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Smart Growth Planning & Electric Transmission Facilities

Here are some suggestions for community planners and zoning officials on how to plan for electric transmission facilities in the Smart Growth planning and zoning processes.

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For further information on electric transmission lines and the electric industry . For further ideas on Smart Growth planning for electric lines please contact Paul Rahn at (608)267-8967 or e-mail him at paul.rahn@psc.state.wi.us .

What are electric transmission lines?

Electric transmission lines carry electric energy from power plants to local communities. A distribution substation reduces this high-voltage energy and transfers it to lower voltage distribution lines, which carry the energy down streets closer to individual houses and businesses. In Wisconsin, transmission lines range in size from 69 kilovolts (kV) to 345 kV. One transmission line circuit consists of three conductors (wires) and transmission structures typically carry one or two circuits. One or two static wires on top of the structures help protect the line from lightning strikes. Their rights-of-way vary from a width of 40 feet to 150 feet, or more if there are more than one set of structures on the right-of-way.

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Why are electric transmission lines an important element in land use planning?

Chapter 66.1001(2)(d) directs communities to map existing utilities, including electric power plants and transmission lines, and to develop objectives, policies, goals, and programs to guide their future development. Many existing transmission lines will need upgrading over the next decade. Many new transmission lines and substations will be needed to serve Wisconsin's growing electricity use.

The owners of Wisconsin's electric transmission lines are the American Transmission Company (ATC), Dairyland Power Cooperative (DPC), and Xcel Energy. When more transmission capacity or service is needed in an area, two of the main goals of these entities are: 1) to upgrade existing transmission lines whenever possible, rather than to build new transmission lines, and 2) to build new electric transmission lines where existing lines are now located. The alternative is to acquire many miles of new rights-of-way in new locations.

Electric transmission lines are generally a permanent fixture on the landscape, but in the past, they were seldom considered in land use planning. Given the need for many miles of new and upgraded transmission lines, communities may wish to fulfill the requirements of Chapter 66.1001 by identifying the location of existing transmission lines, deciding if their current location is more desirable than a new location, and taking steps to protect the existing and possible future transmission corridors from conflicting land uses.

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What land uses conflict with electric transmission line?

Any residence or occupied building, if located too near an existing transmission line right-of-way, may make it difficult or undesirable to site new transmission lines in that location. The Wisconsin Division of Aeronautics enforces Federal Aviation Administration rules that restrict the location of aboveground transmission lines near public airports and private airstrips. Due to concerns about the potential harmfulness of magnetic fields, many people do not want electric transmission lines located adjacent to school properties.

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What land uses are compatible with electric transmission lines?

Farming (including Christmas tree farms), gardening, greenspace or conservancy, and parking lots are compatible with transmission lines because the land under or around the transmission lines can continue to be used for these purposes. In some Wisconsin communities, electric transmission line rights-of-way are used for bike paths, horse trails, or even snowmobile trails. Industrial areas and businesses are generally considered compatible with electric transmission line corridors, so long as buildings are not so close as to restrict future corridor use. Roads and railroads are often good locations for electric transmission lines, because these are also linear land uses. In residential areas, lots adjacent to transmission lines are sometimes larger and thus may be considered more desirable by some.

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Why should communities be interested in planning for the location of future electric transmission lines?

Wisconsin's transmission line owners will need to make major upgrades to the electric transmission line system over the next decade. This is due to a number of factors, including the age of existing facilities, increased electricity use by a growing Wisconsin population, and the change in national regulation of utilities. Communities that have planned for new electric transmission lines (for example by protecting existing transmission line corridors) will experience less disruption and uncertainty when transmission line owners must route new

facilities.

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How can communities get information about the location, voltage, right-of-way width, and purpose of existing transmission lines?

A GIS database is available that shows the location of generating plants, electric substations and electric transmission lines in Wisconsin. For an electronic or paper map of electric facilities in your area contact Bill Fannucchi at William.Fannucchi@psc.state.wi.us or (608)267-3594.

For further information about a specific electric line, contact the appropriate electric line owner. The map below shows the general location of transmission lines owned by ATC, DPC, and Xcel. For the ATC counties contact Charlie Gonzales at cgonzales@atcllc.com or (262)506-6835. For counties served by DPC & Xcel contact Don Neumeyer at Don.Neumeyer@psc.state.wi.us or (608)267-9304.

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How can communities get information about which electric transmission lines need upgrading? Where new transmission lines are needed?

The ATC yearly develops plans for transmission line improvements in five planning zones in eastern Wisconsin. Xcel and DPC also conduct transmission line planning. For Xcel and DPC contact Don Neumeyer at (608) 267-9304 or by e-mail at Don.Neumeyer@psc.state.wi.us.

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What can be done to protect an existing transmission line right-of-way from conflicting land uses?

There are a number of possible means to protect rights-of-way, whether through planning or zoning activities. Once communities are aware of the existing and future electric system, they can decide what's appropriate for them. Here are some options:

- Identify a strip of land along an existing transmission line as a "transmission corridor", dedicated to future use, if needed, for an additional transmission line, or a larger replacement line. Protected corridors could vary from about 50 to 150 feet on each side of the transmission structure (or 300 feet on one side) depending on the size of the existing right-of-way or other factors.

- Define set-backs or lot sizes for new residential or other developments adjacent to transmission lines, so that buildings don't constrain future use of the right-of-way.

- If property adjacent to an existing transmission line is to be developed, require the developer to dedicate land along the line to the local government for a parkway, bike path, or buffer area.

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Are there other ways to avoid conflicts between existing land uses and new electric transmission lines?

A community may wish to identify some other linear feature than an existing transmission line as a future transmission corridor. For example, when new roads are built or existing roads widened, additional right-of-way might be purchased or reserved for possible future use for a new electric line.

New developments usually include plans for water, sewer, and roads, but seldom for electric service. It might be a good idea for each new development to include a check-in with the local distribution utility so that if a new distribution substation is needed, land for the substation can be included in development plans.

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Maps

Some documents on this site are in Adobe Acrobat PDF format. To download a free version of Adobe, click here.

(654kb)	11" x 17" map showing the general location of transmission lines owned by ATC, DPC, and	7/18/2003

	Xcel.	
(823kb)	8.5" x 11" map showing the general location of transmission lines owned by ATC, DPC, and Xcel.	7/18/2003

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Related Sites

American Transmission Company (ATC)
Utility Service Maps

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PSC - Smart Growth Planning & Electric Transmission Facilities

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consists of three conductors (wires) and ...
psc.wi.gov/utilityinfo/electric/newsinfo/smartgrowth.htm