



COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
<http://dpw.lacounty.gov>

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

April 30, 2013

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

ADOPTED

BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

40 April 30, 2013

Sachi A. Hamai
SACHI A. HAMAI
EXECUTIVE OFFICER

**LICENSE AGREEMENT NO. 9.2619
BETWEEN THE COUNTY OF LOS ANGELES
AND SOUTHERN CALIFORNIA EDISON COMPANY
COYOTE CREEK BICYCLE PATH
CITY OF CERRITOS
(SUPERVISORIAL DISTRICT 4)
(3 VOTES)**

SUBJECT

This action will allow the County of Los Angeles to enter into a License Agreement with Southern California Edison Company for bicycle path purposes along a portion of Coyote Creek located in the City of Cerritos.

IT IS RECOMMENDED THAT THE BOARD:

1. Find that this project is categorically exempt from the provisions of the California Environmental Quality Act.
2. Approve License Agreement No. 9.2619 between the County of Los Angeles and Southern California Edison Company.
3. Instruct the Chairman of the Board of Supervisors of the County of Los Angeles to execute License Agreement No. 9.2619 between the County of Los Angeles and Southern California Edison Company.

4. Delegate authority to the Director of Public Works or her designee on behalf of the County of Los Angeles to enter into future License Agreements with Southern California Edison Company for the purpose of extending the term of the License Agreements for continued operation, maintenance, and use of the existing bicycle path and take other actions necessary and proper to effectuate the licenses.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

The purpose of the recommended actions is to enable the County of Los Angeles to enter into a 5-year License Agreement with Southern California Edison Company (SCE) for continued public use of a bicycle path along SCE's right of way along the westerly side of Coyote Creek south of 195th Street and east of Cerritos Regional County Park in the City of Cerritos.

Implementation of Strategic Plan Goals

The Countywide Strategic Plan directs the provision of Operational Effectiveness (Goal 1). The recommended action will allow the County to operate and maintain existing facilities, thereby improving the quality of life for bicyclists and pedestrians in the surrounding communities.

FISCAL IMPACT/FINANCING

There will be no impact to the County General Fund.

The License Agreement from SCE is being issued gratis.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

The Coyote Creek bicycle path was constructed in 1989 under a Temporary Entry Permit from SCE. A current Temporary Entry Permit provides for interim operation, maintenance, and public use of the bicycle path. A Notice of Intention to enter into a License Agreement has been posted in accordance with Government Code Section 25350.51.

ENVIRONMENTAL DOCUMENTATION

This project is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to Section 15301(c) of the CEQA Guidelines and Class 1 of the Environmental Reporting Procedures and Guidelines adopted by the Board on November 17, 1987. These exemptions provide for the licensing, operation, and maintenance of existing facilities with no expansion of use.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

None.

CONCLUSION

Please return one adopted copy of this letter and one signed original of License Agreement No. 9.2619 to the Department of Public Works, Survey/Mapping & Property Management Division. Retain one executed original of the License Agreement for your files.

Respectfully submitted,

A handwritten signature in cursive script that reads "Gail Farber".

GAIL FARBER

Director

GF:SGS:hp

Enclosures

c: Auditor-Controller (Accounting Division - Asset Management)
Chief Executive Office (Rita Robinson)
County Counsel
Executive Office

COUNTY OF LOS ANGELES

Contract No. 9.2619
(formerly Contract No. L1289)

L I C E N S E A G R E E M E N T

I N D E X

1. USE
2. TERM
3. CONSIDERATION
4. INSURANCE
5. LICENSOR'S USE OF THE PROPERTY
6. LICENSEE'S IMPROVEMENTS
7. LICENSEE'S PERSONAL PROPERTY
8. HEIGHT LIMITATIONS
9. ACCESS AND CLEARANCES
10. PARKING
11. FLAMMABLES, WASTE AND NUISANCES
12. PESTICIDES AND HERBICIDES
13. HAZARDOUS WASTE
14. SIGNS
15. FENCING
16. PARKWAYS AND LANDSCAPING
17. IRRIGATION EQUIPMENT
18. UNDERGROUND TANKS
19. UNDERGROUND FACILITIES
20. UTILITIES
21. TAXES, ASSESSMENTS AND LIENS
22. EXPENSE
23. ASSIGNMENTS
24. COMPLIANCE WITH LAW
25. GOVERNING LAW
26. INDEMNIFICATION
27. TERMINATION
28. EVENTS OF DEFAULT
29. REMEDIES
30. NON-POSSESSORY INTEREST
31. WAIVER
32. AUTHORITY
33. ATTORNEY FEES
34. ELECTRIC AND MAGNETIC FIELDS
35. NOTICES
36. RECORDING
37. COMPLETE AGREEMENT

ADDENDUM

BIKE PATH

LICENSE AGREEMENT

THIS AGREEMENT, made as of the _____ day of _____, 20 ____, between SOUTHERN CALIFORNIA EDISON COMPANY (SCE), a corporation organized under the laws of the State of California, hereinafter called "Licensor", and COUNTY OF LOS ANGELES, hereinafter called "Licensee";

WITNESSETH: That Licensor, for and in consideration of the faithful performance by Licensee of the terms, covenants and agreements hereinafter set forth to be kept and performed by Licensee, does hereby give to Licensee the license to use that certain real property described below and depicted on Exhibit "A" attached hereto and made a part hereof the ("Property") solely for the purpose hereinafter specified, upon and subject to the terms, reservations, covenants and conditions hereinafter set forth.

The subject Property is located in the City of Cerritos, County of Los Angeles, State of California.

SUBJECT TO:

Covenants, conditions, restrictions, reservations, exceptions, rights and easements, whether or not of record, including but not limited to, the following:

A. That certain Easement for flood control purposes in favor of Los Angeles County Flood Control District, recorded September 11, 1959, in Book D599, Page 641 of Official Records, in the Office of the County Recorder of Los Angeles County.

B. That certain Easement for road purposes in favor of Rose Rudolph recorded on February 7, 1950 in Book 32205, Page 261 of Official Records, in the office of the County Recorder of Los Angeles County.

1. Use: Licensee will use the Property (Coyote Creek) for bicycle path purposes only. ^{and Pedestrian} Licensor makes no representation, covenant, warranty or promise that the Property is fit for any particular use, including the use for which this Agreement is made and Licensee is not relying on any such representation, covenant, warranty or promise. Licensee's failure to make such use of the Property as determined by the Licensor in its sole discretion, will be grounds for immediate termination of this Agreement in accordance with Article 28.

2. Term: Unless otherwise terminated as provided herein, this Agreement will be in effect for a term of five (5) years commencing on the first day of May, 2013 and ending on the last day of April, 2018. Licensee acknowledges that this Agreement does not entitle Licensee to any subsequent agreement, for any reason whatsoever, regardless of the use Licensee makes of the Property, the improvements Licensee places on or makes to the Property, or for any other reason.

3. Consideration: No monetary consideration – Gratis.

4. Insurance: During the term of this Agreement, Licensee shall maintain the following insurance:

(a) Commercial General Liability Insurance, including contractual liability and products liability, with a combined single limit of \$2,000,000.00. Such insurance shall: (i) name Licensor, its officers, agents and employees as additional insureds, but only for

Licensee's acts or omissions; (ii) be primary for all purposes and (iii) contain standard cross-liability provisions.

Licensee shall provide Licensor with proof of such insurance by submission of certificates of insurance, pursuant to Section 35 "Notices," at least ten days prior to the effective date of this Agreement. Such insurance shall not be canceled nor allowed to expire nor be materially reduced without thirty days prior written notice to Licensor. The required insurance policies shall be maintained with insurers reasonably satisfactory to Licensor [or under a self-insurance program reasonably satisfactory to Licensor], shall name Licensor as an additional insured by endorsement, and shall be primary and non-contributing with any insurance maintained by Licensor.

5. Licensor's Use of the Property: Licensee agrees that Licensor, its successors and assigns, have the right to enter upon the Property, at any time, for any purpose, and the right to conduct any activity on the Property. Exercise of these rights by Licensor, its successors and assigns, will not result in compensation to Licensee for any damages whatsoever to personal property and/or crops located on the Property.

6. Licensee's Improvements: Licensee must submit, for Licensor's prior written approval, complete improvement plans, including grading plans, identifying all existing and proposed improvements, a minimum of sixty (60) days prior to making any use of the Property. Licensee must submit, for Licensor's prior written approval plans for any modifications to such improvements. Written approval may be modified and/or rescinded by Licensor for any reason whatsoever. At any time, Licensee may be required to modify and/or remove any or all such previously approved improvements at Licensee's risk and expense and without any compensation from Licensor. Licensor is not required, at any time, to make any improvements, alterations, changes or additions of any nature whatsoever to the Property. Licensee expressly acknowledges that any expenditures or improvements will in no way alter Licensor's right to terminate in accordance with Article 27.

7. Licensee's Personal Property: All approved equipment and other property brought, placed or erected on the Property by Licensee shall be and remain the Property of Licensee, except as otherwise set forth herein. If Licensee is not in default hereunder, Licensee shall have the right to remove the same from the Property at any time prior to the expiration or earlier termination of this Agreement; provided, however, that Licensee shall promptly restore any damage to the Property caused by the removal. If Licensee is in default, however, such equipment or other property shall not be removed by Licensee without Licensor's written consent until Licensee has cured such default, and Licensor shall have a lien thereon to the extent thereof.

