

Brussels, 24 January 2002

Dear Madam,
Dear Sir,

The **Union of the Electricity Industry – EURELECTRIC** has the pleasure of forwarding you its **Statement on Power Frequency Electric and Magnetic Fields (EMF)**.

EURELECTRIC, whilst recognising that current international scientific research has not established that power frequency EMF, at levels encountered in working and residential environments, pose a public health risk, remains committed to active and responsible conduct and states, inter alia, that its members:

- consider that there is no new sound scientific evidence which would suggest the need to revise the existing exposure guidelines established by the Council of the European Union,
- will continue to follow closely and support scientific and technological research,
- will continue to consult with the public on any EMF issues relating to new projects.

We hope that you will take our views into account.

Thanking you in advance for your attention, we remain at your disposal for further information.

Yours sincerely,



John SCOWCROFT
Head of Unit
Environment and
Sustainable Development



Paul BULTEEL
Secretary General

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The **Union of the Electricity Industry - EURELECTRIC**, formed as a result of a merger in December 1999 of the twin electricity industry associations, UNIPEDE and EURELECTRIC, is the sector association representing the common interests of the European electricity industry and its worldwide affiliates and associates. Its mission is to contribute to the development and competitiveness of the electricity industry and to promote the role of electricity in the advancement of society.

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The electricity industry, as part of its commitment to safeguard the health and safety of both its employees and the general public, has participated in the debate concerning the possible impact of electric and magnetic fields (EMF) on public health. It has provided information to all interested parties, furnished technical support, initiated its own studies and supported independent laboratory and epidemiological studies.

Extensive, world-wide, biomedical research has been undertaken over the last 30 years and the findings have regularly been reviewed by independent expert committees convened by competent and authoritative national and international bodies. In general, these reviews have reassuringly concluded that, should exposure to power frequency EMF pose any health risk at all, the overall public health impact would be very small.

The Council of the European Union, in its July 1999 Recommendation on the limitation of exposure of the general public to EMF, proposed guidelines to protect the general public against established adverse health effects that may result as a consequence of exposure to EMF. The induction of cancer, from long-term EMF exposures, was not considered to be established. However, given the large safety factors which exist between the threshold values for acute effects and the basic restrictions, the Recommendation implicitly covers such exposures. The European Commission's Scientific Committee on "Toxicity, Ecotoxicity and the Environment" in its Opinion dated 30 October 2001 stated that it had insufficient scientific evidence to propose alternatives to these guidelines.

Independent expert committees (e.g. NRPB, ICNIRP, WHO/IARC) have also recently concluded that:

- No significant association with childhood and adult cancers in general and reproductive disorders have been found,
- A statistical association between acute childhood leukaemia and unusual high level of residential magnetic fields exposure remains unexplained. These results could be affected by bias and laboratory studies have failed to show a plausible biological mechanism.

EURELECTRIC, therefore, whilst recognising that current international scientific research has not established that power frequency EMF, at levels encountered in working and residential environments, pose a public health risk, remains committed to active and responsible conduct and states that its members:

- Consider that there is no new sound scientific evidence which would suggest the need to revise the existing exposure guidelines established by the Council of the European Union,
- Will continue to follow closely and support scientific and technological research,
- Will continue to share relevant EMF information with employees, customers and governmental and local authorities,
- Will continue to consult with the public on any EMF issues relating to new projects,
- Consider that all EMF communications should be sensitive to society's demands and constraints and attentive to and respectful of the feelings, motives and values of the individuals concerned.

