

Understanding EMF

 nvenergy.com/home/safety/understandingEMF.cfm

What are Electric and Magnetic Fields

"EMF" is a convenient acronym for electric and magnetic fields or electromagnetic fields. These fields are part of our everyday lives and are present around such things as appliances, electronics, power lines and electric wiring.

How is EMF Produced?

EMF is produced through both natural and man-made-means. The earth is the largest single source of static magnetic fields. The human heart and brain produce a magnetic field as well. This page only discusses man-made magnetic fields. Electricity produces two types of alternating fields. Whenever there is a flow of electricity both electric and magnetic fields are created. Electric fields can be shielded by materials such as wood, metal, trees or shrubs. Magnetic fields pass through most materials and objects.

What do Scientific Studies Show?

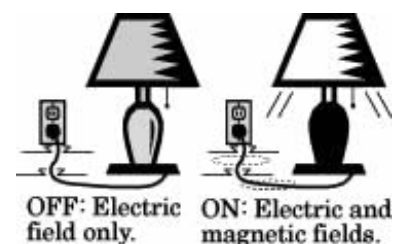
Research for possible adverse (and beneficial) health effects has been conducted on EMF and several thousand papers have been published. More than two dozen panels of independent scientific experts have reviewed this research. They represent the most authoritative efforts to put the whole science on EMF into perspective and have found that the research is inconclusive and inconsistent.

How are Magnetic Fields Measured?

Magnetic fields are measured using a handheld meter called a gauss meter. In the United States, magnetic fields are measured in units called Milligauss (mG). When measuring magnetic fields, you may notice that the levels vary in different areas of the same room. These variations may be due to wiring in the walls or to changes in the amount of electricity being used.

How Strong are these Fields?

The strength of a field depends on the voltage level and the amount of current flow. The amount of current flowing through a power line varies as the demand for electric power changes. The strength of a magnetic field falls off sharply as you move away from its source, whether it is an electrical appliance or a power line.



Although the public tends to focus on exposure from transmission lines, for most people, exposure to magnetic fields comes more from appliances and household wiring. (Measurements In Milligauss (mG) Source: "EMF In Your Environment" EPA, 1992)

Typical Magnetic Field Levels Near Common Household Appliances	6 inches away (mG)	2 feet away (mG)
Electric Shavers	4-600	0.4-10
Hair Dryer	1-700	0.1-10
Electric Blanket	22-39	----

Can Opener	500-1,500	3-30
Electric Range	20-200	0.2-9
Microwave Oven	100-300	1-30
Television	10-80	0.1-8
Computer Terminal	7-20	1-3

Typical Magnetic Field Levels Near Power Lines

Location	Directly under overhead transmission lines	100 Feet Away from overhead transmission lines	Directly over underground distribution lines	20 feet away from underground distribution lines
Field Levels	6-100 mG	0.5-15 mG	20-40 mG	4-10 mG

Typical of EMF strengths from NPC power lines measurements in milligauss (mG)

Are there EMF Standards or Guidelines?

The State of Nevada nor the Federal government currently do not regulate power frequency EMF levels. Some guidelines established by other entities include:

State of Florida: 150 mG at edge of right-of-way

State of New York: 200 mG at edge of right-of-way.

National Radiation Protection Board: for the public 13,000 mG

International Commission on Non-Ionizing Radiation Protection 830 mG for the public, and 4,200 mG for workers.

American Conference of Industrial Hygienists 10,000 mG for workers.

EMF levels from NV Energy power lines will normally be substantially lower than the guidelines above.

What is NV Energy Doing?

NV Energy strives to provide safe, reliable and environmentally sound service for its customers and a safe work environment for its employees. Toward this end, the Company's electric facilities are designed and operated to comply with all applicable federal, state and local regulations, safety code requirements (National Electric Safety Code) and health standards.

Resources

Health Sciences Library West Charleston Library
6301 W. Charleston Blvd. , Las Vegas , Nevada 89102

Edison Electric Institute
<http://www.eei.org/>

701 Pennsylvania Ave., N.W. Washington , D.C. 20004-2696
(202) 508-5000

NV Energy Environmental Affairs
P.O. Box 98910 - Mail Station 30
Las Vegas , Nevada 89151
(702) 402-5402

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

National Institute for Environmental Health Sciences (NIEHS)
<http://www.niehs.nih.gov/emfrapid/home.htm>

Information Ventures
<http://www.infoventures.com/emf/>

Magnetic Field Consulting
<http://www.enertech.net/> (408) 866-7266

Research Journals:

[BioElectroMagnetics](#), the Journal of the Bioelectromagnetic Society, the Society for Physical Regulation in Biology and Medicine, and the European Bioelectromagnetic Association Wiley-Liss publisher ISSN 0197-8462