What you can do

In a situation of scientific uncertainty and public concern, WHO recommended that utilities explore "very low-cost" ways to reduce EMF exposure from new or upgraded facilities. SDG&E and other California public utilities have been pursuing no-cost and low-cost measures to reduce EMF levels from new utility transmission lines and substation projects. You, too, may want to take no-cost and low-cost measures to reduce your EMF exposure at home and at work.

Human studies have not produced a consensus about any health benefits from changing the way people use electric appliances. But, if you feel reducing your EMF exposure would be beneficial, you can increase your distance from electric appliances and/or limit the amount of time you use appliances at home or at work. For instance, you can place your electric clock away from the head of your bed. Increasing your distance from it and other appliances, such as televisions, computer monitors, and microwave ovens, can reduce your EMF exposure.

You can also reduce your EMF exposure by limiting the time you spend using personal appliances, such as hair dryers, electric razors, heating pads, and electric blankets. You may also want to limit the time you spend using electric cooking appliances.

You can locate the sources of EMF in your work environment and spend break time in lower-field areas.

It is not known whether such actions will have any impact on your health.



Additional information is available

Call SDG&E at **1-800-411-7343** to request a free information packet, home or business measurements or summaries of the reports listed in this brochure.

Or visit the SDG&E EMF Web page: ***sdge.com/emf***

Additional information is also available at these links:

World Health Organization International EMF Project:
Visit ***who.int/health-topics/electromagnetic-fields*** for EMF information, including fact sheets, research completed and scientific journal articles.

National Institute of Environmental Health Sciences:
Visit ***www.niehs.nih.gov/health/topics/agents/emf***

California Public Utilities Commission:
Visit ***cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/permitting-and-environmental-review/electric-magnetic-fields***

EMF information provided as required by the California Public Utilities Commission (CPUC) EMF policy.

*The term EMF in this publication refers to extremely low frequency (ELF) 60-hertz electric and magnetic fields associated with power delivered by electric utilities. It does not refer to radio frequency (RF) waves associated with wireless communications such as cell phones.

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SDGE®

Understanding electric and magnetic fields (EMF)

Questions have been raised about the possible health effects of exposure to 60-hertz (power frequency) electric and magnetic fields (EMF*), which are found wherever you have electric power. This article contains information that will help you understand the EMF issue, plus practical tips you can use if you want to reduce your exposure at home and at work.



Campos Eléctricos y Magnéticos (EMF):
Si desea recibir información en español, comuníquese con SDG&E® al **1-800-311-7343**.

Can EMF harm your health?

Electric and magnetic fields are present wherever electricity flows—around appliances and power lines, in offices, and at schools and homes. Many researchers believe that if there is a risk of adverse health effects from usual residential exposures to EMF, it is probably just at the detection limit of human health studies; nonetheless, the possible risk warrants further investigation. The varying results from epidemiological studies, which looked at estimated EMF exposures and childhood leukemia, are consistent with a weak link. Laboratory studies, including studies investigating a possible mechanism for health effects (mechanistic studies), provide little or no evidence to support this weak link.

The results from many research studies have been evaluated by international, national, and California EMF research programs to determine whether EMF poses any health risk. Given the uncertainty of the issue, the medical and scientific communities have been unable to conclude that usual residential exposures to EMF cause health effects, or to establish any standard or level of residential exposure that is known to be either safe or harmful. These conclusions remain unchanged by recent studies.

World Health Organization findings

The World Health Organization (WHO) completed a review of the potential health implications of extremely low frequency EMF, which includes power-frequency fields. Their conclusions and recommendations were presented in a June 2007 report known as the *Extremely Low Frequency Fields, Environmental Health Criteria Monograph No. 238*.

The WHO report concluded that evidence linking extremely low frequency (ELF) magnetic fields and childhood leukemia "is not strong enough to be considered causal but sufficiently strong to remain a concern." "Virtually all of the laboratory evidence and the mechanistic evidence fail to support" this reported association. For all other diseases, there is inadequate or no evidence of health effects at low exposure levels.

The report emphasized that, given the weakness of the evidence for health effects, the health benefits of exposure reduction are unclear and adopting policies based on arbitrary low exposure limits is not warranted. In light of this situation, WHO made these and other recommendations:

- National authorities should implement communication programs with all stakeholders to enable informed decision-making, including how individuals can reduce their own exposure.
- Policy makers and community planners should implement very low-cost measures to reduce exposures when constructing new facilities and designing new equipment, including appliances.
- Policy makers should establish guidelines for ELF field exposure for both the general public and workers. The best source of guidance for both exposure levels and the principles of scientific review are the international guidelines.
- Government and industry should promote research to reduce the uncertainty of the scientific evidence on the health effects of ELF field exposure. Several recommended research projects are already under way through the Electric Power Research Institute.

To view the full report, visit ***who.int/publications/i/item/9789241572385***.

Magnetic field measurements

MAGNETIC FIELDS AT HOME

(Measurements are in milligauss.)

	1.2" away	12" away	36" away
Microwave Oven 	750 to 2,000	40 to 80	3 to 8
Clothes Washer 	8 to 400	2 to 30	0.1 to 2
Electric Range 	60 to 2,000	4 to 40	0.1 to 1
Compact Fluorescent Bulb 	0 to 32.8	0 to 0.1	0
Hair Dryer 	60 to 20,000	1 to 70	0.1 to 3
LCD/ Plasma TV 	1.1 to 73.6	0 to 2.5	0 to 2.2

Source: Adapted from Gauger 1985 & EPRI Appliance Measurement Study 2010.

MAGNETIC FIELDS OUTSIDE

(Maximum values may be lower for some California utilities.)

Distribution Lines 	1 to 80 milligauss under the line
Transmission Lines 	1 to 300 milligauss at the edge of the right-of-way