

Transmission planning through construction: A decade-long process

Public utilities have a legal obligation and responsibility to assess the electric system and plan and build the facilities necessary to deliver reliable electric service to customers. Building new transmission facilities to carry electricity isn't a quick and simple process. It can take up to 10 years to assess needs, plan and study alternatives, prepare and file regulatory documents, host public meetings, negotiate easements, and engineer and construct the lines. Numerous regulatory agencies are also involved in the process. Below is an in-depth look at the timeline in Minnesota.

System assessment (ongoing)

Transmission planners continually evaluate the transmission system, and based on load growth forecasts (customer electricity use) and other factors identify system additions or enhancements that need to be made. Some factors include: system performance, reliability standards, interconnection requests for new customers and power plants, need for replacement of aged or undersized facilities, eliminate constraints, and regulatory and legislative energy policy goals. Most utilities update their plans every year.

Evaluate alternatives (1-2 years)

Planners use sophisticated computer models that simulate the operation and performance of the transmission system under various scenarios. When system needs or inadequacies are encountered during evaluation, alternatives are identified – upgrading a line to a higher voltage, adding substations or proposing new transmission lines, for example – and improvements are made to ensure the system continues to deliver reliable electricity. Planners work with neighboring utilities and other stakeholders to identify preferred upgrades and alternatives. Cost and environmental and social impacts are considered. Planners work with the Midwest Independent Transmission System Operator (MISO) and the Mid-Continent Area Power Pool (MAPP) to conduct this planning, including open forums attended by regulatory agency staff and other interested persons and organizations.

Project scope (six months)

After evaluating the alternatives, utilities develop detailed project scopes, including budget, engineering details and timing. Both preferred and alternative projects and/or routes are further developed.

Preparation of regulatory documents (1-1.5 years)

In Minnesota, the most common document required for regulatory approval of a transmission line is a Certificate of Need (CON) application, which includes a project overview with specific details on need, project descriptions, electric projections, system configuration, policy issues, alternatives, general routes, cost and environmental information. Similar regulatory approval processes are required in all states.

Certificate of Need application (1-1.5 years)

Depending on the project's scope, a state regulatory agency can take 12 months or more to review the application. In Minnesota, an administrative law judge (ALJ) is appointed by the Public Utilities Commission (PUC) to oversee the proceedings, including scheduling, filing of testimony, intervenor involvement, and public and evidentiary hearings. After hearings are complete, the ALJ reviews all documents, testimony and public comments, and makes a recommendation to the PUC on whether the CON should be granted. Both written and verbal comments, as well as attendance at environmental scoping meetings, are taken throughout the proceedings and included in the official record. The PUC makes the final determination on the need for the proposed transmission lines.

Route proposal development/route application filing (1-3 years)

Route development teams use state-mandated criteria to develop at least two route options. The PUC evaluates the application, holds public hearings on the potential routes and certifies the final route. In Minnesota, the Department of Commerce, Office of Energy Security will develop an Environmental Impact Statement. Public comments can be submitted throughout the process. In some cases, the Route Permit application is combined with the Certificate of Need application into a single proceeding.

Agency filings (1 year)

Depending on the type of land that could be impacted, various federal agencies may be involved in reviewing and approving environmental aspects of the transmission line proposal. In most cases an Environmental Assessment Worksheet is prepared. In others, a more detailed Environmental Impact Statement is prepared.

Easements (1 year)

When a Route Permit application is approved, utilities begin negotiations with landowners to acquire easements for construction and maintenance of the project.

Engineering/surveying (1 year)

Detailed, site-specific surveying is done concurrent with easement negotiations.

Materials acquisition (1 year)

Construction materials – concrete, transmission line towers and conductor/wire – can often take up to one year or more to obtain. During this time, preparation for construction occurs, including scheduling construction crews and identifying staging areas.

Construction (1-2 years)

Depending on the line's scope and size, construction can take two years or more.

Energizing the line

The newly constructed line is connected to the existing transmission grid and tested for reliability and safety. Once it passes all testing requirements, it is energized to deliver electricity.