

Project Name	Submitting TO	Planning Region	MTEP Project ID	TO Project ID	Target MTEP Cycle	Board Approved Date	Current Appendix	Target Appendix
HVDC Modernization Project	MINNESOTA POWER INC.	West	4295	HVDC Modernization Project	MTEP13		B	B

Project Description	Project Type	Other Type	Expected ISD	Current Cost	Max kV	Min kV	Planning Status	Created On	System Need	MOD Project	MOD Project ID	Cost Share Status
Replace the existing Center (Square Butte) and Arrowhead high voltage direct current (HVDC) converter stations and associated assets with modern equipment. To modernize the terminals of the existing Square Butte HVDC Line and implement the latest VSC HVDC technology, new buildings and electrical infrastructure need to be constructed on a new site near the existing HVDC terminals. In Minnesota, to connect the new HVDC terminal to the existing AC system, the Project would require the construction of a new St. Louis County 345 kV/230 kV substation located less than one mile west of the current Arrowhead Substation. The new HVDC terminal would be connected to the St. Louis County Substation by less than one mile of 345 kV transmission line and the new St. Louis County Substation would be connected to the existing Arrowhead Substation by two parallel 230 kV transmission lines less than one mile in length. Additionally, a short portion of the existing ±250 kV HVDC Line in Minnesota will need to be reconfigured to terminate at the new HVDC terminal. Similar modifications will take place near the existing Center HVDC terminal in North Dakota.	Other	Age and Condition	12/31/2028	800000000.0000	345	230	M1 - Proposed	10/6/2023 12:00	Modernization/Age & Condition	No		Not Shared