

5. DESCRIPTION OF THE PROPOSED PROJECT

GRE is proposing the following transmission project in the Wilson Lake area:

- Construct approximately 12 miles of new 115 kV transmission line between MP's Mud Lake Substation in Oak Lawn Township and MLEC's Wilson Lake Substation in Bay Lake Township.
- Remove, upgrade, and attach most of the existing MLEC and CWP overhead distribution lines along STH 18 to the new transmission line. The centerline will be just outside road right of way.
- Modify the Mud Lake Substation to accommodate the termination of the new line.
- Rebuild and expand the Wilson Lake Substation to include a new 115/69 kV substation.

These transmission improvements are discussed in more detail below.

5.1 115 kV Transmission Line

The route for which GRE is requesting a permit from the Commission exits MP's Mud Lake Substation to the east side of GRE's existing 230 kV transmission line, proceeds north paralleling the 230 kV line for approximately 1.5 miles to the intersection of STH 18, then runs east along STH 18 for approximately 10.5 miles to the MLEC Wilson Lake Substation as shown in Figure 5-1.

5.2 Substation Modifications

The Mud Lake Substation (Figure 5-2) is owned by MP and is located in Section 36, Township 45N, Range 30W in Oak Lawn Township. The fenced-in area of the substation is 250 feet by 320 feet on a 40-acre parcel.

The Wilson Lake Distribution Substation (Figure 5-2) is currently owned by MLEC and is located in Section 34, Township 45N, Range 28W in Bay Lake Township. The fenced-in area of the substation is currently 60 feet by 90 feet on a one-acre parcel.

GRE has purchased an additional 4.55 acres of land at the Wilson Lake Substation site to add a 115/69 kV substation to the existing facility. GRE will own this facility and will own and operate all the high voltage (115 kV and 69 kV) facilities, the control house, and all common facilities (land, fence, etc.). MLEC will have a permanent easement for its facilities on the western $\frac{1}{4}$ portion of the proposed substation for its low voltage distribution facilities, and will continue to own and operate those facilities.

Figure 5-2 Photos of Existing Substations

Photo 1. Minnesota Power Mud Lake Substation



Photo 2. MLEC Wilson Lake Distribution Substation



5.3 Design Options to Accommodate Future Expansion

GRE is designing the Wilson Lake Substation to accommodate more future 115 kV lines. The substation will be built for an additional two 115 kV lines with present plans for a line to the Pierz area and a line to the Cromwell area. The two future lines may not be built if other transmission improvements are made in these areas. However, the Wilson Lake Substation does provide a starting point for extending a 115 kV system into these areas.

The Pierz area will eventually need a stronger source with a source into Little Falls. The Mud Lake-Dewing-Little Falls 115 kV line is relatively small in size and it parallels the Mud Lake-Benton County 230 kV line. When the 230 kV line is out of service, the 115 kV line sees high flows where overloading will be possible. A Wilson Lake-Pierz 115 kV line could parallel the 230 kV line and create a second path to unload the Mud Lake-Dewing-Little Falls 115 kV line. This Wilson Lake-Pierz 115 kV line may also improve regional transfers in power from northern Minnesota to the Twin Cities area.

The Cromwell area consists of the Riverton-Cromwell-Thomson 115 kV line that is highly loaded by local load-serving needs. The Mud Lake-Wilson Lake 115 kV line could be a start of a potential 115 kV line to Cromwell that would provide a third source to the area. GRE and MP are reviewing options in the area to determine the best plan for this region.