Supplemental Environmental Assessment for the Nemadji Trail Energy Center Project

Dairyland Power Cooperative

USDA Rural Utilities Service

June 2022

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LIST OF ABBREVIATIONS

Abbreviation	Term/Phrase/Name
ATC	American Transmission Company
BACT	Best Available Control Technology
Basin	Basin Electric Power Cooperative
BMP	best management practice
Btu	British thermal unit
Burns & McDonnell	Burns & McDonnell Engineering Company, Inc.
CCGT	combined cycle gas turbine
CEM	Continuous Emissions Monitoring System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH_4	methane
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPCN	Certificate of Public Convenience and Necessity
Dairyland	Dairyland Power Cooperative
DATCP	Department of Agriculture, Trade and Consumer Protection
EO	Executive Order
EPA	United States Environmental Protection Agency
FONSI	Finding of No Significant Impact
FR	Federal Register
GHGs	greenhouse gases

Abbreviation	Term/Phrase/Name
GWPs	global warming potentials
HFCs	hydrofluorocarbons
HRSG	heat recovery steam generator
HSP	Health and Safety Plan
IEC	International Electrotechnical Commission
kV	Kilovolt
LDAR	leak detection and repair programs
MISO	Midcontinent Independent System Operator
MMIWR	Missing and Murdered Indigenous Women and Relatives
MP	Minnesota Power
MTEP	MISO's Transmission Expansion Plan
MW	megawatt
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Grave Protection and Repatriation Act
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants and Maximum Achievable Control Technology
NHPA	National Historic Preservation Act
NLEB	Northern Long-Eared Bat
NPS	National Park Service
NR	Natural Resources
NRCO	National Renewable Cooperative Organization

Abbreviation	Term/Phrase/Name
NRHP	National Register of Historic Places
NTEC	Nemadji Trail Energy Center
NTECEA	NTEC EA published in October 2020
OSHA	Occupational Safety and Health Administration
Owners	Dairyland Power Cooperative, Nemadji River Generations, LLC, and South Shore Energy, LLC
PFCs	perfluorocarbons
Project	one-on-one combined cycle natural gas turbine
PROMOD	ABB's PROMOD IV
PSCW	Public Service Commission of Wisconsin
PSD	Prevention of Significant Deterioration
RD	Rural Development
RFP	Request for Proposal
PSD	Prevention of Significant Deterioration
ROW	right of way
RUS	Rural Utilities Service
SEA	Supplemental EA
SCR	selective catalytic reduction
SF_6	sulfur hexafluoride
Siting Study	Site selection study to identify and evaluate potential Project sites
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control, and Countermeasures
SSE	South Shore Energy, LLC.

Abbreviation	Term/Phrase/Name
STG	steam turbine generator
SWL&P	Superior Water Light & Power
SWPPP	Storm Water Pollution Prevention Plan
TCP	traditional cultural property
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
USDA	United States Department of Agriculture
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
WAC	Wisconsin Administrative Code
WisDOT	Wisconsin Department of Transportation
WDNR	Wisconsin Department of Natural Resources
WHS	Wisconsin Historical Society

1.0 PURPOSE AND NEED

Dairyland Power Cooperative (Dairyland) is proposing to participate with South Shore Energy, LLC (SSE), a subsidiary of ALLETE, Inc., and Nemadji River Generation, LLC, a subsidiary of Basin Electric Power Cooperative (Basin Electric) (together the "Owners"), in a one-on-one combined cycle natural gas turbine (CCGT) with an in-service date in 2027. Dairyland has conducted an extensive round of resource planning activities culminating in a Sustainable Generation Plan. A key component of the Plan is a share[1] of a highly efficient, state of the art, one-on-one combined cycle plant named the Nemadji Trail Energy Center (NTEC or the Project). The NTEC facility is a cornerstone enabling Dairyland's Sustainable Generation Plan which features renewable energy sources. This Project will be designed to be highly flexible and capable of operating at peaking and intermediate load modes to fulfill both energy and capacity requirements for Dairyland to support the addition of renewable resources. The Project will also help address the 1,230 MW shortfall identified by the Midcontinent Independent System Operator (MISO) to meet the planning reserve margin, a reserve necessary in the event of unplanned outages (MISO, 2022).

1.1 Proposed Action

The Project includes a fired output of approximately 625 megawatt (MW) 1x1 CCGT electric generating unit consisting of one H-Class gas turbine generator, one heat recovery steam generator (HRSG) with duct firing, and one steam turbine generator (STG). NTEC will burn natural gas with the capability to be retrofitted to use fuel oil as a backup fuel. NTEC will be between approximately 26 acres to 75 acres, depending on the site selected for the Project, and would be located near Superior, Wisconsin. A general simulation of the Project is shown in Figure 1-1. The Project will be cooled using dry cooling by finned heat exchangers. The Project will include a 345-kilovolt (kV) transmission line tap at the existing Arrowhead to Stone Lake Transmission Line as well as a switching station located southeast of the potential plant sites. This transmission line will be between approximately 3.7 miles to 7.1 miles, depending on the site selected and constructed.

[1] Dairyland's share in the facility will ultimately be determined by the size of the turbine selected and the additional generation needs Dairyland identifies. However, it is currently anticipated Dairyland's share in the facility will be approximately 50 percent, Basin's share will be 30 percent, and MP's share will be 20 percent.

Figure 1-1: Nemadji Trail Energy Center

For a dry cooling heat rejection system, cooling would be provided by the following:

- A large-finned heat exchanger with fans (fin fan heat exchanger) moving ambient air across the outside of the tubes and fins (like a radiator in a car) would be used to reject the energy in the steam leaving the steam turbine.
- A separate, finned heat exchanger with fans would be used to reject the energy in the heat transfer fluid used in the auxiliary cooling loop. This auxiliary cooling loop is used for miscellaneous plant cooling duties such as lube oil cooling, compressed air cooling, generator cooling, and other similar duties associated with heat generated in equipment during operation.
- A third, finned heat exchanger with fans may also be included to cool the blown down water from the HRSG to acceptable limits for the process wastewater discharge for the facility.

1.2 Project NEPA History and Reason for a Supplemental EA

Dairyland intends to request financial assistance from the U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) under its Electric Loan Program for its share of the Project, thereby making the proposed project a Federal action subject to the National Environmental Policy Act of 1969 (NEPA), as amended (42 United States Code [U.S.C.] § 4321 et seq.) and the Council on Environmental Quality's

NEPA implementing regulations (40 Code of Federal Register [CFR] Parts 1500-1508), and Rural Development's (RD) NEPA implementing regulations, Environmental Policies and Procedures (7 CFR Part 1970). Consistent with 7 CFR §1970.3(b)(iv)(C), Dairyland prepared environmental documentation that described the Project in detail and discusses its anticipated environmental impacts. RUS concurred with its scope and content. In accordance with 7 CFR § 1970.102(6), RUS adopted the report and issued it as the agency's Environmental Assessment (EA) for the proposed Project (NTECEA).

RUS found that the NTECEA is consistent with federal regulations and meets the standards for an adequate EA. Dairyland published two notices, on October 30 and November 6, 2020, in a local newspaper, announcing the availability of the EA for a 30-day public review period, in accordance with 7 CFR §1970.102(6)(ii). The public review period ended on November 30, 2020. In accordance with NEPA, as amended (42 U.S.C. 4321 et seq.), the Council on Environmental Quality Regulations (40 CFR 1500–1508), and RD's Environmental Policies and Procedures (7 CFR Part 1970), RUS determined that the environmental effects of the proposed Project had been adequately addressed and that no significant impacts to the quality of the human environment would result from construction and operation of the proposed Project. Because RUS' action will not result in significant impacts to the quality of the human environment, an Environmental Impact Statement was not prepared for the Project. The Preferred Alternative was the Nemadji River 1 Alternative, consisting of the Nemadji River plant site and the eastern transmission line macro-corridor. RUS also recognized the Public Service Commission of Wisconsin (PSCW) previously approved this alternative, confirming the site could be permitted and would minimize environmental impacts through Project design and mitigation measures imposed as part of permit conditions. A Finding of No Significant Impact (FONSI) was published in June 2021 which concluded RUS' environmental review process in accordance with NEPA and RD's Environmental Policies and Procedures (7 CFR Part 1970).

On June 23, 2021, RUS received a petition from the Minnesota Center for Environmental Advocacy, Sierra Club Environmental Law Program, Clean Wisconsin, and Honor the Earth to rescind the FONSI and to prepare a Supplemental EA (SEA) to include an analysis of greenhouse gas (GHG) emissions and climate change. The petition stated that new studies related to climate change should be taken into account in the evaluation of the Project. The petition also noted that recently reinstated Council on Environmental Quality (CEQ) guidance requires agencies to evaluate GHG emissions and climate impacts (Executive Order [EO] 13990). This guidance was reinstated shortly after the NTECEA and FONSI were published. The petition also referenced EO 14008, which discourages fossil fuel infrastructure. RUS agreed that further analysis of the potential environmental impacts of the Proposed Action was warranted and a SEA would be prepared to take into account the recent studies outlined in the

petition, as well as applicable EOs and reinstated CEQ guidance. The following document has been prepared to supplement the NTECEA to address the petition filed.

1.3 Profile of Owners

The Project includes the participation of SSE, Dairyland, and Basin Electric. As outlined in detail in the NTECEA, Dairyland is a generation and transmission cooperative, headquartered in La Crosse, Wisconsin, serving approximately 600,000 customers in four states – Wisconsin, Minnesota, Iowa, and Illinois (Dairyland, 2019; Figure 1-2) through its 24 member cooperative systems and serves 17 municipal customers in the Upper Midwest (Wisconsin, Iowa, Illinois and Minnesota). Dairyland and its members are part of a larger group of Touchstone Energy Cooperatives that work together to find innovative energy solutions and educate consumers about energy efficiency, safety, renewable energy, the cooperative business model, and the value of electricity.

SSE is a subsidiary of ALLETE, Inc., and Minnesota Power[2] (MP) is a division of ALLETE, Inc. SSE has taken over as an Owner since completion of initial studies by MP. SSE is not a rural electric cooperative and therefore not regulated by the USDA-RUS.

Since completion of the NTECEA and issuance of the FONSI, Basin Electric has joined with Dairyland and SSE in the Project. Basin Electric, established in 1961 and headquartered in Bismarck, North Dakota, is one of the largest electric generation and transmission cooperatives in the United States. Basin Electric's core business is generating and transmitting wholesale bulk electric power to customers, which primarily consist of 131 member cooperatives located in nine states. Basin Electric's service territory spans 550,000 square miles in the central United States from the Canadian border to Mexico, including parts of Colorado, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, and Wyoming (Figure 1-3). Basin Electric's member cooperatives distribute electricity to about 3 million consumers. Basin Electric owns 2,513 miles and maintains 2,536 miles of high-voltage transmission lines, owns and maintains substation equipment in 90 locations, and has equipment ownership in 17 additional locations. Basin Electric also owns and maintains telecommunications equipment at 217 telecommunication sites (Basin Electric, 2021). Although a rural electric cooperative, Basin Electric is no longer regulated by USDA-RUS, having bought out of the USDA electric program in 2015. Nemadji River Generation, LLC, is a subsidiary of Basin Electric.

[2] MP is a division of ALLETE, Inc. As discussed in Section 1.3 of the NTECEA, MP was a partner in initial studies for the Project. Since the conclusion of initial studies, SSE has taken over as Owner with Dairyland.

