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Properties Near Power Lines and Valuation Issues: Condemnation or Inverse Condemnation?

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Synopsis

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§ 13.01. Determining Value of Property at Power Lines.

Overhead electrical power transmission and distribution lines affect property values according to information from appraisal studies, tax appraisals, court cases, and the recent literature. In order to verify this finding, selected residential properties adjacent to a major Houston power line are examined, and supporting opinions are collected. Scientific studies about electromagnetic fields are summarily presented, recent court cases speaking to value issues are reviewed, and a new approach to determining property values adjoining power lines is developed and presented.

Traditional concepts of appraising are supported. As a result of this analysis, issues about the importance of scientific evidence versus the perceptions of buyers are seen to be entangled. For this reason, an inverse condemnation action may be the only remedy for some affected property owners. By using the methods of measuring the value of partial takings suggested in this study, more accurate land and building values can be established.

§ 13.02. General Statement.

In the past few years, controversies have developed about power lines, public health, and real estate values.[1] Overhead transmission and distribution lines generate electromagnetic fields (EMFs), and the strength and time of exposure are now being examined by scientists to determine their danger. EMFs may cause cancer, male sex cell

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[1] Goldsteen and High, "Residential Exposure to High-Voltage Transmission Lines," Journal of Planning and Education Research, 177-181, Vol. 9, No. 3 (Summer 1990).

malformations, brain tumors, depression and suicide, birth defects, childhood leukemia, and other diseases. As a result of continuous new findings, some of which are controversial in the scientific community, properties located along electrical transmission and distribution lines are being "spotlighted" and their sale prices are falling.

For many land uses, the open space required for public safety from falling wires was maintained by power companies and cities, sometimes becoming a sales advantage for particular parcels. Value may have increased as a result of the desire for permanently protected open space. But today, the perception of value may be decreasing for any properties located within certain distances of power lines. This article reviews the real estate and appraisal literature, court cases, scientific studies, and case studies and applies both traditional and new appraisal procedures for establishing land values adjacent to power lines.

§ 13.03. Background and Introduction.

Without question, contemporary culture and society are inextricably linked to electrical equipment, appliances, office products, entertainment devices, and a wide range of other items powered by electricity. As the years pass, it appears that more and more electrical devices are changing our behaviors in work and at home. It does not appear that any alternative power sources are being studied due to the universal acceptance of electrical devices and the technology that has refined the conversion and transference of electrical power from one item to another.[2] There is reason to expect continued engineering innovations and inventions using electricity in future years.

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[2] Interview with Dr. Roy Rubins, Department of Physics, College of Science, University of Texas at Arlington (September 6, 1993).

Given the dependency on electrical power conversion from lines, lasers, and radiation, there is a need to service each land use within our cities and rural communities. This service network is formed by interconnected high voltage, elevated transmission and distribution lines. The lines seem endless, criss-crossing everywhere in both developed and undeveloped areas. Microwave transmission towers, radar towers, and satellite dish antennas are other sources that act with those lines to occupy large numbers of linear land corridors and spots of land.

From the perspective of city governments, advance planning in the form of comprehensive plans establishes where different uses need to be placed in relation to each other. As a basic criterion, some uses are not allowed next to others without safe or aesthetically acceptable setbacks. Traditionally, in order to facilitate the provision of electrical services, cities and rural communities have accommodated power companies in the public interest. As a result, government has granted authority to the power companies to select their own preferred rights of way and locations, directions and networks of lines with little or no interference. Many power companies continue to assess their needs and, without public review of their assumptions, calculations, and locational decisions, increase the size of lines at will. As a result, smaller lines are being replaced with larger ones that have not been previously planned. Month by month, the transmission and distribution network grows in size, length, and capacity. Electricity is a big business, a "public utility," and very profitable, due to its preferential position of allegedly serving societal needs.

Since the turn of the century, the electrification of the United States has created thousands of corridors of overhead power lines everywhere. Typically, rights of way are

condemned by the power companies in the public interest, and poles and towers are erected. Prior to the mid-1970s, the widths of power line rights of way and easements were related to public safety. Concern centered in the potential for accidental line breaks, resulting in the falling of hot lines. Not only was the danger from the weight of the lines and the velocity and impact a consideration, but also the potential for the electrocution of bystanders. During the 1970s, preliminary and tentative findings of scientific studies about electrical current and human health began to emerge. Since these early studies, there has been continuous scientific investigation primarily funded by the power companies as a result of court orders.

