Xcel Energy

Hiawatha Project

Northern States Power Company

Application to the Minnesota Public Utilities Commission for a Route Permit

Full Permitting Process
MPUC Docket No. E002/TL-09-38
April 24, 2009

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NORTHERN STATES POWER COMPANY
APPLICATION TO THE
PUBLIC UTILITIES COMMISSION
FOR A
ROUTE PERMIT

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1.0 EXECUTIVE SUMMARY

1.1 XCEL ENERGY AND THE HIAWATHA PROJECT

Northern States Power Company, a Minnesota corporation ("Xcel Energy" or the "Company"), submits this application ("Application") for a Route Permit to the Minnesota Public Utilities Commission ("Commission") to construct two new distribution substations and two 115 kilovolt ("kV") transmission lines in south Minneapolis, in an area known as the Midtown District ("Hiawatha Project" or "Project"). The Hiawatha Project is necessary to serve the increasing electrical demands of Xcel Energy's customers in south Minneapolis and will help tie the distribution system in south Minneapolis more tightly to the overall electrical system. The Project will increase the capacity of the electrical distribution delivery system and improve the reliability of the power supply to residences and businesses in south Minneapolis. The estimated total cost for the Project, depending on route and transmission line design (overhead or underground), is between $28.4 million and $41.8 million. Construction is expected to begin in second quarter 2010 and be completed by third quarter 2011.

Xcel Energy recognizes that the Hiawatha Project involves routing transmission facilities through an urban area, south Minneapolis, and that this proposal raises important and challenging policy questions for the Commission and affected stakeholders. In developing its proposal, Xcel Energy has worked proactively with stakeholders to address their concerns as much as possible. In part because of those efforts, Xcel Energy has included four separate alternative routes and five design options for consideration in this proceeding. Xcel Energy is committed to continuing to work with stakeholders to address additional concerns and looks forward to further discussions on the most appropriate route for the Hiawatha Project. The Commission will have an opportunity to consider the differing interests raised in the discussion prior to making its final route decision for the Hiawatha Project.

1.2 THE HIAWATHA PROJECT IS NECESSARY TO MEET INCREASING DEMAND IN AREA

The Hiawatha Project is necessary to meet growing demand for electricity in south Minneapolis caused by population growth, increased load density and economic development in the area resulting from major revitalization efforts in the Midtown District in spite of current economic conditions. The growth in demand for power has resulted in an increasing number of feeder circuit overloads and service interruptions in the south Minneapolis area over the past decade. Xcel Energy Distribution Planning Department ("Distribution Planning") engineers determined that typical distribution mitigation strategies, such as extending feeder circuits, reconfiguring feeder circuits and adding new feeder circuits, have been exhausted and are no longer capable of addressing overloads and maintaining adequate voltage to ensure reliable local electric service. Distribution Planning also determined that existing distribution substations in south Minneapolis do not have the available capacity necessary to alleviate the overload conditions. During the pre-application process for this

Project, many individuals requested additional information about the need for the Project. In response to these requests, Xcel Energy has included detailed need data, including distribution and transmission engineering study work, in the appendices to this application (See Appendix D).

The Hiawatha Project was designed to address the distribution system problems that exist in south Minneapolis (See Section 3.2.3 and Appendix D). The Project consists of two new 115/13.8 kV distribution substations equipped with smart substation technologies, two 115 kV transmission lines and two new taps of the existing Elliot Park – Southtown 115 kV transmission line. The two substations are the Hiawatha Substation, to be located along Hiawatha Avenue near 28th Street, and the Midtown Substation, to be located in the vicinity of the former Oakland Substation at the corner of Oakland Avenue South and 29th Street. The two proposed 115 kV transmission lines, "Hiawatha No. 1" and "Hiawatha No. 2," will connect the two new substations. The taps of the Elliot Park – Southtown 115 kV transmission line will provide source electrical power to the Hiawatha Substation and the Midtown Substation for new distribution serving capacity to the community.

1.3 FULL PERMITTING PROCESS

This Application is submitted under the Full Permitting Process. This process requires a significant amount of procedure to ensure that the Project neighbors, local governments and other interested stakeholders have ample opportunity to become involved in the process if they want to participate. The applicable statutes and rules require Xcel Energy to provide at least two proposed routes for a project and state a preference for one of the proposed routes. Xcel Energy proposes four routes in this proceeding in an effort to provide the Commission with maximum optionality in making a decision.

