

Buying an “EMF Safe” Property

1. Introduction

The previous Government’s policy of using inner city brown-field land or ‘adding on’ to existing residential estates for at least 60% of proposed new housing (an increase from 21 million to 24 million homes between 2001 and 2021), encouraged the continued use of land crossed by electricity distribution lines for residential development.

Before he became prime minister, Gordon Brown said he wanted to create 100,000 homes in "carbon neutral" communities to be built on old industrial sites. But later, when pressed by the committee to say whether she would rule out building on the green belt, Hazel Blears offered no guarantees. In July 2007 she said that building homes would have to take priority over environmental concerns, and she refused to rule out building on the green belt. She seemed to be suggesting, not that the environmental impact of new house building would be ignored, but that the emphasis must be on getting the homes built.

It may be that the pre-existence of electricity distribution infrastructure (powerlines, transformer sites, substations, etc) and telecommunications infrastructure (mobile phone base stations, etc) will be ignored with respect to planning new housing to meet the government’s objectives. The subject has been debated by SAGE, the ‘thinktank’ which was set up to recommend policy about powerlines to government, but the group has not yet put forward clear guidelines. Powerwatch’s legal advisor, Brenda Short, has written an exceptional 100 page [document](#) considering whether existing legislation could be applied to any potential pollution from EMFs. It also considers other legislation in relation to powerlines / EMFs and how a precautionary approach could be adopted.

The SAGE-2 Report was released and sent to the Health Minister on the 8th June 2010. SAGE considers it should be realistic for Government to respond to the SAGE-2 recommendations within six months, i.e. by the end of November 2010, and urges them to do so as this would reflect the importance of the issues covered and the work that has gone into producing these recommendations. SAGE makes the following recommendations for precautionary measures concerning distribution systems:

- Distribution Network Operators (DNOs) to investigate instances of high EMF exposures when notified of them
- DNOs investigate and repair broken neutrals
- Use plastic gas and water pipes for new build
- Insert plastic sections in metal gas and water pipes when work is being done anyway
- Develop awareness within DNOs, by training of relevant staff, of how elevated exposures can be an indication of system problems
- Arrange components in the substation in the lowest-exposure layout reasonably practicable
- Reasonably practicable efforts be made to site substations distant from homes etc
- New and refurbished substations to have compact design where reasonably practicable
- DNOs make reasonably practicable effort to balance loads on three-phase final distribution circuits
- Site plant rooms away from occupied rooms
- Use separate-neutral-and-earth cables for risers in high buildings
- Use compact risers in high buildings

When the appearance of the mobile phone heralded the revolution in telecommunications in Britain in the 1980s, the government did what it could to encourage the growth of the mobile

phone network. Companies that were awarded a licence to transmit had an obligation to provide a signal to over 90% of the UK population. They soon met this requirement by the erection of a network of mobile phone base stations, arranged with minimal signal overlap to cover most of the country, with more masts being put up in urban areas to serve the greater number of people using their phones in cities and towns. 3G, TETRA (the telecommunications system for the emergency services), and more sophisticated mobile services as well as increased phone usage, added to the number of new masts. This proliferation of masts, followed by RF from WiFi, WiMAX, and DECT phones added to the EMF exposure in virtually every home.

Health risks due to exposure to EMFs in the home were first suggested in America by Nancy Wertheimer and Ed Leeper, when they found a link between residential magnetic fields and the local incidence of childhood leukaemia. Since that time, international research has increased year by year, and the potential health risks have been identified as cancer (especially childhood leukaemia, probably the most studied illness because of the original findings), depression, suicide, miscarriage, Alzheimer's Disease and other forms of dementia, respiratory, ME and other immune system problems. There is an article on "Powerfrequency EMFs and Health Risks" downloadable free of charge from www.powerwatch.org.uk which discusses this research in greater detail.

Because there are other causes of these illnesses, it is not clear what role EMFs play in their development. Much of the research in the past 35 years into EMF health effects has concentrated on powerfrequency magnetic fields because they are easier to measure and it was thought they were more likely to interact with our bodies' cells. Most scientists believe that, although EMFs do not directly *cause* the illness in most cases, at least, living in fields above 0.2 microtesla may make a person develop cancer or another illness, when if they didn't live in this field level, their bodies would be able to repair themselves, or cope with the daily damage from other causes in a healthier way. Field levels above approximately 1.2 μ T stop prescribed drugs like tamoxifen from working, and may even reverse the protective effect.

The Brighton Argus reported in October 2006 that Adur District Council in Sussex turned down an application to build 6 houses because magnetic field levels of 0.4 to 1.1 microtesla had been measured from the overhead powerlines. These gave council officers "cause for concern" leading to the rejection of the planning application. A nearby resident said "*The amount of people who have suffered illnesses around here is unbelievable. We can't prove it's because of the pylons but there have been an awful lot of problems health-wise for such a small estate.*"

Electric fields are increasingly being studied and the initial findings seem to indicate that they may be as hazardous to health as magnetic fields. This is hardly surprising as the bodies' internal communications are electrochemical and are likely to be affected by exposure to exogenous electric fields. The very high electric fields associated with high voltage overhead powerlines also cause air ionisation, charging toxic aerosols so that they become even more dangerous. Initial findings from Bristol University associate lung and skin cancer with exposure to such ionisation.

