

January 1995

## Perceived Risks of EMFs and Landowner Compensation

Linda J. Orel

Follow this and additional works at: <https://scholars.unh.edu/risk>



Part of the [Law Commons](#), [Life Sciences Commons](#), [Physical Sciences and Mathematics Commons](#), and the [Social and Behavioral Sciences Commons](#)

---

### Repository Citation

Linda J. Orel, *Perceived Risks of EMFs and Landowner Compensation*, 6 RISK 79 (1995).

This Article is brought to you for free and open access by the University of New Hampshire – Franklin Pierce School of Law at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in RISK: Health, Safety & Environment (1990-2002) by an authorized editor of University of New Hampshire Scholars' Repository. For more information, please contact [ellen.phillips@law.unh.edu](mailto:ellen.phillips@law.unh.edu).

# Perceived Risks of EMFs and Landowner Compensation

Linda J. Orel\*

## Introduction

After settling into your dream home, you read in the newspaper that overhead, high voltage power lines will soon run through your back yard. You may recall stories about children living near power lines and be afraid of possible dangers from electromagnetic fields (EMFs). Also, regardless of personal concern, you may worry that any remaining land will lose value because *others* fear EMFs.

Scenarios like this are increasingly common throughout the country.<sup>1</sup> Media speculation about studies showing a positive correlation between EMF exposure and cancer has caused public fear<sup>2</sup> among residents of more than one million homes living near power lines. Whether EMF exposure poses serious health risks remains scientifically unsettled,<sup>3</sup> but property values continue to decline and landowners continue to seek compensation from electric utilities.

\* Ms. Orel received a B.S. (Political Science and Speech Communication) from Northeastern University. She is a candidate for the J.D. at Franklin Pierce Law Center pursuing a special interest in environmental law.

<sup>1</sup> This article does not address the rights of a party purchasing property near existing power lines.

<sup>2</sup> Todd D. Brown, *The Power Line Plaintiff & the Inverse Condemnation Alternative*, 19 B.C. Env'tl. Aff. L. Rev. 655, 655 (1992). See, e.g., Paul Brodeur, *Calamity on Meadow Street*, New Yorker, July 9, 1990, at 38.

People have also been concerned about aesthetics, radio and television interference and potential shocks. See, U.S. Congress OTA, Indira Nair, M. Granger Morgan & Keith Florig, *Biological Effects of Power Frequency Electric and Magnetic Fields* (1989).

<sup>3</sup> See, Eileen N. Abt, *Coping with the Risk of Cancer in Children Living Near Power Lines*, 5 Risk 65 [1994]. Tort suits have alleged that EMFs caused childhood leukemia, brain cancer, lymphoma and breast cancer, but plaintiffs have difficulty proving causation. See, e.g., Kristopher D. Brown, *Electromagnetic Field Injury Claims: Judicial Reaction to an Emerging Public Health Issue*, 72 B.U.L. Rev. 325 (1992); *Suit Seeks to Hold Two Utilities Liable for Injuries to Family Living Near Substation*, 6 Toxics Law Rep. 927 (1992).

## Electromagnetic Fields

EMFs are invisible forces that exist wherever there is electric power<sup>4</sup> and are emitted from almost all electrical devices. They are, in varying magnitudes, present in virtually every home, office and school in the industrialized world. Although field strengths drop dramatically with distance from their source,<sup>5</sup> EMFs from high-voltage power lines may be significant at distances over 300 feet.<sup>6</sup> The scope of the potential problem is underscored by the fact that 642,000 miles of power lines dangle across the U.S.<sup>7</sup>

Several epidemiologists have addressed whether EMF exposure<sup>8</sup> causes a larger than expected number of people to get cancer.<sup>9</sup> In 1992, Swedish epidemiologists made international headlines with the first definitive showing that cancer rates rise with increasing EMF exposure.<sup>10</sup> Yet, a 1994 Canadian-French study analyzing thousands of electric utility workers did not replicate the Swedish results.<sup>11</sup>

Beyond doubts arising from such conflicts, scientists also point out that statistical correlations do not, alone, establish causation.<sup>12</sup> They

<sup>4</sup> See, Edward Gerjuoy, *Electromagnetic Fields: Physics, Biology and Law*, 35 *Jurimetrics J.* 55 (1994).