§ 13.04. High Voltage Electric Lines and Zoning Districts.

Zoning ordinances regulate uses, height, area, and bulk of buildings.[3] They do so by dividing a city into different use districts, such as retail, office, and residential districts. Overhead power lines usually lie within these districts, rather than having a separate district designation or becoming a part of an industrial or public utility district.[4] Through eminent domain, or condemnation, power companies are allowed to place their tower of power anywhere in any district. Generally, those who write city ordinances assume that the utility companies themselves have found the condemned right of way or easement through the properties of the district wide enough to protect the public health, safety and welfare without requiring additional restrictive provisions.

Arguments could be developed by planners which would require a separate use district designation for overhead power lines. Given new scientific studies linking

[3] This section of the article was developed with Dr. Joel B. Goldsteen, Professor of City and Regional Planning, University of Texas at Arlington.
[4] Chapin and Kaiser, *Urban Land Use Planning* (Champaign-Urbana, University of Illinois Press, 1982).

electricity to human health problems, wider rights of way would need to be condemned, raising the cost of providing electrical service.[5] Business always passes along extra costs to the consumer as power companies have always done. To protect the power companies and consumers from runaway costs, planning regulations could be changed. A number of regulatory changes in land use could be adopted that would be of little or no cost to cities, their residents, and the power companies. Increasing setback requirements would be resisted by power companies for many reasons. Requiring additional setbacks for existing districts within which are located overhead power lines is a reasonable idea for developing areas, but it is not possible for highly developed districts. Requiring those districts to change to thousands of "nonconforming uses" due to new setback provisions would not achieve any results. Those buildings could remain occupied for decades without ever respecting the setback requirement.

Placing all power lines in industrial zoning districts could work in developing portions of cities and communities.[6] With this alternative, ribbon-like strips of land running throughout industrial districts could be widened and made affordable to power companies-if and only if they would agree to perform advance planning along with the communities they serve. Advance planning requires foresight and takes time and costs money. It is much easier to go back to a less expensive narrow easement and make the lines larger.

Land valuation is an important part of this kind of regulatory decision. If the parcel is intended for power use, then it will be valued at a price for power use. Since

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[5] Goldsteen and High, n.1 *supra*, J. of Planning and Educ. Res., Vol. 9, No. 3 (Summer 1990), at 177-181.
[6] Goldsteen, *Danger All Around: Waste Storage Crisis on the Texas and Louisiana Gulf Coast*, at 190-210 (Austin: University of Texas Press, 1993).

planning would precede condemnation and public participation would typically be included, lower condemnation costs would result. There are always windfalls and wipeouts when land use decisions are made.[7] Planning for the overall regional public need requires difficult land use decisions. One landowner cannot be favored over another, and efficient transmission and distribution line locations must be considered. Public planning with its open hearing processes will greatly reduce the difficulties now faced by power companies.

If a parcel is already zoned for retail uses, carving out a right of way will be more expensive than would be the case if the community and power company had planned in advance. Since it can be argued that the present method of condemning land as needed produces the highest costs to the public, the long-term solution may be for governments to plan for power transmission line corridors with distribution lines stemming from these power alleys. Power companies could locate various facilities within these areas at lower costs, and sufficient widths could be designated for increased human safety.

§ 13.05. Progression of Awareness of Health Issues.

The earlier scientific studies by Wertheimer, Tomenius, Adey, Becker, Marino, and others link electromagnetic fields to human health problems. Summary studies and reviews go to great lengths to present objective summaries of selected research studies. In the author's opinion, these attempts to avoid bias result in conclusions that the science is not settled. Statements regarding the experimental designs typically mention that their results may be inconclusive but worthy of further study. The Bonneville Power Administration, the Electric Power Research Institute (EPRI), the Environmental

[7] Hagman, *Public Planning and Control of Urban and Land Development: Cases and Materials*, 2d Ed., at

Protection Agency, and many academic researchers reach the same conclusions.[8] As reported, the continued funding of specific research studies should be expected to go on delaying the conclusion of the research for at least five to fifteen years. Meanwhile, urban regions are projected to increase about one-third in size over the next forty years.[9] Millions more could be subject to excessive EMFs should the present eminent domain powers and methods of condemnation by the utility companies continue, and as they continue, more and more land owners are becoming aware of the possible threat to public health from power lines. Awareness always affects behavior, and perceptions of property values are affected by beliefs. Property values could plummet as studies continue to be reported, regardless of their conclusiveness. The problem is potentially massive, having serious economic impact on land values along electrical transmission and distribution corridors.