1.4 OVERHEAD OR UNDERGROUND DESIGN IS A KEY ISSUE IN THIS PROCEEDING

The proposed routes and construction design proposals were developed using the important factors that govern route selection and significant input from the public and local governmental units. In its analysis, the Company placed emphasis on such factors as minimizing impacts to human settlement, minimizing the potential for construction challenges, locating the facilities in close proximity to the Midtown District area, where increasing electrical demand is greatest, and maximizing the efficient use of financial resources. The Company also followed the State's policy of "non-proliferation" of infrastructure corridors which establishes a strong preference for locating new transmission line facilities along existing public rights-of-way including transmission line rights-of-way and transportation rights-of-way. *See People for Environmental Enlightenment and Responsibility (PEER), Inc. v. Minnesota Environmental Quality Council*, 266 N.W.2d 858, 868 (Minn. 1978).

The Company recognizes that the relevant factors related to route selection are not subject to mechanical application and that consideration of those factors could lead to different outcomes depending upon how much weight is given to each of them. Xcel Energy believes that the current proposal will allow interested stakeholders to consider the factors and analysis proposed by Xcel

Energy, as well as to suggest changes or refinements based on their own analysis. It is entirely expected that if parties apply different priorities to the factors, different conclusions about where the facilities should be constructed could result. The Company further acknowledges that there is significant interest in constructing the facilities underground. The issue of whether the facilities should be undergrounded to minimize aesthetic impacts raises important cost considerations. Xcel Energy respects the stakeholders' preference for underground facilities and has been proactively meeting with Minneapolis city council members and Hennepin County officials to identify potential options to address how to cover the incremental cost of underground construction. The Company encourages all stakeholders to actively participate in the routing process to fully develop the record on this important policy issue. Ultimately, the Commission will take all of the information provided in this proceeding and will make a decision that best satisfies all of the factors, taken as a whole and in light of the entire record.

Xcel Energy proposes four route and five design options in this Application for consideration by the Commission. Of the design options, three are overhead and two are underground. Xcel Energy also identifies two locations for the Hiawatha Substation and two locations for the Midtown Substation. They are described below:

- Route A: Route A is a 1.4-mile route that can be constructed overhead or underground. The transmission lines would connect at the Hiawatha West substation site and parallel the 29th Street/Hennepin County Regional Rail Authority ("HCRRA" or "Midtown Greenway") corridor for approximately 1.4 miles to the Midtown North substation site. If constructed overhead, the transmission line would be built with galvanized steel single pole, double circuit structures. The estimated transmission line cost for construction of the two transmission lines along this route using an overhead configuration is $3.0 million. The estimated transmission line cost for constructing the transmission lines using underground construction along this route is $15.6 million.

- Route B: Route B is proposed as an overhead street route that would require construction of two single circuit lines because there is insufficient clearance for double circuit structures. Galvanized steel single circuit single pole structures would be used. One of the transmission lines would follow 26th Street between the Hiawatha West and Midtown North substation sites. The second line would follow East 28th Street. On both streets, the arms of the poles would be cantilevered over the roadway. The estimated route lengths of the two lines are 1.8 and 1.4 miles. The cost for construction of the transmission facilities along this route is estimated to be $5.0 million.

- Route C: Route C is also proposed as an overhead street route that would require construction of two single circuit lines because there is insufficient clearance for double circuit structures. Galvanized steel single circuit single pole structures would be used. One of the transmission lines would follow East 28th Street between the Hiawatha West and Midtown North substation sites. The second line would parallel 31st Street. Both would use a cantilever pole configuration. The estimated route lengths of the two lines are 1.5 and 2.3 miles. The estimated cost for construction of the transmission facilities along this route is $5.8 million.