<sup>5</sup> Robert Pool, *Is There an EMF-Cancer Connection?* 249 *Science* 1096, 1097 (1990). See also, Special Epidemiological Studies Program, California Dept. of Health Services, *Electric and Magnetic Fields: Measurements and Possible Effects on Human Health 1* (1992); Consumer Reports, *Electromagnetic Fields*, May, 1994, p. 354. The intensity of magnetic fields depends on the strength of the current and is commonly measured in units called milliGauss (mG).

<sup>6</sup> U.S. Environmental Protection Agency, *Questions and Answers About Magnetic Fields 3* (1992).

<sup>7</sup> Amy Dana & Tom Turner, *Currents of Controversy*, 15 *Amicus J.* 29 (1993) (Concerning citizen groups' legal challenges to electric utilities' construction projects).

<sup>8</sup> See e.g., *Health Effects of Low Frequency Electric and Magnetic Fields*, 27 *Env'tl Sci. & Tech.* 51 (1993). Nancy Wertheimer & Ed Leeper, *Electrical Wiring Configurations and Childhood Cancer*, 109 *Am. J. Epidemiol.* 273 (1979).

<sup>9</sup> N.H. Div. of Public Health Services, Bureau of Disease Control, *Cancer Clusters, What Are They and What Can be Done?*

<sup>10</sup> See, e.g., Richard Stone, *Polarized Debate: EMFs and Cancer*, 258 *Science* 1724 (1992).

<sup>11</sup> See, e.g., *Canada-France EMF Study Inconclusive*, 264 *Science* 205 (1994).

<sup>12</sup> The Environmental Protection Agency reported in 1991 that EMF exposure may be a factor in particular children's diseases. However, it called for further research because of insufficient and contradictory data. In 1992, the White House Office of Science and Technology Policy reached a similar conclusion; see Stone, *supra* note 10, at 1724.

claim that laboratory or clinical research are more convincing.<sup>13</sup> Such researchers,<sup>14</sup> have demonstrated that EMFs affect biological systems but are unsure whether they are dangerous.<sup>15</sup> While the scientific debate remains unresolved, possible health effects of EMF exposure have far-reaching and growing implications.<sup>16</sup>

### Eminent Domain

The 5th Amendment to the U.S. Constitution and most state constitutions require “just compensation” whenever private property is taken for public use.<sup>17</sup> Actions initiated to take title to private land for public purposes involve the law of eminent domain.

According to the U.S. Supreme Court, application of the 5th Amendment is not limited to direct acquisition of private property. Owners may also recover when government action substantially interferes with rights and interests.<sup>18</sup> Also, the Court has held that statutes that regulate or affect land use may constitute takings of property.<sup>19</sup>

There is no set formula for what constitutes a taking. Courts look at the character of the governmental action including economic impact — particularly the extent to which the action substantially interferes with property owners’ “reasonable investment-backed expectations.”<sup>20</sup>

<sup>13</sup> Consumer Reports, *supra* note 5, at 356.

<sup>14</sup> Brown, *supra* note 2, at 661.

<sup>15</sup> See Questions and Answers, *supra* note 6.

<sup>16</sup> See, e.g., Roy W. Krieger & Michael E. Withey, *EMF and the Public Health*, 9 *Nat. Resources & Env’t* 3(1994).

<sup>17</sup> Both state and federal constitutions give governmental entities power to act. Federal courts are courts of limited jurisdiction and may only hear cases that arise under the U.S. Constitution and federal laws, when the United States government is a party (e.g. a case against the military or a federal agency, etc.), or when there is a case between a state and a citizen of another state or between two different states. More often, challenges arise under the authority of a particular state’s constitution or statutes and are brought under the general jurisdiction of a state court. Sometimes a plaintiff has a choice of forum between a state or federal court.

<sup>18</sup> Penn Cent. Transp. Co. v. New York City, 438 U.S. 104, 104 (1978).

<sup>19</sup> Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 395 (1922); See, e.g., Lucas v. South Carolina Coastal Council, 112 S.Ct. 2886 (1992); Thornburg v. Port of Portland, 376 P.2d 100 (1963); United States v. Causby, 328 U.S. 256 (1945); Richards v. Washington Terminal Co., 233 U.S. 546 (1913).