EMFs generated by power lines and their potential effects on public health and safety have been reported in the media. Many television news programs have featured the issue, and CBS, BBC, NBC, CNN, and ABC have presented stories. Newspapers such as the Wall Street Journal have continued coverage about litigation and EMFs for a number of years. In reaction to these articles, "public utility officials have brushed off EMFs as a threat."[10] The position of the utility industry is stated by the Electric Power Research Institute, calling the EMF concerns "premature."

939-949 (West Publishing, 1980).

[8] Lee, Jr., *et al., Electrical and Biological Effects of Transmission Lines: A Review*. at 38-39 (Portland: U.S. Department of Energy, Bonneville Power Administration, 1993).

[9] Harper, "Census Bureau Lifts Population Forecast, Citing Fertility, Immigration, Longevity," Wall St. J. B1, B9 (December 4, 1992).

[10] Richards, "Elusive Threat: Electric Utilities Brace for Cancer Lawsuits Though Risk Is Unclear: Companies Spend on Cutting Electromagnetic Fields as Lawyers Smell Blood," Wall St. J. A-1 (February 5, 1993).

In 1991, according to the Texas Utility Commission, there were 201 challenges to utility projects in which EMFs were an issue. The cases continue. Environmental health diseases, proven or unproven, are gaining attention by the public. In fact, according to a USA Weekend poll in January 1993, EMFs should be the country's Number One environmental health priority. "How 4,567 readers prioritized concerns..."

EMFs.....35%
Chemicals in food.....17%
Indoor air pollution.....12%
Other.....36%

§ 13.06. Determining Value Issues.

One issue of interest is whether the market value of properties located adjacent to or near electric power transmission and distribution lines is affected by the public's knowledge of EMFs. One scholar contends that while the scientific community:

> ...continues to debate whether or not conclusive evidence yet exists, exposure to those fields poses serious health risks. For this reason, plaintiffs who are exposed to high-level power line EMFs may be unable to recover under traditional tort remedies...In the meantime, while the science world debates the effects of EMFs, market value of property located near power lines continue to plummet.[11]

Medical and scientific issues are not within the realm of expertise of the real estate appraiser. Whether or not EMFs are ever proven to cause cancer or other medical problems is only relevant to the extent that the sellers and buyers in the marketplace perceive it to be a problem. The state and federal constitutions allow for "just compensation" when private property is taken for public use. Direct takings are clear.

When buyers and sellers are apprehensive, the market value of properties may be decreased. If this occurs, should the condemning authorities be compelled to pay for the loss in value?

When a condemning authority acquires a right of way for a new line and private property is to be taken, the measure of compensation is generally the value of the "whole property before the taking" and the "value of the remainder after the taking," considering all the effects of the taking. If the remaining property is reduced in value because of the perception of medical problems, value, not science is at issue. In this regard, the value of a property can be determined in the same manner as in a straightforward condemnation case.

When properties adjoin or are near existing power lines a reduction in market value can occur also where there is not an actual physical taking. Due to public knowledge and perception of EMFs, possibly in the wake of studies conclusively indicating public health concerns, or aesthetic judgments about power lines, reductions in market value can be expected. Losses in value do occur as a result of many forces, perceptions, beliefs, and rumors. The filing of an inverse condemnation suit may be the only avenue available for the recovery of these losses in value by a property owner.