8. Height Limitations: Any equipment used by Licensee or its agents, employees or contractors, on and/or adjacent to the Property, will be used and operated so as to maintain a minimum clearance of twenty-seven (27) feet from all overhead electrical conductors.

All trees and plants on the Property will be maintained by Licensee at a maximum height of fifteen (15) feet. If requested by Licensor, Licensee will remove, at Licensee's expense, any tree and/or other planting.

9. Access and Clearances: Licensee will provide Licensor with adequate access to all of Licensor's facilities on the Property and at no time will there be any interference with the free movement of Licensor's equipment and materials over the Property. Licensor may require Licensee to provide and maintain access roads within the Property, at a minimum usable width of sixteen (16) feet, together with commercial driveway aprons and curb depressions capable of supporting a gross load of forty (40) tons on a three-axle vehicle. The minimum width of all roads shall be increased on curves by a distance equal to 400/inside radius of curvature. All curves shall have a radius of not less than 50 feet measured at the inside edge of the usable road surface. Unless otherwise specified in writing by Licensor, Licensee will make no use of the area directly underneath Licensor's towers and will maintain the following minimum clearances at all times:

- a. A 50-foot-radius around suspension tower legs and 100-foot radius around dead-end tower legs.
- b. A 10-foot-radius around all steel and wood poles.

NOTE: Additional clearance may be required for structures.

10. Parking: Licensee will not park, store, repair or refuel any motor vehicles or allow parking, storage, repairing or refueling of any motor vehicles on the Property unless specifically approved in writing by Licensor.

11. Flammables, Waste and Nuisances: Licensee will not, nor allow others to, place or store any flammable or waste materials on the Property or commit any waste or damage to the Property or allow any to be done. Licensee will keep the Property clean, free from weeds, rubbish and debris, and in a condition satisfactory to Licensor. Licensee will be responsible for the control of and will be liable for any damage or disturbance, caused by dust, odor, flammable or waste materials, noise or other nuisance disturbances. Licensee will not permit dogs on the Property.

12. Pesticides and Herbicides: Any pesticide or herbicide applications and disposals will be made in accordance with all federal, state, county and local laws. Licensee will dispose of all pesticides, herbicides and any other toxic substances declared to be either a health or environmental hazard, as well as all materials contaminated by such substances, including but not limited to, containers, clothing and equipment, in the manner prescribed by law.

13. Hazardous Waste: Licensee will not engage in, or permit any other party to engage in, any activity on the Property that violates federal, state or local laws, rules or regulations pertaining to hazardous, toxic or infectious materials and/or waste. Licensee will indemnify and hold Licensor, its directors, officers, agents and employees, and its successors and assigns, harmless from any and all claims, loss, damage, actions, causes of action, expenses and/or liability arising from leaks of, spills of, and/or contamination by or from hazardous materials as defined by applicable laws or regulations, which may occur during and after the Agreement term, and are attributable to the actions of, or failure to act by, Licensee or any person claiming under Licensee.

14. Signs: Licensee must obtain written approval from Licensor prior to the construction or placement of any sign, signboard or other form of outdoor advertising.

15. Fencing: Licensee may install fencing on the Property with prior written approval from Licensor. Such fencing will include double drive gates, a minimum of sixteen (16) feet in width, designed to accommodate Licensor's locks, in locations specified by Licensor. Licensee will ground and maintain all fencing.

16. Parkways and Landscaping: Licensee will keep parkway and sidewalk areas adjacent to the Property free of weeds and trash. Licensee will maintain parkways and provide landscaping that is compatible with adjoining properties and that is satisfactory to Licensor.

17. Irrigation Equipment: Any irrigation equipment located on the Property prior to the commencement of this Agreement, including but not limited to pipelines, well pumping equipment and other structures, is the property of Licensor and will remain on and be surrendered with the Property upon termination of this Agreement. Licensee will maintain, operate, repair and replace, if necessary, all irrigation equipment at its own expense.

18. Underground and Above-Ground Tanks: Licensee will not install underground or above-ground storage tanks, as defined by any and all applicable laws or regulations, without Licensor's prior written approval.

19. Underground Facilities: Any underground facilities installed or maintained by Licensee on the Property must have a minimum cover of three feet from the top of the facility and be capable of

withstanding a gross load of forty (40) tons on a three-axle vehicle. Licensee will compact any earth excavated to a compaction of ninety percent (90%). Licensee will relocate its facilities at its own expense so as not to interfere with Licensor's proposed facilities.

20. Utilities: Licensee will pay all charges and assessments for, or in connection with, water, electric current or other utilities which may be furnished to or used on the Property.

21. Taxes, Assessments and Liens: Licensee will pay all taxes and assessments which may be levied upon any crops, personal property, and improvements, including but not limited to, buildings, structures, and fixtures on the Property. Licensee will keep the Property free from all liens, including but not limited to, mechanics liens and encumbrances by reason of use or occupancy by Licensee, or any person claiming under Licensee. If Licensee fails to pay the above-mentioned taxes, assessments or liens when due, Licensor will have the right to pay the same and charge the amount to the Licensee. All accounts not paid within 30 days of the agreed upon due date will be charged a "late fee" on all amounts outstanding up to the maximum rate allowed by law.

22. Expense: Licensee will perform and pay all obligations of Licensee under this Agreement. All matters or things herein required on the part of Licensee will be performed and paid for at the sole cost and expense of Licensee, without obligation on the part of Licensor to make payment or incur cost or expense for any such matters or things.

23. Assignments: This Agreement is personal to Licensee, and Licensee will not assign, transfer or sell this Agreement or any privilege hereunder in whole or in part, and any attempt to do so will be void and confer no right on any third party.

24. Compliance with Law: Licensee will comply with all applicable federal, state, county and local laws, all covenants, conditions and restrictions of record and all applicable ordinances, zoning restrictions, rules, regulations, orders and any requirements of any duly constituted public authorities now or hereafter in any manner affecting the Property or the streets and ways adjacent thereto. Licensee will obtain all permits and other governmental approvals required in connection with Licensee's activities hereunder.

25. Governing Law: The existence, validity, construction, operation and effect of this Agreement and all of its terms and provisions will be determined in accordance with the laws of the State of California.

26. Indemnification: Licensee shall hold harmless, defend and indemnify Licensor, its officers, agents and employees, and its successors and assigns, from and against all claims, loss, damage, actions, causes of actions, expense and/or liability arising from or growing out of loss or damage to property, including that of Licensor, or injury to or death of persons, including employees of Licensor resulting in any manner whatsoever, directly or indirectly, by reason of this Agreement or the use or occupancy of the Property by Licensee or any person claiming under Licensee.

27. Termination: This Agreement may be canceled and terminated by either Licensor or Licensee, at any time, for any reason, upon thirty (30) days notice in writing. Licensee will peaceably quit, surrender and, prior to termination date, restore the Property to a condition satisfactory to the Licensor. Termination, cancellation or expiration does not release Licensee from any liability or obligation (indemnity or otherwise) which Licensee may have incurred. Licensee's continued presence after termination shall be deemed a trespass.

28. Events of Default: The occurrence of any of the following shall constitute a material default and breach of this Agreement by Licensee:

- (a) Any failure by Licensee to pay the consideration due in accordance with Article 3, or to make any other payment required to be made by Licensee hereunder when due.

- (b) The abandonment or vacating of the Property by Licensee.
- (c) Any attempted assignment or subletting of this Agreement by Licensee in violation of Article 23.
- (d) The violation by Licensee of any resolution, ordinance, statute, code, regulation or other rule of any governmental agency in connection with Licensee's activities pursuant to this Agreement.
- (e) A failure by Licensee to observe and perform any other provision of this Agreement to be observed or performed by Licensee, where such failure continues for the time period specified in a written notice thereof by Licensor to Licensee.
- (f) Any attempt to exclude Licensor from the licensed premises.
- (g) The making by Licensee of any general assignment for the benefit of creditors; the appointment of a receiver to take possession of substantially all of Licensee's assets located on the Property or of Licensee's privileges hereunder where possession is not restored to Licensee within five (5) days; the attachment, execution or other judicial seizure of substantially all of Licensee's assets located on the Property or of Licensee's privileges hereunder, where such seizure is not discharged within five (5) days.
- (h) Any case, proceeding or other action brought against Licensee seeking any of the relief mentioned in "clause g" of this Article which has not been stayed or dismissed within thirty (30) days after the commencement thereof.

29. Remedies: In the event of any default by Licensee, then in addition to any other remedies available to Licensor at law or in equity, Licensor shall have the immediate option to terminate this Agreement and all rights of Licensee hereunder by giving written notice of termination to Licensee. Upon termination, Licensor will have the right to remove Licensee's personal property from the Property, including but not limited to, buildings, structures and fixtures. In addition, Licensor may immediately recover from Licensee all amounts due and owing hereunder, plus interest at the maximum rate permitted by law on such amounts until paid, as well as any other amount necessary to compensate Licensor for all the detriment proximately caused by Licensee's failure to perform its obligations under this Agreement.

30. Non-Possessory Interest: Licensor retains full possession of the Property and Licensee will not acquire any interest temporary, permanent, irrevocable, possessory or otherwise by reason of this Agreement, or by the exercise of the permission given herein. Licensee will make no claim to any such interest. Any violation of this provision will immediately void and terminate this Agreement.

31. Waiver: No waiver by Licensor of any provision hereof shall be deemed a waiver of any other provision hereof or of any subsequent breach by Licensee of the same or any other provision. Licensor's consent to or approval of any act shall not be deemed to render unnecessary the obtaining of Licensor's consent to or approval of any subsequent act by Licensee.

