international (ICNIRP) limits through ARPANSA. The public limit is 2,000 mG — roughly 500 times above the level the studies even discuss — and the design target for this project is far stricter than that limit.

Want to read more? ARPANSA (arpansa.gov.au) and the World Health Organization both publish plain-language information on power-frequency EMF and health. This sheet is general information, not medical advice, and the figures are indicative; site-specific fields are confirmed by qualified EMF modelling.