

TRANSMISSION LINES & INDUSTRIAL PROPERTY VALUE

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“I wish they weren’t there, but the property would have sold for the same price with or without them.”

In the past five years, I have conducted several surveys to determine if transmission lines have an affect on industrial property value. The surveys included over 100 interviews with buyers, sellers, tenants, property managers and brokers in Northern California, Salt Lake City and Las Vegas. These interviews have helped me gain insight regarding these electrical transportation systems and their potential to affect value. As new corridors are constantly being acquired for transmission lines in established industrial areas, the probability that property owners will voice concern is quite good. It is therefore advisable that the appraiser and acquisition agent consider issues relative to these metallic giants that aren’t normally raised. The only rule of thumb to be gleaned from reading this article is that there is no rule of thumb. Every property is unique and must be analyzed individually based on its own characteristics.

For clarification, the term “industrial property” not only includes standard tilt-up warehouses and distribution centers, it also includes business parks, offices and even service-oriented retail uses. The term “transmission lines” is comprised of three primary components: **lines**, **towers** and **easements**. Each component has its own set of unique issues that will be discussed individually in this article. Instead of including formulas and percentages that I have personally found to be appropriate in assigning compensation for properties I have appraised with transmission lines, this article will hopefully encourage appraisers and others to analyze their own unique “transmission line” situation with new insight. I would hope, however, that the percentage of fee value assigned for an acquisition correlates with the rights being acquired.

Easement Rights

Easement: An interest in real property that conveys use, but not ownership, of a portion of an owner’s property.

An easement for a transmission line is basically created to protect the lines from interference. The most significant prohibition for a transmission line easement is typically the right to build a structure. Certain types of trees are also limited since their height could potentially interfere with the lines. It is up to the appraiser to determine exactly what rights are being, or have been, taken and if the denial of those rights impacts value in any way.



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In the analysis of a proposed easement that will deny certain surface uses, it is important to first understand what rights existed prior to the acquisition. Many transmission lines are found along a parcel’s perimeter where building rights might not exist because of building setbacks. In some business parks, landscaping setbacks where buildings are not permitted can be up to 50 feet in width (photo 1). Underground gas lines, drainage culverts, and utility line easements also typically prevent structures (photo 2). One must determine if a new

transmission line easement actually denies any current or potential use for that portion of the property.

Sometimes certain structures might be allowed in a transmission line easement. Portable self-storage units and entry monuments are possible exceptions (photo 3). While looking at properties in Las Vegas, I saw a transmission line tower protruding through a casino rooftop. (photo 4). However, it's fairly safe to assume that habitable structures are not allowed in a transmission line easement.



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The rights being acquired should be associated with Highest and Best Use when weighing potential compensation and damage. If the Highest and Best Use is a parking lot and no change in use or design is probable, the transmission line easement prevents nothing. On the other hand, one must be aware that any potential future change in use could significantly alter that conclusion.

Size of the Easement

Easements for 115 kV or 230kV lines are approximately 50-100 feet wide. The actual size of the easement is certainly not the sole determinant as to whether or not value has been affected. There are a number of other factors that must be considered concurrently before an opinion regarding compensation can be reached.

Obviously, as the size of the easement increases, the area available for structures decreases. Since value is dependent on Highest and Best Use, coverage or floor area ratios (FAR) are vital factors to consider. Zoning and Land Use ordinances will usually provide the legal maximum for coverage or FAR, but the market will dictate the most probable use within those zoning limitations. Simply because zoning may allow a maximum coverage of 50%,

the market may be oblivious to that allowance. One must determine the actual coverage practiced in the market area before considering any potential impact. For instance, if zoning allows a maximum of 50% coverage, and the proposed transmission line easement covers 60% of the site, one might conclude that since the easement affects the buyer's ability to obtain maximum building size, Highest and Best Use is adversely affected. However, would the same conclusion be reached if all of the buildings in the area have coverage ratios of only 20%? Consider both zoning requirements and market demand.