32. Authority: This Agreement is pursuant to the authority of and upon, and is subject to the conditions prescribed by General Order No. 69-C of the Public Utilities Commission of the State of California dated and effective July 10, 1985, which General Order No. 69-C, by this reference, is hereby incorporated herein and made a part hereof.

33. Attorneys' Fees: In the event of any action, suit or proceeding against the other, related to this Agreement, or any of the matters contained herein, the successful party in such action, suit or proceeding shall be entitled to recover from the other party reasonable attorney fees incurred.

34. Electric and Magnetic Fields ("EMF"): There are numerous sources of power frequency electric and magnetic field ("EMF"), including household or building wiring, electrical appliances and electric power transmission and distribution facilities. There have been numerous scientific studies about the potential health effects of EMF. Interest in a potential link between long-term exposures to EMF and certain diseases is based on the combination of this scientific research and public concerns.

While some 30 years of research have not established EMF as a health hazard, some health authorities have identified magnetic field exposures as a possible human carcinogen. Many of the questions about specific diseases have been successfully resolved due to an aggressive international research program. However, potentially important public health questions remain about whether there is a link between EMF exposures in homes or work and some diseases including childhood leukemia and a variety of other adult diseases (e.g. adult cancers and miscarriages). While scientific research is continuing on a wide range of questions relating to exposures at both work and in our communities, a quick resolution of the remaining scientific uncertainties is not expected.

Since Licensee plans to license or otherwise enter Licensor's property that is in close proximity to Licensor's electric facilities, Licensor wants to share with Licensee and those who may enter the property under this agreement, the information available about EMF. Accordingly, Licensor has attached to this document a brochure that explains some basic facts about EMF and that describes Licensor's policy on EMF. Licensor also encourages Licensee to obtain other information as needed to assist in understanding the EMF with respect to the planned use of this property.

35. Notices: All notices required to be given by either party will be made in writing and deposited in the United States mail, first class, postage prepaid, addressed as follows:

To Licensor: Southern California Edison Company
Real Properties Department
Land Mangement – Northern Region
2131 Walnut Grove Avenue
Rosemead, CA 91770

To Licensee: County of Los Angeles
900 South Fremont Avenue
Alhambra, CA 91803
Attn: Wanda Hinkley/Property Management Division

Business Telephone No. (626) 458-7067

Licensee will immediately notify Licensor of any address change.

36. Recording: Licensee will not record this Agreement.

37. Complete Agreement: Licensor and Licensee acknowledge that the foregoing provisions and any addenda and exhibits attached hereto constitute the entire Agreement between the parties.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in duplicate as of the day and year herein first above written.

SOUTHERN CALIFORNIA EDISON COMPANY

By _____ LICENSOR

CINDY CALEMMO
Sr. Right of Way Agent
Land Management - Northern Region
Real Properties Department

COUNTY OF LOS ANGELES, a body corporate and politic

By _____
Chairman, Board of Supervisors of the County of Los Angeles

Print Name: _____ LICENSEE

(COUNTY SEAL)

ATTEST:

SACHI A. HAMAI, Executive Officer
of the Board of Supervisors of the
County of Los Angeles

Deputy

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

On January 6, 1987, the Board of Supervisors for the County of Los Angeles and ex officio the governing body of all other special assessment and taxing districts, agencies, and authorities for which said Board so acts adopted a resolution pursuant to Section 25103 of the Government Code that authorized the use of facsimile signatures of the Chairman of the Board on all papers, documents, or instruments requiring the Chairman's signature.

The undersigned hereby certifies that on this ____ day of _____, 20____, the facsimile signature of _____, Chairman of the Board of Supervisors of the COUNTY OF LOS ANGELES, was affixed hereto as the official execution of this document. The undersigned further certifies that on this date a copy of the document was delivered to the Chairman of the Board of Supervisors of the COUNTY OF LOS ANGELES.

In witness whereof, I have also hereunto set my hand and affixed my official seal the day and year above written.

SACHI A. HAMAI, Executive Officer
of the Board of Supervisors
of the County of Los Angeles

By _____
Deputy

(COUNTY-SEAL)

APPROVED AS TO FORM:

JOHN F. KRATTLI
County Counsel

By *Julia Wasson*
Deputy

ADDENDUM

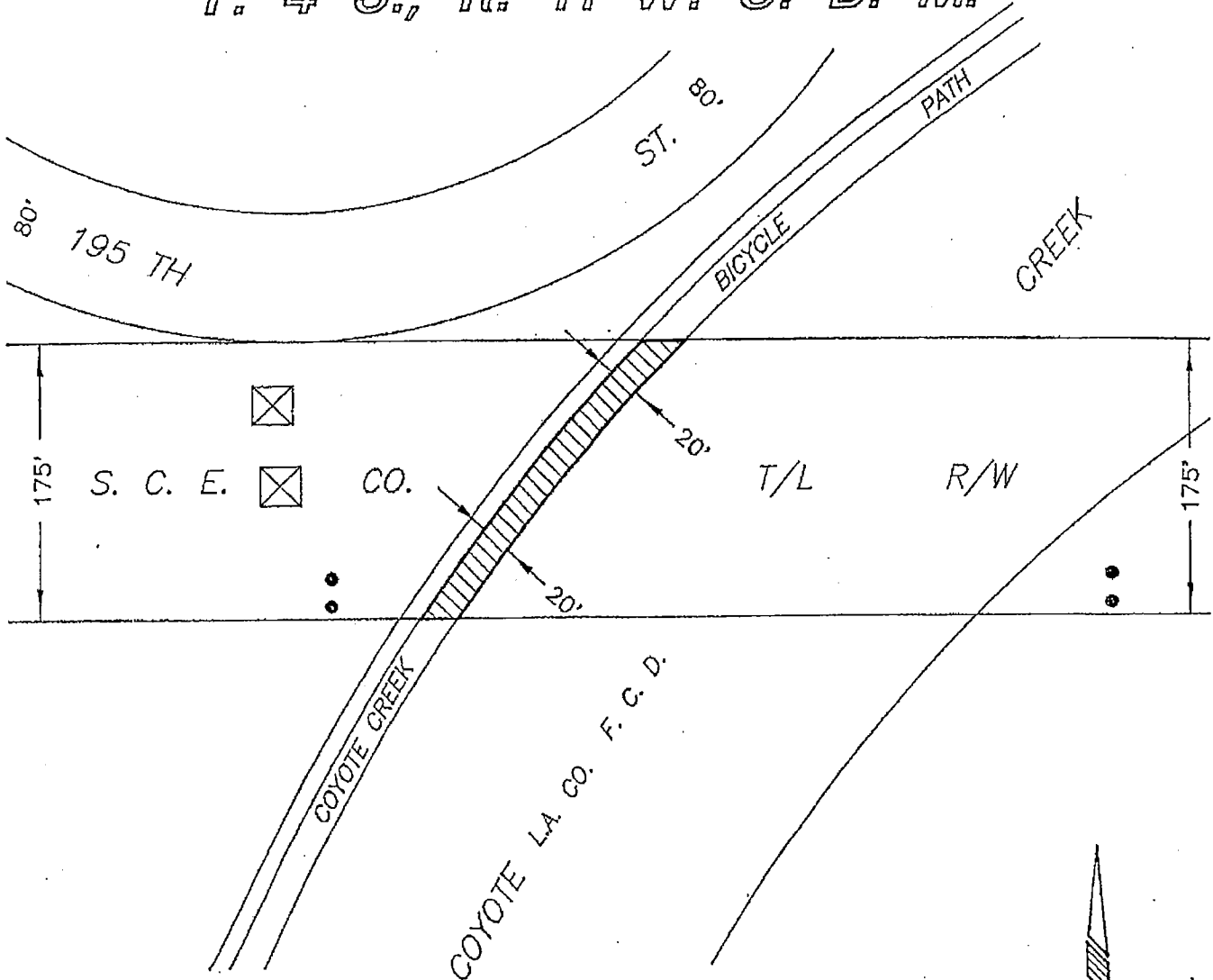
BICYCLE PATH

- A. Licensee must obtain the prior written approval from Licensor for the installation of any bicycle path, including any subsequent modifications. Licensee will maintain the bicycle path at all times in a safe condition satisfactory to Licensor.
- B. At any time, Licensor may require the relocation of any portion of the bicycle path. Licensee will relocate same, at its expense, to a location satisfactory to Licensor within sixty (60) days after receiving notice to relocate from Licensor.
- C. At Licensee's expense, Licensee will post signs at all access points to the Property that read:
"Bicycles Only. No Other Uses Permitted."
and pedestrians
- D. At Licensee's expense, Licensee will post signs at all access points to the Property that read:
"No Kite Flying, Metallic Balloons and Model Airplanes Permitted, High Voltage Wires Overhead."
- E. Licensee must close the path at any time Licensor deems it necessary for the safety of the general public. If it is necessary to close the path for a period of more than three days, Licensee will notify the general public of the closure by posting at all access points to the property.
- F. At Licensee's expense, Licensee will install removable post-type barriers designed to accommodate Licensor's locks, to prevent unauthorized vehicular use or parking on the Property, including but not limited to, motorcycles, off-road vehicles, and "all-terrain" vehicles.
- G. Licensee is responsible for all erosion control in connection with the construction, operation, maintenance, and use of the bicycle path, including but not limited to, water flowing onto lands of others. Licensee will perform any work deemed necessary by Licensor to correct any damage to the Property or the lands of others.
- H. Use of the Property is a joint use with Licensor and other tenants of Licensor. Licensor may use the bicycle path at any time for access to its facilities.