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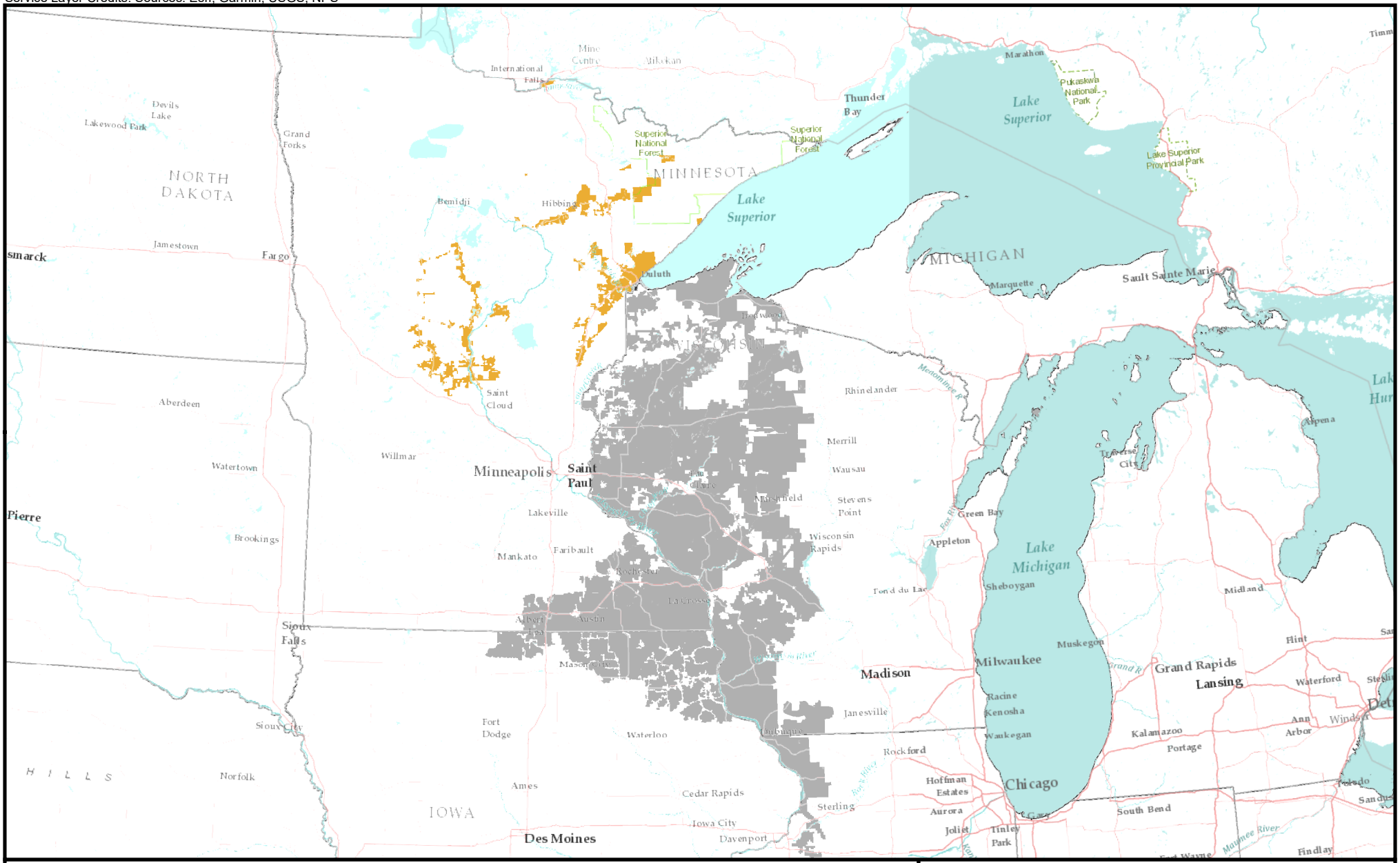


State Boundary

Service Territory

- Dairyland Power Cooperative
- Minnesota Power

NORTH

85 42.5 0 85

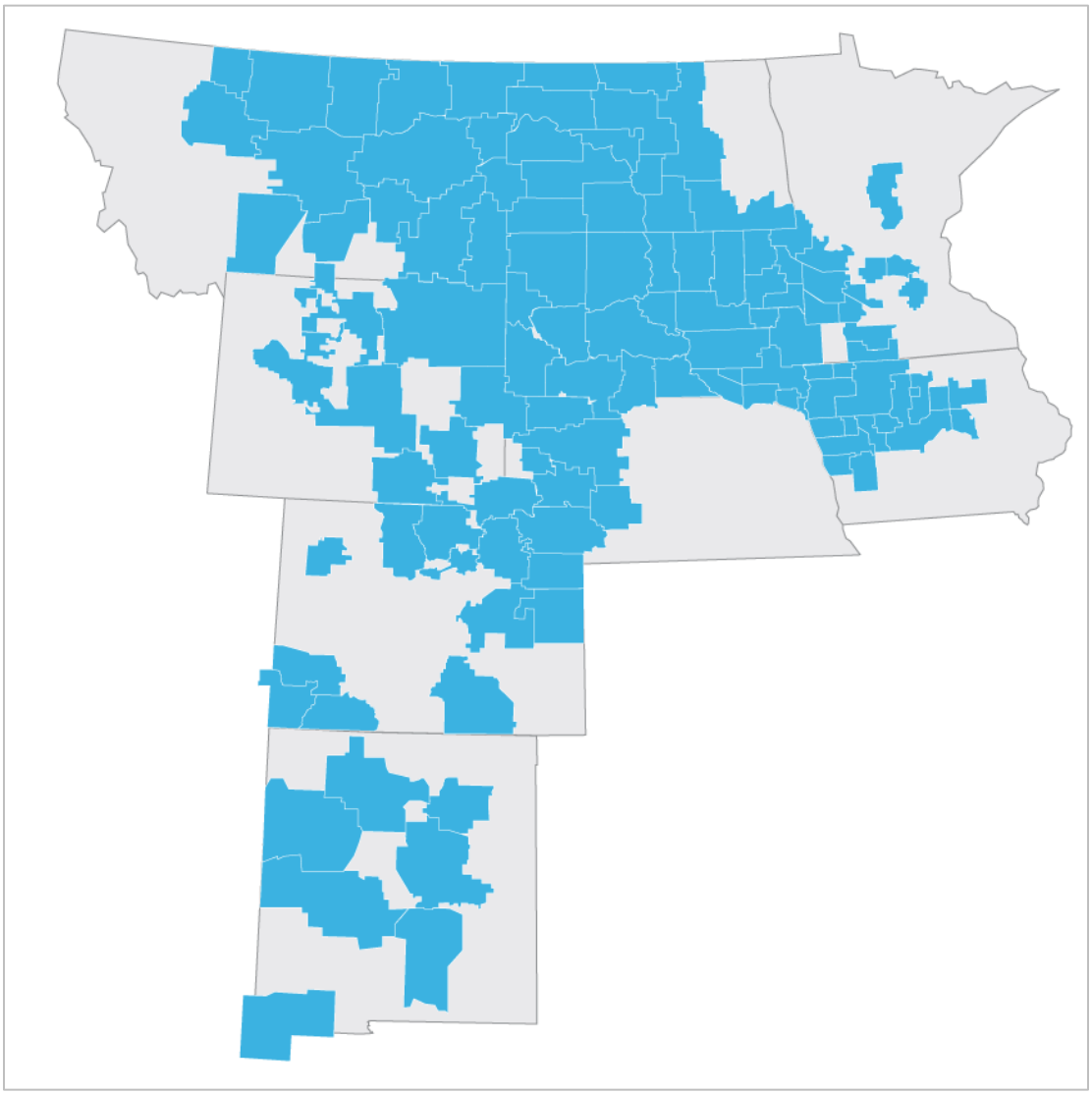
Miles

Figure 1-2
Dairyland Power Cooperative
and Minnesota Power Service Areas
Nemadji Trail Energy Center
Douglas County, WI

Source: Dairyland Power Cooperative, Minnesota Power, ESRI

Issued: 1/28/2022

Figure 1-3: Basin Electric Service Area



1.4 Purpose and Need for the Proposed Project

From a resource planning perspective, Dairyland needs to secure capacity and energy resources that meet the system peak and demand for electricity for the years to come. This includes accounting for required system reserve margins in the Midcontinent Independent System Operator (MISO) and covering Dairyland's forecasted losses to ensure reliability and resource adequacy during unforeseen events such as uncertainties in extreme weather and forced outages for generators. Dairyland needs to add new generating capacity to the current resource mix to serve growing load within the service territories that the member cooperatives serve (including the newly acquired member cooperative load of approximately 175 MW, in Minnesota and Illinois, from Interstate Power and Light) and to replace generation that was recently retired. The addition of the NTEC will also enable Dairyland to facilitate the addition of new

renewable electricity sources to the power portfolio by complementing their intermittent nature. The NTECEA provides a detailed discussion of Dairyland's purpose and need for this Project.

1.4.1 Dairyland's Need for Transition to Renewable Energy Generation

Renewable electrical energy sources are a cornerstone of Dairyland's Sustainable Generation Plan. Federal and state energy initiatives are focused on reductions in energy generation, and associated emissions, from coal-fueled systems and an increase in electricity generation from renewable sources. These initiatives are intended to decrease emissions of various gases linked to potential climate change. Known as GHGs, these substances have the potential to influence the warming and cooling mechanisms of the earth.

Multiple initiatives, EOs, and other directives have provided options for reducing GHG emissions. Though these directives do not regulate GHG emissions, they provide a framework for limiting global temperature rise. These initiatives are discussed in the following sections.

1.4.1.1 Global Initiatives

Parties to the United Nations Framework Convention on Climate Change (COP21), which included the United States, reached a landmark agreement on December 12, 2015, referred to as the Paris Agreement. The central aim of the Paris Agreement is to keep global temperature rise well below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5 degrees Celsius. A framework has been developed in order to reach these goals. Upon taking office on January 20, 2021, President Biden signed an executive order to have the United States rejoin the Paris Agreement and the United States formally rejoined on February 19, 2021.

On November 13, 2021, the 2021 United Nations Climate Change Conference, more commonly referred to as COP26, concluded in Glasgow, Scotland. This was the first conference since the Paris Agreement of COP21 that expected parties to make enhanced commitments to mitigating climate change. The result of COP26 was the Glasgow Climate Pact. This Pact explicitly commits parties to reducing the use of coal and encourages more urgent cuts of GHG emissions as well as promises more climate finance for developing countries to adapt to impacts from climate change (COP26, 2021).

According to the terms of the Glasgow Climate Pact and numerous studies (Orvis, 2021, Hultman et al, 2021, and IEA, 2021), eliminating coal emissions in the U.S. is required to limit warming to no more than 1.5 degrees Celsius by 2100 to avoid catastrophic climate change impacts. Eliminating coal plant power emissions is a critical component in achieving near-term emissions reduction targets (approximately 51 percent reduction in GHG emissions by 2030) (Orvis, 2021, Hultman et al, 2021, and IEA, 2021). Studies

have discussed a number of ways to achieve these targets, but a transition to zero-carbon energy is the main recommendation (Orvis, 2021, Hultman et al, 2021, and IEA, 2021).