An inverse condemnation suit "is brought when the property owner believes the public agency has appropriated all or part of his property or property rights without condemnation action and the payment of just compensation."[12] Establishing that a taking has occurred may or may not be difficult, and has been the basis of many arguments in

[11] Brown, *The Power Line Plaintiff and the Inverse Condemnation Alternative,* Environmental Affairs, Vol. 19, at 655-694.

legal actions. The legal profession has debated the technicalities of this issue for a long time, and to a layman, the questions of law about direct and indirect takings are confusing. Direct takings are clearly demarkable on a property; so much land area is appropriated for a particular use. Inverse condemnation must be proven by establishing that an unreasonable interference with the landowner's right to use and enjoy his property has occurred.[13]

Publicity about EMFs and its impact on property values are relatively new. The Appraisal Institute and various real estate publications reviewed this issue in the 1970s, focusing on the valuation methods themselves. Given the recent amount of heavy, publicity on the subject, it may be fair to assume that appraisers will need to understand the issues discussed above and become more familiar with not so standard appraisal procedures.

§ 13.07. Appraisal Procedures and Future Impact.

Real Estate appraisers do not have to debate or wait for scientific conclusions about the effects of EMF on human health. In the evaluation of properties near power lines, the perceived issues and public awareness of the adverse effects on human health are major determinants of value and therefore must be considered. A number of studies verifying this position are summarized below.

One survey questioned those members of the Appraisal Institute holding the RM (Residential Member) designation and found that 84 percent of those surveyed "believe that HVOETLs (high voltage overhead electric transmission lines) reduce the value of

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[12] Eaton, *Real Estate Valuation in Litigation* at 54 (Chicago: American Institute of Real Estate Appraiser, 1989).

residential property located near the lines."[14] Even those appraisers who had never surveyed such property believed the same thing. This information is very compelling, considering the source. Another study concluded "that proximity to a power line is associated with diminished selling prices." It was found that larger lot areas tended to be involved when power line easements were granted and that the perceived lot area often extended beyond the true lot line along a right of way corridor. The larger lot area, real or perceived, could compensate for the lot's proximity to the lines and disguise the penalty on sales price. This study establishes:

> ...that value increases away from transmission lines on lots without the easement and that there are value effects due to the easement as well as those that relate purely to the proximity of power lines....The negative impact of power lines is large in close proximity, but declines as distance increases.[15]

Many levels of government are addressing EMF issues. In California, for example, at least one county requires a statement of disclosure about the "adverse health effects" of power lines be recorded in the title records of "every lot within 300 feet of a high voltage power line easement." In some other counties, special open space or buffer zones are required by developers to obtain plat approval, and California has recently prohibited the construction of schools within certain distances of high voltage transmission line easements, specified as line voltages and distance in Table 1.

Table 1

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[13] Olson v. Harris County, 807 S.W.2d 594 (Tex. Ct. App. 1990), *writ denied;* State v. Schmidt, 805 S.W.2d 25 (Tex. Ct. App.1991), *writ granted.*

[14] Delaney and Timmons, *High Voltage Power Lines. Do They Affect Residential Property Value?* The Journal of Real Estate Research, Vol. 7, No. 9, at 323-324 (Summer 1992).

[15] Colwell, *Power Lines and Land Value,* The Journal of Real Estate Research, Vol. 5, No. 1, at 126 (Spring 1990).

Voltage	*Distance*
100-110KV	100 Feet
220-230KV	150 Feet
Over 345KV	250 Feet

The discussion continues to point out that there are increasing difficulties in obtaining financing for these properties, longer marketing time, and higher carrying costs. These additional value factors should become a part of any appraisal of these properties.[16]

This author conducted a recent study of assessed values of the Harris County Appraisal District (HCAD) on approximately 100 residential properties located adjacent to a major power line corridor that traverses the near western portion of the city of Houston. These properties were compared to about the same number of similar residences located within the interior of the subdivisions. The assessed values of properties adjoining the power line easement were 12.8 percent to 30.7 percent less than the average of the interior properties, thus supporting the articles, studies, reports, and opinions mentioned above. Table 2 summarizes the information.

Table 2

Subdivision and Assessed Values Adjoining Power Line Easements

Oak Estates Subdivision

Average Assessed Value of Lots Adjoining Power Lines	$136,595.00
Average Assessed Value of Interior Lots	$179,377.00
Difference	$42,782.00
	or 23.85%

Lynn Park

[16] Baumbach, *EMF Radiation and the Increased Awareness of Real Estate Markets*, Environmental Watch, Vol. V, No. 4, at 1, 4 (Winter 1993).