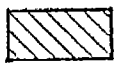




Licensee's Initials

POR. SW. 1/4, SEC 5,
T. 4 S., R. 11 W. S. B. M.



LEGEND

-  LANDS OF SOUTHERN CALIFORNIA EDISON COMPANY BEING LICENSED TO LOS ANGELES COUNTY
-  APPROXIMATE TOWER LOCATION (25' CLEARANCE)
-  APPROXIMATE POLE LOCATION (10' CLEARANCE)

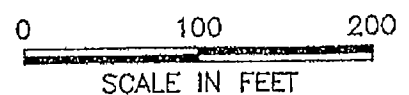

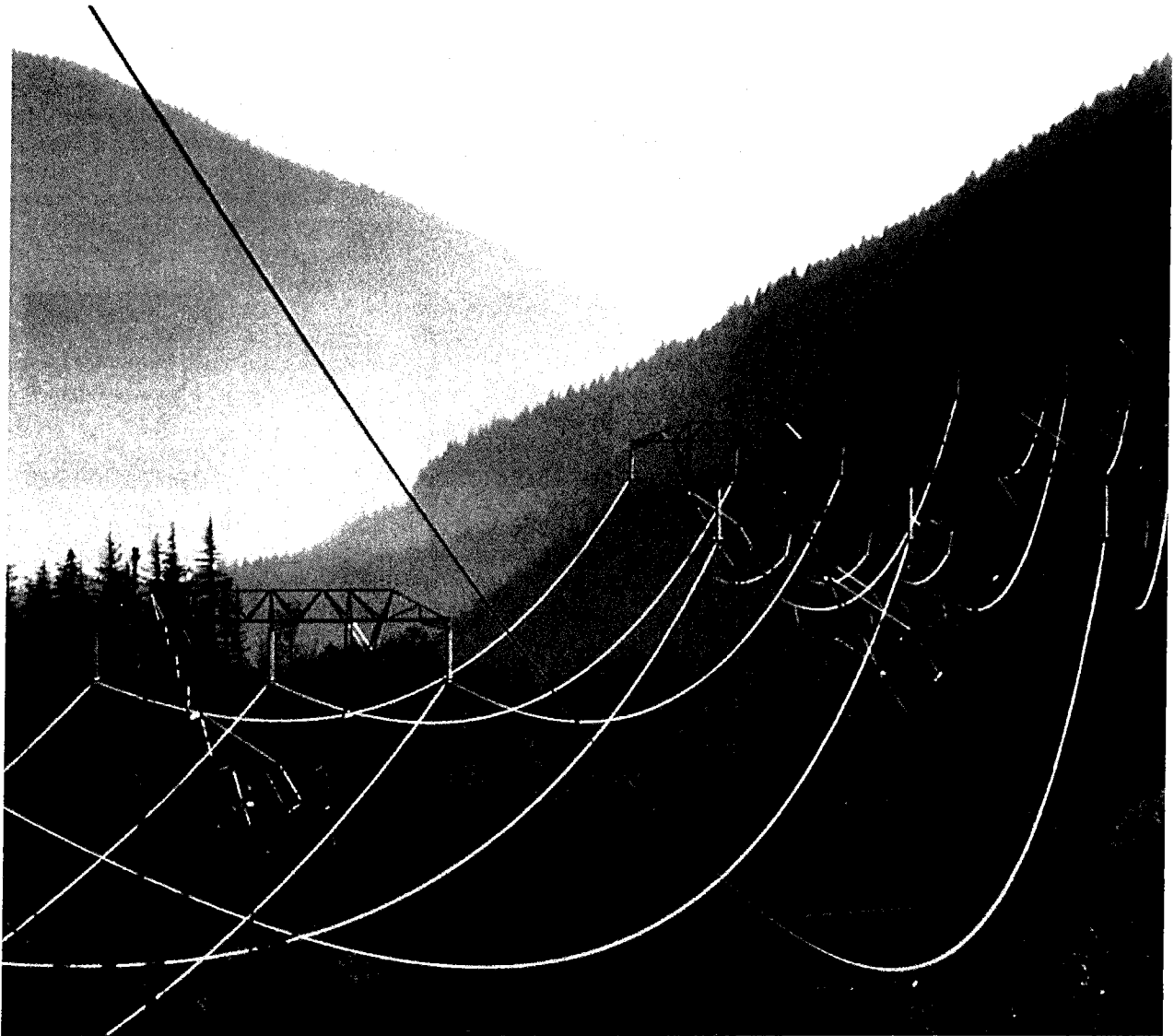


EXHIBIT "A"

TOTAL AREA (GROSS) SQ.FT. 4538		AC. 0.104	
FACILITY NAME: BARRE-DEL AMO 220KV T/L R/W		P.I.D. NO. 5012003	J.O. JAMIN ID: LM-16
LICENSEE: LOS ANGELES COUNTY		CITY: CERRITOS	T.G.: 767/B-3
R/P FILE NO.: P88W055-4-46JL	R/P AGENT: JANET LIGHT	COUNTY: LOS ANGELES	STATE: CA.
LAND MAPPING:		SPECIALIST: ROBERT SOTO Jr. T/S APPROVAL:	
SANDERS MAP NO.: 533883	M.S.:	 Geographic Information Services Real Properties & Administrative Services Southern California Edison Company	
OTHER REF.:	DATE: 01/25/95		

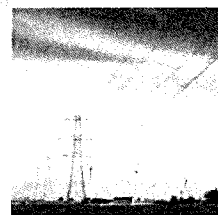
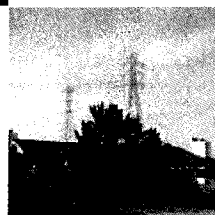
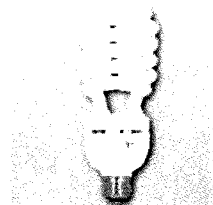
COYOTE CREEK BICYCLE PATH

EMF and Your Health



Contents

EMF Around You	4
Potential Health Effects	11
International EMF Reviews	16
Standards and Policies	18
Further Reading	23



Electric and magnetic fields (EMF) are present whenever and wherever electricity is generated, transmitted and used. Given electricity's unique and growing role in modern life – to light our homes, refrigerate our food, heal, diagnose, entertain, and communicate – one important question is whether exposure to EMF can have harmful health effects.

To answer this question, hundreds of scientific studies have been carried out around the world over the last 30-plus years. Conducted at universities and research institutions, these studies have used a variety of approaches to explore the potential health effects of EMF. Some have looked at patterns of disease in human populations, some at the effects of EMF exposure on laboratory animals, and still others at biological mechanisms that might plausibly link EMF to various diseases.

The World Health Organization (WHO) has weighed the full body of evidence from all these studies and classified EMF as “possibly carcinogenic,” primarily because of observations made in human populations that show an association between magnetic field exposures and childhood leukemia. The association is weak and not supported by laboratory research, but it does show up in studies time and again, so causation cannot be ruled out. Ongoing research is trying to resolve this uncertainty.

This brochure has been developed to help explain the complex issue of EMF to the general public. It covers the physical nature of electric and magnetic fields, the health research and its findings, our everyday exposures to EMF, and the conclusions reached by scientific panels and policy makers, alike.

The brochure was produced by the Electric Power Research Institute (EPRI), a non-profit institution that has been involved in research on the health effects of EMF for more than 30 years. EPRI's EMF program continues to fund independent research at universities and other research institutions, all of which publish their findings in peer-reviewed scientific journals.

EMF Around You

WHAT ARE ELECTRIC AND MAGNETIC FIELDS?

Electric and magnetic fields are part of both the natural and manmade environments, and are often described as invisible lines of force. As shown in Figure 1, these fields are part of the electromagnetic spectrum, which is arrayed by the frequency of the field, or the number of times the field completes a full cycle (oscillates), every second. Near the low end of the spectrum are fields that arise from the use of electricity in the home. They have frequencies of 50 cycles per second in Europe and 60 cycles per second in North America, or 50 and 60 Hertz (Hz). At the high end of the spectrum is ionizing radiation, such as x-rays and gamma rays, with frequencies in the range of a billion-billion cycles per second. In the middle of the electromagnetic spectrum (millions to billions of cycles per second), are the radio-frequency fields we use everyday for TV, radio, and cell and cordless phones, and microwave ovens.

Ionizing radiation, such as x-rays, has enough energy to damage cells, and its use in medicine and nuclear energy is carefully managed. Radio-frequency exposures interact with people by depositing thermal energy in the body, which can result in the heating of tissue. At the frequencies our electric power systems operate, exposures cannot directly damage cells or produce tissue heating. This brochure focuses on the potential health effects of these extremely low frequency (50 or 60 Hz) fields.

Electricity use produces two types of fields—electric fields and magnetic fields. Electric fields arise from a voltage, which is analogous to the water pressure in a hose, whereas magnetic fields arise when the electric current begins to flow, analogous to opening the nozzle of the hose. Electric fields are easily shielded by objects and materials, such as houses, trees, wood, even skin. However, magnetic fields are not easily shielded and pass through most objects. Both can interact with living bodies, inducing electrical forces within those bodies. This is not so foreign as it might sound, since all living things rely upon electricity to run virtually all processes of life. There is a small voltage across the membrane of every cell in the human body that regulates the internal operations of the cell, acts as a traffic cop regulating what passes in and out of the cell, and sends impulses along the nerves to the brain, organs and extremities. The additional

electrical activity “induced” in the body by outside sources, such as power lines, home wiring, appliances, and equipment, are typically a small fraction of those that regulate the body.