1.4.1.2 Federal Initiatives

On April 2, 2007, the Supreme Court found that GHGs are air pollutants covered by the CAA and that the U.S. Environmental Protection Agency (EPA) has the authority to regulate GHGs in the Massachusetts v. U.S. EPA, 549 U.S. 497 decision. On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HCFs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.

- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution, which threatens public health and welfare.

These findings do not impose requirements on industry or other entities. However, this was a prerequisite for implementing GHG emissions standards for vehicles. After a lengthy legal challenge, the United States Supreme Court declined to review an Appeals Court ruling upholding the EPA Administrator findings. While the United States does not have an overarching policy for GHG reduction, there are some GHG reduction regulations and tracking such as 40 CFR 98 Mandatory Greenhouse Gas Reporting, to which the Project will be subject.

EO 14008, *Tackling the Climate Crisis at Home and Abroad*, was signed by President Biden on January 27, 2021. The EO focuses on prioritizing climate in foreign policy and national security, and taking a government-wide approach to the climate crisis. The EO also establishes the National Climate Task Force, which "shall facilitate the organization and deployment of a Government-wide approach to combat the climate crisis. This Task Force shall facilitate planning and implementation of key Federal actions to reduce climate pollution; increase resilience to the impacts of climate change; protect public health; conserve our lands, waters, oceans, and biodiversity; deliver environmental justice; and spur well-paying union jobs and economic growth."

Section 209 of the EO states:

> The heads of agencies shall identify for the Director of the Office of Management and Budget and the National Climate Advisor any fossil fuel subsidies provided by their respective agencies, and then take steps to ensure that, to the extent consistent with applicable law, Federal funding is not directly subsidizing fossil fuels. The Director of the Office of Management and Budget shall seek, in coordination with the heads of agencies and the National Climate Advisor, to eliminate fossil fuel subsidies from the budget request for Fiscal Year 2022 and thereafter.

EO 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis*, was signed by President Biden on January 20, 2021. This EO directed the CEQ to rescind its draft guidance entitled *Draft National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions* (84 Federal Register [FR] 30097). This previous draft guidance limited the consideration of long-term GHG emissions to expedite the NEPA process. The CEQ was also directed to review and update its final guidance entitled *Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews* (81 FR 51866). The CEQ is reviewing GHG guidance from 2016 to determine if any updates should be made. In the interim, Federal agencies are directed to consider all available tools and resources in assessing GHG emissions and climate change effects of their proposed actions, including the previous GHG guidance from 2016.

1.4.1.3 Wisconsin Initiatives

Governor Tony Evers of Wisconsin signed EO 38, *Relating to Clean Energy in Wisconsin*, on August 16, 2019. The EO established the Office of Sustainability and Clean Energy and charged the newly created office with the following:

a) In partnership with other state agencies and state utilities, achieve a goal of ensuring all electricity consumed within the State of Wisconsin is 100 percent carbon-free by 2050.
b) Ensure the State of Wisconsin is fulfilling the carbon reduction goals of the 2015 Paris Climate Accord.
c) Develop a clean energy plan to assist the State of Wisconsin in adapting to and mitigating the harm from climate change by using clean energy resources and technology. The Office of Sustainability and Clean Energy shall coordinate with the Department of Natural Resources, the Department of Transportation, the Public Service Commission, the Department of Agriculture, Trade and Consumer Protection (DATCP), other state agencies, Native Nations, local governments, utilities, businesses, and other stakeholders to develop and implement the clean energy plan.
d) Promote clean energy workforce training, in partnership with the University of Wisconsin System, Wisconsin Technical College System, private and non-profit workforce development programs and labor organizations, and the Wisconsin Manufacturing Extension Partnership.
e) Foster innovation, research, and business development within the renewable energy, energy efficiency and sustainability sectors.
f) Develop energy efficiency, sustainability and renewable energy standards for all new and existing state facilities, office buildings, and complexes.

In 2019, Governor Tony Evers signed EO 52, which created the Governor's Task Force on Climate Change. This task force published the *Governor's Task Force on Climate Change Report* (State of Wisconsin, 2020), which describes climate solutions for the State of Wisconsin to better adapt to and mitigate the effects of climate change. The report also discusses environmental justice and opportunities for renewable energy generation and resource conservation. The report includes Tier 2 proposals, which are options discussed during the task force's process, the public hearing, and public comment period. These Tier 2 proposals "merit further discussion and consideration outside the work of the task force" (State of Wisconsin, 2020). One proposal under the Tier 2 options was avoiding all new fossil fuel infrastructure, which would include:

- Avoiding all new fossil fuel infrastructure for electricity generation.
- Avoiding any new natural gas plants.
- Avoiding new pipelines. Oppose new or expanding infrastructure whose primary purpose is transporting fossil fuels through Wisconsin.

The report states (State of Wisconsin, 2020):

> Wisconsin cannot take meaningful climate action without bold action to reduce the use of fossil fuels and pivot to renewable energy. To stay within the Paris Agreement climate goals, we cannot build any new fossil fuel infrastructure, including infrastructure for the production and transportation of fossil fuels, such as wells, refineries, pipelines, and shipping terminals.

1.4.2 Natural Gas' Role in Transition to Renewable Resources

As a Wisconsin cooperative and due to the location of the Project in the state, efforts by Dairyland to reduce GHGs and incorporate more renewable generation into its portfolio will assist the State of Wisconsin in achieving its GHG reduction goals. Low natural gas prices are expected to accelerate the timeline of coal retirements (Orvis, 2021) and as a natural gas-fired power plant, the Project would contribute to this shift. At this point in time, gaps exist in the ability to rely upon 100 percent renewable power. Renewable energy such as solar and wind do not function as dispatchable energy sources due to the nature of the electricity generation being highly variable, both in duration and intensity (i.e., the sun shining or wind blowing during mostly daytime hours). Battery technology to store energy generated from renewables is improving and decreasing in cost, but it is not currently capable of meeting the electricity storage needs to meet system demand and load requirements. Therefore, flexible and reliable dispatchable power sources are necessary to close this gap, and high efficiency combined cycle natural gas-fired power plants meet this need better than any other dispatchable resource, while supporting the retirement of coal and reducing reliance on lower efficiency natural gas facilities to further drive GHG reductions in the near-term (EPRI, 2021). The Project will be designed to be highly flexible and capable

of operating in peaking and intermediate load modes to fulfill energy and capacity requirements alongside renewable additions until sufficient facilities and resources are developed to continue to provide reliable electric power throughout the Dairyland system.

1.5 Purpose and Need for Federal Action

Dairyland intends to request financing from RUS under its Electric Loan Program for its share of the Project. The Secretary of Agriculture is authorized under the Rural Electrification Act of 1936, as amended) to provide Federal loans for rural electrification and telecommunication development (7 U.S.C. 901 et seq.). Specifically, RUS is authorized to provide funding or loan guarantees for the construction of electric distribution and transmission, as well as generation facilities, to provide and to improve electric service in rural areas of the U.S.

The proposed Federal Action is for RUS to decide whether to provide financing to Dairyland for Dairyland's portion of the Project.

2.0 ALTERNATIVES

2.1 Introduction

Dairyland conducted detailed analysis and discussions with Dairyland Managers and Dairyland's Board of Directors through strategic planning sessions in the production of its preferred power supply plan over a 3-year period. Dairyland also conducted a study of self-build options along with potential NTEC participation. Dairyland conducted a request for proposals (RFP) from potential energy providers for capacity and energy on a long-term basis in MISO capacity zone 1 and 2. These proposals provided through the RFP included a variety of alternatives to meet Dairyland's supply needs.

The various alternatives would provide from 10 to over 350 annual MW. These alternatives also included additional risks related to congestion and delivery, making it uncertain if these sources would be available when required. Dairyland determined that none of these alternatives would be superior to participation in the NTEC Project, which would provide a very low energy cost, have a term life of at least 30 years, provide approximately 300 MW of dispatchable low emitting, firm capacity to complement its renewable portfolio, and minimize congestion, delivery and other risks.

In addition, Dairyland conducted discussions with developers and other cooperatives through the National Renewable Cooperative Organization (NRCO) to evaluate a range of options, including renewable projects. The Dairyland study and planning effort culminated in the development of the Dairyland preferred power supply plan that strikes a balance between the need for accredited capacity in MISO, intermediate energy flexibility and renewable resources. The plan provides rate stability and reliability under a number of different future scenarios. Therefore, Dairyland decided to proceed with participation in the NTEC Project.

Having determined to advance the NTEC project, MP and Dairyland sought to evaluate potential alternative sites for a new generation project. Previously, a group of utilities serving the upper Midwest, particularly the states of Wisconsin, Minnesota, and North Dakota, conducted a site selection study (Siting Study) to identify and evaluate potential sites for the Project. The Siting Study included consideration of potential sites across the upper Midwest that could potentially be used for joint development of such a facility by multiple regional utilities. The Siting Study identified several suitable sites throughout the upper Midwest that appeared to provide reasonable sites for the Project. MP and Dairyland used the Siting Study as a substantial basis for the identification of alternative locations for the Project. For a complete summary of the Siting Study, see Section 2.1 of the NTECEA.

2.2 NTEC Site Selection

Using the Siting Study, Dairyland and MP identified the NTEC Study Area (Figure 2-1), which focused on the border of the Minnesota/Wisconsin state line between the two service territories of the companies. Two of the Preferred Site Areas from the Siting Study were within the NTEC Study Area (Arrowhead to Redrock and SupGen). Dairyland and MP also conducted a high-level review to determine if any potential suitable brownfield sites were available and suitable as alternative sites for this Project in the NTEC Study Area. MP and Dairyland selected the SupGen site for development of the proposed NTEC Project. See Section 2.3 of the NTECEA for a full discussion on the NTEC Site Selection.

The region around the SupGen site was evaluated for potential alternative generation sites. The SupGen site, as considered in the site selection study, was confirmed to provide a reasonable site for Project development (Nemadji River Site; Figure 2-1). Investigations of the area identified an alternative site for the facility approximately 1.5 miles north of the Nemadji River Site (Figure 2-2) to the east of Hill Avenue. The Hill Avenue Site is located just north of the tank farm near the Nemadji River Site and west and south of dense residential areas of the City of Superior. An open corridor is available to extend electricity and gas infrastructure into the site. Areas surrounding the Hill Avenue Site contain commercial and light industrial facilities, lowland scrub/shrub wetland community, or are undeveloped, wooded areas. Dairyland and SSE included the Hill Avenue Site as part of Project development and evaluation activities.