<sup>20</sup> Penn Cent. Transp., 438 U.S. at 120.

Governments take property for public purposes through condemnation proceedings that award landowners' its fair market value and any loss in value to their remaining property.<sup>21</sup> For example, if a public utility severs a strip of land to build high-voltage power lines, the value of the remainder is negatively affected because few buyers would want to be exposed to EMFs.<sup>22</sup> Thus, an owner can be awarded severance damages in addition to the value of land actually taken.

### Three Approaches

In response to a growing number of proceedings against electric utilities, the courts have adopted three basic approaches in EMF cases.<sup>23</sup> Those, here described as taking a "conservative" approach, require a plaintiff to show not only that fear of EMFs affects property values, but also that such fear has a solid foundation in scientific fact. Others, taking a liberal approach, require a mere showing that the public's fear is affecting land values whether reasonably based, or not. Between these is an intermediate approach under which plaintiffs may recover if they can show that fear of power lines is reasonably based even though a link between EMFs and personal injury has not yet been accepted by many scientists.

#### *Conservative View*

The most conservative courts reason that fear of power line exposure is grounded in superstition and that purported danger from power lines is too remote and speculative to be measured by a jury. This approach is illustrated by *Alabama Power v. Keystone Lime*,<sup>24</sup> a 1914 condemnation proceeding regarding land selected for transmission lines. There the court found no right to compensation because of future

<sup>21</sup> If property is essentially taken for public purposes without condemnation, a land owner may also bring an action for inverse condemnation.

<sup>22</sup> See, e.g., Ann Bostrum et al., *Preferences for Exposure Control of Power-Frequency Field among Lay Opinion Leaders*, 5 Risk 295, 296 (1994):

Although most subjects were moderate in their beliefs..., [o]verall, subjects appeared to favor field limitation measures that could entail significant investments, especially for new sources.

<sup>23</sup> Also, Congress and legislative bodies at the local and state levels have proposed or enacted laws to regulate the future location and configuration of new power lines.

<sup>24</sup> *Alabama Power Co. v. Keystone Lime Co.*, 67 So. 833, 835-37 (Ala. 1914).

buyers' potential fear of exposure to power lines.<sup>25</sup> However, cases exemplifying this view were decided before concerns about EMFs became as widespread or legitimate. Recent epidemiological evidence and laboratory research may now cause those courts to respond differently. Indeed, Florida did so in 1987,<sup>26</sup> but Alabama and Illinois have yet to follow.<sup>27</sup>

### *Intermediate View*

Other courts may award damages if plaintiffs can prove that fear of EMFs is reasonable and affects property values. Hence, plaintiffs may have to show that knowledge of potential dangers of EMFs is widespread and reasonable based on highly publicized epidemiological evidence. Also, to prevail they must introduce market evidence showing a decline in property values. If both elements are proven, they may be awarded severance damages.<sup>28</sup>

*Willsey v. Kansas City Power & Light*<sup>29</sup> is illustrative. The court affirmed a ruling that landowners may be compensated if the public's reasonable fears are the basis for damages.<sup>30</sup> It set forth a three-part test, originally employed in Texas,<sup>31</sup> to determine whether fear is reasonable. The court stated that:<sup>32</sup>

<sup>25</sup> *Id.*

<sup>26</sup> *Florida Power & Light Co. v. Jennings*, 518 So.2d 895 (Fla. 1987).

<sup>27</sup> *See, e.g., Cent. Illinois Light Co. v. Nierstheimer*, 185 N.E.2d 841 (Ill. 1962); *Pappas v. Alabama Power Co.*, 119 So.2d 899 (Ala. 1960); *S. Elec. Generating Co. v. Howard*, 156 So.2d 359 (Ala. 1963).