I was surprised to find absolutely no impact on value for typically shaped, level parcels encumbered with transmission line easements up to about 30% of the parcel's size. These properties had coverage ratios of up to 50% in a market where maximum coverage was sought. If 50% of a property is used as a building pad, then the remaining site is typically used for parking, outdoor storage or landscaping. Since transmission line easements typically allow these types of uses, the easements don't affect the usefulness of those areas of the parcel. Therefore, Highest and Best Use was not affected and no diminution in value was observed.

I found several sales of parcels that had a 50% encumbrance from transmission lines with only a 10%-20% drop in value. In other words, even though the buyer was forced to place the building on the only area of the parcel that was unencumbered, value was only slightly affected. As one buyer told me, "I was able to get the building size I wanted, so I paid about \$1/square foot less for the land." At that time, similar parcels were selling for about



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\$9/square foot (photo 5). Another person who sold a similarly encumbered parcel said that the price was only affected “slightly” because of the transmission line easement. A Matched Paired Sales Analysis (MPSA) supported his statement (photo 6). In each of these examples, the buyer was forced to place a building on one specific portion of the parcel, but the price for the land was only slightly affected because the potential building size had not been diminished. Obviously, the most important consideration for these buyers was building size. The visual aspect of the transmission lines was inconsequential to them.

Position of Easement on Site

In most cases, a new transmission line easement will usually follow a property line, but occasionally bisects a parcel. Once again, if the position of the easement adversely affects Highest and Best Use, value could be affected. If the Highest and Best Use for a parcel is a single industrial building and the transmission line easement bisects the parcel in a manner that prevents a single building with the maximum allowable size, value will likely be harmed even though the total allowable building size is achieved if two or more buildings are constructed. In addition, the configuration of the parcel

must also be fully considered. If the dimensions of the unencumbered portion of the parcel are inconsistent with the preferred dimensions of a potential building, Highest and Best use might be impacted.

A land sale of a property in Santa Clara, CA, was analyzed to determine if the lines that bisected the parcel impacted price. In this case, FAR could be easily achieved,

but only if two buildings were constructed on the site in a neighborhood where single buildings were in demand. The site had no further subdivision potential (photo 7). A MPSA supported a 38% drop in land value.

In terms of a “forced,” or predetermined, building configuration created by an easement, I found a land sale of a future Fry’s Electronics store in Fremont, CA. As the aerial photo illustrates (photo 8), the shape of the building was dictated by the size and shape of the easement in relationship with the shape of the parcel. According to the buyer and seller’s broker, this situation, along with a 50% encumbrance including six lattice towers, only resulted in a 15%-20% drop in price. When analyzing impact due to a predetermined building configuration, remember that industrial buildings are built to conform to the shape and characteristics of the site, not the other way around. At the same time, fully acknowledge if Highest and Best Use has been affected in terms of building configuration.



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TL easement area



Photos courtesy of Terraserver.com

Towers and Placement

There are two basic tower styles for Transmission Lines over 115 kV in size: lattice and tubular steel.

Lattice towers have been around for over 100 years, whereas tubular steel towers are relatively new. Tubular steel towers are by far the tower of choice by electric companies in urban areas for several reasons. Tubular steel towers cost less to maintain, create less visual presence, and less land is required for foundations. Towers can be as short as 50 feet or as tall as 200 feet. Most 230kV towers are in the 75 feet-110 feet range. Tower height is

related to the span between towers and the weight of the lines: the greater the span, the taller the tower. The base of a tubular steel tower occupies from 9 to 25 square feet depending on the tower's diameter, while the lattice tower usually takes from 100 to 1,000 square feet of land. Since the value of the base area to be acquired can be close to fee value, steel towers are far less intrusive than their lattice kin.

When analyzing an acquisition that includes a tower, especially a lattice tower, it must be remembered that in addition to the actual footprint, more land is usually affected. For instance, if the lattice tower is in the middle of what will probably be a parking lot, a buffer will be required between the edge of the footprint and the edge of the parking lot (photo 9). If the parking lot is for a more upscale development, perimeter landscaping might better unify the tower area with the parking lot. These buffers are typically from 1 to 10 feet around the perimeter of the base. Therefore, the actual area affected by the footprint should include a possible buffer.