APPENDIX

On the basis of the reviews performed by authoritative independent expert committees including those convened by the World Health Organisation (WHO), the International Commission on Non-Ionising Radiation Protection (ICNIRP), the National Radiological Protection Board – UK (NRPB), and the European Union Scientific Steering Committee on “Toxicity, Ecotoxicity and the Environment” the results of the biomedical research can be summarised as follows:

- no substantial link has been established by epidemiological studies between adult cancers or reproductive disorders and exposure to magnetic or electric fields, in working or residential environments,
- some weak and persistent statistical associations for acute childhood leukaemia and high levels of residential magnetic field exposure remain unexplained - these results may be affected by bias (selection bias and/or unknown confounding factors),
- no consistent evidence indicates that childhood exposures to extremely low frequency (which includes power frequency) electric or magnetic fields should be associated with brain tumours or any other kinds of solid tumours,
- the laboratory studies on cells, tissues, animals and human volunteers do not support the weak statistical association mentioned above, nor do they support the contention that these fields influence fertility, reproduction, melatonin secretion or cancer in general. Moreover, they have failed to show a plausible biological mechanism by which long term exposure to the ambient electric and magnetic fields normally encountered in working or residential environments might adversely affect biological systems.

Specifically as far as the risk of cancer from EMF exposure is concerned, an expert scientific working group of the Monographs Programme of the International Agency for Research on Cancer (IARC) published its review of the health effects of static and extremely low frequency (ELF – which includes power frequency) electric and magnetic fields in June 2001. In this review:

- ELF magnetic fields have been classified as “possibly carcinogenic to humans” for there is limited evidence in humans in relation to childhood leukaemia. This category lists over 200 agents including coffee and gasoline,
- the classification is exclusively based on statistical associations between childhood leukaemia and unusually high level residential magnetic fields, i.e. the results of epidemiological studies,
- magnetic fields and electric fields are not classifiable as to their carcinogenicity in humans regarding other pathological conditions such as childhood brain tumours and all types of cancer in adults in residential and occupational exposure.

To place the above classification of ELF magnetic fields in its proper perspective it is important to note that IARC has defined five groups to classify scientific evidence on potential carcinogens:

- Group 1 - "carcinogenic to humans": in this category nearly 100 agents (chemicals, groups of chemicals, complex mixtures, occupational exposures, cultural habits, biological or physical agents) are classified as carcinogens on the basis of sufficient evidence from epidemiological and animal studies; for instance, some of the most common agents included in this group are: asbestos, benzene, radon and its decay products, but also solar radiation and oral contraceptives.

- Group 2A - "probably carcinogenic to humans": this group comprises over 50 agents, including formaldehyde, ultraviolet radiation and diesel engine exhaust.
- Group 2B - "possibly carcinogenic to humans": over 200 agents in this category are classified as possibly carcinogenic on the basis of epidemiological and laboratory results considered, respectively, limited and less than sufficient; this category includes, for instance coffee, gasoline, pickled vegetables, ceramic fibres and hormones such as progesterone.
- Group 3 - "not classifiable": this category comprises nearly 500 agents which cannot be classified as to carcinogenicity for humans due to insufficient scientific evidence; it includes caffeine, tea, saccharine and fluorescent light.
- Group 4 - "probably not carcinogenic to humans". This category includes only one agent: caprolactam, used in the manufacture of nylon.

It is to be noted that the above mentioned classification is based on the strength of scientific evidence, not on the strength of carcinogenicity from the agent; in other words it is not quantitative but qualitative and does not establish any level of hazard or threshold.

The important significance between the terms "probably carcinogenic" (Group 2A) and "possibly carcinogenic" (Group 2B) must be appreciated. In everyday life the word "probably" is used when it is considered that some event is very likely to occur. "Possible" is often used to describe an event without quantifying the probability that it will occur. As used above in the evaluations of carcinogenicity the terms only describe the strength and the quality of the scientific evidence.

The classification "possible carcinogen" in effect means that after 30 years of thorough research the strength of the epidemiological evidence is still limited and the experimental science evidence is insufficient to characterise magnetic fields as carcinogenic. It does not imply that magnetic fields are likely to be carcinogenic but it indicates that the possibility still cannot be excluded, notwithstanding the weakness of the evidence.