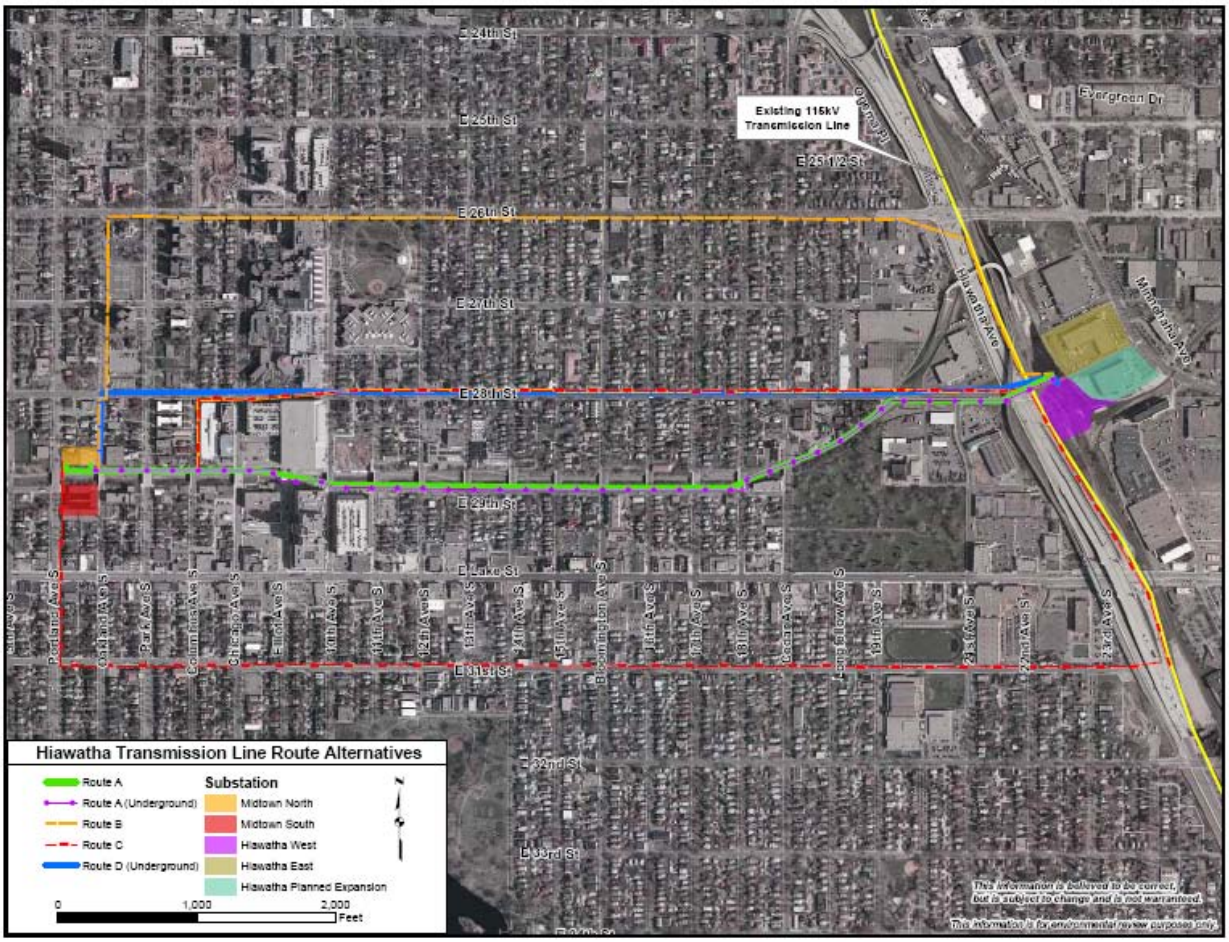
- Route D: Route D is proposed as a 1.5-mile underground route along East 28th Street. This route is designed for a double circuit 115 kV transmission line between the Hiawatha West and Midtown North substation sites. The estimated transmission line costs for construction of the underground transmission facilities along this route is $16.4 million.

- Hiawatha Substation: "Hiawatha West" is located on the east side of Hiawatha Avenue (Minnesota State Highway 55) slightly south of the intersection of Hiawatha Avenue and East 28th Street. Currently this site is an open area owned by the Minnesota Department of Transportation ("Mn/DOT"). Therefore, no business relocation would be needed for construction of the substation. The estimated cost for construction on the preferred Hiawatha West substation site is $14.3 million. "Hiawatha East" is located on adjacent land to the northeast. Currently, the site contains a warehouse occupied by Crew that would need to be relocated.