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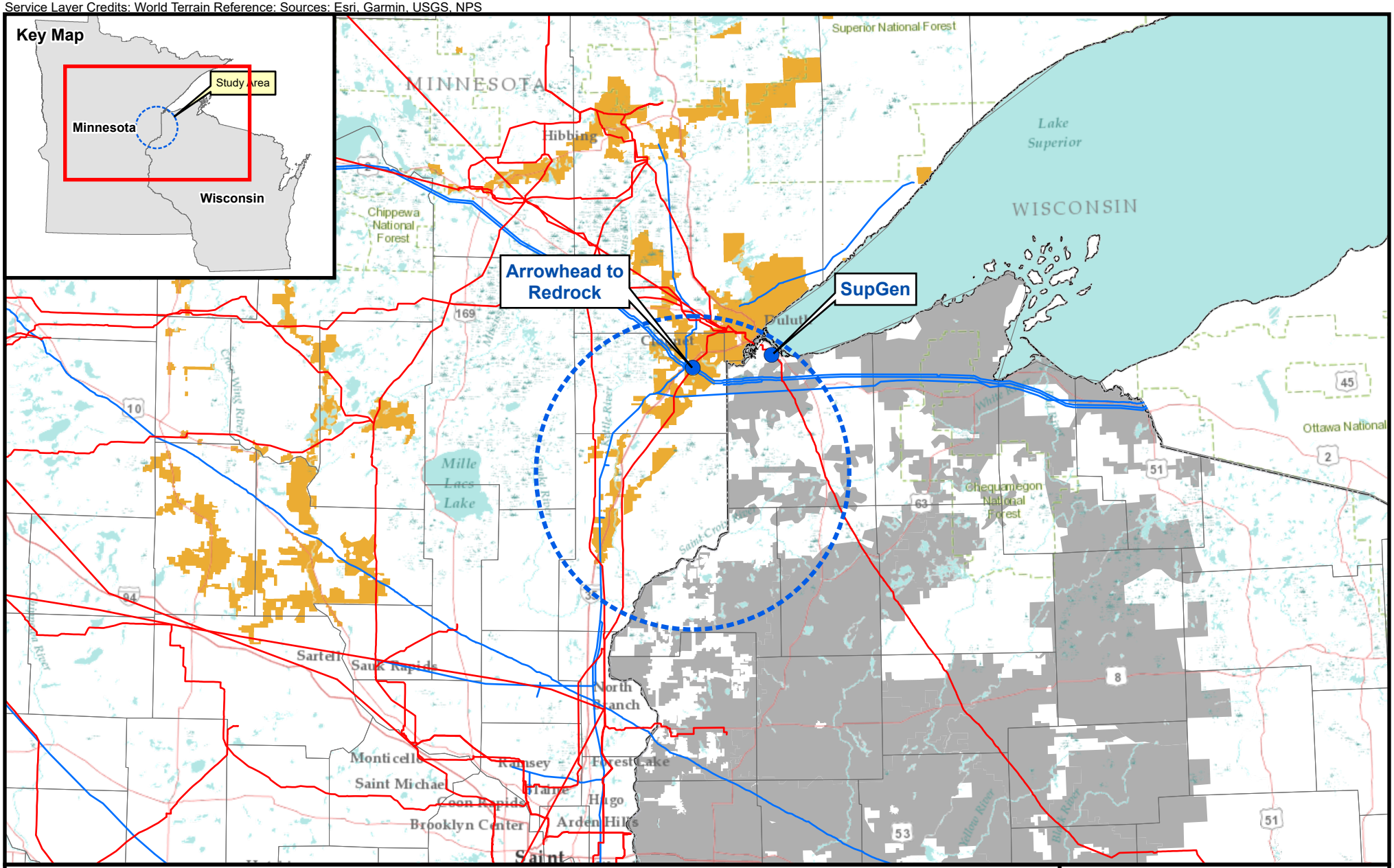
Service Layer Credits: World Terrain Reference: Sources: Esri, Garmin, USGS, NPS



Service Territory
- Dairyland Power Cooperative
- Minnesota Power

- NTEC Study Area
- Line Tap (<=5 miles to water)
- Transmission (>= 230 kV)
- Natural Gas Pipeline (>=16")
- State Boundary
- County Boundary

NORTH

25 12.5 0 25
Miles

Figure 2-1
NTEC Study Area
Nemadji Trail Energy Center
Douglas County, WI

Source: Dairyland Power Cooperative, Minnesota Power, ESRI, and Burns & McDonnell Engineering Company, Inc.

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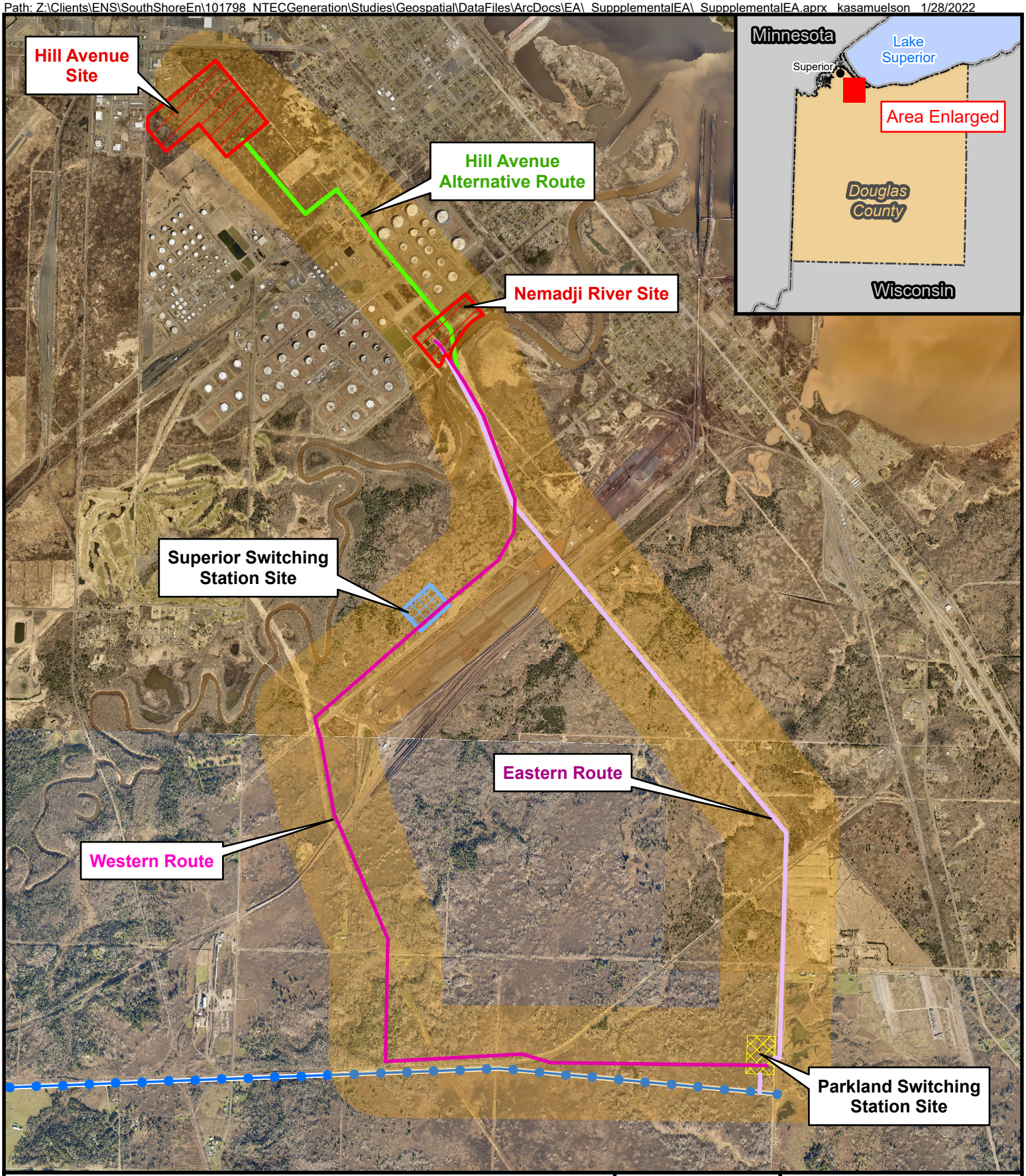


Macro-Corridors
Existing Electric Transmission
Existing Pipeline
Generation Plant Site
Parkland Switching Station
Superior Switching Station

Electric Transmission Options
Hill Avenue Alternative Route
Western Route
Eastern Route

NORTH

0 1,500 3,000
Feet

Figure 2-2
Project Alternative Sites, Switching Stations, and Transmission Line Routes Location and Overview

Source: South Shore Energy; MP; City of Superior 2019 aerial photography; Energy Velocity; Burns & McDonnell Engineering Company, Inc.

Issued: 1/28/2022

2.3 Linear Infrastructure Alternatives

The new facility would require a new electric transmission line to connect to a new switching station located southeast of the site. The switching station would then be connected to the electricity grid in order to deliver the power generated to the bulk power system via the existing Arrowhead to Stone Lake 345-kV transmission lin. American Transmission Company (ATC) would be responsible for the connection between the switching station and the existing transmission line. In addition to an electrical transmission interconnect, a suitable supply of natural gas to fuel the facility is also required via a natural gas pipeline. A 16-inch diameter natural gas line for the Project will be constructed and owned by Superior Water Light & Power (SWL&P).

Macro-corridors were identified and investigated in further detail to determine potential impacts for a new transmission line in the Study Area (Figure 2-2). These steps and the results for this study are discussed in detail in Section 2.4 of the NTECEA.

A new switching station off-site was determined necessary and alternative sites were investigated and evaluated. Numerous sites were identified and evaluated for the new switching station. Ultimately, two sites, the Parkland Switching Station and Superior Switching Station (Figure 2-2) were identified as alternative switching station sites for connection of the alternative macro-corridors into the 345-kV system. The switching station siting evaluation is provided in Section 2.4.5 of the NTECEA.

2.4 Identification of the Project Alternatives for Evaluation

Construction of the NTEC Project requires identification, consideration, and evaluation of sites for location of the generation facilities, as well as alignments for development of the necessary linear electricity transmission facilities. While generation sites were well defined parcels of land, transmission line macro-corridors were areas of land approximately 0.5-mile wide, considerably greater than the 130 feet of right-of-way (ROW) width actually required for the new 345-kV line. This difference in width was intended to provide flexibility for location of the actual transmission line following approval should unforeseen or previously unidentified obstacles be identified requiring minor deviations of the route. Location of the actual ROW, provided it remained within the macro-corridor approved, would be acceptable.

For the Project, two generation sites, Nemadji River and Hill Avenue, were identified, as were two macro-corridors (eastern and western) for transmission line development. Each site was combined with each macro-corridor as a unique Project alternative for comparison and evaluation. These alternatives were (Figure 2-2):

- Hill Avenue 1: Hill Avenue Site combined with eastern macro-corridor (Segments A and E)
- Hill Avenue 2: Hill Avenue Site combined with western macro-corridor (Segments A, B, C, and D)
- Nemadji River 1: Nemadji River Site combined with eastern macro-corridor (Segments A and E)
- Nemadji River 2: Nemadji River Site combined with western macro-corridor (Segments A, B, C, and D)

The NTEC project originally selected wet cooling for the project. Due to concerns expressed by the Wisconsin Department of Natural Resources (WDNR) over water use, NTEC evaluated other water supply options. Dry cooling was selected as a result of these studies. Section 2.5 of the NTECEA provides more information about dry cooling.

Chapter 3 of the NTECEA presented the potential impacts of each of the Project alternatives for comparison. In this SEA, Chapter 3 provides the potential impacts associated with GHG emissions and tribal environmental justice for each of the Project alternatives.

The PSCW has previously approved alternatives for various components of the Project. On January 31, 2020, the PSCW issued its final decision on the generation facility (Docket Number 9698-CE-100). The Certificate of Public Convenience and Necessity (CPCN) application was approved and the PSCW authorized the Nemadji River Site as the location for NTEC. On January 30, 2020, the PSCW issued its final decision on the electric transmission line for the Project (Docket Number 9698-CE-101). The transmission line CPCN was approved and the PSCW authorized the eastern route. On March 3, 2020, the PSCW issued its approval of a 16-in natural gas lateral to SWL&P (Docket Number 5820-CG-105) to supply natural gas to the NTEC generation facility as well as the 10-inch natural gas reroute required at the Nemadji River Site (Docket Number 5820-CG-106).