Average Assessed Value of Lots Adjoining
Power Lines $62,522.00
Average Assessed Value of Interior Lots $71,762.00
Difference $9,240.00
or 12.88%

West Lane Place Subdivision

Average Assessed Value of Lots Adjoining
Power Lines $103,671.00
Average Assessed Value of Interior Lots $123,058.00
Difference $19,387.00
or 15.75%

Highland Village Subdivision

Average Assessed Value of Lots Adjoining
Power Lines $50,544.00
Average Assessed Value of Interior Lots $72,940.00
Difference $22,396.00
or 30.7%

For this study, the four subdivisions averaged a difference of 20.795 percent in decline in assessment. Differences caused by the power lines ranged from almost $10,000 per lot to $43,000. The lots only had average assessments in the Highland Village Subdivision of $72,940, the Lynn Park Subdivision of $71,762, the West Lane Place Subdivision of $120,058, and the Oak Estates Subdivision of $179,377. Both the lower price ranges and higher price ranges indicate the same thing: The average assessed value of lots adjoining power liens is lower by about 21 percent.

This overhead power transmission line corridor in Houston may be considered typical in appearance to those corridors in many other single family detached residential neighborhoods in the United States. Real estate brokers active in these subdivisions agreed with HCAD assessments, although most expressed opinions of even greater impact. Some of their comments are as follows:

- "...represented buyers who refused to even look at such properties."

- "...did sell one approximately five years ago, although no difference in market value,...when it came time to close, PMI could not be obtained and a loan could not be funded. The owner had to supply the financing."
- "...has a home which is currently under contract which is adjacent to a power line." She indicated that it took twice as long to sell the property (almost two years) at a 25 percent reduction in value.
- "...has a house listed that adjoins the power line. It is a very negative factor and this factor at least doubles the marketing time."
- "...it takes twice as long to market a house on a power line at a price of 10 to 25 percent less than market."
- "...indicated that this factor would substantially affect both the market value and the marketing time."
- "...recently sold a house that adjoins the power line and it took almost three times as long as typical to sell the house and it sold for 10 to 20 percent less than the comparable properties in the subdivision."
- "...had a house listed for six years at 20 to 25 percent less than market."
- Residential Appraisal Supervisor, Harris County Appraisal District: "Properties which are located adjacent to power lines are generally considered negatively affected by the power line."

Within the last three years, seven states (Florida, Montana, Minnesota, New Jersey, New York, North Dakota, and Oregon) have implemented regulations specifying the width of power line rights of way in an attempt to make certain that lines are kept at reasonable distances from buildings. The effects of power lines on sale prices have

traditionally been related to scenic views from a house or a buyer's concern that children might try to scale the supporting structures. Now, purchasers are more concerned about the health effects.[17] One realtor observed, "I'd say there's considerable concern about this because it's an unknown."

Based on this vast amount of fairly recent information and our own research, appraisals of properties near power lines must account for those factors that market participants, real estate appraisers, real estate brokers, lenders and some governmental authorities already consider. Utility companies, their lawyers, and some appraisers will resist what is becoming more prevalent in the market place.

§ 13.08. Significant Cases.

Conflicting court decisions, scientific studies, and appraisal theories abound; however, as eminent domain law changes to reflect more accurately the attitudes of an informed public, the courts should mandate recognition of these factors by real estate appraisers.

[1] ***Houston Lighting and Power Co. v. Klein Independent School District.***[18]

Although this case involved other issues, it was one of the earlier Texas cases in which "possible health effects or risks associated with exposure to high voltage power lines" were introduced as a cause of damages. The power company condemned a portion of land from a school site to construct a power transmission line. The condemnee objected to the taking, alleging that the location of the transmission line "constituted callous disregard for safety, health, and well being of...children" rendering condemnation

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[17] O'Connor, *Some Homebuyers Expressing Concerns About Power Lines*, Realtor News, at 7 (April 23, 1990).