- Midtown Substation: "Midtown North" is located on the northwest corner of Oakland Avenue South and 29th Street. Construction costs for the substation at this preferred site is estimated to be $11.1 million. At this time, the site is occupied by the old Xcel Energy Oakland Substation, a condemned triplex and an open lot. "Midtown South" is located on the southwest corner of Oakland Avenue South and 29th Street. The site contains the Brown Campbell warehouses that would need to be relocated for construction of the substation.

Figure 1 shows routes A-D.

FIGURE 1
FOUR PROPOSED ROUTES, ROUTES A-D



1.5 PREFERRED ROUTE A

The rules require that Xcel Energy state a "preferred" route in its application to the Commission. The preferred route is Route A between the Hiawatha West and Midtown North substation sites. Xcel Energy is proposing Route A as the preferred route for several reasons. Route A follows an existing transportation corridor and minimizes overall impacts. Route A would also enable consolidation of the two new lines on a single structure aboveground or within two adjacent duct banks in a single excavation underground on the most direct route between the two substations,. This results in fewer line miles of new transmission right-of-way ("ROW" or "right-of-way") and the least cost. Route A is also located along existing public rights-of-way and impacts the fewest landowners of all the overhead alternatives. The Company has been working proactively on underground payment options with local units of government in response to stakeholder interest in underground construction.

1.6 ROUTE WIDTH

The requested route width for Route A is 125 feet to accommodate placement of the double circuit structures overhead or in underground duct banks on either side of 29th Street. If Route B or C is selected, an 80-foot route width is requested for the single circuit structures. For option D, an 80-foot route width is requested to accommodate double circuit underground duct banks on either side of the street. Route D is only viable when underground design is used.

1.7 REQUESTED ACTION

Xcel Energy respectfully requests that the Commission grant a Route Permit for construction of the Hiawatha Project. Based on the data presented in this Application, Xcel Energy believes that Route A complies with the applicable standards and properly balances the Commission's routing criteria. Construction of the Hiawatha Project will support State goals to conserve resources, minimize environmental and human settlement impacts and land use conflicts, and ensure the State's electric energy security through the construction of efficient, cost-effective infrastructure.

1.8 NEXT STEPS

The Commission will determine whether this Application is complete and, if so, refer the matter to the Office of Administrative Hearings. An administrative law judge will preside at proceedings designed to develop a full and complete record on the Application and on all issues raised by stakeholders and will make a recommendation to the Commission on whether the Route Permit should be issued and what route should be used. As part of the routing proceeding, the Minnesota Department of Commerce, Office of Energy Security, Energy Facility Permitting Staff ("OES") will prepare an Environmental Impact Statement ("EIS"). The administrative law judge's recommendation and the EIS will be forwarded to the Commission for consideration in making its decision.

1.9 COMPLETENESS CHECKLIST

The content requirements for an application with the Commission under the Full Permitting Process are identified in Minnesota Rules 7849.5200 and 7849.5220. The rule requirements are listed on Table 1 with references indicating where the information can be found in this Application.

TABLE 1
COMPLETENESS CHECKLIST

Authority	Required Information	Where
Minn. R. 7849.5220, Subp. 2	Site Permit for HVTL	
A.	a statement of proposed ownership of the facility at the time of filing the application and after commercial operation;	2.1
B.	the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated;	2.2
C.	at least two proposed routes for the proposed high voltage transmission line and identification of the applicant's preferred route and the reasons for the preference;	4.3, 4.5
D.	a description of the proposed high voltage transmission line and all associated facilities including the size and type of the high voltage transmission line;	3.2, 4.2, 4.3, 5.1, 5.2
E.	the environmental information required under Minn. R. 7849.5220, Subp. 3;	See Minn. R. 7849.5220, Subp.3 (A)-(H) below.
F.	identification of land uses and environmental conditions along the proposed routes;	Chapter 7.0
G.	the names of each owner whose property is within any of the proposed routes for the high voltage transmission line;	8.3 and Appendix H
H.	United States Geological Survey topographical maps or other maps acceptable to the commission showing the entire length of the high voltage transmission line on all proposed routes;	Appendix B
I.	identification of existing utility and public rights-of-way along or parallel to the proposed routes that have the potential to share right-of-way with the proposed line;	4.3 and Appendix B
J.	the engineering and operational design concepts for the proposed high voltage transmission line, including information on the electric and magnetic fields of the transmission line;	5.1, 5.2 and 6.1
K.	cost analysis of each route, including the costs of constructing, operating, and maintaining the high voltage transmission line that are dependent on design and route;	3.4, 3.5, 5.1 and 5.2
L.	a description of possible design options to accommodate expansion of the high voltage transmission line in the future;	4.4
M.	the procedures and practices proposed for the acquisition and restoration of the right-of-way, construction, and maintenance of the high voltage transmission line;	5.1 and 5.2