Of even greater importance than the footprint itself is the position of the footprint for the tower in relation to the

utility of the parcel. Towers are obviously least intrusive when located in existing setbacks for landscaping. Even if located in a building setback, parking lot design could be affected. It is important to consider if and how the tower might affect both parking and vehicle maneuverability on the site. The potential for a problem becomes greater as the number of towers increase. Consider discussing these types of situations with a parking lot designer or site-planning consultant to better understand the ramifications of tower placement and possible alternate solutions. It must be remembered that an industrial project is usually specifically designed for the site. If the site is improved, the affect of the easement and towers will likely be obvious. Placement of towers has as much potential for damage as does a typical easement. The towers are physical obstacles that can prevent proper and full use of a site. But effective site planning might reduce or even eliminate significant effects from the towers.

In an industrial business park in Roseville, CA, where large lattice towers occupy sizable areas in the middle of a parcel, I was told that the towers were a "headache" from a site-planning standpoint, but otherwise





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didn't reduce the project building size. I was also told that the areas within the footprints of the towers were not entirely wasted areas since they contributed to the project's landscaping requirement and were used in the FAR calculation (photo 10).

Considering the impact of tower placement is very important when selecting sales for a matched paired sales analysis. Be sure that the sales selected represent your own situation.

Visual Impact from Transmission Lines

The presence of transmission lines has been described as being "out of place" with the theme of a modern business park. Visual impact can also be a result of the uncommon appearance of the towers and lines in a particular setting. But during my survey, it was surprising to me how large transmission lines went virtually unnoticed in a business park setting.

A broker I interviewed in Salt Lake City had to be reminded that there was indeed a large transmission line bisecting the property he had listed for rent (photo 11). "I forgot they were even there," he said. Part of the reason he didn't remember was probably because transmission lines are common sights in areas south of Salt Lake City. Since they are not visually unusual, they are not exactly "out of place" with the region. The broker also said that the transmission line had no affect on rent so "they don't matter."

The best method to use when evaluating whether or not the visual presence of transmission line impacts value is to simply ask those who are located along the routes and brokers who have actually participated in transactions with transmission lines. As long as there are a sufficient number of buyers for a particular type of property, value is likely unaffected. Simply because 10% of the market would never locate next to a transmission line, that doesn't mean value has been damaged.

My surveys include "worst case" scenarios. I will purposely find the largest tower located as close to a building as possible