[18] 739 S.W.2d 508 (Tex. Ct. App. 1987), *writ denied.*

void and that the company's "entry into possession of the property constituted trespass." The trial court found for Klein and awarded actual and punitive damages, as well as a writ of possession and a permanent injunction. The Court of Appeals held that issues concerning site selection, including safety, could be considered before the court. Other findings by the appeals court involved additional legal issues.

[2] ***San Diego Gas and Electric Co. v. Daley.***[19]

This was a condemnation action to acquire a 200-foot wide power line easement across Mr. Daley's property. The Court of Appeals held:

> ...severance damages awarded to land owners, whose property was condemned for use by electric utility for overhead transmission lines could include damages associated with public fear of electromagnetic radiation from lines, at least to the extend that such fear had depressing effects on remainder of landowner's property.

The opinion also stated that the "question was not whether electromagnetic radiation was in fact harmful, but whether public perception of harm would have depressing effects on value of property owners' remaining land." This case is one of the first that specifically turned on the perception of the buyers and sellers in the marketplace.

[3] ***Ryan v. Kansas Power and Light Co.***[20]

This case involved a taking of property for a power transmission line near Leavenworth, Kansas. This court also dealt with the landowner's contention of damages to her property because of fear in the market place about the hazardous effects of the

[19] 205 Cal. 3d 134, 253 Cal. Rptr. 144 (Cal. Ct. App. [Fourth Dist., Div. 1] 1988).
[20] 249 Kan. 1, 815 P.2d 528 (1991).

power line. The opinion, citing another Kansas case, *Willsey v. Kansas Power and Light Co.*,[21] pointed out:

> ...that the courts which have addressed the issue have separated into three categories with regard to admitting evidence of fear in the market place as affecting value of land. The so-called "majority rule" is that such evidence is conjectural and is, therefore, inadmissible. The second or "intermediate rule" permits such evidence but requires the fear to be reasonable. The third and so-called minority view is that any evidence of fear in the market place obviously affects value and is admissible regardless of its reasonableness so long as the fear is not the personal fear of the witness.[22]

The Kansas Supreme Court adopted the so-called "minority view" and stated, "accordingly, in a condemnation action to acquire an easement for installation of a high voltage electrical line, we find evidence of fear in the market place is admissible with respect to the value of property taken without proof of the reasonableness of the fear." Also, the court ruled that newspaper and magazine articles were admissible to show public knowledge.

[4] ***Criscuola v. Power Authority of the State of New York.***[23]

This very recent case is probably the easiest for a layman to understand due to its clarity in explaining EMF issues. The decision stems from eminent domain litigation involving numerous property owners and a line running from near Utica to Duchess County, north of New York City. Reversing an appellate court, this opinion relied on many of the other cases that have been discussed here. Adopting the language of *Willsey*

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[21] 631 P.2d 268 (1981).
[22] *Id.* at 277-278
[23] -- N.Y.2d --, -- N.E.2d -- (1993).

v. Kansas Power and Light Co.,[24] the opinion states "evidence of fear in the market place is admissible with respect to the value of property taken without proof of the reasonableness of the fear."

Particularly of interest to real estate appraisers, the following excerpt from the opinion should be welcome:

> Whether the damage is a scientifically genuine or verifiable fact should be irrelevant to the central issue of its market value impact. Genuineness and proportionate dollar effects are relevant factors, to be sure, but in the usual evidentiary frame work. Such factors should be left to the contest between the parties' market value experts, not magnified and escalated by a whole new battery of electromagnetic power engineers, scientists or medical experts. Adverse health effects *vel non* is not the issue in eminent domain proceedings: full compensation to the landowner for property taken is.[25]

§ 13.09. A Pragmatic Approach to Appraisal.

Any basic appraisal course teaches that market factors affecting value must be considered in the evaluation of any property. The trend in the courts certainly dictates that appraisers must follow this traditional thinking. Therefore, if proximity to a power line affects the value of a portion of the property outside the area taken, then this effect should also be considered. Area taken for a power line right of way is typically a certain width calculated to accommodate the topography, allow for maintenance, and provide sufficient safety margins. However, if the perception of the informed public is negative about the EMF effects of power lines, then a greater width or buffer zone may constitute the effective taking. The easement described by field notes may no longer be the actual

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[24] 631 P.2d 268, 277-278 (1981).
[25] *Id.* at 278.