Authority	Required Information	Where
N.	a listing and brief description of federal, state, and local permits that may be required for the proposed high voltage transmission line;	8.5
O.	a copy of the Certificate of Need or the certified HVTL list containing the proposed high voltage transmission line or documentation that an application for a Certificate of Need has been submitted or is not required.	2.3
Minn. R. 7849.5220, Subp. 3	Environmental Information	
A.	a description of the environmental setting for each site or route;	7.1
B.	a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services;	7.2
C.	a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;	7.3
D.	a description of the effects of the facility on archaeological and historic resources;	7.4
E.	a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna;	7.5
F.	a description of the effects of the facility on rare and unique natural resources;	7.6
G.	identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route;	See all of effects described in Chapter 7.0
H.	a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures.	See all of the mitigative measures identified in Chapter 7.0

2.0 INTRODUCTION

2.1 STATEMENT OF OWNERSHIP

Northern States Power Company is a Minnesota corporation with its headquarters in Minneapolis, Minnesota. The Company is a wholly-owned subsidiary of Xcel Energy Inc., a utility holding company with its headquarters in Minneapolis. The Company provides electricity services to approximately 1.2 million customers and natural gas services to 425,000 residential, commercial and industrial customers in the State. The Company also provides electricity service to more than 73,000 customers in South Dakota and 55,000 customers in North Dakota. The Company will construct, own, operate and maintain the new Hiawatha and Midtown substations and the two new 115 kV transmission lines connecting the new substations. Xcel Energy Services Inc. is the service company for the Xcel Energy Inc. holding company system, and its personnel, *inter alia,* prepare, submit and administer regulatory applications to the Commission on behalf of the Company, including route permit applications.

2.2 PERMITTEE

The permittee for the Project is:

Permittee: Northern States Power Company

Contact: RaeLynn Asah
Permitting Analyst, Siting & Land Rights - North

Address: Xcel Energy Services Inc.
250 Marquette Ave
Minneapolis, MN 55401

Phone: (612) 330-6512

Email: raelynn.asah@xcelenergy.com

2.3 CERTIFICATE OF NEED IS NOT REQUIRED, BUT NEED IS IMPORTANT CONSIDERATION

Minnesota Statute Section (§) 216B.243, subdivision 2 states that no large energy facility shall be sited or constructed in Minnesota without the issuance of a Certificate of Need by the Commission. A large energy facility is defined to include transmission lines between 100 kV and 200 kV if they are more than 10 miles long (*See* Minnesota Statutes § 216B.2421, subd. 2(2) and (3)). The 115 kV transmission lines proposed for the Project do not qualify as a large energy facility because they are less than 10 miles in length. Therefore, a Certificate of Need is not required for the proposed Project.

Although a Certificate of Need is not statutorily required, Xcel Energy is including detailed information about the need that prompted the Hiawatha Project proposal in response to public comments received during the pre-application process. The need for the Project is presented in Section 3.2.3, and Appendix D includes the supporting engineering analysis. This data is included to ensure that stakeholders have the opportunity to review and understand the engineering justification for the Project. Throughout the routing proceeding, Xcel Energy anticipates that additional information about the need will be sought and the Company will work with all interested parties to provide available data.

2.4 ROUTE PERMIT, FULL PERMITTING PROCESS

Minnesota Statutes § 216E.03, subdivision 2 provides that no person may construct a high voltage transmission line ("HVTL") without a route permit from the Commission. An HVTL is defined as a transmission line of 100 kV or more and greater than 1,500 feet in length in Minnesota Statutes § 216E.01, subdivision 4. The two 115 kV transmission lines proposed here are HVTLs and therefore a route permit is required prior to construction.

Minnesota Statutes § 216E.03 and Commission rules describe route permitting requirements. This Application is submitted pursuant to the provisions of the Full Permitting Process outlined in Minnesota Rules 7849.5200 to 7849.5340.

