

Appendix 3A

Literature Review for Transmission Line and Housing Value Studies

TYPE OF EFFECT	AUTHOR(S)	STUDY TYPE	LOCATION	PROPERTY TYPE	IMPACTS ON PRICE
Visual, other	Solum (1985)*	Case study survey of property owners on the perceived effect of transmission lines on property values	Northwest Wisconsin	Rural residential, agricultural, recreational	The residential property owners were most concerned with visual impacts on property values. The agricultural property owners were most concerned with farming around the structures. The recreational property owners were most concerned with the loss of timber from land being cleared. All but one of the 23 properties affected by the transmission line sold at market value. The results show no effect on the prices of all three types of rural properties.
Visual, health and safety concerns	Delaney and Timmons (1992)	Case study survey of real estate professionals on the perceived effect of transmission lines on property values Appraisal-based case studies carried out by the appraisers	Across U.S., Appraisal Institute members	Urban residential	84 percent of respondents believed that the value of a property near a transmission line is negatively affected. The most common cited reasons were visual impacts and potential health hazards. The appraisers examined their own matched paired sales to determine that property values near a transmission line were 10 percent lower than other properties.
Visual, health and safety concerns	Kung and Seagle (1992)*	Case study survey of property owners on the perceived effect of transmission lines on property values	Memphis and Shelby Counties, Tennessee	Urban residential	50 percent of respondents considered the transmission line to have a negative visual impact while 47 percent did not. 72 percent of those who viewed it as having a negative visual impact said it had no effect on the purchase price. None of the respondents said they considered the health impacts of the lines in their purchasing decision, but 87 percent said if they had known of health risks they would have paid less.
Visual, health and safety concerns	Priestly and Evans (1996)*	Case study survey of residents (within 900 feet) on the perceived effect of a transmission line on the neighborhood	28 miles north of San Francisco	Suburban residential	87 percent of respondents said that the visual impacts and health and safety concerns had an adverse effect on their neighborhood. Those who lived in the area prior to the line installation had the most strongly negative perceptions. Distance from the line did not appear to affect perceptions.

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Visual	Rhodeside & Harwell (1988)*	Case study survey of property owners on perceived effects of transmission lines on property values	Virginia and Washington, D.C.	Urban, residential	The results show that 57 percent of respondents said the transmission line had no effect on property value, 27 percent said it had a negative effect due to visual impacts and 16 percent said it had a positive effect due to open space. Property owners who lived in the location before the transmission line was built had the most negative perspectives.
Visual, other	Economics Consultants Northwest (1990)*	Case study survey of property owners on perceived effects of transmission lines on property values	Western Montana	Rural and suburban residential	The results show that 50 percent of property owners within one mile of the transmission line felt it had a negative effect on property values. Only five percent of those within one to three miles had a negative opinion.
Visual	Beauregard Conseil, Enr. (1990)*	Case study survey of property owners on perceived effects of transmission lines on property values	Quebec, Canada	Rural and urban residential	The results show 49 percent of respondents were concerned with the visual impact of the transmission line while only 12 percent of respondents were concerned with the impact on property values.
Visual, proximity	Pitts and Jackson (2007)	Case study survey of realtors and appraisers on their opinions of the effects of transmission lines	Central California	Rural and urban residential	50 percent of the respondents said they had not observed negative impacts on sales prices or days on market due to the transmission lines. 50 percent of the respondents said they had observed negative impacts of two percent to seven percent of property values for those directly adjacent to a transmission line. The price impacts for properties not directly adjacent but with a view of the lines was zero percent to five percent. All affected properties could have an increase of zero to 60 days more on the market. Many respondents indicated that the price effects of transmission lines are more evident in a slow market.

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Visual, health and safety, and proximity	Bond, S. and Hopkins, J. (2000)	Case study survey of property owners on perceived effects of transmission lines on property values Case study based on regression model to examine the property sales with proximity to transmission lines	New Zealand	Urban, residential	The opinion study results show 80 percent of respondents had negative perspectives of transmission lines. Respondents with closer proximity to the line had more negative perspectives than those living further away. 60 percent of respondents cited negative visual impacts and 62.5 percent for health and safety concerns. The results of the sales analysis show a statistically significant effect for properties close to a transmission line structure with a 10 percent to 15 percent price decrease at 30 to 45 feet, decreasing to five percent at 150 feet.
Proximity	Jackson (2010)	Case study based on a regression model to determine price differences between properties near transmission lines and those at least one-quarter mile away	Wisconsin	Rural wooded, open and wetlands	While controlling for general market conditions and type of land, the results showed that the prices of properties near a transmission line sold for 1.1 percent to 2.4 percent less than comparable properties further away. None of the differences were statistically significant.
Proximity	Rigdon (1991)*	Case study based on a regression model of properties sold and distance to a transmission line	Marquette County, Michigan	Rural, recreational	The results of the relationship between sales price and proximity to a transmission line were not statistically significant.
Proximity	Colwell and Foley (1979)* and Colwell (1990)	Case study based on a regression model that examines the sales of properties over 10 years with their distance from a transmission line (all within 400 feet)	Holiday Hills and Windsor Village in Decatur, Illinois	Urban residential	The results show that the selling price of a property increases as distance from the transmission line increases. The price increases at a decreasing rate, where the greatest price impact of six percent is between 50 and 200 feet from the line. The lines have little or no effect at distances beyond 200 feet.

