

DEPARTMENT OF ENERGY  
OFFICE OF FUELS PROGRAMS  
APPLICATION FOR AMENDMENT TO PRESIDENTIAL PERMIT  
PP-63 BY NORTHERN STATES POWER COMPANY

FINDING OF NO SIGNIFICANT IMPACT

AGENCY: Department of Energy

ACTION: Finding of No Significant Impact

SUMMARY: The Department of Energy (DOE) is considering an application by Northern States Power Company (NSP) for an amendment to Presidential Permit PP-63. Prior to issuing or amending a Presidential permit, the DOE must evaluate the environmental impacts of the activities that would result from such issuance or modification pursuant to the National Environmental Policy Act of 1969 (NEPA). Accordingly, the DOE has prepared an environmental assessment (EA), DOE/EA-0587 Proposed Amendment of Presidential Permit PP-63 and Associated Modifications to 500-kV International Transmission Line. The proposed action assessed in this EA is the granting or denial by DOE of the requested amendment to allow NSP to increase its electricity import capability by making certain modifications to its 500-kV international transmission line and existing substations. The specific actions which NSP proposes in order to increase the electricity transfer capability include:

1. Installation of series capacitors at two locations along the 500-kV transmission line: (a) at the new 80-acre, Roseau County substation to be constructed at the midpoint along the existing transmission line; and

- (b) at the existing Chisago County Substation, the southern terminus of the 500-kV line;
2. Installation of static VAR compensators (SVC) and a 500-kV ring bus at the existing Forbes Substation located in northern Minnesota;
  3. Installation of a second 500/345-kV transformer at the existing Chisago County Substation; and,
  4. Installation of shunt capacitors at NSP's existing Kohlman Lake and Maplewood substations located in Red Rock and Newport, Minnesota, respectively.

The proposed increase in the electricity import capability is part of an overall effort sponsored by NSP to increase the exchange of electricity between NSP and Manitoba Hydro, thereby enabling both utilities to meet projected demand for electric power in a more efficient and cost effective manner. In that regard, NSP and Manitoba Hydro have signed a Diversity Exchange Agreement which allows for the alternate exchange of electricity during each system's respective peak load periods. The physical modifications contemplated in the present application to amend Presidential Permit PP-63 would increase NSP's capacity to import electric power from Manitoba Hydro by 400 megawatts (MW). If this amendment is granted, NSP plans on importing 400 MW from Manitoba Hydro beginning in the summer of 1993. Eventually, NSP plans to export up to 400 MW to Canada to help Manitoba Hydro meet its peak electrical demand during the winter months. The

increased export of electric power to Canada is not expected to occur until 1995 and would require other transmission system modifications unrelated to those required to effect an increase in imports.

In the course of preparing the EA, the DOE has consulted with the U.S. Fish and Wildlife Service, Department of the Interior, and the State Historic Preservation Officer of the State of Minnesota. Based on the analysis in the EA, DOE concludes that granting NSP authorization to amend its Presidential permit would not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA. Therefore, the preparation of an environmental impact statement (EIS) is not required and DOE is issuing this Finding of No Significant Impact (FONSI).

**PUBLIC AVAILABILITY:**

The EA has been placed in the public files of DOE and is available for public inspection. Anyone wishing to receive a copy of the EA should contact:

William H. Freeman  
Office of Fuels Programs (FE-52)  
Fossil Energy  
Department of Energy  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585  
(202) 586-5883

## FOR FURTHER INFORMATION ON THE DOE NEPA PROCESS CONTACT:

Carol Borgstrom, Director  
Office of NEPA Oversight (EH-25)  
Department of Energy  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585  
(202) 586-4600 or 1-800-472-2756

## SUPPLEMENTAL INFORMATION:

I. PURPOSE AND NEED

NSP proposes to increase the electricity transfer capability between Canada and the U.S. by constructing a new 80-acre substation midway along the existing 500-kV international transmission line in Roseau County, Minnesota, and upgrading its existing substations at Forbes, Chisago, Kohlman Lake, and Red Rock. The proposed Roseau County Substation would contain two 41.5 ohm series capacitor banks. NSP also proposes to install SVC's and a 500-kV ring bus at the existing Forbes Substation, which would require the addition of 5 acres to the existing 30-acre site to house the additional equipment. Also, a 500/345-kV transformer and series capacitors would be installed within the existing Chisago County Substation fenced boundaries. Shunt capacitors also would be installed within the existing fenced boundaries at the existing Kohlman Lake and Red Rock substations. No new line would enter or exit any of the impacted facilities.

These modifications would enable NSP to import up to 400 MW of electric power from Manitoba Hydro during the summer months to meet peak electrical demand in the Minneapolis-St. Paul area. It is expected that this power transfer would begin in 1993.

## II. ENVIRONMENTAL IMPACTS

The EA for the proposed amendment of NSP's Presidential permit addresses the impacts of the proposed action as well as several alternatives to the proposed action. The environmental effects considered in the EA include topography and soils, terrestrial and aquatic ecology, wetlands, threatened or endangered species, land use, socioeconomic, transportation and traffic, cultural resources, electromagnetic fields, and noise. These environmental effects were assessed for the proposed action and each alternative.