2.5 NOTICE TO LOCAL GOVERNMENTAL UNITS

The Company provided notification to the City of Minneapolis, Hennepin County, the HCRRA, and the Metropolitan Council by letters dated October 29, 2008, that the Company intended to apply for a route permit for the Project with the Commission. These letters comply with the requirement of Minnesota Statutes § 216E.03, subdivision 3a. Copies of these letters are located in Appendix A.

TABLE 19
COMPARISON OF ROUTE ALTERNATIVES

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
Affects on Human Settlement						
Displacement	No displacement is anticipated for construction of the transmission lines. If the Hiawatha West site is chosen for the Hiawatha Substation, no displacement is anticipated. If the Hiawatha East site is chosen for the Hiawatha Substation, it would displace the existing Crew warehouse. If the Midtown North site is chosen for the Midtown Substation, a residential triplex currently registered as vacant and listed as condemned would need to be removed. If the Midtown South site is chosen for the Midtown Substation, the Brown Campbell warehouse facilities would be displaced.					
Noise	Transmission line and substations will be designed to be within MPCA and City of Minneapolis noise limits.					
Aesthetics	Will affect area aesthetics within close proximity of the transmission lines and substations. The lines would parallel the HCRRA Corridor and cross by the Midtown Exchange. There are approximately 54 landowners located on or adjacent to the proposed right-of-way. [3]	Construction activities would cause aesthetic impacts. Post-construction, aesthetic impacts limited to substation areas and 30-foot right-of-way area for transmission lines where minimal vegetation would be compatible. There are approximately 52 landowners located on or adjacent to	Will affect area aesthetics within close proximity of the transmission lines and substations. Portions of the lines would cross or be located near the American Swedish Institute and Midtown Greenway. There are approximately 483 landowners located on or adjacent to the proposed right-of-way.	Will affect area aesthetics within close proximity of the transmission lines and substations. Portions of the lines would cross or be sited near the Midtown Greenway. There are approximately 312 landowners located on or adjacent to the proposed right-of-way.	Construction would cause aesthetic impacts. No post-construction aesthetic impacts are anticipated. There are approximately 180 landowners located on or adjacent to the proposed right-of-way.	Overhead lines have a greater aesthetic impact. If an overhead route is chosen, Routes B and C would impact a greater number of residences than Route A. Aesthetic impacts relating to substations will be minimized by using decorative walls between substation and neighboring properties.

[3] This table does not include residents who are not landowners.

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
		the proposed right-of-way.				
Cultural Values	No impacts to cultural values are anticipated.					
Recreation	Construction of the Project along Route A could potentially affect use of the Midtown Greenway, depending on final alignment. All construction closures would be temporary in nature. The Company will work with stakeholders to minimize impacts when feasible. No permanent impacts are anticipated.	Construction of the Project along the Greenway could potentially affect use of the Midtown Greenway. All construction closures would be temporary in nature. The Company will work with stakeholders to minimize impacts when feasible. No permanent impacts are anticipated.	Construction of the short segment of the line near the HCRRA Corridor may temporarily impact the use of the Midtown Greenway. All construction closures would be temporary in nature. The Company will work with stakeholders to minimize impacts when feasible. No permanent impacts are anticipated. Portions of the transmission line facilities will likely be visible from Stewart Park and the Minneapolis Park Service's 2529 13th Avenue South Property.	Construction of the short segment of the line near the HCRRA Corridor may temporarily impact the use of the Midtown Greenway. All construction closures would be temporary in nature. The Company will work with stakeholders to minimize impacts when feasible. No permanent impacts are anticipated. Portions of the Project will likely be visible from Powderhorn Park.	Construction of a short segment of the line near the HCRRA Corridor may temporarily impact the use of the Midtown Greenway. All construction closures would be temporary in nature. The Company will work with stakeholders to minimize impacts when feasible. No permanent impacts are anticipated.	The Project could potentially affect use of the Midtown Greenway during construction. None of the route alternatives will permanently impact use of recreational resources in the Project Area. All construction closures would be temporary in nature. The Company will work with stakeholders to minimize impacts when feasible.
Public Services	Minor temporary road closings are anticipated for overhead transmission routes. The duration and details of the road closing will be based upon the alternative selected and conditions encountered in the field. See Route D for underground transmission line impacts.				Longer term temporary road closings are anticipated for underground transmission routes. The duration and details of	Impacts to public services as a result of the proposed Project would be limited to temporary road closings. Underground transmission line route alternatives would

