



Policy 4: Development of Land Adjacent to or Within the Easements of High Voltage Transmission Lines

Chapter 1 Background Information: What Are EMFs?

There has been some community concern about the possible detrimental health effects of electric and magnetic fields (EMFs) resulting from high voltage transmission lines. To address this concern, Council has adopted this Policy dealing with the development of land adjacent to or within the easements of high voltage transmission lines. For the purposes of this Policy, high voltage transmission lines are defined as overhead or underground powerlines that carry 110kV (kilovolts) or greater.

EMFs occur everywhere. The human body produces EMFs as nerve impulses, which are transferred through the body. However, they are very weak. The Earth has an EMF (its magnetic field) which is what makes a compass point north. The Earth's EMF is actually stronger than EMFs emanating from high voltage transmission lines. However, as it is a stationary field and not alternating (high voltage transmission lines are alternating current), it does not induce electrical currents in objects.

An electric field is caused when an electrical appliance is on or off. Electric fields are easily shielded by objects such as trees and buildings.

Magnetic fields are caused when there is a current flowing through the line (ie. the appliance is actually working). Magnetic fields are not easily shielded and pass through objects that block electric fields. It is for this reason that the bulk of research into EMFs has focussed on magnetic fields. **Figure 1** illustrates the differences between electric and magnetic fields.

The strength of EMFs decrease with distance, like the heat of a fire. If a person stood directly under high voltage transmission lines, the strength of the EMFs reaching them would be equal to those emitted by many household appliances. However, the EMFs emitted by household appliances only occur while the appliance is being used, whereas those emitted from high voltage transmission lines occur constantly. Fields from high voltage underground lines may be similar to those from comparable overhead lines, depending on the relative positions of the cables and depth of burial. Electric fields are shielded by the earth, but magnetic fields are not. In general, the magnetic field will be more intense in the immediate vicinity of an underground cable, but fall off more quickly with distance, than a comparable overhead line.

A considerable amount of information on EMFs and their possible adverse health effects is publicly available. Large amounts of research have been carried out on the possible adverse health effects of EMFs but, to date, none has indicated a definite link.

To this end, electricity supply authorities advocate that a 'prudent avoidance' policy should be exercised. They have also indicated their willingness to provide advice to Council on the implementation of this Policy through the development approvals process. Should the electricity supply authorities change their policy stance at some future time, it would be necessary for Council to review this policy.



Electric Fields		Magnetic Fields	
1	Produced by voltage. Lamp plugged in, socket switched on, but lamp turned off. Voltage produces an electric field.	1	Produced by current. Lamp plugged in and switched on. Current flowing through the wire produces a magnetic field also.
2	Measured in volts per metre (V/m) or in kilovolts per metre (kV/m).	2	Measured in gauss (G) or tesla (T) 1 milligauss (mG) = 0.1 microtesla (uT)
3	Easily shielded (weakened) by objects such as trees and buildings.	3	Not easily shielded (weakened) by most materials.
4	Reduced in strength with increasing distance from the source.	4	Reduced in strength with increasing distance from the source.

Figure 1: Electric and Magnetic Fields

Chapter 2 Purpose

The purpose of this policy is to minimise any potential risk of adverse human health effects from electric and magnetic fields (EMFs) arising from high voltage transmission lines, located either above or below ground. This is achieved by requiring planning and development of land adjacent to or within the easements of high voltage transmission lines to minimise land uses which result in prolonged and frequent human exposure to EMFs.

Chapter 3 Policy Statement

In consideration of all town planning applications, including those for rezoning, subdivision or consent:

- developers should ensure that land adjacent to or within the easements of high voltage transmission lines is planned and developed prudently, such that land uses which result in prolonged or frequent human exposure to EMFs are minimised;
- such land will only be considered as contributing to the parkland dedication requirements where it complies with planning scheme policy 10 – park and open space contribution requirements and where it complies with any easement management guidelines released from time to time by council and/or the relevant electricity supply authority; and
- prior to council's approving any relevant applications, the applicant is to liaise with the relevant electricity supply authority and submit written advice from that authority, indicating that the applicant's proposal is acceptable to that authority.

Chapter 4 Implementation

In implementing the provisions of this policy, subjective judgements will have to be made regarding what constitutes prudent avoidance. In this regard, council will require the applicant to demonstrate that all reasonable measures have been taken, through the distribution of land uses and the design of the development, to reduce frequent and prolonged exposure to EMFs. Without limiting the range of design options which may be used, acceptable proposals could incorporate solutions such as locating open space or car parks adjacent to powerlines or designing allotments so as to maximise the distance between the easement and future house sites.

When considering development proposals, council will be cognisant of the fact that a greater range of design options will be available on large sites than on small sites. However, even on small sites, thoughtful design can minimise human exposure to EMFs. Where discretion exists to relax planning scheme provisions (eg. Ratio of allotment depth to frontage), council will have regard to the intent of this policy, along with other considerations, in exercising that discretion.