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Toward a reduced-carbon future: CapX2020 utilities report outlines transmission grid challenges

Electric grid stability and changing generation resource mix will require new technology and robust transmission

As several CapX2020 utilities have announced plans to retire their dispatchable generation resources, the CapX2020 utilities have issued a report (“CapX2050 Transmission Vision Report”) identifying the critical elements necessary for continued safe, reliable and affordable electric grid operation as well as the long-term policies and procedures needed to transition to a future with more non-dispatchable generation resources.

Key findings for long-term reliability and stability of the transmission system

The 10 utilities that make up CapX2020 serve customers and members throughout the Upper Midwest and are required by state and federal regulations to maintain a safe and reliable system. The report highlights the challenges transmission planners and operators may face in this regard as energy production in the region evolves.

This study focused on the how the changing nature of electric generating resources would affect the operation of the transmission grid in the coming decades. While traditional power plants are dispatchable—meaning their production and output can be operated and controlled as needed—many of these plants will be retired in the coming years and an increasing number of new, intermittent renewable energy resources will be added to the electric system. The report contemplates how growing use of these non-dispatchable resources will impact the region’s transmission system in the future.

While no specific new transmission projects are identified, the report highlights the need for additional grid infrastructure – in the form of either new high voltage lines or the development of new advanced technologies – in order to maintain a strong, reliable transmission system. As the industry continues to evaluate and monitor how those still-emerging improvements unfold, the utilities report the following findings:

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- Dispatchable resources support the electric grid in ways that non-dispatchable resources presently cannot and therefore, some dispatchable resources will be necessary.
- The ability for system operators to meet real-time operational demands will be more challenging and therefore, we will need to develop new tools and operating procedures to address the challenges.
- More transmission system infrastructure will be needed in the Upper Midwest to accommodate the transition of resources.
- Non-dispatchable resources alone will be incapable of meeting all consumer energy requirements at all times and therefore, we will need to understand and promote a future electric grid that can continue to meet consumer energy requirements safely, reliably and affordably.

CapX2020 utilities ready to engage with public and stakeholders on evolving transmission needs

The CapX2020 utilities have a long history of collaborating and providing leadership and action plans to provide safe, reliable and affordable service to our customers. The companies are confident that through collaborative, forward-looking planning, they will be able to successfully identify solutions in a reduced carbon future to ensure the stability and reliability of the transmission system is maintained using the most cost-effective solutions.

The CapX2020 utilities serve diverse customer types, ranging from homes and small businesses to municipalities and large industrial operations. They serve in geographic areas that include both small towns and the region's largest cities across Minnesota, North Dakota, South Dakota and Wisconsin. As demonstrated by their successful development of more than 800 miles of new transmission infrastructure in the past decade, their track record of working in partnership with stakeholders and the public to serve today's energy needs across the Upper Midwest is strong and proven.

As more specific studies are conducted, the CapX2020 utilities will continue working with key stakeholders and policymakers to ensure new infrastructure maintains electric reliability, delivers more carbon-free energy solutions, ensures affordability for customers and provides transparency and engagement throughout the process.

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About CapX2020

CapX2020 is a joint initiative of 10 transmission-owning utilities in Minnesota and the surrounding region formed to plan, upgrade and expand the electric transmission grid to ensure continued reliable and affordable service. In 2017, CapX2020 successfully completed an 800-mile, nearly \$2 billion grid expansion in the Upper Midwest. The projects included four 345-kV transmission lines in Minnesota, North Dakota, South Dakota and Wisconsin and a 230-kV transmission line in northern Minnesota. The CapX2020 utilities are Central Municipal Power Agency/Services, Dairyland Power Cooperative, Great River Energy, Minnesota Power, Missouri River Energy Services, Otter Tail Power Company, Rochester Public Utilities, Southern Minnesota Municipal Power Agency, WPPI Energy and Xcel Energy. For more, visit capx2020.com.

*Central Minnesota Municipal Power Agency • Dairyland Power Cooperative • Great River Energy
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