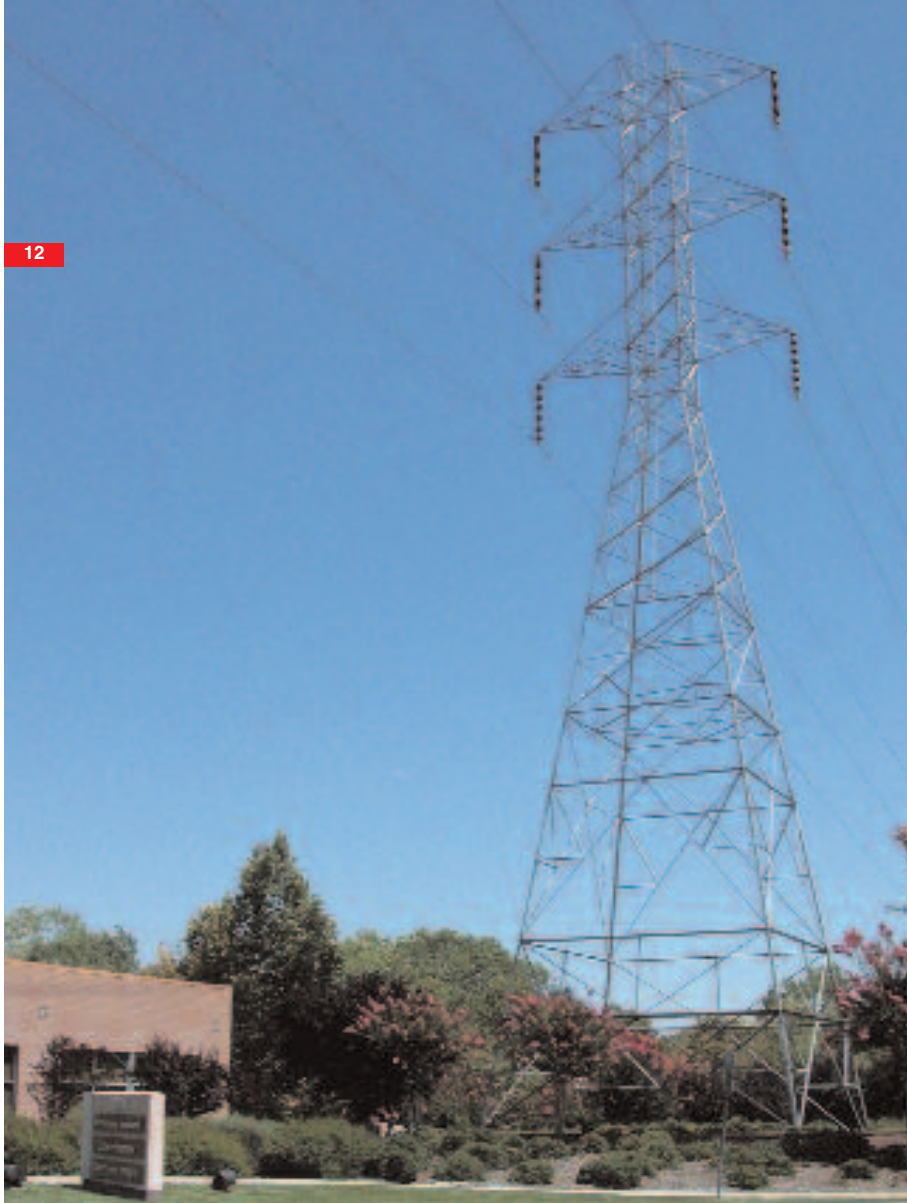


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before I knock on their door (photo 12). Here are some sample questions for a property owner to determine if the transmission line affects rent or price.

- Did the transmission line influence the price you paid? If so, approximately how was the price discounted? If discounted, was the discount because of the towers, size of the easement, EMF or a combination of factors?
- Were the lines discussed at all during negotiations?
- When you first saw the transmission line, what did you think?
- Did you have any concerns relative to employee reaction?
- Have you experienced any problems with electronic equipment attributed to transmission lines?
- Have clients or customers ever mentioned the transmission lines?

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Don't stop asking questions!

If a broker states that the lines have a negative impact, try to determine exactly why to make sure that their reasons are consistent with the type of situation you have for the property you're appraising. For instance, if your property doesn't have any towers, it might be inappropriate to assign damage based on examples with towers.

Property managers are also great resources when conducting interviews to determine if transmission lines have a negative impact on value in a business park. Not only will they provide you with their own direct experience in dealing with perhaps hundreds of potential tenants, they can also give you "proof" in support of their opinion. As shown on (photo 13) of a business park in Hayward, CA, the property manager stated that no one in the past few years has ever mentioned the lines that run along the entire front of the park. A rent schedule was provided that clearly illustrated that rents for units facing the lines were the

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Questions for brokers are slightly different:

- During the time the property was listed for sale, did you lose any potential buyers because of the lines?
- What were the types of comments, if any, made about the transmission lines?
- Was the property on the market any longer than usual due to the lines?
- Was the price adjusted because of the lines?
- Do the lines affect potential building size or use?



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same as rents for units outside visual range of the lines. This type of Matched Paired Rent Analysis can be very revealing. A property manager for Speedway Commerce Center in Las Vegas also stated that the transmission lines have no affect on rent (photo 14 & 15).