Health-related research over the years has shifted away from electric fields to magnetic fields. The reason is that a large body of research supported by the Department of Energy (DOE) and EPRI, among others, did not uncover hazards associated with electric field exposure at the levels encountered in everyday activity. Exposure at very high levels can potentially be harmful, so standards have been established (see page 18). Health concerns are now focused on magnetic fields.

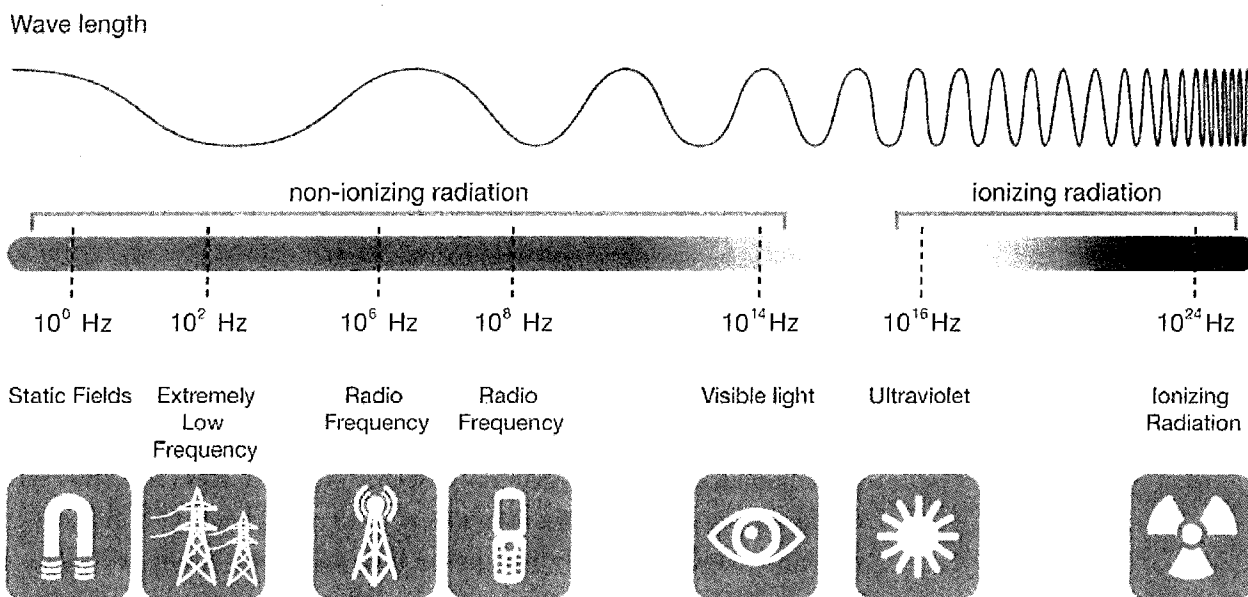


Figure 1 – The electromagnetic spectrum arrays fields by their frequency, ranging from zero (static field) and the very low, with frequencies in the hundreds of cycles per second, to the very high, with frequencies of trillion-billion cycles per second or more. Visible light sits in the middle of the spectrum.

TYPICAL SOURCES OF EMF EXPOSURE

From this point on in the brochure, our discussion focuses on the power frequency magnetic fields (50 or 60 Hz) associated with the transmission, distribution, and use of electricity, as shown in Figure 2. The unit of measure in the United States for magnetic field intensity is the “Gauss,” and most of the fields experienced in daily life are in the milligauss range

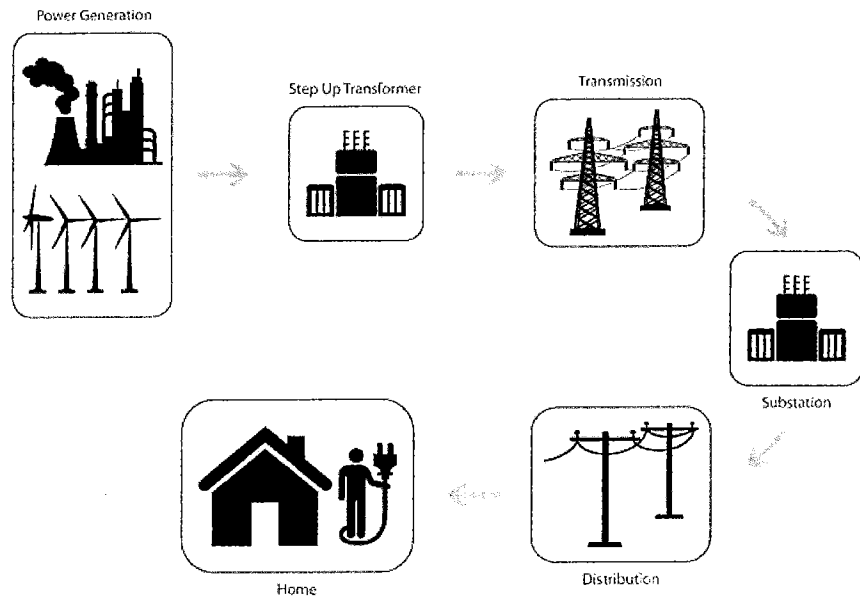


Figure 2 – Keeping the lights on requires an instantaneous flow of electricity from the power station through the transmission and distribution lines directly into the home. Voltage is stepped up or down by transformers to move electricity more efficiently.

OCCUPATIONAL STUDIES

Occupational studies can offer a useful opportunity to examine environmental EMF exposures at higher levels than occur in residential settings. Many occupational studies of electrical workers and others exposed to higher magnetic fields have examined both cancer and other diseases. Overall, the occupational studies do not support the link between magnetic fields exposure and any form of cancer.

(mG = 1/1000 G). The international unit is the “Tesla,” which is a multiple of the Gauss, where for example, 10 mG = 1 microtesla.

Most human exposure to EMF from electric power sources (50 or 60 Hz) occurs during daily activities at home, at work and school. This includes exposure to low-level fields from power lines and house wiring, as well as appliances running on electricity. (Note: Exposure to fields from *wireless* communications, such as cell phones, occurs at much higher, megahertz frequencies, and is not covered by this brochure). As shown in Figure 3, magnetic fields from transmission lines fall off rapidly with distance from the lines.

Distribution lines are generally located closer to homes. They also produce magnetic fields but usually at lower levels. Magnetic fields are the result of electrical current, and this flow can fluctuate during the day as demand for power goes up and down. According to the 2002 report of the National Institute of Environmental Health (NIEHS) and the Department of Energy (DOE), “Magnetic fields directly beneath overhead

ANIMALS AND PLANTS

Research on how animals and plants might be affected by exposure to EMF has been conducted since the 1970's. EMF exposure has not been shown to have any consistent detectable, adverse effects on plant growth or animal health. A separate issue is sometimes raised about potential harm to farm animals from "stray voltages." Stray voltage is a general term used to describe the small voltages that may exist at contact locations where they would not be expected nor desired. These voltages may result from the operation of electricity delivery and utilization systems both on and off a farm. Stray voltages may be enhanced by various abnormal and correctible situations, such as poor insulation or wiring errors. Bees in commercial hives with metallic components under or very close to transmission lines may be adversely affected if situated in electric fields high enough to produce conditions prone to shocks within the hives. These effects can be mitigated by shielding and grounding.

distribution lines typically range from 10 to 20 mG for main feeders and less than 10 mG for laterals. Peak EMF levels, however, can vary considerably depending on the amount of current carried by the line. Peak magnetic field levels as high as 70 mG have been measured directly below overhead distribution lines, and as high as 40 mG above underground lines."

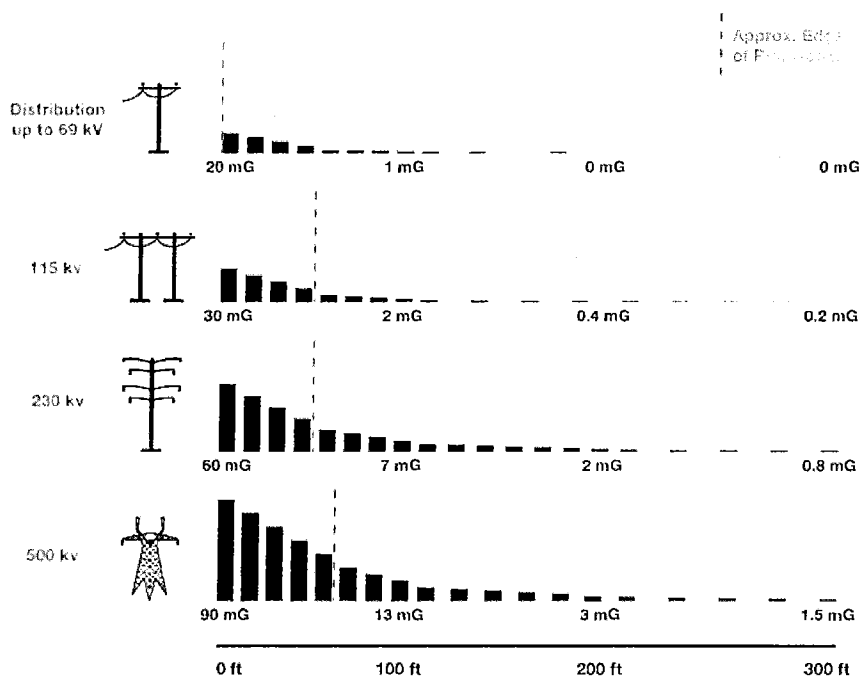


Figure 3 – Magnetic field intensity falls off rapidly with distance for both distribution and transmission lines. The field intensity varies over the day depending upon how much current is flowing through the line, or the design of the line. Source: BPA, 1993 and PG&E, 2008.

