

**Biological Effects of Low Frequency Electric and Magnetic Fields:  
A Critical Review of the Reports by the US National Research Council and the US  
National Institute of Environmental Health Sciences as they Relate to the Broader Realm  
of EMF Bioeffects.**

Magda Havas

Environmental & Resource Studies, Trent University, Peterborough, ON, Canada, K9J 7B8  
mhavas@trentu.ca

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Our dependence on electricity and our growing dependence on wireless telecommunication technology is causing this planet to be inundated with electromagnetic energy ranging in frequency from less than 60 Hz to greater than 2 GHz. Concerns expressed by the public who live near powerlines, cell phone antennas, or television and radio broadcast towers have prompted two major reviews; one by the US National Research Council (NRC) and the other by the US National Institute of Environmental Health Sciences (NIEHS). Both of these documents deal primarily with extremely low frequency (ELF) or power frequency (50 and 60 Hz) fields. This paper evaluates the NRC and NIEHS documents including the content and the process leading to the final reports. It characterizes human exposure to electric and magnetic fields and identifies key biological markers and potential mechanisms that have been linked to electromagnetic exposure. It presents some of the scientific controversy surrounding the question "Are low frequency electric and magnetic fields harmful?" It also examines the conclusions of both documents in terms of the slightly broader realm associated with occupational exposure, non-power frequency fields, EMF hypersensitivity, and response of species other than humans.