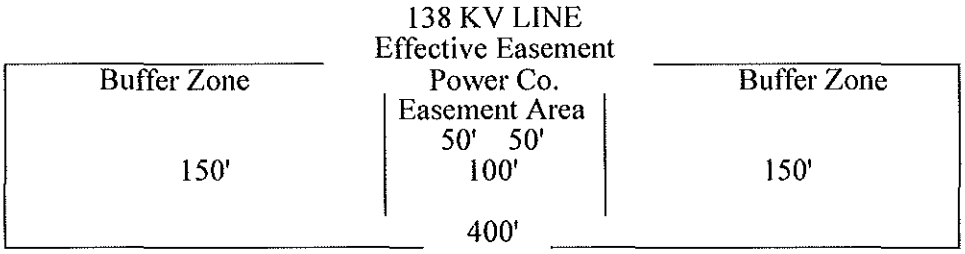
taking. Because of case studies of value, the court decisions mentioned above, and issues of scientific uncertainty, a new look at appraisal methods is appropriate. The sales comparison approach (paired sales) is normally considered the basis for determining the effect of power lines on property values. However, in reality, it is almost impossible to find sufficient market data so closely comparable as to allow abstraction or isolation of only the power line factors. First, a large sampling of market data must be available. Second, the data must be comparable not only as to physical factors but also as to knowledge in the marketplace about power lines. Once again, appraising involves experience, training and judgment. We still cannot reduce the evaluation process to a computer program.

§ 13.10. Valuing the Taken Easement and the Effective Easement.

In the following example, the entire land parcel is a vacant 500-acre tract within the extraterritorial jurisdiction of the city of Houston. The highest and best use has been determined to be mixed commercial and residential. Both the power company and the landowner agree that the whole property, before the taking, has a value of $5,000 per acre, or a total of $2.5 million.

The USA Power Company proposes to acquire a 100-foot right of way across the property for a distance of 4,500 lineal feet (see figure 1). The purpose of the easement is to construct a 138KV transmission line. The field notes calculate a taking area of 10.33 acres (100' x 4,500'), and the power company makes an offer of compensation based on this easement size and the agreed upon per acre value. This equates to a total offer of $51,650.

Figure 1



The landowner is aware of the increased public knowledge of the possible hazards associated with transmission lines and has confirmed with real estate brokers, appraisers and lenders in the area that this right-of-way taking will have an adverse effect on his property. He has been informed that experts before the Texas Public Utilities Commission have indicated buffer distances of between 200 and 1,500 feet for similar power lines.[26] Moreover, according to a study by Colwell and Foley, construction and operation of transmission lines adversely affect values of properties within 200 feet of a 138KV line.[27] (Additionally, a series of studies has indicated that there are "physiological effects up to 300-to-500 feet. At 1,000 feet aw0ay, there are behavioral effects - drops in human reaction time, for instance."[28]

In this hypothetical case, the real estate appraiser concludes that the *effective easement* should include a minimum distance of 200 feet from the center line of the proposed right of way for a total width of 400 feet (see figure 1). This greater distance than the originally designated USA Power Company 100-foot easement will allow a

[26] Examiner's Report, *Application of Lower Colorado River Authority for a Certificate of Convenience and Necessity for a Proposed 345KV Transmission Line and Associated Substation with Fayette, Bastrop, and Caldwell Counties,* Public Utility Commission of Texas, Docket No. 2489 (October 20, 1981).
[27] Furby, Gregory, Slovic and Fischhoff, *Electric Power Transmission Lines, Property Values, and Compensation,* J. of Environmental Mgmt. Vol. 27, at 69-83 (1988).
[28] Gwynne, Begley and Hager, "Science: The Flap Over the Zap," Newsweek, pp. 87-88 (July 17, 1978).

design and safety buffer for adequate land planning and minimize some of the adverse marketability factors.. Therefore, the area of the effective easement is 400 feet multiplied by 4,500 feet or a total of 41.32 acres. Also, research studies and experiences of local real estate brokers confirm that the property will suffer a reduction in value because of increased marketing time. For this example, it is assumed that properties in this situation will require an additional year of marketing time. To account for this factor, the discount (at a market rate) should be applied to the value of the property. Based on the premise of a required buffer area and extended marketing time, the calculations of the values by the two appraisers follow:

Table 3

Appraisal for Power Company

Total Acreage.....500 acres	
Value of Whole Property	
500 acres @ $5,000 per acre.....$2,500,000	
Taking (100' X 4,500') or 10.33	
acres @ $5,000.....$51,650	
Damages to the Remainder.....-0-	
→ Just Compensation as per Power Company.....	$51,650

Table 4

Appraisal for Landowner

Total Acreage.....500 acres	
Value of Whole Property.....$2,500,000	
Taking (effective easement area	
(400' X 4,500')	
41.32 acres @ $5,000 per acre.....	$206,611
One Year Additional Marketing	
Time	
500 acres less 41.32 acres.....458.68 acres	

458.68 acres @ $5,000 per acre $2,293,400	
$2,293,400 X .94 (6% discount) $2,155,796	
Loss in Value from Additional Marketing Time	-$137,604
Total Reduction in Value (Just Compensation)	$344,215

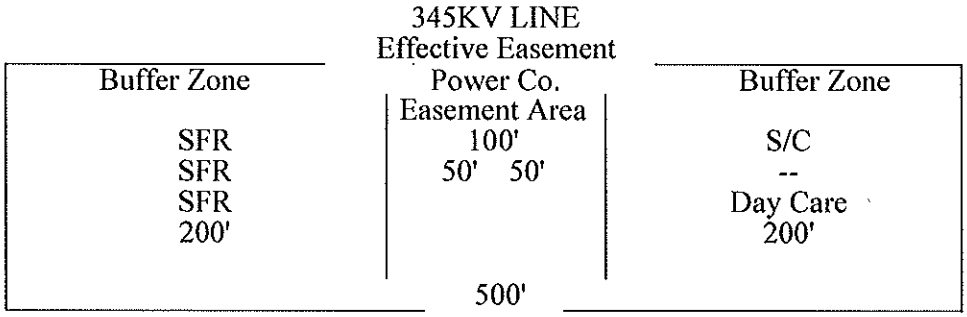
This example involves a taking from vacant land. Consider another scenario where there is no condemnation action. A 100-foot power line right of way is situated along the boundary of a residential and commercial subdivision (see figure 2). A 345KV line has been within the right of way line for two years. As the inhabitants of the subdivision become more aware of EMF issues, a real estate appraiser is commissioned to survey property values based on the comparison of those lots adjoining the right of way and those located in the interior of the subdivision. The appraiser's study concludes that, all other things being equal, the properties adjoining the power line have a fair market value of about 25 percent less than interior properties. It should be assumed that the diminution in value has been determined by paired sales comparisons to have been caused solely by the property's location adjacent to the power line. An issue then arises: "Has there been a taking of property?" If so, should an inverse condemnation suit be instituted against the utility company? Once again, this decision for action is not for the appraiser to determine. Only a question of value is involved in this example. Consider the thousands of situation similar to this scenario and the complexities and potential costs involved. Serious depreciation in the values of property next to power lines must be assumed, and the number of challenges may be expected to increase greatly. With the more recent court rulings, especially in the *Criscuola* case in New York, the loss in value

of real estate caused by fear of power lines, even if no scientific proof exists, might be sufficient for those landowners to succeed with inverse condemnation.

In summarizing, the following quotation is extremely relevant:

> [M]embers of the legal community representing aggrieved landowners have two options - they can continue to sit patiently, awaiting the scientific evidence that will presumably open the floodgates to the common law world of torts, or they can act now, claiming that power companies have inversely condemned their clients' property.[29]

Figure 2



No matter how this field of litigation evolves over the next few years, real estate appraisers should continue to evaluate properties according to the well established appraisal process. In the opinion of the author, if fear of a power line affects the value, even if it is wrongly perceived, then we should take that factor into account in making an appraisal of that property. Actually, being near a power line is not really different from being next to a landfill, a junkyard or a haunted house. Accounting for location obsolescence has long been a part of the appraisal process and must continue to be so with regard to properties adjacent to power lines. Professional appraisers must consider

[29] Brown, n.11 *supra,* p. 694.

this information, ignore antiquated thinking, and apply the approaches outlined above to include effective easements in all of their calculations.