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
					the road closing will be based upon the alternative selected, conditions encountered in the field and final line placement.	likely cause road closings of longer duration than overhead transmission line route alternatives.
Effects on Public Health and Safety						
Public Health and Safety	The Company will ensure that all safety requirements are met during the construction and operation of the proposed transmission lines and associated facilities.					
Effects on Land-based Economics						
Agriculture, Forestry and Mining	The transmission lines and substations would not be located in agricultural areas or areas utilized for forestry or mining activities. Therefore, no impacts to agriculture, forestry or mining are anticipated.					
Tourism	Will be located adjacent to the Midtown Global Market and Sheraton Minneapolis Midtown Hotel. The transmission lines will likely be visible from these resources but will not directly affect their use.	No impacts to tourism are anticipated as a result of the underground route alternatives. Temporary impacts to business may occur during construction due to temporary road closures.	One line will be located adjacent to the American Swedish Institute. The transmission line will likely be visible from this resource but will not directly affect its use.	One line will cross Lake Street near the intersection of East Lake Street and Portland Avenue South. The transmission lines will likely be visible from Lake Street shops in the vicinity of the lines but their use will not directly affect their use.	No impacts to tourism are anticipated as a result of the underground route alternatives. Temporary impacts to business may occur during construction due to temporary road closures.	The overhead transmission routes are located adjacent to several features that draw visitors to the Project Area. The lines will likely be visible from these features but will not directly affect their use. No impacts to tourism are anticipated as a result of the underground route alternatives.
Effects on Archaeological and Historic Resources						
Archaeological Resources	There are no known archaeological resources in the Project Area. Based on proposed route alignments, past disturbance and Project setting, the likelihood of encountering previously unidentified archaeological resources is very low.					

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
Historic/ Architectural Resources	There are 14 sites of historic or architectural significance located within 0.1 miles of Route A, which includes 8 properties on the NRHP and 4 properties eligible for listing on the NRHP. Majority of route is adjacent to or near Chicago, Milwaukee, and St. Paul Grade Separation Historic District, portions of which are currently used as the Midtown Greenway. This property is listed on the NRHP.	The majority of route would be located on or adjacent to the Chicago, Milwaukee, and St. Paul Grade Separation Historic District. This property is listed on the NRHP.	There are 24 sites of historic or architectural significance located within 0.1 miles of Route A, which includes 9 properties on the NRHP and 5 properties eligible for listing on the NRHP.	There are 22 sites of historic or architectural significance located within 0.1 miles of Route A, which includes 7 properties on the NRHP and 5 properties eligible for listing on the NRHP.	Route D would not affect any known historic or architectural resources.	The majority of Route A would be located on or adjacent to the Chicago, Milwaukee, and St. Paul Grade Separation Historic District, which is a historic property listed on the NRHP. Both Midtown North and Midtown South sites would be located adjacent to or partially within the Chicago, Milwaukee, and St. Paul Grade Separation Historic District.
Effects on the Natural Environment						
Air Quality	Temporary localized air quality impacts caused by construction vehicle emissions and fugitive dust from ground disturbance are expected to occur. Because underground transmission line construction would require more construction equipment and greater ground disturbance, construction emissions are anticipated to be greater for the underground route alternatives.					
Water Quality	No waterbodies are located within or adjacent to the right-of-way proposed for any of the transmission route alternatives. Standard erosion control measures as identified in the MPCA Stormwater Best Management Practices Manual will be used to minimize indirect impacts to water resources.					
Flora	Impacts to existing vegetation would be minor. Will require removal of or significantly impact 5 trees.	Impacts to existing vegetation would be minor. Will require removal of or significantly impact	Impacts to existing vegetation would be minor. Will require removal of or significantly	Impacts to existing vegetation would be minor. Will require removal of or significantly impact 19 trees,	Impacts to existing vegetation would be minor. Will require removal of or significantly impact 43 trees if placed in	The underground route alternatives would impact a greater number of trees as compared to aboveground alternatives. The Hiawatha West site

