



THE VISION OF CAPX2020

Utility providers in Upper Midwest use a regional model to meet long-term energy needs

BY CRAIG POORKER, SR/WA AND PAM RASMUSSEN

After years of planning, debate, and regulatory procedures, one of the largest transmission projects in the country is on track to be completed by 2015.

The Electrical Landscape

Much like in other parts of the United States, Minnesota and its surrounding states had experienced tremendous population growth between the 1980s and 2000s. Several communities, particularly along transportation corridors and in suburban areas, needed stronger connections to the transmission grid to accommodate the electrical demand and ensure its reliability.

It became evident that Minnesota's electric transmission system—the high-voltage power lines that transmit electricity from power generation plants to customers—was in dire need of an upgrade and expansion. The last major upgrade of the region's electric transmission infrastructure took place more than 30 years ago. Since then, not only has the population grown, but home sizes have nearly doubled, and appliance and electronic device usage has increased exponentially. For example, in 2007,

the average household had 25 consumer electronic products as compared with 1975, when the average household had less than two.

In the mid 2000s, Minnesota established a goal for utility providers - to generate 10 percent of their electricity from renewable sources. That goal was expanded in 2007 when the Next Generation Energy Act passed, which included a requirement that utilities provide 25 percent of electricity from renewable sources by 2025. Xcel Energy was required to provide 30 percent by 2020 due to prior agreements regarding the storage of waste at nuclear plants in the state.

There's no escaping the fact that energy usage and demand continues to soar. In 2010, the U.S. Department of Energy projected electricity consumption to increase one percent annually through the year 2035, despite energy conservation efforts.

A Regional Concept

In 2004, a group of transmission-owning utilities in Minnesota began studying options to collaboratively expand the high-voltage transmission grid in the region. At the time, the concept of regional planning and development was relatively new. In the past, each utility would build its own power plant and construct a transmission line to connect it to their service area. However, with the increased demand, coupled with federal reliability standards and renewable electric generation, a new model of planning and development was needed.

To ensure the backbone transmission system was developed and available to serve Minnesota's growing needs, 11 transmission-owning utilities formed CapX2020, which stands for Capacity Expansion by the Year 2020. The CapX2020 utilities are investor-owned, electric cooperatives and municipals who share a common purpose - to expand the electric transmission grid and ensure continued reliable and affordable service.

Because nearly all Minnesota utilities participate in CapX2020, the project beneficiaries include the majority of the area's electric customers. The utilities include Central Minnesota Municipal Power Agency, Dairyland Power Cooperative, Great River Energy, Minnesota Power, Minnkota Power Cooperative, Missouri River Energy Services, Otter Tail Power Company, Rochester Public Utilities, Southern Minnesota Municipal Power Agency, WPPI Energy and Xcel Energy.

A Phased Approach

Following a series of long-term planning studies, the CapX2020 team determined that more than 700 miles of transmission lines would be required at an investment of \$1.9 billion. The initial project funding required that the joint utilities allocate planning, regulatory and legal staff.

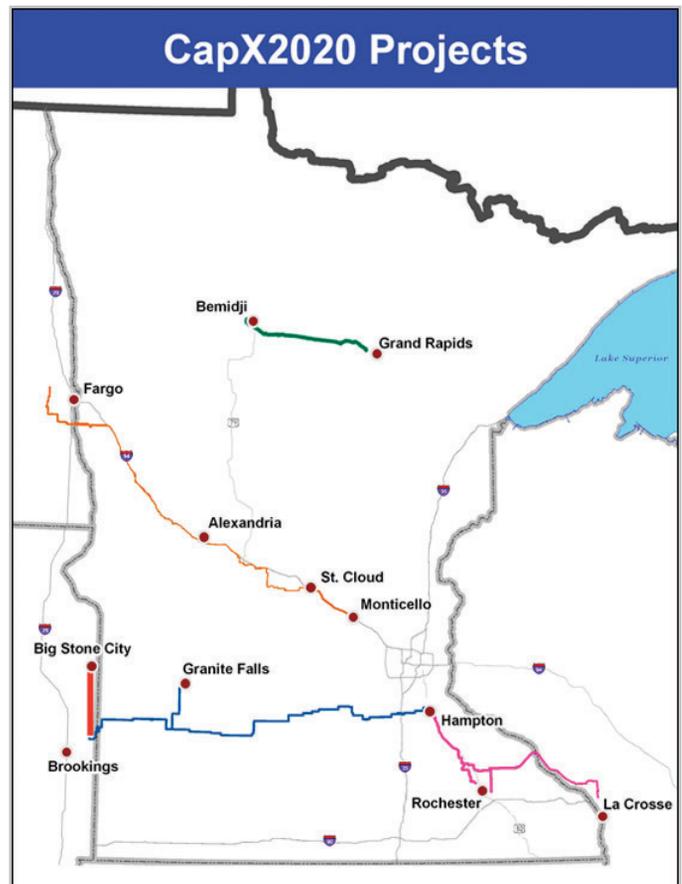
Eventually, more formal agreements were developed in which the utilities provided funding based on their level of participation in projects that served their area.

