

## Appendix 6. Property Values

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The CPUC, with recent transmission line EIRs, has experienced a high level of public concern associated with the siting of transmission lines and any associated impacts on property values. The State of California Energy Commission (CEC), in their review and licensing of several power plant projects between 2000 and 2003, received similar public input regarding concerns with power plant siting and property values. As a result, CEC Staff, in preparation of their Staff Assessments (CEQA-equivalent process) evaluating power plant projects, conducted thorough research of the literature on proximity impacts analysis for property values and cited the Kinnard-Dickey paper, *A Primer on Proximity Impact Research: Residential Property Values Near High-Voltage Transmission Lines*, as a comprehensive study on this topic. The CPUC has since also used this approach for addressing concerns regarding property values in four recent transmission line EIRs. The Kinnard-Dickey paper uses three procedures to measure the difference between sale prices, marketing periods and/or sales volume of properties in the proximity of transmission or distribution lines and those of competitive properties that are not located in the proximity of transmission or distribution lines. The three procedures cited in the Kinnard-Dickey paper include:

- **Paired Sales Analysis** - finding sales of properties within the impact area and comparing them with sales of similar, competitive properties in the control area. Any price differentials are noted, and any pattern of such differences is identified. More recent studies apply statistical testing procedures to the results when sufficient numbers of paired sales are available;
- **Survey Research/Opinion** - this method is used as either a supplement or substitute for analysis of market sales transaction data. Potential purchasers either will or will not buy; they either will or will not pay the same or similar prices for proximate properties. It is important to note that Survey Research/Opinion merely reflects responses to hypothetical situations by interviewees who are not necessarily prospective buyers - especially in the impact area under study; and
- **Market Impact Studies Using Multiple Regression Analysis (MRA) in the Hedonic Pricing Model Format** - gathering data files on as many market sales transactions as possible within the impact area and within one or more similar control areas over a specified time period -- usually a few years prior to an awareness of the proposed Project. The extended time period is used to identify and measure any price/value impact that might occur within the impact area after an awareness of the project occurs. This type of “before and after” analysis supplements the comparison of levels and trends and prices, marketing time, and sales volume within the impact area and those in the control area. The post-announcement sales information also provides a basis for testing the likely duration of any value impact that might be identified. The MRA approach to market proximity impact analysis is preferred in the current professional and academic literature because the model reflects what buyers and sellers actually do as opposed to what potential buyers say they might do under specified hypothetical circumstances. Further, the use of large sets of sales data indicates that the results are more representative of the market than those of the paired sales studies.

The results of these three procedures used in the Kinnard-Dickey paper show that three possible effects to the market value of residential properties have been claimed:

- **Diminished Price** - which is identified by comparing unit prices that are proximate to power lines to unit prices of similar and competitive properties more distant from power lines;
- **Increased Marketing Time** - even when proximate properties sell at or near the same prices as more distant control properties, claimants argue that proximate properties take longer to sell. Such increased marketing time can represent a loss to the seller by deferring receipt, availability, and use of sale proceeds; and

- **Decreased Sales Volume** - is a more subtle indicator of diminished property value if potential buyers decide not to buy in the impact area. A measurable decrease in sales volume in the impact area compared with sales volume in the control area where otherwise similar properties purportedly still are selling can represent evidence of decreased market value from proximity to the high voltage transmission lines (or claimed hazard).

The findings of the Kinnard-Dickey paper indicate the need to address a range of issues to more accurately analyze impacts on property values due to environmental changes. Specific issues that must be addressed to ensure accurate proximity impact analysis for specific property values include the following:

- The need to distinguish between fear of health hazards by current and potential residents and the market behavior of buyers and sellers in the same area; misleading to confuse opinion responses of hypothetical buyers based on fear with actual past and likely behavior of buyers in market areas identified as proximate to high voltage transmission lines or claimed hazard.
- Studies of both attitudes and market behavior of purchasers who are near sources of claimed hazards show that the more informed a potential buyer is, the less likely that buyer is to be deterred from purchasing near the claimed hazard. Knowledge of occurrence probabilities, awareness of findings of reproducible scientific studies, and understanding of the causal nexus (if any) lead to a greater willingness of the potential buyer to live near the claimed hazard, and has been found to minimize price effects on proximate residential properties.
- Some MRA studies indicate that any observed negative price, marketing time, and sales volume effects tend to be statistically insignificant; results could easily have occurred randomly or by chance. Therefore, they do not necessarily represent a consistent, systematic market response to locations proximate to high voltage transmission lines (or claimed hazard).
- In some MRA studies negative price effects in the range of five to nine percent were identified up to 200 feet distant from the edge of the high voltage transmission line ROW. These studies found that effective screening of views can diminish or eliminate the negative price effect. In addition, any observed negative value impacts decrease, and most likely disappear over time (four to ten years).
- While fear (whether reasonable or not) of health hazards is admissible in courts as an explanation of why diminution in property values has occurred, it is not a measure of the diminution in market value (amount) due to the lack of corroborating market sales data. Even if buyer attitudes have been influenced with the emerging support of fear concerns in both court cases and market-wide survey research studies, such studies focus directly on the attitudes and opinions of potential buyers, while market proximity impact studies reflect, identify, and measure the influence of those attitudes and opinions through actual market behavior.