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
		2 trees if placed in sidewalk area.	impact 8 trees.	including 3 mature American elm trees.	sidewalk area.	would require removal of 5 trees. No trees would be impacted by development of the Hiawatha East site. Midtown North and Midtown South substation sites would require removal of 1 tree.
Fauna	Impacts to fauna are anticipated to be minor and temporary in nature. Because the Project is located within a highly developed urban area, the fauna generally present are adapted to high levels of anthropogenic disturbance.					
Effects on Rare and Unique Natural Resources						
Rare and Unique Natural Resources	Nine known occurrences of rare species or special communities were identified within one mile of the Project Area. No impacts are anticipated.					
Application of Design Options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity						
General	Both the Hiawatha and Midtown substations will have capacity to accommodate additional transmission line tie-ins, as well as additional feeder lines to meet future demand for power. Decorative walls are proposed for both the Hiawatha and Midtown substations to mitigate aesthetic and noise impacts of the substations to the surrounding area. Both substations will be equipped with smart grid substation technologies.					
Use of Existing Transportation, Pipeline and Electrical Transmission Systems or Rights-of-Way						
Existing transportation, pipeline and electrical transmission systems right-of-ways	All transmission routes have been proposed within existing rights-of-way. A small amount (possibly 10-20 feet) of additional aerial right-of-way will be required to allow for line maintenance and tree trimming within private property adjacent to the proposed routes.					

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
Electrical System Reliability						
Electrical System Reliability	The transmission lines and associated facilities are being proposed to improve the reliability and meet the increasing demand for electricity of the Project Area.					
Cost of Constructing, Operating and Maintaining the Facility which are Dependent on Design and Route						
Costs	Route A consists of two 1.4-mile single circuit transmission lines located within a single corridor. The cost of Route A, including associated facilities is estimated at $28.4 million for the overhead option.	Route A consists of two 1.4-mile single circuit transmission lines located within a single corridor. The cost of Route A, including associated facilities is estimated at $40.1 million for the underground option.	Route B consists of one 1.8-mile single circuit transmission line and one 1.4-mile single circuit transmission line located in two separate corridors. The cost of Route B, including associated facilities is estimated at $30.4 million.	Route C consists of one 1.5-mile single circuit transmission line and one 2.2-mile single circuit transmission line located in two separate corridors. The cost of Route C, including associated facilities is estimated at $31.1 million.	Route D consists of two 1.5-mile single circuit transmission lines located within a single corridor. The cost of Route D, including associated facilities is estimated at $41.8 million.	Route A is the least cost overhead alternative due to its shorter length. The costs of the two underground designs alternatives (Routes A and D) are significantly higher due to the higher cost for underground transmission line construction.
Adverse Human and Natural Environmental Effects Which Cannot Be Avoided						
Unavoidable Impacts	Unavoidable adverse impacts include the physical impacts to the land due to construction of the Project. The impacts for underground alternatives will be greater than for overhead alternatives due to greater ground disturbance required to install underground facilities. Xcel Energy will implement measures as described in the environmental analysis and as identified by regulatory agencies to minimize these unavoidable adverse environmental effects.					
Irreversible and Irretrievable Commitments of Resources						
General	There are few commitments of resources associated with this Project that are irreversible and irretrievable, but those few are resources primarily related to construction. Construction resources that will be used to construct the Project include aggregate resources, concrete, steel, and hydrocarbon fuel. During construction, vehicles will be traveling to and from the site, using hydrocarbon fuels.					Route A would require significantly fewer poles than Routes B and C, resulting in fewer commitments of

Factor	Route A Overhead	Route A Underground	Route B	Route C	Route D	Summary/Mitigation
Route Specific	The overall length of Route A is 1.4 miles. Approximately 19 double circuit poles would be needed for construction.	The overall length of Route A is 1.4 miles. The lines would be located in a concrete encased duct, with approximately 9 manholes.	Route B includes two single circuit lines (one 1.8 miles long and one 1.4 miles long). Approximately 39 poles would be needed for construction.	Route C includes two single circuit lines (one 1.5 miles long and one 2.2 miles long). Approximately 49 poles would be needed for construction.	The overall length of Route D is 1.5 miles. The lines would be located in a concrete encased duct, with approximately 8 manholes.	resources. Routes A and D are underground options and would not require transmission poles. However, they would be located within a concrete encasement duct, requiring significantly more concrete than the overhead route alternatives. Route A is shorter in length than Route D and would therefore require fewer commitments of resources.