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Chapter 3 provides an understanding of the affected environment and potential environmental consequences of each of the four Project alternatives for climate change and tribal environmental justice issues. Federal, state, and local regulations that apply to managing these resources are also discussed in context of the existing environment.

As part of the PSCW application, the Owners were required to identify alignments within the macro-corridors for Project development and permitting. These alignments were surveyed and used to develop potential Project alternatives that could result from transmission line construction. The potential impacts of these linear alignments were combined with the Site alternatives to compare the overall Project impacts of each alternative. These Proposed Action Alternatives were:

- Hill Avenue 1: Hill Avenue Site combined with eastern macro-corridor (Segments A and E)
- Hill Avenue 2: Hill Avenue Site combined with western macro-corridor (Segments A, B, C, and D)
- Nemadji River 1: Nemadji River Site combined with eastern macro-corridor (Segments A and E)
- Nemadji River 2: Nemadji River Site combined with western macro-corridor (Segments A, B, C, and D)

Additionally, switching station sites associated with each macro-corridor included parcels approximately 14 acres in size. Actual switching station footprint area will likely be approximately 4.4 acres. However, as final design and placement of each switching station on each parcel has not yet been determined, the potential environmental consequences associated with each switching station site have been estimated based on the entire 14 acre parcel to conservatively assess the potential human and natural resources effected at each site. Pending final design, the actual impacts associated with each switching station sites are anticipated to be somewhat less than those presented in the NTECEA.

This chapter assesses the potential impacts of the No Action Alternative and the Proposed Action Alternatives. The No Action Alternative provides a basis for comparison in which none of the Project components would be constructed.

3.1 Summary of Project Impacts in the Previous EA

Table 3-1 provides a summary of potential environmental consequences of the Project Alternatives as discussed in the NTECEA. Please see Chapter 3.0 of the NTECEA for a more detailed discussion of potential environmental consequences of the Project.

Table 3-1: Summary of Potential Impacts

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
Air Quality	The existing air quality in the Douglas County area is designated as attainment or unclassifiable in regard to the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. Construction of the Project has the potential for short-term adverse effects on air quality in the immediate area around the site. Minor and temporary generation of criteria pollutants and GHGs would occur during construction. It is anticipated that the Project would not affect the attainment status for Douglas County. The Owners would comply with the issued Wisconsin Department of Natural Resources (WDNR) construction air permit that would include emission limitations, monitoring requirements, and other terms and conditions. The Project would not cumulatively contribute to significant adverse air quality impacts.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.
Biological Resources	Temporary impacts from the Project could occur as a result of the increased presence of human and vehicle disturbance during construction. Temporary displacement of species might occur due to increased human activity in the area, vehicle traffic, and material transfer. Impacts to wildlife as a result of vehicle collisions would also be an increased risk during construction and operation. The majority of species affected would be mobile and able to move away from any impacts, but others could be vulnerable. Construction and operation of the Project would result in the permanent loss of vegetation communities, wildlife habitat, and plant and animal populations within the construction footprint. Additionally, some of the wildlife communities that occur at and in the vicinity of the Project would be temporarily displaced to surrounding areas where habitat is available. Construction of the either the Superior Switching Station or the Parkland Switching Station would impact approximately 14	No forest or grassland communities occurs at the Hill Avenue Site. The Hill Avenue Site Route would require clearing in forested areas for new ROW and along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 14.3 acres of the Hill Avenue Site Route in forested lands and shrubland habitats. The Eastern Transmission Route would require approximately 23.1 acres of woody vegetation to be cleared from forested lands and shrubland habitats to widen the corridor and accommodate the additional line. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor.	No forest or grassland communities occurs at the Hill Avenue Site. The Hill Avenue Site Route would require clearing in forested areas for new ROW and along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 14.3 acres of the Hill Avenue Site Route in forested lands and shrubland habitats. The Western Transmission Route would require clearing in forested areas for new ROW in addition to minor impacts to forested land along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 79.1 acres of the Western Transmission Route in forested lands and shrubland habitats. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor.	Construction of the proposed project at the Nemadji River Site would permanently impact approximately 7.1 acres of forest (approximately 4.6 acres of the quaking aspen forest in the northeastern portion of the site and approximately 2.5 acres of the mixed quaking aspen and black willow forest in the southeastern portion of the site) as well as impact approximately 7.2 acres of the forage grassland and wetland meadow communities The proposed project footprint at the Nemadji River Site avoids clearing trees and vegetation along the banks, immediately adjacent to the Nemadji River. A vegetation buffer with a minimum width of 100 feet would be maintained between the proposed project footprint and the Nemadji River. The loss of plant and animal habitat would occur adjacent to existing areas that have already been developed. The Nemadji River Site is adjacent to an existing tank farm and utility corridors. This area has	Construction of the proposed project at the Nemadji River Site would permanently impact approximately 7.1 acres of forest (approximately 4.6 acres of the quaking aspen forest in the northeastern portion of the site and approximately 2.5 acres of the mixed quaking aspen and black willow forest in the southeastern portion of the site) as well as impact approximately 6.47.2 acres of the forage grassland and wetland meadow communities The proposed project footprint at the Nemadji River Site avoids clearing trees and vegetation along the banks, immediately adjacent to the Nemadji River. A vegetation buffer with a minimum width of 100 feet would be maintained between the proposed project footprint and the Nemadji River. The loss of plant and animal habitat would occur adjacent to existing areas that have already been developed. The Nemadji River Site is adjacent to an existing tank farm and utility corridors. This area has

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
	acres of woody vegetation in forested lands and shrubland habitats. No grassland habitat is present within the footprint of the switching station site. Forested areas adjacent to the Project could provide potential habitat for the northern long eared bat. Snags that include potential summer roost trees for the northern long-eared bat were observed during the site visit along Bear Creek, adjacent to Study Area. No potential summer roost habitat was observed at either proposed facility site. No caves were identified within the Study Area. no bald or golden eagle nests were observed during field surveys that occurred within the Study Area. One invasive plant species, reed canary grass, was identified along all portions of the transmission line route and switching station site during the wetland delineation field. The three other invasive plant species were more sparsely distributed and were not observed at each Project component.			experienced some level of habitat fragmentation associated with development in and around the City of Superior. The Eastern Transmission Route would require approximately 23.1 acres of woody vegetation to be cleared from forested lands and shrubland habitats to widen the corridor and accommodate the additional line. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor.	experienced some level of habitat fragmentation associated with development in and around the City of Superior. The Western Transmission Route would require clearing in forested areas for new ROW in addition to minor impacts to forested land along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 79.1 acres of the Western Transmission Route in forested lands and shrubland habitats. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor.
Cultural Resources	Based on the distance from National Register of Historic Properties and the concurrence from the State Historic Preservation Office that no historic properties would be affected, it is anticipated that the Project would not have adverse impacts on cultural resources.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
Geology and Soils	Both Project sites would need to be graded and grading design would change the topography to facilitate storm water drainage patterns. Storm water runoff on the Nemadji River Site would be collected and directed to an onsite storm water detention pond. Storm water runoff on the Hill Avenue Site would be collected and routed to a new storm water detention pond. Both sites require excavation for underground utilities and deep structures such as pump pits. For the transmission line, foundation construction would occur after vegetation clearing is complete. Excavated soils from foundation drilling would be used for foundation backfill if appropriate. Surplus soils would be spread within upland areas of the right of way and stabilized. After all line construction is complete, the ROW is restored. Construction and operation of any Project alternative is not expected to affect geological formations. Soils at the Project site would be converted to plant site development with much of the area occupied by the facilities and covered by concrete and gravel areas. The transmission line corridor would be cleared but only soil areas at the structure locations would be permanently excavated. Other areas of hydric and statewide important soils would remain largely unaffected by construction and following any necessary stabilization would be available for agriculture and other activities.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.

Infrastructure, Transportation, Public Health and Safety, and Hazardous Materials	*Utilities:* Outages would be required on the Line No. 160 transmission line and the Line No. 761 transmission line to construct the new double circuit 345-kV The Project would require an outage to connect to the Arrowhead to Stone Lake 345 kV transmission line. The Project would require minor construction of water and wastewater pipelines to connect with the municipal system. *Transportation:* The daily automobile traffic to the site would increase from approximately 25 to 50 vehicles per day in the initial stages of construction to approximately 200 to 260 vehicles per day during peak months (April through December 2023). The traffic would begin to decrease until it reaches approximately 25 vehicles per day near construction completion. Material and equipment deliveries are anticipated to average between 15 and 25 trucks per day. Bulk deliveries for materials such as crushed stone, hot asphalt paving, and redi-mix concrete may occasionally exceed 25 vehicles on a given day. No permanent changes to existing roads are anticipated as part of this Project. No permanent damage to roads is anticipated with the implementation of mitigation measures. There is currently no connection or proposed connection to rail lines related to the Project. Rail lines would be spanned by the Project transmission lines. The FAA issued Determination of No Hazard/Does Not Exceed letters for the stacks at the Project sites. The FAA issued a Determination of No Hazard/DNE letter for all the transmission line structures that were studied on October 2, 2018. The Project would require off-ROW access roads. *Public health and safety:* Access roads would be blocked from public access. Existing healthcare facilities are anticipated to be sufficient for the Project during construction and operation, and no necessary improvements are anticipated. The Project would have fire suppression measures of its	At the beginning of the Eastern Transmission Route, an existing 115-kV line would be replaced with a double circuit 345/161-kV line, and the 115-kV line would be shifted onto the existing 161-kV structures.	The Western Transmission Route extends southeast from the Nemadji River Site to the existing Line No. 160. The Western Transmission Route would be built double circuit with the 161kV Line 160 for a couple spans before extending southwest as a single-circuit transmission line.	The existing electric transmission lines that traverse the Nemadji River Site would need to be relocated to facilitate construction of the generation plant. At the beginning of the Eastern Transmission Route, an existing 115-kV line would be replaced with a double circuit 345/161-kV line, and the 115-kV line would be shifted onto the existing 161-kV structures. The fiberoptic cable between the Nemadji River Site and the Hill Avenue Site would need to be relocated if the Nemadji River Site is constructed. An existing 10-inch natural gas line would need to be relocated at the Nemadji River Site.	The existing electric transmission lines that traverse the Nemadji River Site would need to be relocated to facilitate construction of the generation plant The Western Transmission Route extends southeast from the Nemadji River Site to the existing Line No. 160. The Western Transmission Route would be built double circuit with the 161kV Line 160 for a couple spans before extending southwest as a single-circuit transmission line. The fiberoptic cable between the Nemadji River Site and the Hill Avenue Site would need to be relocated if the Nemadji River Site is constructed. An existing 10-inch natural gas line would need to be relocated at the Nemadji River Site.

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
	own, as well as facilities for the storage of hazardous materials. No City fire department improvements are anticipated. Police protection would be provided by the City of Superior and the Wisconsin State Patrol during both construction and operations, and no improvements are anticipated. *Waste management:* Local waste disposal and sanitation facilities are not anticipated to be adversely affected by the additional waste streams generated during construction and operation of the Project. No additional solid wastes would be generated by the Project as byproducts from the production of electricity.				