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Proximity	Hamilton and Schwann (1995)	Case study based on a regression model of property sales in close proximity to transmission lines	Vancouver, Canada	Urban residential	The results show that proximity was significant with respect to depreciation in property prices. The properties adjacent to a line lose 6.3 percent of value, due to visual impact. The properties further away from a line lose on average one percent of their value. Neither height nor voltage of the line had a significant impact.
Proximity	Des Rosiers (2002)	Case study based on a regression model of property sales over 5 years in three neighborhoods with transmission lines	Brossard, Montreal County, Canada	Urban residential	The results show that properties adjacent to a transmission line experience an average of a 9.6 percent drop (of the mean house price). Properties one to two lots away benefit from a market premium of 7.4 percent to 9.2 percent due to increased visual clearance. The properties at a mid-span distance experience a 4.7 percent drop because lines cause a visual obstruction. Properties with limited views of the line experience a 2.8 percent to 3.8 percent premium due to improved visual clearance. The net visual difference between the positive and negative aspects of proximity is highest between 50 and 100 feet from the transmission line, and diminishes quickly and completely beyond 150 feet.
Proximity and visual impact	Chalmers and Voorvaart (2009)*	Case study based on regression model to examine the property sales with proximity to and visibility of transmission lines	Connecticut and Massachusetts	Urban residential	The proximity to transmission lines was found to have an insignificant effect on sales price. The effects of the visibility of the transmission line structures were found to not have any significant effect on sales price.
Proximity	Wolverton and Bottemiller (2003)	Case study based on analysis of covariance of sales prices of properties and proximity to a transmission line	Portland, Vancouver and Seattle	Urban residential	The results show that property prices are not significantly affected by the presence of a transmission line. The data shows no difference in appreciation rates between homes close to a transmission line and those further away.

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Proximity	Boyer et al., (1978)*	Case study based on regression model of per acre agricultural property values and proximity to transmission lines Public Perception survey	Eastern Canada	Rural agricultural	The results show that the per acre values were 16 percent to 29 percent lower for properties near or on the transmission line path than similar properties further away. The adverse effects of proximity were largest on smaller properties. The impacts of the transmission line did not seem to be related to the voltage or physical size of the line. The transmission lines were met with the strongest public opposition during the planning and construction phases but their impact on the affected public's perception diminished over time as the lines became neutral components of the landscape.
Proximity	Goodrich-Mahoney, J., (2003)*	Case study based on regression model of property values and proximity to transmission lines	Entire U.S.		The results show the potential overall reduction in property price ranges from zero percent to 6.3 percent. More expensive properties are more likely to experience a reduction in price than less expensive properties. Smaller properties are more likely to experience negative effects of prices than larger properties. The adverse effects on selling price and property value are greatest immediately after a new transmission line is built, then diminish over time. Effects on sales prices are high for properties closest to the power lines (within 200 feet).
Proximity	Davis (2008 and 2010)	Case study analysis of household-level 2000 Census data of property values of neighborhoods where power plants were opened in the 1990s	Entire U.S.	Urban and rural residential	Housing values and rents of neighborhoods close to the power plants (as converging transmission lines) decreased by three percent to five percent between 1990-2000 compared to neighborhoods farther away. These declines are found in properties within two miles of the power plants.

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Proximity	Kinnard and Dickey (1995)	Review of case studies using multiple regression analysis on property values and proximity to transmission lines	New York, Maine, California	Urban residential	The studies generally show that the observed negative price, marketing time and sales volume effects of properties close to a transmission line are not statistically significant. The California case showed negative price effects between five percent and nine percent in properties within 200 feet of the transmission. These effects decreased over four to 10 years as trees and shrubbery grew to screen out the view of the transmission line.
Proximity	<u>Real Estate Appraisal Litigation, LLC (n.d.)</u>	<u>Case study based on regression model of property values</u>	<u>Tucson, Arizona</u>	<u>Urban residential</u>	<u>Loss in value for an improved single-family residential property close to power lines can range from 4.13 percent to 13.67 percent based on the analysis contained in the case study, and up to 25 percent based on some literature.</u>
Proximity	Kielisch (2006)	<u>Match pair analysis isolating the impact of the presence of a 345kV electric transmission line</u>	<u>Marathon County, Wisconsin</u>	<u>Rural vacant agriculture and recreational property</u>	<u>Impact on property values for vacant agriculture and recreational property ranged from a low of 15 percent when the power line traverses across the back fence line of a 20 or 40 acre parcel, up to 34 percent when it bisects a parcel along the quarter line.</u>
Proximity	Rolling and Biller (2006)	<u>Multiple regression analysis using property sales data from five counties</u>	<u>Northern Wisconsin</u>	<u>Rural vacant land subject to easement</u>	<u>On average, vacant rural land analyzed in the study area appeared to experience no more loss in value than 1 percent per one percent of land subject to easement. If compensation is paid at 100 percent of the fee value for the easement strip, in most cases there is very little room left for damages to the remainder.</u>

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<u>Proximity</u>	<u>Kielisch (n.d.)</u>	<u>Literature study</u>	<u>N/A</u>	<u>Various</u>	<p><u>Kielisch (2006, 2009) study of agricultural and recreation land in Clark County, Wisconsin found the land sales with an electric transmission line sold for 23 percent less than comparable land sales without a transmission line, and the more severe the location of the power line the greater was the loss of value.</u></p> <p><u>Rolling & Company (2005) study of property sales near a transmission line corridor but not directly encumbered by the transmission line in northeast Wisconsin found easement lots sold at approximately 12 percent less than lots located over 200 feet from the transmission lines and there was no clear impact on proximity lots – those that lie within 200 feet from the easement area but are not directly subject to the easement.</u></p> <p><u>Bolton (1993) study found that assessed values of properties that adjoined a power line easement had a 12.8 percent to 30.7 percent lower assessment than the average homes not on the line, but in the same area; and overall, homes adjoining transmission line easements took six times longer to sell and experienced a 10 percent to 30 percent loss in value.</u></p>

*Additional references: articles cited within previous literature reviews

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