# Executive Summary

On October 21, 2021, Minnesota Power submitted a Certificate of Need (CN) Application and a high voltage transmission line (HVTL) Route Permit Application to the Minnesota Public Utilities Commission (Commission) for the Duluth Loop Reliability Project. The stated purpose for the Project is to replace the system support once provided by coalfired baseload generators located along Minnesota's North Shore by addressing severe voltage stability concerns, relieving transmission line overloads, and enhancing the reliability of Duluth-area transmission sources.

The Duluth Loop Reliability Project includes construction of new 115 kilovolt (kV) transmission lines, extension of an existing 230kV transmission line, and upgrades to several substations. This EA evaluates the potential human and environmental impacts of the proposed project and possible mitigation measures including project alternatives.

## State of Minnesota's Role

The Commission is charged with locating high voltage transmission lines in a manner that is compatible with environmental preservation and the efficient use of resources and that minimizes adverse human and environmental impacts, while ensuring electric power reliability.

In addition to the two approvals from the Commission, the Applicant also requires approvals (permits, licenses) from other state and federal agencies with permitting authority for specific resources (such as the waters of Minnesota). Commission route permits supersede and preempt all zoning, building, and land-use regulations promulgated by local units of government.

To help the Commission with its decision-making, the state of Minnesota has set out a process for the Commission to follow in making its decisions. This process requires the development of an environmental review document and public hearings before an administrative law judge (ALJ).

### Certificate of Need Decision

A CN is required for all *large energy facilities*, unless the facility falls within a statutory exemption from the CN requirements. Through the CN proceedings the applicant must demonstrate that the proposed facility is in the best interest of the state's citizens. The applicant must also demonstrate there is not a more prudent and reasonable way than the proposed project to address the stated goals.

The Duluth Loop Project's transmission lines each meet the definition of a large energy facility and are without an exemption, thus, the granting of a CN is required prior to issuance of a HVTL Route Permit.

CN applications are subject to environmental review; in such a proceeding Department of Commerce (Department) staff must prepare an environmental report (ER) for the project. The report contains "*information on the human and environmental impacts of the* [*project*] *associated with the size, type, and*

*timing of the project, system configurations, and voltage*." The ER also contains information on alternatives to the project, as well as mitigation measures. If an applicant for a CN applies for a HVTL route permit concurrently, or prior to scoping, the Department may elect to prepare an Environmental Assessment (EA) in lieu of an ER. If so, the EA must include the content required by Minnesota Rule 7849.1500.

### HVTL Route Permit Decision

The Duluth Loop Reliability Project requires a HVTL route permit from the Commission; the Project qualifies for review under the alternative permitting process because the 115 kV portion of the Project is a high voltage transmission line between 100 and 200 kV and the 230 kV portion of the Project is less than five miles in length.

Route permit applications are also subject to environmental review. The alternative permitting process requires completion of an EA, which is prepared by Department staff. An EA contains an overview of the resources affected by the project and discusses potential human and environmental impacts and mitigation measures. Under the alternative permitting process an EA is the only required state environmental review document.

### Environmental Review

The Department conducts necessary public scoping meetings in conjunction with a public comment period to inform the content of the EA (i.e., Scoping). The Commissioner of the Department or a designee determines the scope of the EA and may include alternative routes suggested during the scoping process if they would aid the Commission in making a permit decision.

The EA reviews the proposed project along with the *Factors Considered* to help ascertain the merits of the project (and any alternatives, if applicable) relative to these factors. This review looks not only at the Factors, but also the Elements that make up those Factors (Factor: human settlement; Elements: displacement, noise, aesthetics, cultural values, recreation, and public services).

No alternative routes, alternative route segments, and/or alignment modifications were included in the *Scoping Decision*.

## Application of Factors Considered

The Commission is charged with locating high voltage transmission lines in a manner that is *compatible with environmental preservation and the efficient use of resources* and that minimizes *adverse human and environmental impacts* while ensuring electric power reliability. Minnesota Rules, part 7850.4100 lists 14 factors for the Commission to consider in its route permitting decisions, including impacts on human settlements, impacts on land-based economies, and impacts on the natural environment.

Generally, an EA reviews the proposed project along with the Factors Considered to help ascertain the merits of the project (and any alternatives, if applicable) relative to these factors.

### Factor: Effects on Human Settlement (A)

***Elements: noise, displacement, cultural values, public services, transportation, recreation, property values, electronic interference, emergency services, zoning/land use***

Impacts related to noise, cultural values, public services, transportation, recreation, electronic interference, emergency services, and property values are anticipated to be minimal with the use of standard construction techniques and the general conditions in the Site Permit Template. Displacement of residences or business properties is not anticipated in any of the proposed components of the Project.

***Element: aesthetics***

Aesthetic impacts from development of the Project are anticipated to be minimal; the HVTLs will be visible from adjacent roads ways and parcels but given that most of the proposed route is parallel to existing lines, the impacts are believed to be incremental.