Furthermore, according to the Kinnard-Dickey paper, issues requiring further research to determine impacts to property values, include:

- Conflicts with findings of paired sales studies and opinion/attitude survey research
- Consistency and comparability of results regarding property characteristics, characteristics of the claimed hazard, and variation of data availability among market areas at different times
- Buyer and seller behavior
- Preference for proximity impact analysis of recorded market sales versus survey research/opinion based on interviews and whether both are required to achieve appropriate market impact indicators.

In addition to a literature search on proximity analysis impacts, the CEC staff reviewed the *Analysis of Property Value Impacts of the Crockett Cogeneration Project*, submitted by the Applicant for the Crockett Cogeneration Project. The Crockett analysis cites several studies that examine the impacts on property values of very large industrial facilities. Such facilities include nuclear power plants, industrial waste incinerators, and landfills. As stated in the Crockett analysis, one or more of three methods were used to study impacts of property values:

- Hedonic pricing

- Contingent valuation
- Regression analysis of market sales data.

Hedonic pricing techniques analyze how the attributes of a good affect its price, and have been used in several of the studies to estimate the losses in sale price of homes due to possible exposure to technological or natural risks. The findings of previous studies in the Crockett analysis “yield an equivocal conclusion. Under some conditions facilities result in negative economic impacts and under other conditions they do not. Thus, even for very large facilities that are extreme in terms of their potential health, safety, and aesthetic impacts, there is no clear association with diminished economic impacts. Indeed, economic impacts are not clearly and reliably observed even for nuclear power generation facilities near residential properties” (Analysis of Property Value Impacts of the Crockett Cogeneration Project, Appendix X, Crockett Cogeneration Project, 1992).

Further, the Crockett analysis states that “there are many factors involved in purchasing a new home: affordability; age; size; schools; location; and so on, and it has simply not been demonstrated that a view obstruction would be a major factor in a property value decline” (Analysis of Property Value Impacts of the Crockett Cogeneration Project, Appendix X, Crockett Cogeneration Project, 1992).

The Kinnard-Dickey paper and the Crockett analysis cite several examples of proximity impact analyses, methodologies used to measure impacts, and types of possible proximity impacts on residential property values. Further, both studies conclude that differing, sometimes conflicting, findings have emerged from market studies. Despite the fact that many technical and conceptual issues remain untested and unresolved, the Kinnard-Dickey paper supports the use of the MRA in the Hedonic Pricing Model format, when a large data set of appropriately screened property sales is used.

The 2003 Wolverton-Bottemiller paper, “Further analysis of transmission line impact on residential property values” used a paired-sale methodology to look at difference in the sale price of a large sample of homes abutting transmission ROWs and homes away from transmission ROWs. This study looked at similar variables to the Crockett analysis, including lot size, lot configuration, topography, landscaping, age, number of bedrooms, number of bathrooms, and garage size. Similar to the Kinnard-Dickey paper and Crockett analysis, the Wolverton-Bottemiller paper finds that the data does not support home prices being affected by their proximity to transmission lines.

In general, claims of diminished property value through decreased marketability are based on the reported concern about hazards to human health and safety; and increased noise, traffic, and visual impacts associated with living in proximity to locally unwanted land uses (LULUs) such as power plants, freeways, high voltage transmission lines, landfills, hazardous waste sites, etc. The issue of property value impacts associated with such industrial facilities has been given much attention over the past 20 years, and as a result, has been the subject of extensive study.

While it is possible that property owners near the proposed Project may have the perception that their homes will diminish in value because of project implementation, the actual loss of property value and potential effects can only be tested through data from home sales. The MRA method, as supported by the Kinnard-Dickey paper, requires that data be collected on as many market sales transactions as possible within the impact area

and within one or more similar control areas over a few years prior to an awareness of a project to accurately reflect what buyers and sellers actually do as opposed to what potential buyers say they might do under specified hypothetical circumstances. The Wolverton-Bottemiller paper suggests that understanding the effects of transmission lines on home prices is a dynamic process, requiring on-going study, identification of accurate and reliable sources of data, consistency in measurement, and rich data sets, allowing for variety in analytical methods. To assess what particular environmental and physical changes associated with the proposed Project could affect property values within an immediate distance, a market study of current and future values of properties potentially affected by the proposed Project would have to be conducted to evaluate property values with and without the proposed Project being constructed. The data that would be required to conduct a more detailed analysis is unavailable, consequently, the conclusions of the Kinnard-Dickey paper and Crockett analysis are applied to this analysis. It is expected that the proposed Project would not generate effects that would significantly impact property values.

Although there is evidence that transmission lines have affected property values in some cases, the effects are generally smaller than anticipated. Impacts on property values result from visual impacts, or EMF. These issues and potential impacts are analyzed extensively in Section C.12 (Visual Resources) and Appendix 2 (Electric and Magnetic Fields). Without the appropriate data to analyze this proposed Project's impacts on property values, any conclusions regarding effects on property values would be speculative.

## References

- CPUC (California Public Utilities Commission). 1992. Analysis of Property Value Impacts of the Crockett Cogeneration Project, Appendix X, Crockett Cogeneration Project.
- Kinnard, Jr., W.N. and Sue A. Dickey. 1995. "A Primer on Proximity Impact Research: Residential Property Values Near High-Voltage Transmission Lines." *Real Estate Issues*. April.
- Wolverton, M.K. and Steven C. Bottemiller. 2003. "Further analysis of transmission line impact on residential property values." *Appraisal Journal*. July.