



SAFETY AND SITING FACTS

Electricity is the foundation of a strong, vibrant society. The economic prosperity and geographic development of a region are almost inextricably linked to the availability of safe, reliable power.

The high-voltage electricity infrastructure that supports the movement of power in the United States was established nearly 100 years ago. Today, approximately 200,000 miles of high voltage transmission lines carry energy from power generating facilities to cities and other demand centers where electricity is needed; nearly all of those lines are sited overhead.

ITC is actively pursuing transmission projects that will address reliability and congestion issues, support increasing demands for electricity, promote community safety and facilitate the participation of renewable resources on the electric grid. These projects regularly prompt customer and governmental inquiries about the feasibility of siting transmission lines underground. While ITC generally sites all transmission lines above ground because of efficiency, cost, and maintenance factors, the following questions and answers (*reverse*) address this issue in more detail. They will help community members understand the complexities associated with transmission lines.

Overhead Versus Underground Transmission Lines:

FREQUENTLY ASKED QUESTIONS

Q: *Won't underground lines eliminate the need to cut down trees along the project route?*

A: No. Underground projects are very complex and involve more than merely taking an overhead line and placing it in the ground. The trenching involved with installing an underground transmission line is extensive and deep. Trees growing in the right of way may have root systems that could be seriously damaged by underground excavation and equipment. This damage can destabilize trees and may require their removal in order to ensure the safety of those living and working around transmission lines. Even if a tree is not removed, the loss of significant root structure due to underground lines will weaken and potentially kill it.

Q: *What approach does ITC use in determining if a line will be installed overhead or underground?*

A: ITC has been unequivocal in its approach to all transmission projects regardless of location: Whenever possible, new transmission lines are sited above ground because underground lines are less efficient, cost significantly more, have unique maintenance requirements, typically involve substantial traffic disruptions while being installed, can require significant vegetation clearing, and present challenges in emergency situations. Only when right-of-way and clearance issues prevent ITC from erecting overhead lines on towers will the company pursue an underground option. The very structure of the utility industry is such that customers ultimately pay for the cost of the system investments; ITC pursues the most cost-efficient transmission improvements possible.

Q: *How much extra do underground lines cost?*

A: The additional expense incurred to install underground transmission lines varies substantially from project to project and depends on factors such as line length, voltage, geographic location and availability of easements. In general, underground transmission lines are five to six times more costly to install than overhead lines on 120 kV routes and are less efficient. The structure of the utility industry is such that customers ultimately pay for the cost of the system. As such, ITC is committed to providing its customers with the most reliable, efficient and cost-effective transmission system possible to ensure that their energy needs will be met.

Q: *We have an underground ordinance that requires all new utility lines to be buried. How are you going to meet this requirement?*

A: Like other utilities, ITC is required to follow the law. Michigan law provides, however, that a certificate of public convenience and necessity granted by the Michigan Public Service Commission takes precedence over a conflicting local ordinance, including ordinances that regulate transmission location.

Q: *Why have you used lines underground in some projects and not others?*

A: ITC only sites lines underground under unique circumstances. The company has only installed one new underground line since it took ownership and operation of the transmission systems that serve most of Michigan's Lower Peninsula. That line, the Erin-Stephens #3 120 kV line in the Eastpointe area north of Detroit, was sited underground because it ran through a densely populated area where sufficient right-of-way to site the line overhead was unavailable. Underground transmission lines that operate at the same voltage as proposed overhead lines have only about one half the capacity of the overhead transmission lines. Planning of the transmission system must also take into consideration the impact of long restoration times, usually several weeks, for underground transmission if a line failure occurs. Underground transmission lines have different characteristics than overhead lines, like lower impedance and greater charging current. Widespread use of underground transmission presents serious technical issues and would be impractical to implement. In summary, underground transmission is reserved for specific circumstances where the installation of overhead construction would not be physically or technically possible, e.g., urban areas, downtown urban centers, airports or major freeway crossings.

Q: *Won't underground lines have less impact on residential property values in the area?*

A: There is no simple answer to this question. Many factors affect the market price of real estate including the availability of community services, proximity to schools, parks and other amenities, the quality, age, size and design of the property, topography, neighborhood perceptions, the selling market, and so on. Overhead and underground transmission lines, by themselves, are not generally a significant influence on a property's value. Factors such as property location, home improvements, and lot size are more likely to be major determinants of property value.