



# SA Power Networks Electric and Magnetic Fields

## What are EMFs?

Electric and Magnetic Fields (EMFs) occur naturally wherever there is electricity. Electric fields are produced by voltage, which is the pressure applied to produce an electric current. Magnetic fields are produced by the current (the flow of electricity) in a wire. This effect is known as electromagnetism and is put to practical use in such things as electric motors.

The strength of a magnetic field depends on the amount of current carried (measured in amps). The Earth has many naturally occurring static electric fields and magnetic fields.

Lightning is a good example of the build-up of electrical charges during a storm. Another good example is when the friction between your feet and carpet causes the small electrostatic charge sometimes felt when a bare metal surface is touched.

The Earth itself is an immense natural magnet with magnetic poles near the North and South Poles.

## How do the two types of fields behave?

### Electric fields

Electric fields are found wherever voltage is present. The higher the voltage and nearer the source, the stronger the field. As long as an appliance is plugged into an active power outlet, it emits an electric field. The appliance doesn't need to be running.

### Magnetic fields

Magnetic fields are found where current is present. The field strength increases with current, so a stronger magnetic field exists near appliances running on 'high' rather than 'low'. An appliance must be switched on at the power outlet and operating to create a magnetic field. Magnetic fields are also strongest close to their source.

Electric fields are shielded by most objects, such as walls, buildings and trees.

However, magnetic fields are not. This is one reason why burying power lines will not necessarily eliminate magnetic fields.

## Do EMFs affect you?

EMFs at home and in the workplace are produced by anything that carries or uses electricity. This includes things like wiring, computers, machinery, data projectors, photocopiers and appliances including refrigerators, washing machines, and televisions.

Both electric fields and magnetic fields rapidly diminish as you move away from the source, such as powerlines, transmission towers or machinery or equipment.

Millions of dollars are spent annually around the world on EMF research. Studies have looked for effects of EMFs and examined possible associations between cancer and some aspects of the use of electricity.

This research has been extensively reviewed by independent, authoritative scientific panels. To date all have concluded that no causal link has been established between EMFs encountered in

everyday life and adverse health effects. Therefore, it is difficult to know whether, or how, modifying your EMF environment will influence any possible risk.

Until more is known about EMFs your best course of action is to stay informed.

If you choose, you can limit your exposure by becoming more aware of the way you use electric appliances.

## Who can you contact for more information?

For further information on EMFs, contact SA Power Networks on 13 12 61 or call the Environment Protection Authority Radiation Branch on 08 8204 2000. Alternatively, visit [http://www.ena.asn.au/?page\\_id=7111](http://www.ena.asn.au/?page_id=7111) or [http://www.arpansa.gov.au/RadiationProtection/Factsheets/is\\_electricity.cfm#2](http://www.arpansa.gov.au/RadiationProtection/Factsheets/is_electricity.cfm#2)

For further information contact:  
SA Power Networks on 13 12 61  
[www.sapowernetworks.com.au](http://www.sapowernetworks.com.au)

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