

Understanding EMF (Electric and Magnetic Fields)

Questions have been raised about the possible health effects of 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.

Can EMF Harm Your Health?

Electric and magnetic fields are present wherever electricity flows — around appliances and power lines, and in offices, 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 and 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 find out if EMF poses any health risk. Given the uncertainty of the issue, the medical and scientific communities have been unable to determine 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) recently concluded a review of the potential health implications of extremely low frequency (ELF) EMF, which includes power-frequency fields. Their conclusions and recommendations were presented in June 2007 in a report known as the Extremely Low Frequency Fields, Environmental Health Criteria Monograph No. 238.

The WHO report concluded that evidence for a link between 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 policies based on the adoption of arbitrary low exposure limits are 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 use existing international guidelines (833 and 9,000 milligauss) to establish standards for exposure to short-term, high-level ELF fields. These guidelines pertain to field levels that are virtually never encountered by the general public except from a few electric appliances.
- 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, of which SCE is a member.







To view the full report and a fact sheet summarizing it, visit
<http://www.who.int/peh-emf/publications/en/>
<http://www.who.int/mediacentre/factsheets/fs322/en/index.html>

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. SCE and other California public utilities already pursue no-cost and low-cost measures to reduce EMF levels from new utility transmission lines and substation projects.

Magnetic Fields at Home

(Measurements are in milligauss.)

	1.2" away	12" away	39" 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
 Fluorescent Lamp	400 to 4,000	5 to 20	0.1 to 3
 Hair Dryer	60 to 20,000	1 to 70	0.1 to 3
 Television	25 to 500	0.4 to 20	0.1 to 2

Source: Adapted from Gauger 1985.

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 edge of right-of-way

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. 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

SCE provides free EMF information packages and home/business measurements upon request. We also invite you to attend a workshop on EMF at our EMF Education Center located in Irwindale. For any of these services, please call us at **1-800-200-4SCE**. Additional information is also available from these sources:

World Health Organization International EMF Project:
<http://www.who.int/peh-emf/en/>

National Institute of Environmental Health Sciences:
<http://www.niehs.nih.gov/health/topics/agents/emf/>

California Department of Health Services:
<http://www.ehib.org/emf/>

California Public Utilities Commission:
<http://www.cpuc.ca.gov/PUC/energy/Environment/ElectroMagnetic+Fields/action.htm>

Reviewed by: California Public Utilities Commission (CPUC)

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Campos Eléctricos y Magnéticos (EMF): Si desea recibir información en español, comuníquese con SCE al **1-800-441-2233**.

Los usuarios con acceso al Internet podrán leer y descargar esta notificación en español en el sitio Web de SCE www.sce.com/avisos o escribir a:

Southern California Edison Company
 P.O. Box 800
 2244 Walnut Grove Avenue
 Rosemead, CA 91770
 Atención: Comunicaciones Corporativas

**SOUTHERN CALIFORNIA EDISON (SCE)
 NOTICE OF PROPOSED APPLICATION 10-08-001 ENERGY RESOURCE
 RECOVERY ACCOUNT (ERRA) FILING TO CONSIDER
 SCE'S PROPOSAL TO INCREASE YOUR ELECTRIC RATES**

In compliance with California Public Utilities Commission (CPUC) decisions Southern California Edison Company (SCE) has filed an Energy Resource Recovery Account (ERRA) forecast application. The application is referred to as A.10-08-001.

In this application, SCE is requesting the Commission to: (1) authorize SCE's 2011 ERRA proceeding revenue requirement in the amount of \$3.603 billion and (2) consolidate all other Commission-authorized 2011 revenue requirements and set unbundled rate components to recover those revenue requirements beginning January 1, 2011. SCE's 2011 ERRA proceeding revenue requirement of \$3.603 billion is an increase of \$431.8 million from the ERRA revenue requirement included in 2010 rate levels.