The new transmission lines were to be built in phases designed to meet the increasing demand, while supporting renewable energy expansion. To effectively plan and manage this multi-phased project would require a large team of project managers, right of way specialists, transmission system engineers, legal and regulatory specialists, public affairs and communications professionals, and environmental/permitting staff.

The proposed projects included a combination of 345 kV and 230 kV lines and included the following segments:

- Bemidji to Grand Rapids, Minnesota (70 miles)
- Brookings County, South Dakota, to Hampton, Minnesota (250 miles)
- Fargo, North Dakota-St. Cloud/Monticello, Minnesota (240 miles)
- Hampton, Minnesota-Rochester-LaCrosse (150 miles)

All projects are expected to be in service by 2015. Where the need was more pressing, such as the St. Cloud-Monticello area, the project was accelerated and placed in service in December 2011. The Bemidji-Grand Rapids project was completed in 2012.





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CapX2020 UPDATE

The Fargo-St. Cloud 345-kV transmission line project preferred and alternate routes detailed in the map below were filed in a Minnesota Route Permit application on October 1, 2009. The route options were developed based on a review of required routing criteria and information compiled from landowners, local government officials, state and federal agencies, and other interested stakeholders. A Route Permit from the Minnesota Public Utilities Commission is required before the project can be constructed. The Commission determines the transmission line's final route and design. Please continue to be involved with this important project.

North Dakota route options will be developed and the required regulatory permits filed in 2010.

Fargo-St. Cloud route options

Legend

- Preferred Route
- Preferred Route Segment Alternatives
- Alternate Route A
- Municipal Boundary
- County Boundary
- Lakes
- Streams

Project development manager contacts - Xcel Energy

Danica Lahe, routing lead
 Jerry Chalk, project manager
 PO Box 9451
 Minneapolis, MN 55440-9451
 1-866-876-2869
 fargo@capx2020.com

www.capx2020.com

Landowners impacted by the new infrastructure were invited to open houses where they could help identify route options.

A Team of Specialists

With 11 different utilities involved, planning and overseeing the 700-miles of transmission lines would require a methodical approach. A team of senior leaders from each utility provided overall direction and strategy for the developing organization, assigned staff from their utilities to provide resources, and ensured CapX2020 plans met each organization's system needs. Co-executive directors from Xcel Energy and Great River Energy managed the overall organization, while staff from each of the utilities gathered information on projected electric growth and monitored system needs. Right of way staff were assigned to lead each project's route development and regulatory process for the route proceeding. Project managers and staff were also assigned to each project team to provide input and support.

During initial development, the utilities met informally to evaluate regional transmission system needs, discuss various ways utilities could participate in a more formalized organization, and identify regulatory and legislative needs to move projects forward. After identifying the necessary projects, the utilities dedicated specific project staff to the informal organization. The utilities shared resources in developing agreements that would govern the project development and regulatory documentation required for the state agency applications. Eventually, formal agreements were signed for project development and participation, which led to management committees of five utilities per project. Essentially, this functioned like a board of directors for each project, and each team reported project status and needs to their respective management committee.

Validating the Need

The Minnesota Public Utilities Commission (PUC) requires two permits before a high voltage transmission line can be built: a Certificate of Need and a Route Permit. Once filed, the Minnesota PUC's regulatory process begins. To meet the 2015 in-service dates, regulatory proceedings began in 2007 with filing the Certificate of Need application, which outlined the size, type and timing of the 345 kV high-voltage lines proposed by CapX2020. A separate Need and Route proceeding was held for the 230 kV Bemidji-Grand Rapids project beginning in 2008.

Since the regulatory proceedings are well-prescribed, there are numerous opportunities for utilities and stakeholders to present evidence for or against the utility need or routing proposals. Minnesota rule enables strong public participation, and project utilities were held to stringent requirements. Making the case for the both the necessity of the new infrastructure and justifying the best proposed routes required a collaborative effort between dedicated legal and routing teams, as well as intense coordination of all project participants.

Determining whether 700 miles of new transmission infrastructure is necessary is not a task to be taken lightly, and the process reflected that. The 345 kV Certificate of Need proceeding was one of the largest regulatory processes in Minnesota history. Several state government agencies, landowner groups, environmental groups, and industry organizations participated as intervening parties

in the proceeding, all of which was overseen by a State of Minnesota Administrative Law Judge (ALJ). Thousands of public comments were submitted by local governments, landowners and other stakeholders. The ALJ presided over the proceeding and drafted a report and recommendation to the Minnesota PUC, which approved the application after an 18-month proceeding.