Land Use, Recreation, Farmland, and Coastal Facilities	*Land use:* Construction of either switching station would convert approximately 14 acres of woody vegetation in forested lands and shrubland habitats to a switching station with electric transmission infrastructure. It is anticipated that most of the impacts to grasslands along the transmission route would only be temporary construction. Some permanent impacts to grassland habitats would occur where transmission line poles and foundations would be set. No grassland habitat is present within the footprint of either switching station site. *Recreation:* No direct impact to parks anticipated. While the Sites may be visible from these parks and loud Site noise such as from steam blows may be heard offsite, several streets with homes, combined with nearby commercial and industrial areas provide visual and sound buffers between the Sites and the existing parks. The transmission line routes primarily extend through undeveloped wooded areas. The switching station sites are also mostly surrounded by woodland, which helps provide visual buffers. The 18th Street and Nemadji canoe launch access may be impacted during construction of facilities through temporary road closures and temporary increased noise. The Project may impact visitors to the Orange Trail by increased traffic crossing the trail or temporary closures during Project construction, as well as slightly increased traffic crossing the trail during Project operation. Construction traffic and any road closures would be temporary in nature and cease after construction is complete. The Eastern and Western Transmission Routes south of the Nemadji River Site would require clearing woodland in a portion of the Allouez Area Parcel 1 hunting area. The routes generally follows existing transmission line and natural gas line through this area. Clearing would remove woodland habitat and result in a minor change to the habitat mix on these areas.	*Land use:* The Hill Avenue Site consists entirely of undeveloped lowland scrub/shrub wetland community. No forest or grassland community occurs at the Hill Avenue Site. The Hill Avenue Site Route would require clearing in forested areas for new ROW and along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 14.3 acres of the Hill Avenue Site Route in forested lands and shrubland habitats. The Eastern Transmission Route for the transmission line would likely be constructed within an existing utility corridor that contains a natural gas pipeline and overhead electrical transmission lines; however, approximately 23.1 acres of woody vegetation would be cleared from forested lands and shrubland habitats to widen the corridor and accommodate the additional line. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor. *Recreation:* The Hill Avenue Site would reduce the size of the Murphy Oil – 5 hunting area by approximately 72 acres. The Eastern Transmission Route would cross the Itasca Area hunting area and the Annex hunting area. The route generally follows existing transmission line and natural gas line through these parcels. The transmission line route from the Hill Avenue Site south to the Nemadji River would also remove a portion of the Murphy Oil – 5 hunting area from hunting activities. Clearing would remove woodland habitat and result in a minor change to the habitat mix on these areas. Access to all or portions of these areas may also be controlled during construction. Once completed, access to these areas would be restored. The connecting facilities extending from the Hill Avenue Site to the southeast	*Land use:* The Hill Avenue Site consists entirely of undeveloped lowland scrub/shrub wetland community. No forest or grassland community occurs at the Hill Avenue Site. The Hill Avenue Site Route would require clearing in forested areas for new ROW and along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 14.3 acres of the Hill Avenue Site Route in forested lands and shrubland habitats. The Western Transmission Route would require more clearing in forested areas for new ROW in addition to minor impacts to forested land along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 79.1 acres of the Western Transmission Route in forested lands and shrubland habitats. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor. *Recreation:* The Hill Avenue Site would reduce the size of the Murphy Oil – 5 hunting area by approximately 72 acres. The Western Transmission Route would cross a small portion of the Allouez Area Parcel 2 hunting area. The transmission line route from the Hill Avenue Site south to the Nemadji River would also remove a portion of the Murphy Oil – 5 hunting area from hunting activities. Clearing would remove woodland habitat and result in a minor change to the habitat mix on these areas. Access to all or portions of these areas may also be controlled during construction. Once completed, access to these areas would be restored. The connecting facilities extending from the Hill Avenue Site to the southeast	*Land use:* Construction of the proposed project at the Nemadji River Site would permanently convert approximately 7.1 acres of forest and approximately 7.2 acres of the forage grassland and wetland meadow communities to power generation use. This use is compatible with adjacent land uses, which include an oil tank farm and an oil refinery. *Recreation:* Increased traffic and operation noise near the fishing access at 18th Street during operation. Traffic during operation of the Project would increase vehicles on nearby roads but is not anticipated to significantly increase traffic due to the number of employees anticipated or reduce access to these facilities. The Eastern Transmission Route would cross the Itasca Area hunting area and the Annex hunting area. The route generally follows existing transmission line and natural gas line through these parcels. Clearing would remove woodland habitat and result in a minor change to the habitat mix on these areas. Access to all or portions of these areas may also be controlled during construction. Once completed, access to these areas would be restored. *Farmland*: The Eastern Transmission Route extends along the edge of a row crop field north of its intersection with County Road Z for approximately 930 feet. The row crop field crossed by the Eastern Transmission Route would be impacted during construction of the Project. This section of route is within existing ROW, limiting impacts to already impacted areas. Soil along this portion of the route would likely be disturbed during transmission line construction and temporary access. If planted, crops in the ROW could be damaged during construction. After construction is complete in the area, farming activities can resume.	*Land use:* Construction of the proposed project at the Nemadji River Site would permanently convert approximately 7.1 acres of forest and approximately 7.2 acres of the forage grassland and wetland meadow communities to power generation use. This use is compatible with adjacent land uses, which include an oil tank farm and an oil refinery. The Western Transmission Route would require more clearing in forested areas for new ROW in addition to minor impacts to forested land along the existing shared utility corridors. Woody vegetation clearing would occur along approximately 79.1 acres of the Western Transmission Route in forested lands and shrubland habitats. Woody vegetation would be removed where additional, new ROW is needed and along the edges of the existing utility corridor. *Recreation:* Increased traffic and operation noise near the fishing access at 18th Street during operation. Traffic during operation of the Project would increase vehicles on nearby roads but is not anticipated to significantly increase traffic due to the number of employees anticipated or reduce access to these facilities. The Western Transmission Route would cross a small portion of the Allouez Area Parcel 2 hunting area. Clearing would remove woodland habitat and result in a minor change to the habitat mix on these areas. Access to all or portions of these areas may also be controlled during construction. Once completed, access to these areas would be restored.

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
	Access to all or portions of these areas may also be controlled during construction. Once completed, access to these areas would be restored. *Farmland*: No farming activities currently occur at either Site. No farming has occurred in the recent past. The Western Transmission Route and Hill Avenue Site Route do not cross farmland. No known agricultural buildings and animal dairy confinement operations are located near the Project. In addition, the Project's electrical clearances and ROW width are designed to limit neutral-to-earth and induced voltages that can create concern with livestock operations. *Coastal:* No coastal facilities are located within the Project Study Area or macro-corridors. The nearest CBRS area is located approximately 30 miles northeast of the Project area along the Lake Superior shoreline in Bayfield County. No impacts to coastal facilities are anticipated due to the Project.	would introduce a new utility corridor through the hunting area. *Farmland*: The Eastern Transmission Route extends along the edge of a row crop field north of its intersection with County Road Z for approximately 930 feet. The row crop field crossed by the Eastern Transmission Route would be impacted during construction of the Project. This section of route is within existing ROW, limiting impacts to already impacted areas. Soil along this portion of the route would likely be disturbed during transmission line construction and temporary access. If planted, crops in the ROW could be damaged during construction. After construction is complete in the area, farming activities can resume.	would introduce a new utility corridor through the hunting area.		

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
Noise	Project construction would result in temporary and minor noise impacts in the surrounding area. Construction-related sounds would vary in intensity and duration depending on specific stages and activities of construction but would not be permanent. Nearby residences may temporarily experience increased noise during construction. Minor temporary disturbances to wildlife could occur. Steam blows have the potential to significantly increase sound levels near the Project during their temporary and infrequent occurrence. Following the initial steam blow for commercial operation, subsequent steam blows would be rare occurrences, anticipated once every 10 to 15 years as part of major system maintenance. Because these are rare and not long-term sources of noise, their impact is expected to be minimal. A preliminary noise study was conducted incorporating dry cooling equipment. The results of this study showed noise levels that would be in excess of U.S. Environmental Protection Agency (EPA) noise guideline levels. These levels were discussed with the finned heat exchanger suppliers and they confirmed the EPA noise guideline levels are achievable for the required equipment with proper mitigation measures. The Project will incorporate appropriate noise mitigation required to achieve EPA noise guideline levels.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.

Socioeconomics and Environmental Justice	During construction, the Project would create up to 260 jobs during peak activity. The number of workers onsite would begin at nominal levels at the beginning of construction and steadily increase over time, declining as major construction activities are completed. Local businesses near the Facility, such as gas stations, convenience stores, and restaurants, may experience increases in business during construction due to construction workers onsite. Local materials such as concrete, lumber, and general hardware may be purchased from local businesses. This increased demand would cease after construction is complete and would not add considerably to the demand on existing business, services, or community facilities. The Project would create up to 25 full-time permanent jobs. These new permanent employees may be from the local workforce or may relocate to the area for the position. Considering the population of the City of Superior and Douglas County, the addition of 25 jobs is not anticipated to considerably increase demand for housing, schools, or other local services. The City of Superior and Douglas County would receive payments in lieu of taxes of around one million dollars annually (two-thirds to the city; one-third to the county) from the State of Wisconsin for hosting a generation facility. The City of Superior would also receive considerable fees from the facility for increased use of the City's wastewater treatment system. County sales tax revenues are likely to increase over time, especially during the intense construction phase. There could be a negative local budget impact due to the increased use of 31st Avenue East, which is currently a short-paved road with an extended gravel portion that would need to be paved and maintained over time. Regional economic benefits are estimated at around one billion dollars over 20 years.	Census Tract 210 is considered to be in an environmental justice low-income area. Census Tract 210 within the Study Area contains 52 residences. The nearest residence is located approximately 230 feet west of the Eastern Transmission Route on 42nd Avenue East. This portion of transmission line is within an existing transmission line corridor. The ROW is surrounded by trees in this area, which provide a partial visual buffer. The minimal impacts within Census Tract 210 do not constitute disproportionately high and adverse impacts to this environmental justice area.	No environmental justice areas crossed by Hill Avenue 2	Census Tract 210 is considered to be in an environmental justice low-income area. Census Tract 210 within the Study Area contains 52 residences. The nearest residence is located approximately 230 feet west of the Eastern Transmission Route on 42nd Avenue East. This portion of transmission line is within an existing transmission line corridor. The ROW is surrounded by trees in this area, which provide a partial visual buffer. The minimal impacts within Census Tract 210 do not constitute disproportionately high and adverse impacts to this environmental justice area.	No environmental justice areas crossed by Nemadji River 2