HOW EXPOSURE TO FIELDS VARY THROUGHOUT A DAY

A person's exposure changes over time and space, as people move from location to location in everyday life, from home to school or work, as well as when coming closer to appliances or other sources of exposure. Typical exposures throughout the day are shown in Figure 4. An individual may experience momentary peaks while getting dressed (e.g. using a hairdryer), traveling in a vehicle under power lines, and at home during dinner.

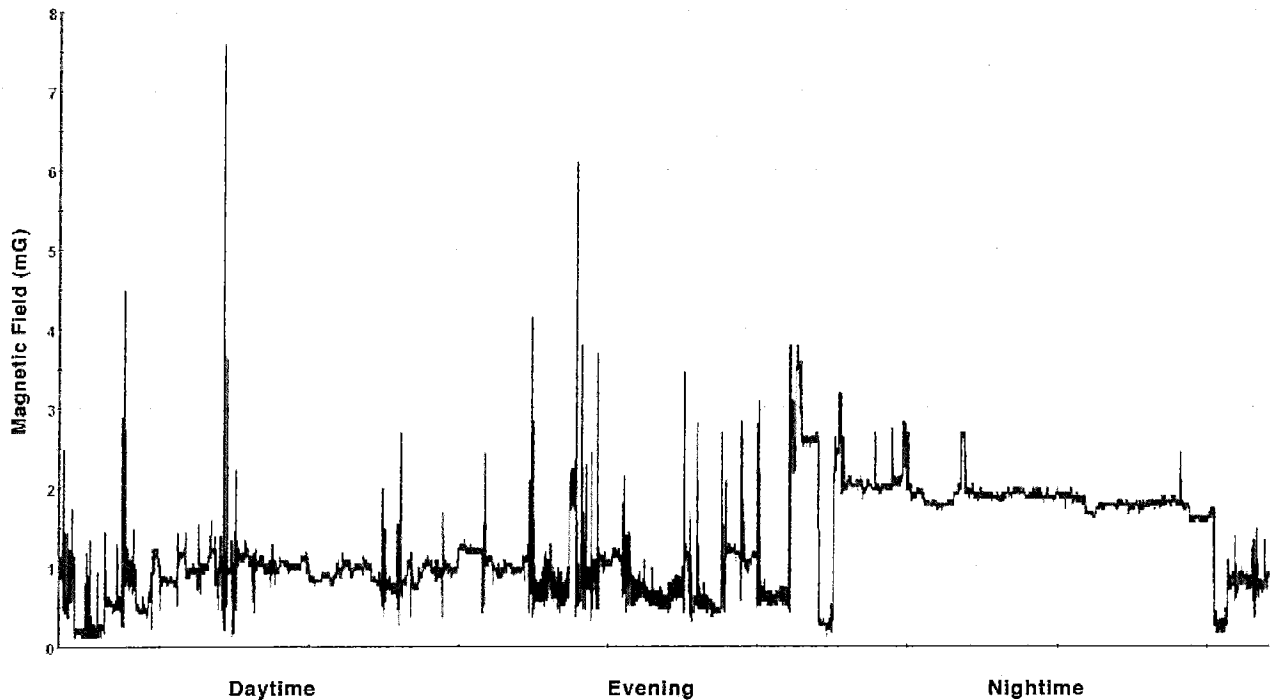


Figure 4 – Fields vary throughout the day. Averages can be quite low but there can be brief spikes as people move around or engage in different activities.

EXPOSURES AND TYPICAL LEVELS

Exposures to EMF in homes vary, depending on the location and type of home, and on how much time a person spends near to sources of EMF, including household appliances and wiring in the walls. In the United States, as shown in Figure 5, about 6% of homes have average exposure levels above 3 mG. One key study found that 3% of California schools are estimated to have average exposure above 3 mG.

PACEMAKERS AND OTHER MEDICAL DEVICES

Pacemakers and defibrillators are the most commonly implanted medical devices that may be affected by high EMF. Other devices that could possibly be affected by EMF exposure include cochlear implants and neurostimulators. High levels of exposure may cause interference with the operation of these devices through their sensing electrodes. The sensitivity of these devices depends on manufacturer, design, and how they are used by a patient. Metallic case shielding, internal circuits, filters and bipolar sensing have contributed to improved immunity to interference, and in practice, interference is very rare. Concerned individuals should consult their doctor.

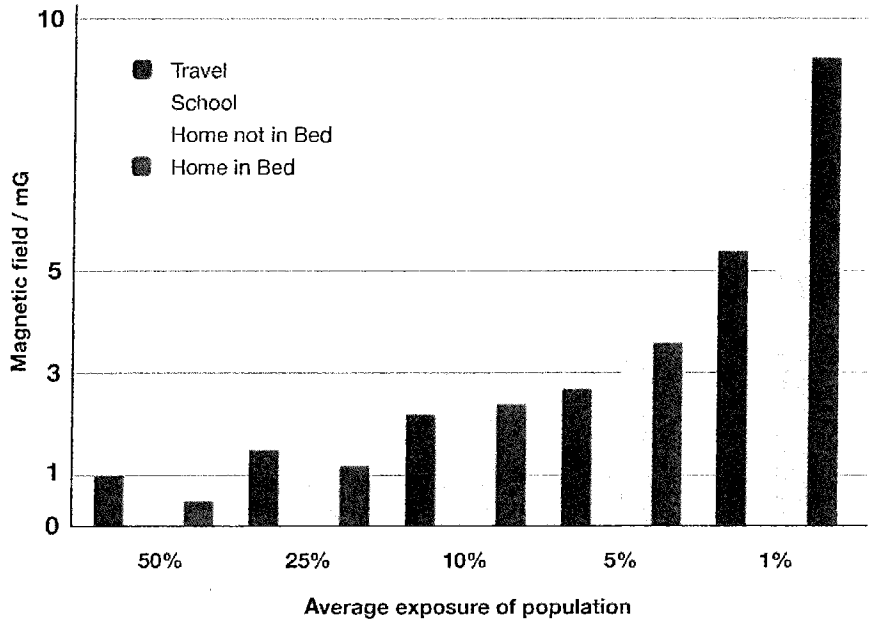


Figure 5 – Average fields found in United States homes, schools and transportation are typically below 3 mG. About 6% of homes show average exposures above 3 mG. Source: EMF Rapid, 1998.

Electric fields are produced by household appliances whenever they are plugged in, whether operating or not, while magnetic fields occur only when the appliances are turned on. Both types of fields fall close to background levels within a few feet of the appliance. As shown in Table 1, short-term exposures from some of the appliances that are used close to the body can be quite high. Some hairdryers inches from the head, for example, can produce fields as high as 700 mG. Fields from computer monitors and TVs are quite low overall.

Appliances	Magnetic Field (mG)	
	1.0 foot	User Distance
 AC Adapter	0 - 7.5	0 - 0.8
 Baby Monitor	0 - 2	0 - 15
 Compact Fluorescent Bulb	0 - 0.1	0 - 0.6
 Digital Clock	0 - 8	0 - 8
 Dimmer Switch	0 - 0.8	0 - 0.8
 Electric Stove	1 - 5	0 - 20
 Gaming Console	0 - 0.5	0 - 0.6
 Hairdryer	0 - 70	1 - 700
 Laptop Computer	0	0 - 0.1
 LCD TV	0 - 2.5	0 - 0.6
 Microwave	1 - 200	0 - 300
 Plasma TV	1.4 - 2.2	0 - 0.1
 Portable Heater	1 - 40	5 - 150

Table 1 - Exposure to 50 or 60 Hz magnetic fields from electric appliances can vary greatly depending upon how close it is to the body. Intensity falls off dramatically with distance. Source: Zaffanella, 1992, NIEHS, 2002, and EPRI, 2010.

Potential Health Effects

LEUKEMIAS

Leukemias include a variety of cancers that arise in the bone marrow where blood cells are formed. Leukemias represent less than 4% of all cancer cases in adults but are the most common form of cancer in children. For children age 4 and under the incidence is approximately 6 per 100,000 per year, and decreases to 2 per 100,000 per year past the age of 10. Genetic factors may play a role, but the only known causes are ionizing radiation, benzene, and other chemicals and drugs that suppress bone marrow function, and human T-cell leukemia virus.

[Source: NIEHS 2002, page 18]

There are a couple of guiding principles in health research. First, a single study is almost never definitive. Drawing scientific conclusions requires that the same or similar results be seen by different investigators. The second guiding principle is that different scientific approaches are useful in getting to the answer. When different approaches arrive at the same conclusion, scientists have greater confidence in the results. When judgments are rendered on whether a specific exposure causes a particular disease, expert scientific panels look at the full “weight of evidence” from all of these different studies before they make the call.

There are three basic approaches that can be thought of as forming a three-legged stool of evidence. The three legs are human studies, animal studies, and “mechanistic studies,” which involve finding the underlying chain of physical and biological causation. But why use three approaches instead of one? It is very difficult to *directly* measure the impact of a substance on a human population, so *indirect* measures – the three legs – are used. These indirect measures all have strengths and weaknesses, but together, like a jigsaw puzzle, they can provide a more complete picture. When all three legs support the “weight of evidence,” the results are considered solid. When one leg supports one conclusion but the other two legs don’t, the stool is wobbly. The uncertainty this creates must be factored into the conclusion reached by expert scientific panels.