Route Development and Permitting

The CapX2020 utilities coordinated an extensive public route development process that included three main stages. In the first stage, the team identified a study area, gathered land use and resource information from federal, state and local agencies, and prepared maps. For the second stage, the team identified routing options based on technical considerations, routing criteria and resource mapping. The third phase involved comparing and evaluating the routing options, and selecting those routes to be included in the Route Permit application.

The Route Permit applications were developed and filed between 2008 and 2010. In many ways, the proceeding was similar to the one needed for the Certificate of Need, including the oversight of an ALJ and an extensive public process. Minnesota's Department of Commerce also developed an Environmental Impact Statement (EIS) which evaluated the direct impacts to the human and natural environment of transmission line construction and operation.

During the scoping process for the EIS, anyone can suggest additional routes to be reviewed, and those routes become options for the Minnesota PUC to certify as part of the eventual route permit. In all of the 345 kV projects, additional route options were suggested, and in many cases, the new route options were selected as part of the final approved route.

Engaging the Public

The project's 700-mile scope and the millions of customers who would be impacted by the new infrastructure required an extensive public engagement effort. However, it had been decades since the last major expansion of the Minnesota high-voltage system. Some of the study corridors were more than 20 miles wide and included thousands of landowners and local government jurisdictions. Even though identifying those stakeholders was a huge challenge, educating them about the project and continually including them in the process was a priority from the very beginning.



Helicopters were used to string conductor wire for portions of the line, enabling some transmission line work to be performed without placing heavy equipment in sensitive areas, and keeping the project on schedule.



The utilities were committed to working collaboratively with landowners and local governments. With thousands of landowners and stakeholders impacted by the project, considerable care was needed to bring the general public into the routing process. A comprehensive public outreach effort was developed, including open house meetings, advertising, media visits and mailings to more than 75,000 landowners. More than one million direct mail pieces were sent, which exceeded what was required by the respective state regulations. Throughout the entire regulatory process, landowners received multiple direct mail notices, including newsletters and postcards announcing public meetings and project updates.

After the Certificate of Need application was filed, each project team held several rounds of open houses where landowners were invited to learn about the projects, participate in the regulatory process and help identify route options. The majority of public meetings and forums were hosted by CapX2020 utility representatives. The project staff worked with landowners to identify appropriate locations for the new lines, as well as areas that would be inappropriate because of proximity to existing homes and businesses, impacts to agricultural operations, environmental considerations or other impacts. Without exception, landowners insisted that proposed routes follow established corridors, such as existing transmission lines, roadways, or field and section lines to avoid major disturbances to farms and homes.

The utilities also worked closely with state agencies, local government staff and other stakeholders to develop and refine proposals, while ensuring that all interested parties would have an opportunity to provide input into the route development process. The challenge of incorporating the vast amount of information collected and demonstrating the action taken on the various stakeholder comments was an enormous undertaking. Yet, because of the close coordination among the project teams, they were able to rise to the challenge.

Agreements were developed between the CapX2020 partners, including a management structure that governs the operation and maintenance of the infrastructure after it is placed in service.

On Target Deliverables

The CapX2020 utilities have been successful in managing an entirely new regional transmission planning and development model. They accomplished this by allocating the necessary staff and providing the consulting and

financial resources that would demonstrate the projects' importance to all stakeholders. Teams were given the flexibility to develop their own strategies, which they successfully implemented.

The \$1.9 billion investment in the region's electric infrastructure is one of the largest construction projects undertaken in the region. Direct employment during construction is estimated to be in the thousands, with hundreds more in indirect and induced jobs due to the financial investments. The CapX2020 projects will provide reliable, affordable electricity to millions of customers living in Minnesota, North Dakota, South Dakota and Wisconsin. This will enable strong economic, job and electric growth in the region.

Ensuring that customers have reliable service is the most important task utilities undertake and a responsibility to be taken seriously. The dedication of hundreds of people involved in the CapX2020 projects will ensure that each utility's customer base will be well served for many years to come.



Craig Poorker, SR/WA

As the Manager of Land Rights for Great River Energy in Maple Grove, MN, Craig has been involved in right of way acquisition since 1984. He recently served as the CapX2020 Routing Lead for the line running from Brookings County, SD, to Hampton, MN. Craig is an instructor for IRWA's engineering courses and serves as Vice President of the Right of Way International Education Foundation. He is past Chair of IRWA Region 3, past President of Chapter 20 and has an Associate Degree in Civil Technology and Land Surveying from Dunwoody College of Technology in Minneapolis.



Pam Rasmussen

Pam has worked for Xcel Energy for 24 years and currently serves as the Manager of the Siting and Land Rights Department for the northern service area. She oversees land rights acquisition, asset management and permitting staff for projects throughout Minnesota, North Dakota, South Dakota, Wisconsin and Michigan. Pam has experience in Federal Energy Regulatory Commission hydro-relicensing, transmission siting and permitting, public involvement, environmental stewardship and regulatory relations. She holds a bachelor's degree in Business Administration and Biology.