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
	The Project would not directly impact any residences, public facilities, farming structures, cemeteries, religious facilities, or other structures. Temporary disruptions to normal traffic may occur during construction as equipment and employees commute to and from the Project. The frequency of the daily workforce automobile traffic would follow the Project workforce numbers onsite at a given time. The daily automobile traffic to the site would increase from approximately 25 to 50 vehicles in the initial stages of construction to approximately 200 to 260 vehicles for peak months (April through December 2023). The traffic would begin to decrease until it reaches approximately 25 vehicles near construction completion and during operation.				
Visual Resources	The aesthetics of the surrounding area would be altered by the Project. Vegetation would need to be cleared permanently for the Project Site, transmission line ROW, and switching station site. The Project site would require lighting for safety and security. Light emissions at the Project Site would increase compared to current levels of light emissions as a result of facility lighting. The dominant visual features of the Project would be a stack, a finned heat exchanger, and other facility equipment at the Project Site. The transmission line routes parallel existing linear infrastructure for the majority of its length. The switching station sites are surrounded by undeveloped forested and shrubland habitats. None of the Project facilities are out of character with features already present across the visual landscape and the Project does not generally introduce new visual elements into the viewshed, keeping new facilities in proximity to already developed locations. Due to these factors and the distance from these scenic byways, it is anticipated that the Project would not significantly impact visual resources in the area.	The Hill Avenue Site has no light emitting sources currently onsite. Wooded areas located offsite of the Hill Avenue Site would provide a buffer to help mitigate light impacts to surrounding development. The stack and transmission line would be visible from multiple viewpoints throughout the area; most of the transmission line route is within undeveloped forested areas along existing utilities as well as within existing transmission line corridors. The tallest features of the site would be the stack, which would be approximately 171 feet above ground level at the Hill Avenue Site. The Hill Avenue Site is undeveloped lowland scrub/shrub surrounded by wooded areas and Hill Avenue on the west side.	The Hill Avenue Site has no light emitting sources currently onsite. Wooded areas located offsite of the Hill Avenue Site would provide a buffer to help mitigate light impacts to surrounding development. The stack and transmission line would be visible from multiple viewpoints throughout the area; most of the transmission line route is within undeveloped forested areas along existing utilities, however, as well as within existing transmission line corridors. The tallest features of the site would be the stack, which would be approximately 171 feet above ground level at the Hill Avenue Site The Hill Avenue Site is undeveloped lowland scrub/shrub surrounded by wooded areas and Hill Avenue on the west side.	The lighting regime near the Nemadji River Site is currently influenced by lighting at the existing oil and gas facilities located immediately adjacent to the site property, although no light emitting sources currently occur on the site itself. The trees on the eastern boundary of the Nemadji River Site would provide a buffer and help mitigate additional lighting impacts. The stack and transmission line would be visible from multiple viewpoints throughout the area; most of the transmission line route is within undeveloped forested areas along existing utilities, however, as well as within existing transmission line corridors. The tallest features of the site would be the stack, which would be approximately 194 feet above ground level at the Nemadji River Site. The Nemadji River Site is located adjacent to existing industrial areas.	The lighting regime near the Nemadji River Site is currently influenced by lighting at the existing oil and gas facilities located immediately adjacent to the site property, although no light emitting sources currently occur on the site itself. The trees on the eastern boundary of the Nemadji River Site would provide a buffer and help mitigate additional lighting impacts. The stack and transmission line would be visible from multiple viewpoints throughout the area; most of the transmission line route is within undeveloped forested areas along existing utilities, however, as well as within existing transmission line corridors. The tallest features of the site would be the stack, which would be approximately 194 feet above ground level at the Nemadji River Site. The Nemadji River Site is located adjacent to existing industrial areas.

Water Resources	*Surface Water*: Considering the distance of the Project from Outstanding or Exceptional Resource Waters; trout streams; and wild and scenic rivers, and with the implementation of mitigation measures described in Section 3.10.3, it is anticipated that construction and operation of the Project would not result in impacts to these features. *Groundwater*: No groundwater would be used for the Project. Therefore, there would be no impacts to groundwater. No impacts to domestic or high capacity pumping wells are anticipated. *Floodplain*: The Superior Switching Station, Parkland Switching Station, and all laydown yards are not within 100-year floodplain. All rivers would be spanned by the transmission line. Two transmission line structures would need to be placed within the Nemadji River floodplain due to the floodplain width. *Wetlands/Riparian:* The switching station sites would be placed entirely within wetland areas. Forested and shrub/scrub wetland areas would be cleared of vegetation at the switching station sites. After further engineering and design conducted after the NTECEA was published, and further consultation with the Wisconsin DNR and the USACE, the footprint of the switching stations (and thereforce wetland impact) was reduced to between 4.1 and 4.4 acres. On April 1, 2022, wetland mitigation credits were purchased for anticipated Project impacts. *Wastewater*: The Project would be responsible for installation of the sewer extension and tie-in to connect to the City's wastewater system. It is expected that the plant would be connected as an industrial customer, would utilize existing piping to the extent practical, and any new piping would be high-density polyethylene and would be routed in existing ROW to the extent practical. The City of Superior would require the Owners to take ownership of the sewer line extension and lift station because	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.	No unique impacts anticipated for this alternative.

Resource	Impacts common to all Project Alternatives	Hill Avenue 1 Impacts	Hill Avenue 2 Impacts	Nemadji River 1 Impacts	Nemadji River 2 Impacts
	they would be constructed to service a single, privately held facility. Approximately 0.06 million gallons per day would be discharged to the City sewer. Delivery meters would be used to collect wastewater volume readings and would be owned by the Project. *Stormwater*: The post-construction storm water management facilities would be designed to meet the performance standards addressed in NR 151. Drains for areas around equipment that could be contaminated with oil would be gravity drained and directed through an oil/water separator prior to discharge to the municipal sewer system. At either Site, the wet detention pond would be used as a sediment basin during Project construction to remove sediment loads from storm water runoff in accordance with Wisconsin Administrative Code (WAC) NR 151.11(6m)(b)2. Following site stabilization, the sediment basin would be cleaned out and converted to a wet detention basin. The detention basin is designed to reduce the total suspended solids load by at least 80 percent, based on an average annual rainfall.				

3.2 Air Quality and Greenhouse Gases

This section expands on Section 3.1 Air Quality, of the NTECEA. This section describes the affected environment and potential environmental consequences related to GHGs and the potential implications for these emissions to influence climate change. Existing conditions and environmental consequences associated with other air emissions are addressed in Section 3.1 Air Quality, of the NTECEA.

The WDNR provided notification of the air permit approval on September 1, 2020. Following the October 2020 NTECEA, the original Owners submitted an air construction permit application for the proposed construction of fugitive emissions of air contaminants from piping components and haul road traffic fugitives at NTEC (preferred site only) on January 22, 2021. The Department issued the final construction permit (21-MMC-011) on July 8, 2021.

On December 10, 2021, the Owners submitted an air construction permit application to WDNR. To confirm that construction of the Project is complete prior to the expiration of the issued permits, the Owners submitted a new Prevention of Significant Deterioration (PSD) air permit application for the Project (preferred site only) in December 2021 to acquire a new, consolidated permit with an expiration date that better aligns to the Project's construction schedule and other necessary environmental permits. The study area evaluated for the PSD analysis was the emissions from units within the NTEC fence line for the generation facility. Important factors include, but are not limited to, the difficulty of winter construction work in Superior, Wisconsin, and the amount of work necessary for construction of the power plant, natural gas delivery infrastructure and additions to the local electrical transmission network. This PSD application is provided in Appendix A and is discussed in Section 3.2.2.

3.2.1 Affected Environment

The Project would be located in an area containing a mix of undeveloped lands, residential developments, commercial and industrial activities and facilities. Many of these uses contribute air emissions. Sources would include wood burning stoves and fireplaces, petroleum-fueled systems for heating and hot water, automobile and other vehicle emissions, and other activities that rely on combustion of fossil fuels. These activities generate a variety of air pollutants, many of which are identified, tracked, and regulated by the EPA under the Clean Air Act. In addition, several components of these emissions are identified as GHGs.

GHGs have been identified as contributing to the earth's temperature. Called the "greenhouse" effect, this is a naturally occurring phenomenon in which various gases in the earth's atmosphere (classified as GHGs) play a role in determining the earth's temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation

back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are CO_2, CH_4, N_2O, and fluorinated gases. Primary GHGs are discussed, as follows:

3.2.1.1 CO_2

CO_2 is a colorless, odorless gas. It is emitted both naturally and through human activities. CO_2 is naturally present in the atmosphere as part of the earth's carbon cycle (the natural circulation of carbon among the atmosphere, oceans, soil, plants, and animals). While CO_2 emissions come from a variety of natural sources, an increase in CO_2 emissions has been recorded in the atmosphere since the industrial revolution. CO_2 is the primary GHG emitted through human activities, primarily from the combustion of fossil fuels such as coal, oil, and gas. The transportation and electricity sectors are the largest CO_2 emitters in the United States (EPA, 2021) and are the biggest CO_2 emitters in the Project area.

3.2.1.2 CH_4

CH_4 (methane) is a colorless, odorless gas that is not flammable under most circumstances. CH_4 is the major component of natural gas, about 87 percent by volume. In 2019, CH_4 accounted for about 10 percent of all United States GHGs from human activities (EPA, 2021). Human activities emitting CH_4 include leaks from natural gas systems and the raising of livestock. CH_4 is also emitted by natural sources such as decomposition of vegetation, particularly in anerobic environments such as wetlands. In addition, natural processes in soil and chemical reactions in the atmosphere help remove CH_4 from the atmosphere. CH_4's lifetime in the atmosphere is much shorter than CO_2, but CH_4 is more efficient at trapping radiation than CO_2. Pound for pound, the comparative impact of CH_4 is more than 25 times greater than CO_2 over a 100-year period (EPA, 2021). Methane is the primary GHG emitted during the extraction and production of natural gas and is a significant driver of current warming (Lackner et al., 2021). The largest sources of CH_4 in the project area are the transportation, electricity, and natural gas sectors.

Natural gas use is prevalent throughout the study area. Newer technology standards and mandated leak detection and repair programs (LDAR) are being implemented throughout the country to reduce the emissions of methane from oil and gas production. Low or negative cost methane abatement is possible in the oil and gas subsector where captured methane adds to revenue instead of being released to the atmosphere (U.N., 2021). On November 15, 2021, the EPA proposed standards to reduce methane and other harmful pollution from the oil and gas industry. This proposed rule would expand and strengthen

emissions reductions that are currently on the books for new, modified and reconstructed oil and natural gas resources, and would require states to reduce methane emissions existing sources nationwide for the first time. If this proposed rule is put in to place, the oil and gas industry would be required to lessen methane emissions and therefore reduce its contribution to climate change. These expected reductions in GHGs from the oil and gas industry would in turn reduce the carbon intensity[3] of natural gas as an energy source.

3.2.1.3 N_2O

N_2O (nitrous oxide) is a clear, colorless gas with a slightly sweet odor. In 2017, N_2O accounted for about 7 percent of all United States GHGs emissions from human activities (EPA, 2021). Human activities such as agriculture, fuel combustion, wastewater management, and industrial processes are increasing the amount of N_2O in the atmosphere and are the largest sources of N_2O in the Project area. N_2O is also naturally present in the atmosphere as part of the earth's nitrogen cycle and has a variety of natural sources. N_2O molecules stay in the atmosphere for an average of 114 years before being removed by a sink or destroyed through chemical reactions. The impact of 1 pound of N_2O on warming the atmosphere is almost 300 times that of 1 pound of CO_2 (EPA, 2021).

3.2.1.4 Fluorinated Gases

Unlike many other GHGs, fluorinated gases have no natural sources and only come from human-related activities. They are emitted through their use as substitutes for ozone-depleting substances (e.g., as refrigerants) and through a variety of industrial processes such as aluminum and semiconductor manufacturing. Many fluorinated gases have very high global warming potentials (GWPs) relative to other GHGs, so small atmospheric concentrations can have disproportionately large effects on global temperatures (EPA, 2021). They can also have long atmospheric lifetimes—in some cases, lasting thousands of years. Like other long-lived GHGs, most fluorinated gases are well-mixed in the atmosphere, spreading around the world after they are emitted. Many fluorinated gases are removed from the atmosphere only when they are destroyed by sunlight in the far upper atmosphere. In general, fluorinated gases are the most potent and longest lasting type of GHGs emitted by human activities.