Approximately 88 percent of the 115 kV transmission line is proposed to be parallel or rebuilt with existing transmission lines. The proposed 230 kV transmission line is parallel to existing transmission lines with existing ROWs. The Ridgeview and Hilltop substation expansions will occur at existing substations and on property owned by Minnesota Power. The sight lines to both substation expansions would be obscured by existing stands of trees.

***Element: consistency with local land use and planning***

The Project is located within three zoning jurisdictions: St. Louis County and the cities of Duluth and Hermantown. Current land use within the proposed route consists of mainly rural residential, open, and public lands and commercial areas. The proposed Project is compatible with existing land use and zoning regulations.

Impacts to forested land will be the most obvious impact to overall land cover along the proposed route, with an estimated potential impact of 46.5 acres and 6.6 acres of deciduous forest within the 115 kV and 230 kV lines, respectively. Areas requiring new ROW will convert the existing forested land to open, cleared space; much of the proposed 115 kV route is proposed to be parallel or double circuit to existing transmission lines, which will reduce the amount of new ROW needed and cleared.

The construction footprints of the Ridgeview and Hilltop substation expansions are anticipated to be minor, with a total of approximately 2.3 acres in forested land use, 0.13 acres in developed land use and approximately 1 acre in herbaceous/scrub shrub land use being disturbed.

### Factor: Effects on Public Health and Safety (B)

***Elements: EMF/electric fields, air quality, and safety***

Based on the predicted EMF levels for the Project, no adverse health impacts from electric or magnetic fields are anticipated for persons living or working near any of the components of the proposed Project.

Potential air quality impacts associated with the Project come from two primary sources: ozone & nitrogen oxide emissions from operating the HVTL and short-term emissions from construction activities. Emissions from operating any of the proposed lines are anticipated to have negligible impacts on air quality. Air emissions during construction would primarily consist of emissions from construction

equipment and would include carbon dioxide, NOX, and particulate matter (PM); dust generated from earth disturbing activities would also give rise to PM; these potential impacts will be minimal and temporary.

Where work areas overlap public areas, such as along roadways, construction activities may present potential impacts to public health and safety. These are anticipated to be minimal with use of standard construction techniques, traffic control measures during deliveries, and the general conditions identified in the Site Permit Template.

Operation of the Project (with the appropriate BMPs and standard HVTL permit conditions) is not anticipated to be a public health or safety concern, especially considering the substation's secured access.

### Factor: Effects on Land-Based Economies (C)

***Elements: forestry, agriculture, tourism, and mining***

Impacts to forestry, agriculture, tourism, and mining are avoided by the proposed Project through the route selection process; therefore, any potential impacts are anticipated to be negligible with the use of standard construction techniques and the general conditions in the Site Permit Template.

### Factor: Effects on Archaeological and Historic Resources (D)

The proposed route was developed to avoid or minimize potential affects to previously recorded archaeological and historic architectural resources; impacts are anticipated to be negligible with use of standard construction techniques and the general conditions identified in the Site and Route Permit Templates. No known archaeological or historical sites were identified within the footprint of the proposed ROWs.

The procedures outlined in the Permit Templates provide an outline of the process for resolution should any previously unknown archaeological resource or human remains be encountered.

### Factor: Effects on Natural Environment (E)

***Element: air***

Impacts to air quality are anticipated to be negligible with the use of standard construction techniques and the general conditions in the Route Permit Template.

***Element: surface water***

Impacts to surface waters are anticipated to be minimal with the use of standard construction techniques, MDNR License to Cross restrictions, and the general conditions identified in the Site Permit Template.

The proposed transmission line crosses eight MDNR public waterways; all of the public waters crossed by the proposed transmission line are designated trout streams. Due to the sinuous nature of the waterways this results in a total of 31 crossings, however, through route selection and design efforts (i.e., removal of the 57 Line away from the Midway River, and other proposed stream crossings that are parallel, rebuild, or double circuit to existing transmission lines) the overall potential impact to public waters will be reduced.

***Element: wetlands***

Impacts to wetlands are expected to be minimal with the use of standard construction techniques and the general conditions in the Site Permit Template.

No wetlands are located within the proposed 230 kV ROW. Approximately 9.5 acres of wetland are within the proposed 115 kV new ROW (existing 115 kV ROW contains approximately 41 acres). It is estimated that 7.6 acres of permanent conversion impacts to forested, forested/emergent, and forested/shrub wetlands would be converted to either emergent or shrub wetlands within the existing and new ROW.

Approximately 0.03 acres of permanent impacts of fill would occur as a result of expansion of the Hilltop Substation, and about 0.47 acres of permanent fill would occur as a result of expansion of Ridgeview Substation.

***Element: floodplains***

Impacts to floodplains are expected to be minimal with the use of standard construction techniques and the general conditions in the Site Permit Template.

A total of 6.3 acres of 100-year floodplain and no 500-year FEMA-designated floodplains occur within the proposed ROW for the 115 kV transmission line. No FEMA-designated floodplains within the proposed 230 kV Route, Ridgeview Substation, and Hilltop Substation.