Studies involving groups of human beings carry more weight in the health research community than studies involving animals or cells in isolation. The most commonly used approach with humans involves comparing a group of people with a given disease (e.g. children with leukemia) with a comparable group *without* the disease, then estimating the historical exposure of both groups to the agent under study. The researchers look for patterns and associations between exposure and disease. This field of science, called *epidemiology*, uses sophisticated statistical techniques to tease out one possible cause of the disease from all the other possibilities. If researchers find a robust association, they then try to establish the nature and level of the risk.

OTHER THEORIES

Although living near power lines increases exposure to the EMF, there are other factors to consider. According to one theory, interaction between electric fields and airborne pollutants close to high voltage power lines may increase the risk of some health effects. Another theory is that magnetic fields are associated with small voltages in house plumbing systems, which could cause small, imperceptible currents to flow through the bone marrow of children when bathing. These theories are being investigated and thus remain unconfirmed.

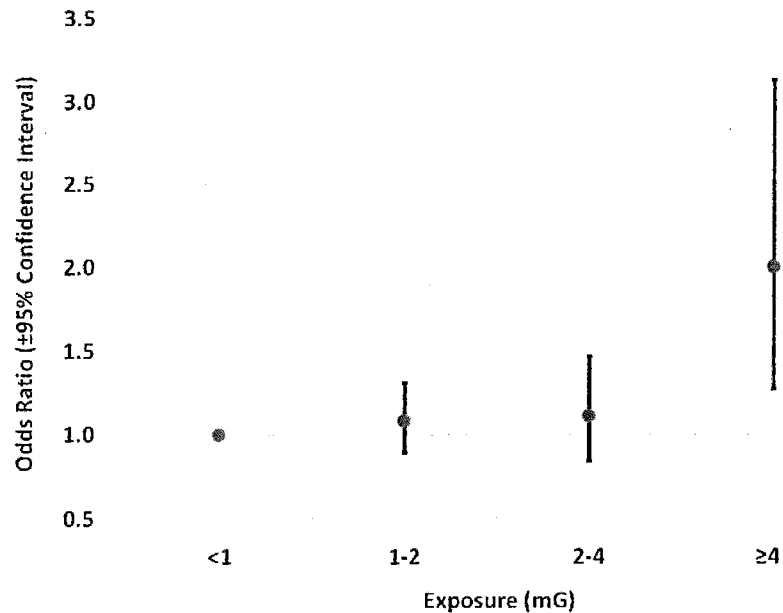


Figure 6 – Results of one pooled analysis of childhood leukemia studies shows the risk of leukemia is increased by a factor of 2 with average exposure levels greater than 4 mG, but found no indication of risk increase below that level. A pooled analysis combines data from different studies into one data set for statistical analyses. Source: Ahlbom, 2000

If an association is strong, it is more likely that the association does, in fact, denote the cause. For example, the association between smoking and lung cancer is very strong. Epidemiological studies showed more than ten times greater risk for smokers than for non-smokers. If the association is weak, it is possible that the agent is not the *direct cause* of the disease. It could mean that the factor occurs together with some other factor, not measured in the study, that actually causes the disease. In such cases, the association measured may be misleading.

Scores of epidemiological studies, all over the world, have looked at potential health effects in relation to EMF and turned up mixed results. The most consistent finding is an association between magnetic fields and childhood leukemia. Studies that combine or “pool” the data from different studies found the risk of childhood leukemia is increased by a factor of 1.5 to 2 with average exposure levels greater than 3-4 mG, but found no indication of increased risk below the 3-4 mG level. Figure 6 shows the results from one of these pooled analyses (Ahlbom, 2000) where the

risk of leukemia is increased by a factor of 2 with exposure levels greater than 4 mG.

The second scientific approach involves animal studies where laboratory animals, such as mice and rats, are exposed to the agent in question, and often at much higher levels than everyday human exposure. To date, dozens of highly controlled laboratory studies on EMF have been carried out, exposing rodents intermittently and continuously to doses as high as 10 G for as long as two years. These levels are much higher than average residential exposures. The results have been consistently negative, showing no contribution of EMF exposure to the development of cancer. Efforts to extrapolate these results to human beings can be questioned, and future research may use laboratory animals that are genetically engineered to be better models for leukemia research. But one fact stands out: according to the International Agency for Research on Cancer (IARC), *“All known human carcinogens that have been studied adequately for carcinogenicity in experimental animals have produced positive results in one or more animal species.”* So, all in all, the second leg of the evidence stool does not support the findings of the first leg.

The third leg of evidence involves more detailed examination of the basic science in an effort to find a plausible biological explanation of how EMF could initiate or promote cancer or some other disease or health outcome. Thus far, a biological mechanism for typical EMF exposures has not been identified despite years of laboratory research. This may be because the energy levels involved are too low to have an effect on DNA. Thus, the third leg of the stool remains shaky, unable to support a coherent picture of how EMF might cause health effects.

The inconsistency in these results has led to classification of magnetic fields as “possibly carcinogenic” by IARC in 2001, and reaffirmed by the World Health Organization (WHO) in 2007. The classification does *not* mean a causal relationship has been established. What it does mean is that an association has been observed that is considered to be scientifically credible, but that chance, methodological bias or some other cause cannot be excluded as an explanation. Table 2 gives examples from the almost 1000 agents evaluated by IARC to date. Extremely low frequency (ELF) magnetic fields are in the same category as lead, chloroform, gasoline engine exhaust, coffee, and pickled vegetables.

IARC Classification	Examples of Agents
Carcinogenic to humans (107) (Usually based on strong evidence of carcinogenicity in humans)	Asbestos Alcoholic beverages Benzene Radon gas Solar radiation Tobacco (smoke and smokeless) X- and gamma-radiation
Probably carcinogenic to humans (59) (Usually based on strong evidence of carcinogenicity in animals)	Biomass smoke indoors Diesel engine exhaust Polychlorinated biphenyls (PCBs) Shift work
Possibly carcinogenic to humans (267) (Usually based on evidence in humans which is considered credible but for which other explanations could not be ruled out)	Chloroform Coffee ELF magnetic fields Gasoline engine exhaust Lead Pickled vegetables Radiofrequency fields
Not classifiable (508)	Tea Hair coloring products (personal use of) Polyvinyl chloride Printing inks Saccharin Static electric and magnetic fields
Probably not carcinogenic to humans (1)	Caprolactam

Table 2 – Examples of IARC classification of different exposures evaluated for their carcinogenicity to humans. To date, 267 out of 942 have been classified as being “possibly carcinogenic to human beings,” including extremely low-frequency (ELF) magnetic fields. Source: <http://monographs.iarc.fr/EN/5/Classification/ClassificationsGroupOrder.pdf>. November 2011.

CANCER CLUSTERS

When several cancers occur close in time and space – that is, in a cluster, such as in a given school – people seek a reason, and at times EMF has been thought to be a possible culprit. Most often, upon further investigation, no actual cancer cluster is identified. The perception of a cluster arises partly because people do not always understand how common cancer is. In industrialized countries, one in 2-3 people will develop some type of cancer during their lifetimes. Cancer clusters can and do occur by chance, but distinguishing a chance occurrence from an occurrence with a common cause is difficult. As a result, cancer cluster investigations are rarely productive, and none have linked a cancer cluster to magnetic field exposure.

OTHER HEALTH OUTCOMES

In addition to childhood leukemia, many other chronic diseases have been investigated for possible connection to EMF exposure. Results to date have largely ruled out an association of EMF with breast cancer, and heart (cardiovascular) disease. Evidence of an association with childhood brain tumors and adult cancers remains weak. Occupational studies of men and women who have higher exposures at work than at home also do not support the link between magnetic fields and cancer, and research has found no links of EMF with cancer clusters (see sidebars). In addition to childhood leukemia, areas still under investigation include neurodegenerative diseases, such as Alzheimer's, and pregnancy outcomes, such as miscarriage. Each disease or outcome is being evaluated systematically using a rigorous scientific approach that takes into account the overall weight and quality of evidence.

International EMF Reviews

WHY SCIENTIFIC REVIEW IS IMPORTANT AND HOW IT IS DONE

Organizations that evaluate health research are required to review the entire body of scientific evidence. To do so, they form committees of respected, and well-published experts who evaluate all relevant studies. This requires committee members to look at different lines of scientific inquiry, evaluate the strengths and weaknesses of each, evaluate the scientific relevance of different studies, and the quality of the work. Studies that gather data on long-term human health effects are given more weight by these organizations. Animal studies and mechanistic studies are given less weight, but play an important role as check and balance in the scientific review process.

Not surprisingly, given all the complexities, answers are rarely definitive. No single study ever proves the existence or absence of an effect, which means that science works by the accumulation and evaluation of evidence. That is why the most useful conclusions on the state of EMF knowledge are provided by these scientific panels, usually chosen to provide a range of independent scientific viewpoints and expertise. They work together to develop a balanced consensus. Several such panels have comprehensively evaluated the EMF research literature and their conclusions are cited on the next page. It should be acknowledged that other, less authoritative, organizations have reached conclusions that differ.