Compared to revenue at present rates as of June 1, 2010, this application requests a revenue decrease of \$7.5 million, or 0.07% beginning in 2011. **However, if the CPUC approves SCE's request, an average residential customer using 600 kilowatt-hours per month would see an increase of \$0.16 per month, from \$94.58 to \$94.74.** The following table shows an estimate of proposed revenues and rate changes by customer group:

**CUSTOMER GROUP REVENUE IMPACT
 ERRA AUGUST 2, 2010 filing for 2011 FORECAST**

Customer Group	Revenue Change (\$Millions)	% Change	Present Rates ¢/kWh	Proposed Rates ¢/kWh
Residential	6.6	0.15%	15.90	15.92
Lighting - Small and Medium Power	(3.1)	-0.07%	15.26	15.24
Large Power	(10.2)	-0.48%	10.78	10.74
Agricultural and Pumping	(0.6)	-0.17%	11.53	11.51
Street and Area Lighting	(0.3)	-0.23%	19.17	19.12
TOTAL	(7.5)	-0.07%	14.29	14.28

FOR FURTHER INFORMATION FROM SCE

As noted above, you may review a copy of this Application and related exhibits at SCE's corporate headquarters (2244 Walnut Grove Avenue, Rosemead, CA 91770). You may also view these materials at the following SCE business offices:

1 Pebbly Beach Rd. Avalon, CA 90704	30553 Rimrock Rd. Barstow, CA 92311	374 Lagoon St. Bishop, CA 93514
505 W. 14th Ave. Blythe, CA 92225	3001 Chateau Rd. Mammoth Lakes, CA 93546	510 S. China Lake Blvd. Ridgecrest, CA 93555
26364 Pine Ave. Rimforest, CA 92378	41694 Dinkey Creek Rd. Shaver Lake, CA 93664	421 W. J St. Tehachapi, CA 93561
120 Woodland Dr. Wofford Heights, CA 93285	6999 Old Woman Springs Rd. Yucca Valley, CA 92284	

Customers with Internet access may view and download SCE's application and the papers supporting it on SCE's Web site, www.sce.com/applications. Anyone who would like to obtain more information about the application, please write to:

Southern California Edison Company
 P.O. Box 800
 2244 Walnut Grove Avenue
 Rosemead, CA 91770
 Attention: Case Administration

EVIDENTIARY HEARINGS

If the application is accepted, the CPUC may also hold evidentiary hearings whereby formal parties of record provide testimony and are subject to cross-

examination before a CPUC Administrative Law Judge (ALJ). These hearings are open to the public, but only those who are formal parties of record may participate. For information relating to the hearings, you may contact the Public Advisor's Office (PAO) at the address or phone number shown below. A separate notification to SCE customers regarding the date, time and location of these hearings will be sent as a separate bill insert, or will appear as a newspaper notification.

The CPUC has its own court reporters who will record the comments of those formal parties of record participating in the evidentiary hearings. After considering all proposals and evidence presented during the formal hearing process, the assigned ALJ will issue a proposed decision. When the CPUC issues a final decision on the application, it may adopt, amend, or modify all or part of the ALJ's proposed decision as written. The CPUC's decision may be different than SCE's request.

The Division of Ratepayer Advocates (DRA) is an independent arm of the CPUC, created by the Legislature to represent the interests of all utility customers throughout the state to obtain the lowest possible rates for service consistent with reliable and safe service levels. DRA has a multi-disciplinary staff with expertise in economics, finance, accounting, and engineering.

CPUC PROCESS

If you wish to present comments on this proceeding you may submit written comments to the CPUC's PAO at the address or e-mail shown below. Please state that you are writing concerning SCE's application A.10-08-001. Your comments will become a part of the formal correspondence file for public comment in this proceeding. The PAO will circulate your comments to the five Commissioners, the ALJ, DRA, and to CPUC staff assigned to this proceeding. You may also contact the CPUC if you need advice on how to participate in this proceeding. You may also review a copy of this Application and related exhibits at SCE's corporate headquarters (2244 Walnut Grove Avenue, Rosemead, CA 91770).

The Public Advisor
 California Public Utilities Commission
 320 West Fourth Street, Suite 500
 Los Angeles, CA 90013
 Or by e-mail: Public.Advisor.la@cpuc.ca.gov

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POWER CONTENT LABEL		
ENERGY RESOURCES	2009 SCE POWER MIX (Actual)	2008 CA POWER MIX* (for comparison)
Eligible Renewable	17%	2%
-- Biomass & waste	2%	0%
-- Geothermal	9%	1%
-- Small hydroelectric	1%	0%
-- Solar	1%	0%
-- Wind	4%	1%
Coal	15%	34%
Large Hydroelectric	9%	18%
Natural Gas	38%	42%
Nuclear	21%	5%
Other	0%	0%
TOTAL	100%	100%

* Percentages are estimated annually by the California Energy Commission based on electricity sold to California consumers during the previous year.

For specific information about this electricity product, contact Southern California Edison. For general information about the Power Content Label, contact the California Energy Commission at 1-800-555-7794 or www.energy.ca.gov/consumer.