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Minnesota Power advances HVDC transmission system project to strengthen grid reliability, resiliency in Upper Midwest

Duluth, Minn. — To help ensure a reliable and resilient grid that can expand in the future, Minnesota Power this week outlined planned upgrades to its high-voltage, direct-current (HVDC) transmission system that delivers renewable wind energy from its Bison Wind Energy Center in North Dakota to customers in Minnesota.

Minnesota Power, an operating division of ALLETE (NYSE:ALE), is filing a Certificate of Need and Route Permit on June 1 with the Minnesota Public Utilities Commission to replace aging critical infrastructure and modernize the terminal stations of its 465-mile HVDC transmission line that runs from Center, North Dakota, to Hermantown, Minnesota.

“Investing in transmission and replacing aging infrastructure with modern technology are critical to strengthening the reliability and resiliency of the grid in the Upper Midwest—especially as we experience more frequent extreme weather events and our energy supply continues to evolve,” said Julie Pierce, vice president Minnesota Power Strategy and Planning. “Maintaining and enhancing the reliable delivery of essential energy is a critical component of Minnesota Power’s EnergyForward strategy as we prepare to meet the state of Minnesota’s accelerated standard of delivering carbon-free energy by 2040.”

In Minnesota, the HVDC Modernization Project will replace aging converter facilities at the Arrowhead Substation in Hermantown with new buildings and electrical infrastructure near the existing terminal, implementing state-of-the-art technology. The project also includes construction of three transmission lines of less than a mile each on the site to connect the new converter station to the existing electric system. Similar upgrades are planned for the converter facilities at the Square Butte East Substation in Center, North Dakota.

“The HVDC system is critical infrastructure, and after more than 45 years of service it’s time to make improvements in sizing and configuration that will help improve reliability and reduce transmission congestion on our electric grid,” said Dan Gunderson, vice president Transmission and Distribution for Minnesota Power. “We’re leveraging existing assets in the most cost-effective way to ensure a resilient grid. Additionally, this upgrade will support the continued safe and reliable delivery of electricity to our customers, and advance the grid needed to support the carbon reduction goals of our state.”

HVDC Modernization Project benefits

- Improves reliability of the transmission system.
- Improves system resiliency by creating bi-directional line capability, which allows energy to flow in either direction to where it is needed.



- Expands the operating capacity of the HVDC terminals now and in the future for additional energy transfers in the Upper Midwest.
- Replaces critical infrastructure that has reached the end of its design life.

Project details

- Pending regulatory approvals, construction could begin as early as 2024 in Minnesota and North Dakota, with an in-service date between 2028 and 2030.
- Cost for the new modern system is estimated between \$800 million and \$900 million.
- The company is seeking federal and state funding to help mitigate rate impacts on customers. In May, \$15 million in state funding was secured as part of the energy and climate budget bill passed by the Minnesota Legislature.
- Under a preferred supplier agreement, Minnesota Power has obtained a manufacturing slot and resource commitments from Siemens Energy that will establish a collaborative partnership between the organizations and ensure the project is delivered on time.
- Minnesota Power has engaged with area landowners as part of its development process and will continue to engage with stakeholders and members of the public as they provide feedback and input during the regulatory review process for the Certificate of Need and Route Permit, which is expected to take about a year. Minnesota Power also will be seeking permits from the North Dakota Public Service Commission for the HVDC facility modifications in North Dakota.

Minnesota Power's HVDC transmission line is one of only a handful of existing HVDC lines in the country. HVDC lines transmit electricity more efficiently over long distances than alternating current (AC) lines and more strongly link disparate parts of the electrical grid together. Specialized stations, like the ones proposed for this project, convert the HVDC power to AC so it can flow on the existing electric grid.

Commissioned in 1977, the HVDC transmission line and terminals have served Minnesota Power well. Minnesota Power acquired the line in 2009.

Minnesota Power provides electric service within a 26,000-square-mile area in northeastern Minnesota, supporting comfort, security and quality of life for 150,000 customers, 14 municipalities and some of the largest industrial customers in the United States. More information can be found at www.mnpower.com.

The statements contained in this release and statements that ALLETE may make orally in connection with this release that are not historical facts, are forward-looking statements. Actual results may differ materially from those projected in the forward-looking statements. These forward-looking statements involve risks and uncertainties and investors are directed to the risks discussed in documents filed by ALLETE with the Securities and Exchange Commission. ALE-CORP

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