

**Environmental Assessment – Eagle Valley Substation Project  
(Minnesota Power)**

Prepared By: Ben Oleson, Planning & Zoning Administrator, Todd County

**Project Background**

Minnesota Power proposes to construct a 115/34.5 kV substation, extend existing electric power lines (115,000 volt and 34,500 volt) and construct a communications (microwave) tower in Todd County, Minnesota, Westerly 660' of that part of SW ¼ of SE ¼, Section 17, Twp 131N, Rng 34W, lying north of County Road 80. The substation site is approximately 12.58 acres in size and is adjacent to an existing 115kV Transmission Line. The proposed substation would lie between the cities of Eagle Bend and Clarissa about 1/3 mile north of US Highway 71.

This project falls under the Power Plant Siting Act, MN Statutes 116C.51-.69 and MN rules Chapter 4400 and requires a permit from the MN Environmental Quality Board (EQB). Under these regulations, the proposed project was eligible for local review instead of applying to the EQB. Minnesota Power applied for local review of the project and Todd County was acknowledged by the EQB as the Responsible Governmental Unit (RGU) for the Eagle Valley Substation Project (see Attachment A).

As required, Todd County has provided an opportunity for the public to participate in the development of the scope of this environmental assessment before it was prepared. A public meeting of the Todd County Planning Commission was held on April 24, 2003 to provide such opportunity for the public to comment. At this meeting, letters from the EQB, Todd-Wadena Electric Coop, Great River Energy, Todd Co. Soil & Water Conservation District, the MN Historical Society, MN Dept. of Natural Resources (Division of Lands & Minerals and Endangered Species Environmental Review Dept.) and the MN Dept. of Transportation were read, addressing their comments on the proposed project. There was very little public comment in addition to these letters. The Planning Commission and County Board agreed that they would continue jurisdiction of the project and authorized the Todd Co. Planning & Zoning Department to develop this Environmental Assessment (see Attachment B).

**Minnesota Power Contact:**

Bob Lindholm  
Manager – Environmental Strategic Initiatives  
Minnesota Power  
30 West Superior Street  
Duluth, MN 55802-2093  
218-722-2625

**Todd County Contact:**

Ben Oleson  
Administrator – Planning & Zoning  
215 First Avenue South, Suite 201

Long Prairie, MN 56347  
320-732-4420

## **Project Description**

### **Need**

Minnesota Power has stated that they have experienced "...increased customer electric usage (2-3% annual growth) in the area served by the Verndale Substation (Wadena County) and Long Prairie Substation (Todd County). This load growth creates increased demands on the existing substations resulting in peak loading approaching the Long Prairie Substation's firm transformation capacity. Maintaining adequate voltage has also become a challenge when area loads must be served from alternate sources during planned or unplanned outages. The ability to provide voltage support will continue to deteriorate without the installation of additional electric substation facilities in the area.

Additionally, without adequate substation back up in the area, certain needed maintenance projects cannot occur on the existing area substations. The Verndale Substation is in need of a "bus insulator change-out" since the original equipment is nearing its end-of-life. The Verndale Substation maintenance job requires an outage of a portion of the substation's capability, which cannot be done at this time due to a lack of area back-up substation capability" (see Attachment C).

### **Proposed Project**

Minnesota Power proposes to address the need for additional electric load capacity and back up capability by constructing a 115/34.5 kV substation near the intersection of the existing 115kV transmission line (Line #47 Long Prairie to Wing River) and the existing 34.5 kV distribution line (501 Feeder Long Prairie to Verndale). Minnesota Power would also connect this substation to the 115kV line with a single circuit 115kV transmission line extension and connect to the 34.5kV line with a double circuit 34.5/34.5kV distribution line extension. Siting the substation near this intersection will allow for use of an existing powerline corridor for the new 34.5/34.5kV distribution line and an opportunity to minimize new powerline construction.

### **Construction and Maintenance**

Construction of the proposed project is planned to begin in the fall of 2003. Minnesota Power has stated that the "construction, operation and maintenance of the proposed electric facility will not create an excessive burden on the Todd County infrastructure. Roads will be used during the construction phase to move materials to the site. Roads (US 71, County Road 80) will also be used to travel to the site for routine operation and maintenance activities."

An existing access off of County Road 80 is present at the proposed site. An access drive of approximately 200 feet in length would need to be constructed to accommodate heavy equipment and provide access to the site.

Minnesota Power proposes to commence substation site preparation and construction activities in Fall 2003. This work would include the final survey, soil testing, construction of foundation and below grade conduit and grounding, and fencing of the site. In Spring 2004, Minnesota Power expects to begin construction of the actual substation and the connections to the nearby existing 115kV transmission line and double circuit 34.5/34.5kV distribution line from the new substation to the present 34.5 kV distribution line located north of U.S. Highway 71. As the site is currently grassland, there will be no significant removal of trees or other woody vegetation during construction of the substation.

