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FOCUS

ENVIRONMENT

Regulation of electromagnetic fields may prove expensive

One of the most controversial environmental issues related to residential and multifamily land-use is electromagnetic fields, or EMFs, generated by powerlines.

Until the late 1970s, powerline issues in residential areas focused on land-use conflicts, visual impacts, noise levels and structural safety. In 1979 this focus dramatically changed with the findings of a survey in Denver, which correlated cancer deaths in children with magnetic fields from nearby powerlines and wiring configurations. While this study has been strongly critiqued as less than scientific, it launched the perception of EMF as the prime powerline issue in residential areas, with possible negative impacts on property values.

During the past two decades, there have been hundreds of medical investigations on the health effects of EMFs. While biological changes can be induced by EMF, most researchers are not convinced that powerline-related EMFs have caused adverse health effects. A major problem is that we live in an electricity-laden world surrounded with equipment that generates EMFs. So it is difficult to isolate the singular impact of powerline generated EMFs.

As long as the health effects of powerlines remain ambiguous, people will undoubtedly view powerlines as a possible threat. This perception has resulted in moving certain gov-

ernmental entities to address the issue with regulations.

Traditionally, the power utility has identified what constitutes an adequate width for a powerline easement in a residential setting. Now land-use regulators are considering the

(usually restricted to less than 1 to 3 kV per meter) at the edge of the powerline right-of-way. New York and Florida have set limits on magnetic fields; for example, the EMF will be less than 150 mG at the edge of the right-of-way for a 230-kV or smaller powerline. In other instances, the regulations focus on setbacks.

Recently, local governments have added EMF-related regulations. Whatcom County, Wash., passed an ordinance that restricts new powerlines to less than 115 kV. The city of Brentwood, Tenn., has a ordinance requiring that powerlines carrying more than 120 kV will not have more than 4 mG at the edge of the right-of-way and that existing powerlines (as of 1991) will be in compliance within five years. The city of Irvine, Calif., as part of PUD approval, required a limit of 4 mG at the edge of a powerline right-of-way.

In the Denver metro area, based on a limited survey, the powerline issue is handled on a PUD-by-PUD basis. There are some instances where no setback is required. In Douglas County, a residential structure setback of 100 feet is required from an adjacent powerline right-of-way. Other entities require a 5-foot setback.

The outdoor EMF issue, like other environmental health issues, is complex and not very well understood in terms of cause-and-effect mechanisms. A rush to regulate the EMF issue may be detrimental and unduly costly in the long term.▲

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EMF issue associated with powerlines and attempting to address specific public concerns.

Two features of magnetic fields make it very difficult to define safe exposure levels. First, there is evidence that a higher dose of EMF may not produce as much biological effect as a lower dose. Second, it is not clear what property of exposure to EMF should be the measurement addressed.

Currently, there are no federal regulations set for EMF exposure near powerlines of substations. The Swedish National Energy Administration recommends that children at schools, playgrounds and day-care centers not be subjected to a magnetic field greater than 3 milligauss (mG).

Several states have passed regulations. Florida, Montana, Minnesota, New Jersey, North Dakota and Oregon have set limits for electric field intensity