<sup>28</sup> *See, e.g., M. Robert Goldstein & Michael J. Goldstein, Condemnation and Tax Certiorari*, N.Y.L.J., January 28, 1993, at 3, (col. 1). *See also, e.g., Dixie Textile Waste Co. v. Oglethorpe Power Corp.*, 447 S.E.2d 328 (Ga. Ct. App. 1994) (court excluded expert testimony regarding fear of power lines because landowner failed to show how the impact of general, public fear on value of remaining property could be calculated with reasonable certainty but allowed testimony showing variations in sales prices in property located adjacent to power lines and awarded damages) or *Selective Resources v. Superior Court*, 700 P.2d 849 (Ariz.Ct.App. 1984) (allowing recovery if the plaintiff can establish that a "mythical" buyer would have knowledge of all factors that may affect the value of property remaining after condemnation).

<sup>29</sup> *Willsey v. Kansas City Power & Light*, 631 P.2d 268 (1981).

<sup>30</sup> *Id.* at 270.

<sup>31</sup> *Heddin v. Delhi Pipeline Co.* 522 S.W.2d 886 (Tex.1975).

<sup>32</sup> *Id.* at 888. *See, e.g., S. Indiana Gas & Elec. Co. v. Gerhardt*, 172 N.E.2d 204 (1961); *Colvard v. Nantahala Power & Light Co.*, 167 S.E. 472 (1933); *Oklahoma Gas & Elec. Co. v. Kelly*, 58 P.2d 328 (1936); *Appalachian Power Co. v. Johnson*, 119 S.E. 253 (1923).

fear in the minds of the buying public on the date of taking is relevant to the proof of damages when the following elements appear: (1) that there is a basis in reason or experience for the fear; (2) that such fear enters into the calculations of persons who deal in the buying and selling of similar property; and (3) depreciation of market value because of the existence of such fear....

Before being overturned in 1993 by the New York Court of Appeals, *Zappavigna v. State of New York*<sup>33</sup> was the leading case that adopted the intermediate view. In *Zappavigna*, 50 separate landowners brought action against the State of New York which was acting pursuant to its power of eminent domain on behalf of New York State Power Authority. The State obtained a 250 foot wide strip of land running 3,100 feet along the property of one plaintiff, *Zappavigna*, to construct a transmission line.<sup>34</sup> *Zappavigna* was awarded \$53,352 for damages and \$41,215 for severance damages arising from the partial taking of his property.<sup>35</sup> During the trial, *Zappavigna* asserted that the remaining property value diminished as a result of cancerphobia.<sup>36</sup> The Court denied recovery and stated that the claimant would need to prove it more likely than not that a potential buyer had reasonable grounds for fear of EMFs and that the fear actually affected the market value of the property. The Appellate Court affirmed and held that compensation "must be based upon the opinion of experienced, knowledgeable expert or actual market data showing reduction in value of the remainder."<sup>37</sup>

### *Liberal View*

A leading case describing the third view is *San Diego Gas & Electric v. Daley*.<sup>38</sup> There, a utility sought to condemn property to

<sup>33</sup> *Zappavigna v. New York*, 588 N.Y.S.2d 585 (N.Y.App.Div. 1992), *overruled by* *Criscuola v. New York*, 621 N.E.2d 1195 (1993); *See also*, *Miller v. New York* 458 N.Y.S.2d 973 (1982).

<sup>34</sup> Roy A. Torres, *Causes of Action for EMF Harm*, 5 *Fordham Envtl. L.J.* 403 (1994) (citing *Zappavigna v. State & Power Auth. of New York*, slip. op. at 12, 30-31 (N.Y.Ct.Cl. Sept. 29, 1989)).

<sup>35</sup> *Id.*

<sup>36</sup> *Zappavigna v. New York*, 588 N.Y.S.2d 585 (N.Y.App.Div. 1992) at 586.

<sup>37</sup> *Id.* at 588.

<sup>38</sup> *San Diego Gas*, 253 Cal.Rptr. 144.

obtain a 200 foot wide easement to construct overhead transmission lines.<sup>39</sup> Taking the position that the issue was not whether EMFs caused health hazards, but whether the fear of danger affected the property's market value, the trial court admitted testimony of a civil engineer<sup>40</sup> and a real estate appraiser concerning EMFs and depressed market value. The jury awarded \$190,000 for the condemned property and \$1,035,000 for the diminished value to the remainder.<sup>41</sup> San Diego Gas & Electric appealed, but the verdict was affirmed, with the appeals court stating that severance damages "can be based on any indirect factors that cause a decline in the market value."<sup>42</sup> The plaintiff "should be compensated for any characteristic of the project which causes an adverse impact on the fair market value of the remainder."<sup>43</sup> The size of the award for loss in value to the remainder shows the potential for substantial adverse impact.