### **Impact on Human Settlement**

The proposed Eagle Valley Substation is located in between the cities of Eagle Bend and Clarissa, about 1½ to 2 miles from either city. US Highway 71 is located about 1/3 mile to the south. There is one home located within ¼ mile of the proposed site (approximately 1000 feet to the southwest). An additional 25-30 homes are located within a one-mile radius.

The proposed site does not currently have any trees or topography that would screen the substation from view on County Road 80 or other surrounding areas.

### **Environmental Considerations**

**Soils and Topography:** The proposed site is presently grassland with a Sandy Loam soil that is not considered prime farmland for Todd County. The water table is a perched water table at three to six feet. The topography of the site is relatively flat with a 0-6% slope rising to the north of the site.

**Water Features:** There is a Type 6 wetland located south of the site between County Road 80 and US Highway 71 according to the National Wetlands Inventory. A portion of these wetlands appears to be in the floodplain of Eagle Creek. Another Type 6 wetland is located about 300 feet northeast of the proposed site and connects with a county ditch that runs into Eagle Creek. A small Type 1 wetland is located about 300-400 feet to the northwest.

The proposed site was reviewed by the Department of Natural Resources, Division of Lands and Minerals. Comments on this site indicated that a Water Crossing Utility License would be required for this project.

**Archaeological and Historic Resources:** The Eagle Valley Substation site was reviewed by the Minnesota Historical Society. The conclusion of the Deputy State Historic Preservation Officer was that “no historic properties eligible for or listed on the National Register of Historic Places will be affected by this project.”

**Rare and Unique Natural Species:** The Minnesota Natural Heritage database was reviewed to determine if any rare plant or animal species or other significant natural

features occurred within an approximate one-mile radius of the proposed site. Based on this review, “there are no known occurrences of rare species or natural communities in the area searched.”

**Audible Noise:** Minnesota Power plans to install a low noise 115/34.5 kV 35MVA transformer for the Eagle Valley Substation. The noise produced by operation of the Eagle Valley Substation will be well below the most restrictive state requirements of 50 dBA at the property line (see Attachment C).

**Public Health and Safety:** Present public health studies associated with transmission and distribution lines have focused on electric and magnetic fields (EMF). EMF results from both the operating voltage of the power line and the flow of electricity through the conductor.

According to conclusions of the Minnesota Department of Health (see <http://www.health.state.mn.us/divs/eh/radiation/emf/>), “the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects. While some epidemiological studies have reported a weak association between leukemia with increasing exposure to magnetic fields, other studies have reported no association. Epidemiological studies alone are considered insufficient for concluding that a cause and effect relationship exists, and must be supplemented by data from laboratory studies. Existing laboratory studies have not substantiated this relationship (even at high exposure levels).

These conclusions are similar to the conclusions of scientific committees convened by the US Congress, and other international and national health agencies.

As with many other environmental health issues, the possibility of a health risk from EMF cannot be entirely dismissed. The MDH considers it prudent public health policy to continue to monitor the EMF research and to support prudent avoidance measures, including providing information to the public regarding EMF sources and exposures.

MDH and other state agencies are also working together to provide guidance for a consistent science-based EMF policy, including the identification of low cost no cost measures to mitigate EMF exposures.”

High intensity electric fields can have adverse impacts on the operation of pacemakers and implantable cardioverter/defibrillator (ICD). Interference to implanted cardiac devices can occur if the electric field intensity is high enough to induce sufficient body currents to cause interaction.

MN Power has stated that the Eagle Valley Substation and associated power lines would be designed to meet or exceed all relevant State and National Electric Safety Codes.

The power lines associated with this project would be equipped with protective devices to safeguard the public from the power line if an accident occurs and a structure or

conductor falls to the ground. The protective equipment would shut down the line and make it inoperative (see Attachment C).

**Radio/TV Interference:** Minnesota Power and Todd County are unaware of any complaints related to audible noise or radio/TV interference resulting from the power lines in and around the project area. Since no changes to the operating voltage of these power lines are planned with this project, no changes in conductor audible noise and radio/TV interference are expected.

### **Governmental Permits/Approvals Required**

#### **State**

MN Department of Natural Resources – Water Crossing Utility License (not yet received)

#### **Local**

Conditional Use Permit – Todd County (pending)

#### **Other Agencies Contacted**

Minnesota Historical Society

Minnesota Department of Natural Resources, Natural Heritage and Nongame Research Program

Minnesota Department of Transportation

Minnesota Environmental Quality Board

Todd Soil & Water Conservation District

Todd County Public Works Department

#### **Attachments**

Attachment A: April 17, 2003 letter from EQB to Minnesota Power and Todd County Planning & Zoning

Attachment B: Minutes from April 24, 2003 public meeting of the Todd County Planning Commission

Attachment C: Conditional Use Permit Application to Todd County from Minnesota Power for the proposed substation.

**ATTACHMENT A**

**ATTACHMENT B**

**ATTACHMENT C**