**National Institute of Environmental Health Sciences
(NIEHS) 1999:**

"The NIEHS believes that the probability that ELF-EMF exposure is truly a health hazard is currently small. The weak epidemiological associations and lack of any laboratory support for these associations provide only marginal scientific support that exposure to this agent is causing any degree of harm."

"The National Toxicology Program [in the United States] routinely examines environmental exposures to determine the degree to which they constitute a human cancer risk and produces the "Report on Carcinogens" listing agents that are 'known human carcinogens' or 'reasonably anticipated to be human carcinogens.' It is our opinion that based on evidence to date, ELF-EMF exposure would not be listed in the "Report on Carcinogens" as an agent reasonably anticipated to be a human carcinogen."

World Health Organization (WHO) 2007:

"On balance, the evidence [of an association between EMF exposure and childhood leukemia] is not strong enough to be considered causal, but sufficiently strong to remain a concern."

"The scientific evidence supporting a linkage between ELF magnetic fields and any of these [other] diseases is much weaker than for childhood leukemia and in some cases (for example, for cardiovascular disease or breast cancer) the evidence is sufficient to give confidence that magnetic fields do not cause the disease."

European Union's Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) 2009:

"The few, new epidemiological and animal studies that have addressed ELF exposure and cancer do not change the previous assessment that ELF magnetic fields are a possible carcinogen and might contribute to an increase in childhood leukemia. At present, in vitro studies did not provide a mechanistic explanation of this epidemiological finding."

Health Canada 2010:

"There is no conclusive evidence of any harm caused by exposures [to EMF] at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors."

Standards and Policies

ESTABLISHING EXPOSURE STANDARDS AND GUIDELINES

There are two main organizations that set EMF exposure guidelines for the general public: the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the IEEE, a professional engineering organization formerly known as Institute of Electrical and Electronic Engineers. ICNIRP and IEEE consider all relevant scientific studies, provide an overall assessment of an adequate level of safe exposure, and then add an additional margin of safety in their standard setting process.

In terms of EMF, they found that there is not enough evidence to support guidelines for long-term exposure to low levels of EMF. The guidelines that do exist are based on limiting the *acute* effects of EMF on the body's nervous system. For magnetic fields, undesirable acute effects, such as nerve stimulation, are created only at field levels much higher than average household exposure. For magnetic fields, the current ICNIRP exposure guideline for the general public at power frequencies (50 or 60 Hz) is 2000 mG.

In addition, electric fields can produce direct effects on the body, such as small electric discharge or causing hairs to vibrate. Everyone is familiar with the phenomenon of touching a doorknob and feeling a small discharge or "microshock." Because it is concentrated on a small area of the skin it can be painful, but it is not usually regarded as harmful. Thresholds for these acute effects of electric fields are typically 5-10 kilovolts per meter (kV/m) for direct perception, and a few kV/m for microshocks. Such electric fields are rarely encountered outside of power line corridors.

NATIONAL POLICIES AND PRECAUTIONARY LIMITS

Health standard setting authorities in the United States and Canada have chosen not to establish national limits on EMF exposure. A few states and a few countries have developed precaution based exposure limits, but many adopt the limits published by ICNIRP or IEEE. Exposures to magnetic fields from power lines, as well as most other ordinary exposures, are well below the prescribed limits.

Some countries, states, and municipalities set limits lower than ICNIRP,

ELECTROMAGNETIC HYPERSENSITIVITY (EHS)

Some individuals experience a wide range of nonspecific symptoms such as headaches and sleep disturbance that can be quite debilitating, which they ascribe to EMF exposure. Further, some of these individuals believe that they can sense the presence of high fields, which trigger their symptoms. The consensus of the scientific community is that while some of these individuals clearly have health conditions, their symptoms are not related to EMF. This conclusion is based mostly on carefully conducted tests in the laboratory in which individuals self-identified as EHS cannot reliably detect the presence of fields, and their symptoms cannot be attributed to EMF. Several studies have indicated that the observed effects may be caused by an expectation that something harmful is going to happen.

introduce limits based on distance from electric utility facilities, or take precautionary measures that reduce exposure without providing specific guidelines or limits. Regulators in California, for example, initiated a policy for application of low- or no-cost mitigation measures and set cost and performance guidelines.

After its most recent comprehensive evaluation of scientific literature on EMF, the World Health Organization recommended that given the “weakness” of the scientific evidence to date, any expenditures related to reducing EMF exposures should involve “little or no cost.” Using a different kind of design during construction of certain types of transmission lines, for example, can reduce fields by about half at a distance of 100 ft, as shown in Figure 7. However, there is no scientific consensus on the application and value of precautionary measures to reduce EMF exposure.

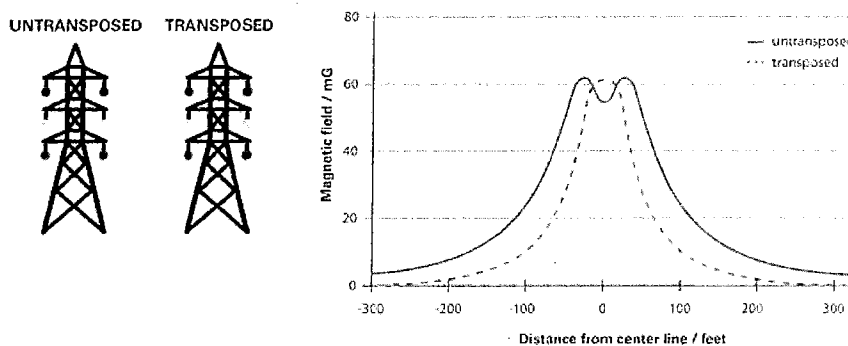


Figure 7—Exposures can be reduced by advanced transmission line design. In this case, exposures are reduced as much as half at a distance of 100 feet. Source: National Grid, 2010.

WHAT CAN I DO TO REDUCE MY EXPOSURE?

Concerned individuals can reduce their exposure by learning about sources of EMF in their home and environment and by increasing distance to such sources, or by reducing the time of exposure. Such measures might include moving a bedside clock radio across the room, not using a hair dryer, or moving a child’s bed away from EMF exposure sources. The reader can refer to the section of this brochure on Exposures and Typical Levels to learn more about typical exposure levels in many environments.

ONGOING RESEARCH

Much of the research over the years in the United States has been funded by EPRI and various United States government programs. The largest evaluation was undertaken in the early 1990's by the National Institute of Environmental Health (NIEHS) and the Department of Energy (DOE), with input from a wide range of public and private agencies, including EPRI. This evaluation, known as the Electric and Magnetic Fields Research and Public Information Dissemination (EMF RAPID) Program, was a six year project with the goal of providing scientific evidence on whether exposure to power-frequency fields involves a potential risk to human health. In 1999, at the conclusion of EMF RAPID, the NIEHS reported to Congress that the overall scientific evidence for human health risk from EMF exposure is weak.

While much of the government funding has ended since the conclusion of the EMF RAPID Program, EPRI's EMF program continues to fund high quality independent research that is conducted at leading universities and research institutions.

The current EPRI program aims to reduce uncertainty about the observed epidemiologic association between residential magnetic fields and childhood leukemia. Other issues addressed by the EPRI program include pregnancy outcomes and neurodegenerative diseases, such as dementia, Alzheimer's, and ALS (Lou Gehrig disease). EPRI will continue to address this important issue through rigorous research and publish results in the peer-reviewed scientific literature.

FURTHER READING

IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Non-ionizing radiation, Part 1: Static and extremely low-frequency (ELF) electric and magnetic fields. Lyon, IARC, 2002 (Monographs on the Evaluation of Carcinogenic Risks to Humans, 80).

ICNIRP – “Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz - 100 kHz).” *Health Phys* 99(6):818-836; 2010

IEEE Standards Coordinating Committee 28. IEEE standard for safety levels with respect to human exposure to electromagnetic fields, 0-3 kHz. New York, NY, IEEE - The Institute of Electrical and Electronics Engineers, 2002 (IEEE Std C95.6-2002).

National Institute of Environmental Health Sciences (NIEHS) (1999). NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields. NIH Publication No. 99-4493. Research Triangle Park, NC, USA: National Institute of Environmental Health Sciences, National Institutes of Health.

National Institute of Environmental Health Sciences (NIEHS)/DOE EMF Rapid Program (2002). “Electric and Magnetic Fields Associated with the Use of Electric Power: Questions and Answers.” Research Triangle Park, NC, USA.

WHO - World Health Organization. Extremely low frequency fields. *Environmental Health Criteria*, Vol. 238. Geneva, World Health Organization, 2007.

USEFUL WEB LINKS

IEEE Committee on Man and Radiation web page

<http://ewh.ieee.org/soc/embs/comar/>

International Commission on Non-Ionizing Radiation Protection

<http://www.icnirp.de/documents/FactSheetLF.pdf>

**National Cancer Institute Factsheet Magnetic Field Exposure and Cancer:
Questions and Answers**

<http://www.cancer.gov/cancertopics/factsheet/Risk/magnetic-fields>

**NIEHS/DOE EMF RAPID Program June 2002, Electric and Magnetic Fields
Associated with the Use of Electric Power, Questions and Answers**

<http://www.niehs.nih.gov/health/topics/agents/emf/index.cfm>

World Health Organization web page on Electromagnetic Fields

<http://www.who.int/peh-emf/en/>

<http://www.who.int/mediacentre/factsheets/fs322/en/index.html>

World Health Organization Database of Worldwide EMF Standards

<http://www.who.int/docstore/peh-emf/EMFStandards/who-0102/Worldmap5.htmr>

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