In 1993, the New York Court of Appeals adopted this view in *Criscuola v. State of New York*,<sup>44</sup> an appeal by one of the plaintiffs in the earlier discussed *Zappavigna* case. In concluding that whether the danger is a scientifically genuine should be irrelevant to the central issue of its impact on market value,<sup>45</sup> the court noted:<sup>46</sup>

To add the extra component of reasonableness... because the condition may not be something within common knowledge of experience... is not supportable or necessary. Thus... the public's or the market's relatively more prevalent perception should suffice, scientific certitude or reasonableness notwithstanding.

Thus *Criscuola* was awarded damages for the 6.5 acres he lost to the power line easement and for the diminution in value to the remaining 90 acres of his property.

<sup>39</sup> *Id.* at 147.

<sup>40</sup> *Id.*

<sup>41</sup> *Id.* at 145.

<sup>42</sup> *Id.* at 150.

<sup>43</sup> *Id.*

<sup>44</sup> *Criscuola*, 621 N.E.2d 1195 (1993). See also, Gary Spencer, *Court Allows Damages for Fear of Cancer*, N.Y.L.J., Oct. 13, 1993, at 1, (col. 3) and *Damages Allowed for Owners of Houses Near Power Lines*, Boston Globe, Oct. 13, 1993, at 11.

<sup>45</sup> *Criscuola*, 621 N.E.2d 1195.

<sup>46</sup> *Id.* at 1197.

At least thirteen states as well as the 5th and 6th U.S. Circuit Courts of Appeal have adopted this approach.<sup>47</sup> These jurisdictions hold that landowners need only prove that public perceptions cause significant decrease in value: Whether the ultimate basis for a reduction in property values is reasonable is legally irrelevant, and scientific testimony about the grounds for these fears is inadmissible.<sup>48</sup>

### Conclusion

As discussed, EMF cancerphobia has dramatically affected the value of property after condemnation regardless of whether scientists agree about the dangers of EMFs. Yet, a plaintiff's success may depend on where they file suit. Some courts may insist that public fears be reasonable or even that they be justified by scientific proof. Others, however, allow recovery when competent evidence shows that the market value of remaining land has plummeted. In these courts, scientific justification for any fear plays no role.

The last view seems to represent the best approach insofar as the actual loss to a plaintiff should be the only important question. That fear of EMFs could eventually prove to be objectively unwarranted is of little solace to landowners who now suffer loss in fact.

Someday, science may provide answers to the issues surrounding the possible danger of EMF exposure. Until then, the only fair solution is to compensate landowners for proven reductions in value of their property. Also, plaintiffs' attorneys can foster this result by pleadings that avoid complex issues which, under the best of circumstances, may only confuse decision makers.




---

<sup>47</sup> *Id. See, e.g.,* Meinhardt v. Kansas Power & Light Co., 8 Kan.App.2d 471 (1983); State v. Evans, 612 P.2d 442 (1980), *rev'd on other grounds*, 634 P.2d 845 (1981). Claiborne Elec. Coop., Inc. v. Garrett 357 So.2d 1251 (La.Ct.App. 1978), *cert. denied*, 359 So.2d 1306 (La. 1978); Basin Elec. Power Coop., Inc. v. Cutler, 217 N.W.2d 798 (S.D. 1974); T.V.A. v. Easement & Right of Way, 405 F.2d 305 (6th Cir. 1968); United States ex rel. T.V.A. v. Roverson, 354 F.2d 877 (5th Cir. 1966); Ohio Pub. Serv. Co. v. Dehring, 172 N.E. 448 (1929); Evans v. Iowa Util. Co., 218 N.W. 66 (1928).

<sup>48</sup> Philip S. McCune, *The Power Line Health Controversy: Legal Problems and Proposals for Reform*, 24 U. Mich. J.L. Ref. 429 (1991). *See also*, San Diego Gas & Elec. v. Daley, 253 Cal.Rptr. 144 (Cal.Ct.App. 1988).