***Element: soils and groundwater***

Impacts to soils and groundwater are anticipated to be minimal with the use of standard construction techniques and the general conditions in the Site Permit Template.

The Minnesota County Well Index identified seven private wells occur within the proposed route and none within the proposed ROW. No municipal water supply wells are located within the proposed route. No MDH wellhead protection areas occur within the proposed route. No USEPA sole source aquifers occur within the proposed route.

There is approximately 0.1 acres and 0.2 acres of permanent impacts to Farmland of Statewide Importance within the proposed 230 kV ROW and the proposed 115 kV ROW, respectively. There is approximately 3.3 acres of permanent impacts to Farmland of Statewide Importance within the proposed Ridgeview and Hilltop substation expansions.

***Element: vegetation***

Impacts to non-cropland vegetation are anticipated, see Section 6.1.1-Local Land Use; the impacts will be minimized by using the existing road system to the extent practical and traveling within the ROW as allowed, avoiding the need to build new roads. The transmission line has been designed to span sensitive resources and is mostly (88 percent) being constructed parallel to existing transmission lines, rebuilding existing transmissions, and double circuiting existing transmission lines.

With the use of standard BMP construction techniques, restoration efforts, development and compliance with vegetation management and the other general conditions in the Route Permit Template impacts to vegetation are anticipated to be incremental.

***Element: wildlife***

Impacts to wildlife are anticipated to be minimal to moderate (temporary displacement to incremental habitat loss) with the use of standard design (APLIC and flight diverters) and construction techniques (BMPs), and the general conditions in the Route Permit Template.

### Factor: Effects on Rare and Unique Natural Resources (F)

No direct impacts to any rare and unique natural resources are anticipated; any indirect impacts should be minimal with the use of design (spanning sensitive resources, co-locating the ROW) and construction techniques (BMPs associated with the MDNR License to Cross) and the general conditions in the Route Permit Template.

### Factor: Use or paralleling of existing ROW, survey lines, natural division lines, and agricultural field boundaries (H)

The proposed route was designed to maximize the paralleling of existing roads, survey boundaries, field lines, natural division lines, and existing transmission lines.

### Factor: Use of existing transportation, pipeline, and existing transmission systems or rights-of-way (J)

The proposed route will mostly be constructed parallel to existing transmission lines, rebuilding existing transmissions, and double circuiting on existing transmission line. Approximately 88 percent (about 12.2 of 13.9 miles) of the proposed 115 kV route would parallel or double-circuit existing transmission ROW.

The proposed 230 kV route is located mostly on Minnesota Power property with the exception of the northern-most 0.15 miles that spans the Canadian National Railroad and private property. The segment does parallel existing 115 kV transmission lines.

### Factor: Electrical System Reliability (K)

The Duluth Loop Reliability Project is needed to replace the system support once provided by coal- fired baseload generators located along Minnesota's North Shore by addressing severe voltage stability concerns, relieving transmission line overloads, and enhancing the reliability of Duluth-area transmission sources. The Project will replace the system support once provided by the North Shore coal-fired baseload generators and is needed to: (1) resolve severe voltage stability concerns; (2) relieve transmission line overloads; and (3) enhance the reliability of Duluth area transmission sources.

### Factor: Unavoidable Impacts (M)

A commitment of resources is irreversible when its primary or secondary impacts limit the future option for a resource. An irretrievable commitment refers to the use or consumption of resources that is neither renewable nor recoverable for later use by future generations. The commitment of resources refers primarily to the use of nonrenewable resources such as fossil fuels, water, and other materials (aggregate minerals, steel/metals, etc.).

### Factor: Irreversible and Irretrievable Commitments of Resources (N)

Where feasible, the EA suggests mitigation measures to be incorporated into the planning, design, and construction of the proposed Project to substantially eliminate the adverse impacts. In other areas of consideration, adverse impacts can be reduced but not eliminated and are therefore determined to be unavoidable. Most unavoidable adverse impacts would occur during the construction phase of the proposed Project and would be temporary.

Since the Project purpose is to help off-set the voltage stability concerns associated with the cession of coal-based generation located along Minnesota's, Factor I-*the use of existing large electric power generating plant sites*, is not relevant to this Project and is not discussed.

Factor G ("mitigate adverse environmental impacts") has several parts and speaks generally to environmental impacts. For purposes of discussion, and with respect to Factor G, it is assumed that the proposed Project is designed to maximize energy efficiencies and accommodate expansion capacity. With respect to environmental impacts, the examination of such impacts suggested by routing Factor G is included in the discussion of other factors and elements that more specifically address an environmental impact (as in Factor E, effects on flora and fauna). A description of mitigative measures that could be used to avoid and minimize impacts is thoroughly addressed in the descriptions of impacts within this document.

With adherence to BMPs during construction and operation, and to the general permit conditions found in Commission issued HVTL route permits it is anticipated that minimal negative impacts would result from the development of the proposed Project. To the extent that special HVTL Routing Permit conditions may be appropriate for particular Elements, those mitigative measures are identified in the individual resource subsections within this document.