

MN Power HVDC Terminal Expansion Capability Project: Overview

Project Title: Minnesota Power HVDC Terminal Expansion Capability (HTEC) Project

Prime Applicant: ALLETE, Inc. d/b/a/ Minnesota Power

Technology Summary: Replace two line commutated converters (LCC) with two new voltage source converter (VSC) HVDC terminals having the capability to transfer up to 1500MW. Increase transmission capacity and operational transfer capability through grid enhancing technologies including dynamic line rating, flow control devices, and network topology optimization.

Technology's Impact:

- Strengthens reliability and electric system stability in largely rural areas of North Dakota and Minnesota.
- Increases clean energy transfer capability with limited land impact providing access to some of the highest capacity factor land-based wind resource in the United States.
- Enhances the optimization of energy resources in the North American midcontinent, and particularly between North Dakota and Minnesota with controllable bidirectional power flow technology.
- Aligns with state (Minnesota and North Dakota), MISO, FERC and Department of Energy goals for regional transmission expansion.
- Accelerates development of renewable energy to help meet de-carbonization goals in the Upper Midwest.
- Facilitates additional and efficient movement of renewables from high energy areas to load centers.
- Aligns with regional transmission planning that identifies the future need for 5000-7000 MWs of clean energy transport from North Dakota.
- Anticipates and prepares the system for a significant increase in inter-regional transfer capacity in MISO.
- Provides additional energy export capability from energy resource-rich North Dakota to Minnesota.
- Provides support for Minnesota's newly enacted law requiring 100% carbon-free energy by 2040.

MN Power HVDC Terminal Expansion Capability Project: Overview (continued)

Major Goals/Objectives:

- 1) Future-ready an existing HVDC system with two modernized terminals and expand North Dakota renewable energy export transmission capacity from 900 MW to 1500 MW.
- 2) Leverage existing assets to create more tools to achieve CO₂ reduction goals and enhance reliability.

Budget:

Requested DOE funds: \$50,000,000

Proposed cost share: \$54,116,574

Cost share % (cost share / Total) 51.98%

Total (DOE + cost share) \$104,116,574

Geographical Region: Midwest – Solway Township, Minnesota, and Center, North Dakota



Key Project Takeaway: Utilize a unique opportunity to expand the capacity of existing assets to future-proof investments and efficiently deliver renewable energy for the Upper Midwest.

MN Power HVDC Terminal Expansion Capability Project: Project Team

Key Personnel :

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