There is evidence that when both magnetic and electric fields are high there may be an even greater risk of ill-health. Areas where it is important that EMFs are low are bedrooms, especially where the pillows are on beds, because EMFs affect an area of the brain, called the pineal gland, which works overnight to protect the body against illness, and affects moods. It is also a good idea to look at places like a favourite armchair, or in front of a computer or TV. Places like these where you sit or lie still for a longish period of time should have low EMFs. When you are sitting still and particular cells keep being interfered with by EMFs, there is an increased risk that the damage may not be able to be repaired. Cells tend to cope better with external fields if the person is moving around. Certain pieces of equipment, such as a digital cordless (DECT) phone, and WiFi-enabled computers, modems, homehubs and laptops can give off radiofrequency levels that are associated with ill health effects throughout the home 24 hours a day.

Radiofrequency EMFs from base stations in the community have been less studied, but indications are that a small percentage of the population is affected by low levels of RF in their homes, and as these levels rise, it seems that more people begin to report health problems. You can find more details in the article "Radiofrequency EMFs and Health Risks", downloadable free of charge on www.poweratch.org.uk.

Children are more likely to be affected than adults because their cells are more rapidly dividing as they grow. Most children sleep for longer than adults, so if their bedplace is in high EMFs, their health may be affected. It is worthwhile taking particular precautionary action with regard to children's living environments.

Pets can also be susceptible to EMFs in the environment. They are, by and large, shorter lived, but there is enough evidence of e.g. dogs sleeping next to night storage heaters developing cancer, that it is worth while making adjustments for them, too.

However, not everybody seems to be susceptible to adverse health effects from EMFs. If, for example, a child statistically has a 1 in a 2000 chance of developing leukaemia, and because they live near an EMF source associated with an increased risk of developing this form of cancer, their risk level doubles (i.e. changes to 1 in 1000), there are still 999 chances out of 1000 that they will not develop leukaemia whilst living in this field. It is an increased risk, but far from a certainty.

With the government-driven decisions on increasing the use of 'brown-field' sites; increasing new-build using whatever land may become available; and the prevalence of mobile phone base stations, you may well find yourself thinking of buying or renting a property near one of these sources of EMFs.

The questions you may then ask could include "Is this a good investment?" "Will this EMF source affect the value of my property?" "Is this a place that is safe, both for myself and my family?" "Could the proximity of this EMF source actually affect our chances of *having* a family?"

There are many reports that the European guidelines recommended by the International Commission for Non-Ionising Radiation Protection (ICNIRP) are inadequate to protect sections of the general population who may be vulnerable. In June 2007, the Special Eurobarometer on Electromagnetic Fields, revealed that most EU citizens do not feel they are adequately protected by authorities against the potential health risks posed by EMFs. More than two thirds of people interviewed said they were not satisfied with the information on EMFs, while one third felt they are not informed at all.

If you are unsure, you are not alone.

This article has been written to help prospective purchasers or people wanting to rent a home to be able to gather information together quickly. If you have more time, we might like to look at the other articles referred to. Many purchasers are asked to decide quickly in order for a sale to progress smoothly. This document helps summarise some of the informed scientific recommendations as to what precautions may be appropriate for the majority of the general population. It is, however, a subject in which fierce debate still continues, and opinions change as new research and findings move our knowledge forward.

This article is made up of different sections which look at a number of different sources of EMFs which may be relevant to you: Powerlines and pylons; substations and transformers; electrified railway lines; mobile phone base stations; flats and multioccupancy buildings; and internal EMFs.

For homes in the UK that have high background magnetic field levels, about one-third come from high-voltage overhead powerlines, one-third from faulty house wiring and equipment in the house and about one-third from electricity substations and mains voltage cables under the street.

Radiofrequency radiation in people's homes comes primarily from mobile and cordless phones, computer wireless access to the internet (WiFi), and mobile phone base stations. Cordless phone and WiFi radiation can often extend into a person's home from equipment owned by a neighbour.

In buildings which are separated into flats, bedsits, or maisonettes, the EMF situation is complicated further as you may be exposed to EMFs not only from your own equipment and use of equipment, but also by those of your neighbours. In some properties, there are even substations incorporated into the building itself.

We talk you through the process of what to look for, from where, and what it means, in a step-by-step way, so that you should have an answer on which to base your decision very quickly. The timescales people have to make decisions are often pretty short.

Most sections have a short summary, a reminder of the steps, and a worksheet which contains a checklist to photocopy and take with you when you visit a property, with reminders about what to look for, distances to measure, questions to ask, etc.

With this, you will have what you need to check your new house, flat, school or nursery for your children, even workplace, to identify potential problems from EMFs or to give you peace of mind.

There is always an element of risk attached in any decision, especially when the science is uncertain. You may reject a house because of a nearby pylon, and buy one on a reclaimed landfill site giving off toxic fumes instead!

You need to ask yourself, if it *were* true that there were a danger associated with living near to a particular EMF source (powerline, substation, mobile phone mast, etc.), how true would it need to be, how dangerous would it have to be, in order to decide not to buy a house that is otherwise perfect, or to decide to move from the house that you are all well settled in, or change your children's school? How true would it have to be to make yourself homeless? 20%; 40%; 80%? Nothing is 100%, apart from death itself.