### Proposed Action

If the proposed action were to be implemented, the areas to be affected would be the new 80-acre Roseau County Substation and the existing Forbes, Chisago County, Kohlman Lake, and Red Rock substations. With regard to topography and soils, no significant adverse impacts are expected to occur. At the Red Rock and Kohlman Lake substations, possible increases in run off will be mitigated by professional stormwater management practices. The terrestrial and aquatic ecology is not expected to be significantly affected at these sites and there are no aquatic

habitats at any of the properties. The wetlands found at the proposed Roseau County Substation are outside of the area to be disturbed and avoidance of these should not be difficult to achieve. There are no Federally listed threatened or endangered species within the studied areas. The Minnesota Environmental Quality Board (EQB) has identified the sandhill crane as a state special concern species and the Blanding's turtle as threatened. However, the EQB determined that the sandhill crane in the Roseau County Substation area and the Blanding's turtle in the area of the Chisago County, Red Rock and Kohlman Lake substations are not expected to be affected. There are no other threatened or endangered species on the Federal or State of Minnesota lists that occur in these areas. Construction of the Roseau County Substation is not expected to have any direct impacts on local or regional land use. No socioeconomic or cultural resources would be impacted at any of the sites and there would be no long-term impacts on air quality.

The EA also addressed the change in electric and magnetic fields as a result of the proposed action. Because the proposed action will not result in a change in the voltage of the 500-kV transmission line, the electric field that would result from the proposed action would remain unchanged from the existing 7-kV/m level. The complex geometry of the layout of electrical equipment inside the proposed Roseau County Substation and each proposed substation expansion makes reliable calculations of

resulting electrical field strength at the perimeter of these substations impossible. However, the same standards for electric fields used for the existing original substations would be used for the proposed action. For the existing substations, electric field exposure outside the fence would not increase measurably. Because the proposed Roseau County Substation resembles the existing Forbes and Chisago County substations, it is reasonable to assume that the electrical fields at Roseau would be similar to those at Forbes and Chisago.

The analyses in the EA also suggest that the potential is minimal for continuous human exposure to magnetic fields resulting from the proposed action. This conclusion is based on the range and the pattern of measurements at the proposed sites and the distance (of less than 0.5 miles) between the nearest residence and other substations or facilities that would expose humans to substation generated magnetic fields. Without the proposed action, maximum magnetic fields for the 500-kV line range from 225 milligauss (mg) directly under the conductors to 4-5 mg within 300 feet of the center line. However, since the proposed action would reduce current levels on the 500-kV line, actual magnetic field levels that would result from the proposed action would be lower than the maximum values stated above. The present state of knowledge of the health effects of magnetic fields is insufficient to suggest that any particular level of exposure by humans is safe or harmful.

### III. ALTERNATIVES

#### A. New Substation Alternative

The New Substation Alternative would be an alternative to the construction of the Roseau County Substation. Selection of this alternative would require the location and purchase of a new site. Additionally, the new site could require construction activities such as the building of an access road and an off-site lay down area, grading and backfilling, and the construction of drainage/stormwater structures. As a result of these construction activities and subsequent operational activities, a variety of significant environmental impacts could occur.

#### B. New Routing Alternative

This alternative would require the construction of a second 500-kV transmission line in order to achieve the desired increase in electrical transfer capability. The New Routing Alternative would likely have significant impacts to a variety of areas in north-central Minnesota, western Minnesota, or eastern North Dakota due to the high level of construction activity and acreage requirements associated with the development of a new 500-kV line. The physical requirements of a new route would likely be similar to the existing 500-kV line. The existing line occupies approximately 4,355 acres containing 800 towers and two substations. The potential impacts would significantly affect grasslands, farmlands, rivers, streams, and other waterways.



There would be potential loss of wetlands as well as impacts on housing, traffic, and cultural resources, and an increase in noise.

#### C. No Action Alternative

Under the No Action Alternative, DOE would not grant NSP the permit modification and NSP would not upgrade its existing 500-kV transmission line. NSP would meet the anticipated need for additional power through other means. These would include increased emphasis on energy conservation programs and acceleration of existing plans for adding to base load generating capacity. The EA evaluated these alternatives to meeting NSP's existing and projected electric power demands along with the consequences of maintaining the status quo. None of these approaches were found capable of meeting NSP's projections of the need for 400 MW of additional electrical capacity required for the system by 1993.

#### IV. DETERMINATION

Based on the information and analysis in the EA, the DOE has determined that granting NSP's request to amend Presidential Permit PP-63 does not constitute a major Federal action significantly affecting the quality of the human environment within the meaning of the National Environmental Policy Act (42 U.S.C. 4321, et seq.). DOE is issuing this Finding of No

Significant Impact and, therefore, an environmental impact statement for the proposed action is not required.

Issued in Washington, D.C., this 14<sup>th</sup> day of April, 1992.



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Paul L. Ziemer, Ph.D.  
Assistant Secretary  
Environment, Safety and Health