A property manager for an office park in Silicon Valley was asked if the lines along the frontage have any affect on rent. She said, "It depends on who you're talking to. If we're talking to PG&E, they (the transmission lines) make a huge difference. But in reality, no one seems to care." Yet another property manager for a business park in Fremont, CA. (photo 16) said, "They (transmission lines) should make a difference, but they don't," A leasing agent in Sandy, UT, said. "We leased 180,000 square feet (in this project) and no one ever mentioned the transmission line."

EMF, Health and Electronic Equipment

Electronic magnetic field (EMF) is known to influence the operation of at least two types of commonly-used electronic equipment: the cathode ray tube (CRT) computer monitor and the electron microscope. Though the older style of monitor (CRT) is slowly phasing out of modern business parks (especially in Silicon Valley) software can correct the effects from EMF at a minimal cost. Effects of EMF on electron microscopes must be dealt with a bit differently.

It is not within the appraiser's area of expertise to determine if claims are accurate regarding health concerns or how EMF could affect electronic instruments. It is our job to determine if the market reacts to those claims.

In addition to asking those who work in the shadow of a transmission line if they notice any problem with their monitors, I also interviewed the store managers for Fry's Electronics and Circuit City in Fremont, CA, to find out if retailers of electronic equipment have any problems with their equipment due to EMF. Both stores in Fremont are adjacent to two rows of 230 kV lines. No one at either Fry's or Circuit City said that the transmission lines caused any problems. However, I found that when an older computer monitor is within about 20-30 feet of a

transmission line, there is the potential for occasional flickering. Apparently, the monitors in the retail stores were further away from the lines.

I also found two computer repair shops next 230 kV lines. Both owners said that the lines don't cause interference with their equipment.

I was able to locate a company that uses electron microscopes next to 230 kV lines and was told that more concerns exist regarding EMF from inside the building than outside. I was also told that the recently signed lease agreement for the building was not affected at all by the presence of the transmission lines.

If an electron microscope is already in place when the TL arrives, the area in which it lives might have to be "re-strategized." Companies with electron microscopes must perform a study to properly place the instrument regardless of the external presence of transmission line. Since EMF from internal wiring, elevators, automatic door openers, microwave ovens or even a vacuum cleaner can disrupt the function of an electron microscope; a careful analysis for placement must be performed regardless of transmission lines.

The health issue question was asked repeatedly during the survey. While a few of the people interviewed "wondered" if the lines have any effect on health, far more were not at all concerned. I spoke with the directors of personnel for several companies located next to 230 kV lines and was told that the lines are a "non-issue" when it comes to employee concern. I did not find one example of lower rent or price because of health concerns.

Matched Paired Sales Analyses

When the properties being compared only have one basic difference, a MPSA can be very helpful. Sadly, the method becomes less effective with every additional





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dissimilar characteristic found in the paired sales. When dealing with industrial properties that generally have a variety of dissimilar characteristics in need of adjustment, it takes more effort to produce a reliable result. Use more than one “paired sale” for this type of analyses.

An MPSA should still be used, but not without interviewing those involved in the transactions. Does it make sense for a property owner to state that the lines had very little impact, but your MPSA somehow produces a 50% drop in value to the remainder? I’ve seen a few appraisers stand firm next to their matched pairs that mathematically “prove” transmission lines severely damaged the remainder. But none of their sales analysis included a confirmation from the buyer or seller. If their calculations were correct, then it shouldn’t be difficult to obtain a few quotes from actual participants to that effect. An MPSA should be used, but not without confirming the sales.



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Also, supplement the MPSA with a matched paired rental analysis (MPRA). If your MPSA differs from your MPRA, further discussion is in order. If -income from a typical industrial property is unaffected by transmission lines, why should value be affected? When asked why he paid the same for a property surrounded by 230kV lines than for properties unaffected by transmission lines, a buyer in Fremont, CA, said, “If they (transmission lines) were next to my house, that would be different. But this is business. They made no difference.” (photo 17)

Summary

For the most part, the attitude from participants in my survey is basically summed up by a broker in Roseville who sold a medical office building within 20 feet of a large lattice tower for 230 kV lines (refer to photo 12). He said, “I wish they weren’t there, but the property would have sold for the same price with or without them.”