There are four main categories of fluorinated gases—HFCs, PFCs, SF_6, and nitrogen trifluoride. The major emissions source of HFC compounds is their use as refrigerants—for example, in air conditioning systems in both vehicles and buildings. These chemicals were developed as a replacement for chlorofluorocarbons because they do not deplete the stratospheric ozone layer. PFCs are produced as a

[3] As defined by the U.S. Energy Information Administration, carbon intensity is the amount of carbon by weight emitted per unit of energy consumed (CO2 emissions/energy).

byproduct of aluminum production and are used in the manufacturing of semiconductors. PFCs generally have long atmospheric lifetimes and GWPs near 10,000. SF_6 is used in magnesium processing and semiconductor manufacturing, as well as a tracer gas for leak detection. SF_6 is also used as an insulating gas in electrical transmission equipment, including circuit breakers. The GWP of SF_6 is 22,800, making it the most potent GHG that the Intergovernmental Panel on Climate Change has evaluated (EPA, 2017).

3.2.1.5 Global Warming Potentials

GHGs vary widely in the power of their climatic effects; therefore, climate scientists have established a unit called GWP. The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO_2. The GWP of CO_2 is set to equal 1. CH_4 and N_2O are approximately 25 and 298 times more powerful than CO_2, respectively, in their ability to trap heat in the atmosphere; thus, they have GWPs of 25 and 298, respectively. Carbon dioxide equivalent (CO_2e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWPs. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO_2e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 3-2.

Table 3-2: Global Warming Potentials and Atmospheric Lifetimes

Greenhouse Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100-year time horizon)[2]
Carbon dioxide (CO_2)	50–200	1
Methane (CH_4)	12	25
Nitrous oxide (N_2O)	114	298
Sulfur hexafluoride (SF_6)	3,200	22,800

Sources:
(1) IPCC, 2007
(2) 40 CFR 98 Subpart A

3.2.1.6 Potential Effects of Greenhouse Gases

An increase in GHGs released to the atmosphere has been linked to warming of the earth on a global scale. Earth's average temperature has risen by 1.5 °F over the past century and is projected to rise another 0.5 to 8.6 °F over the next hundred years. Rising global temperatures have been accompanied by changes in weather and climate. Many places have seen changes in rainfall, resulting in more droughts, floods/intense rain as well as heat waves. Oceans are warming and becoming more acidic (EPA, 2021). Ice caps and glaciers are melting, causing sea levels to rise. Other effects include, but are not limited to, the spread of diseases out of their normal range, habitat loss, negative impacts to agriculture production, increased air pollution episodes, and impacts to the economy are expected to result from climate change (EPA, 2021).

3.2.2 Environmental Consequences

The following sections provide potential environmental consequences of the proposed Action Alternatives and No Action Alternative related to emissions of GHGs.

3.2.2.1 Proposed Action Alternatives

Construction and operation of the proposed 625-megawatt combined-cycle combustion turbine and associated support equipment at either Project Site would be subject to applicable state and Federal air quality regulations. These regulations would apply to the Project equipment, which would include a combustion turbine, a finned heat exchanger for cooling, an auxiliary boiler, two natural gas-fired gas heaters (natural gas heater), an emergency diesel fire pump, an emergency diesel generator, and fuel oil storage tanks. Regulations applicable to the proposed Project are Wisconsin Administrative Code (WAC) provisions, Title V Operating Permits, PSD review, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants and Maximum Achievable Control Technology (NESHAP). Currently, however, there is no standard methodology to determine how a project's relatively small incremental contribution to GHGs will translate into physical effects on the global environment. As a result, this section focuses on the level of GHG from Project emissions and the impact of Project emissions on GHG throughout the MISO system.[4]

3.2.2.1.1 Construction

During construction of the plant, transmission line, and switching station, small amounts of air pollutants, including GHGs, would be temporarily generated. The largest source of GHG emissions during construction is the combustion of fuels such as gasoline or diesel by construction equipment. These construction emissions would be temporary in nature, would fall off rapidly with distance from construction areas, and are not anticipated to result in long-term impacts. Once the construction activities are completed, construction-related emissions would cease.

Project Alternatives using the Western Transmission Route and/or the Hill Avenue Site (Hill Avenue 1, Hill Avenue 2, and Nemadji River 2) would have slightly longer transmission line which would result in a slight increase in construction related GHG emissions as construction would likely take additional time to complete.

[4] The Project is located in the MISO planning regions and therefore its operation has the capacity to influence generation assets primarily throughout the MISO region.

3.2.2.1.2 Operation

A variety of emissions resulting from Project operation are considered GHGs. These may include CO_2, methane, nitrous oxide, ozone, hydrocarbons, and chlorofluorocarbons. GHG emissions from the Project equipment are due to CO_2, CH_4, SF_6, and N_2O emissions. These calculated GHG emissions were ratioed with their appropriate GWP shown in Table 3-2 and summed to obtain the overall project carbon dioxide equivalent (CO_2e) emissions. Consistent with Wisconsin and EPA guidance, air dispersion modeling of CO_2e was not conducted since there is no modeling threshold for this pollutant.

A Best Available Control Technology (BACT) analysis was performed for GHG. BACT is an emission limitation based on the maximum degree of reduction which the WDNR determines is achievable, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs. A GHG BACT analysis was performed for all new equipment proposed for the Project.

A summary of the BACT emission limits and the associated control technologies for the combined-cycle combustion turbine are shown in Table 3-3. BACT emission limits and associated control technologies for the auxiliary equipment are listed in Table 3-4.

Table 3-3: Summary of Greenhouse Gas BACT Results: Combined-Cycle Operation

Pollutant	Fuel	Control	BACT Emissions	Average
Greenhouse gases	Natural gas	Use of natural gas as a fuel, monitoring and control of excess air, efficient turbine design, and oxidation catalyst	850 lb CO_2/ megawatt-hour, gross	12-month rolling
	Fuel oil	Use of ultra-low sulfur diesel as a fuel, monitoring and control of excess air, efficient turbine design, and oxidation catalyst	1,180 lb CO_2/ megawatt-hour, gross	12-month rolling

Table 3-4: Summary of Greenhouse Gas BACT Results: Auxiliary Equipment

Equipment	Pollutant	Control[a]	BACT Emission Rate[a]
Auxiliary boiler - B02	Greenhouse gases (CO_2e)	GCP/clean fuels	160 lb/MMBtu
Circuit Breaker – F03	SF_6	Leak monitoring	<0.5% loss rate
Natural gas heaters -P04 and P05 (each)	Greenhouse gases (CO_2e)	GCP/clean fuels	NA

Emergency diesel fire pump – P06	Greenhouse gases (CO_2e)	GCP/clean fuels	NA
Emergency diesel generator – P07	Greenhouse gases (CO_2e)	GCP/clean fuels	NA
Diesel tanks – T01, T02, T03	NA		
Haul Roads – F01	NA		
Natural gas and fuel oil piping components – F02	GHG	Fuel Piping	LDAR program - instrument monitoring

(a) GCP = good combustion practices; lb/MMBtu = pound per million British thermal units

Additionally, the 2021 PSD application assessed the feasibility of incorporating various GHG control strategies. The GHG mitigation strategies evaluated were fuel selection, energy efficiency measures, post-combuston control, carbon capture, and carbon sequestration. Table 3-5 provides an overview of the findings in the PSD. The full PSD application, in Appendix A, contains a full discussion of the technologies considered.

Table 3-5: Summary of Technically Feasible Greenhouse Gas Control Technologies for Combustion Turbine

Control System		Technical Feasibility	Comments
Fuel Selection	Low Carbon Fuels	Feasible	Natural gas has been selected as the primary fuel for this project
	Combustion of Biogenic Sources	Not Feasible	--
Energy Efficiency	Continuous Excess Air Monitoring and Control	Feasible	Standard for the turbines under consideration
	Efficient Turbine Design	Feasible	Standard for the turbines under consideration
Post Combustion Controls	Catalytic Oxidation	Feasible	Will reduce CH_4 emissions but create CO_2
	Thermal Oxidation	Not Feasible	--
Carbon Capture	Pre-combustion CO_2 capture	Not Feasible	--
	Post-combustion CO_2 capture	Not Feasible	--
Carbon Sequestration	Mineral Trapping	Not Feasible	--
	Physical Adsorption	Not Feasible	--
	Hydrodynamic Trapping	Not Feasible	--
	Solubility Trapping	Not Feasible	--

The control technologies determined technically feasible include low-carbon fuel (natural gas), monitoring and control of excess air, efficient turbine design, and catalytic oxidation. The use of low-carbon fuels and aggressive energy-efficient design to reduce CO_2 emissions is inherent in the design of the proposed combustion turbine under consideration and is considered the baseline condition. BACT for GHG emissions from the combustion turbine was determined to be the use of natural gas as a fuel, monitoring and control of excess air, efficient turbine design, and an oxidation catalyst. These design options will allow the combustion turbine to not exceed 850 lb CO_2/ megawatt-hour (gross) on a 12-month rolling average basis while combusting natural gas and 1,180 lb CO_2/ megawatt-hour (gross) on 12-month rolling average basis while combusting fuel oil.

Potential GHG emissions from the Project are shown in Table 3-6.

Table 3-6: Project Emissions of Greenhouse Gases

Source	Air Emissions (tons per year)						
	CO_2	CH_4	N_2O	HFCs	PFCs	SF_6	CO_2e
Combustion turbine[a]	2,179,978.7	1,187.2	1,564.0	--[b]	--	--	2,675,731
Auxiliary boiler - B02	51,236	0.97	0.097	--	--	--	51,289
Circuit Breaker – F03	--	--	--	--	--	5.3e-03	120
Natural gas heater #1 – P04	5,124	0.10	0.010	--	--	--	5,129
Natural gas heater #2 – P05	5,124	0.10	0.010	--	--	--	5,129
Emergency diesel fire pump – P06	79.5	3.2e-03	6.4e-04	--	--	--	80
Emergency diesel generator – P07	838	3.4e-02	6.8e-03	--	--	--	841
Diesel tanks – T01, T02, T03	--	--	--	--	--	--	--
Haul Roads – F01	--	--	--	--	--	--	--
Natural gas and fuel oil piping components – F02	--	39.06	--	--	--	--	977
Total	2,242,381	1,227	1,564	--	--	5.3e-03	2,739,294

Source: Prevention of Significant Deterioration Air Construction Permit Application (December 2021)
(a) Represents worse-case emissions scenario
(b) Dashes indicate no emissions expected for this source

Potential GHG emissions are greater than the PSD significance level of 75,000 tons per year, which requires further analyses/assessments regarding emissions of GHG associated with the construction and operation of the Project pursuant to the requirements specified in the WAC Chapter Natural Resources (NR) 405. The PSD permit application (Appendix A) contains the following analyses/assessments

regarding emissions of regulated pollutants, including GHG emissions, associated with the construction and operation of the Project:

- Evaluation of ambient air quality in the area for each regulated pollutant for which the Project will result in a significant net emissions increase
- Demonstration that emissions increases resulting from the Project will not cause or contribute to an increase in ambient concentrations of pollutants exceeding the remaining available PSD increment and the National Ambient Air Quality Standards (NAAQS)
- Assessment of any adverse impacts on soils, vegetation, visibility, and growth in the area
- A BACT analysis for each regulated pollutant for which the Project will result in a significant net emissions increase

The following units will be equipped with emission monitoring systems:

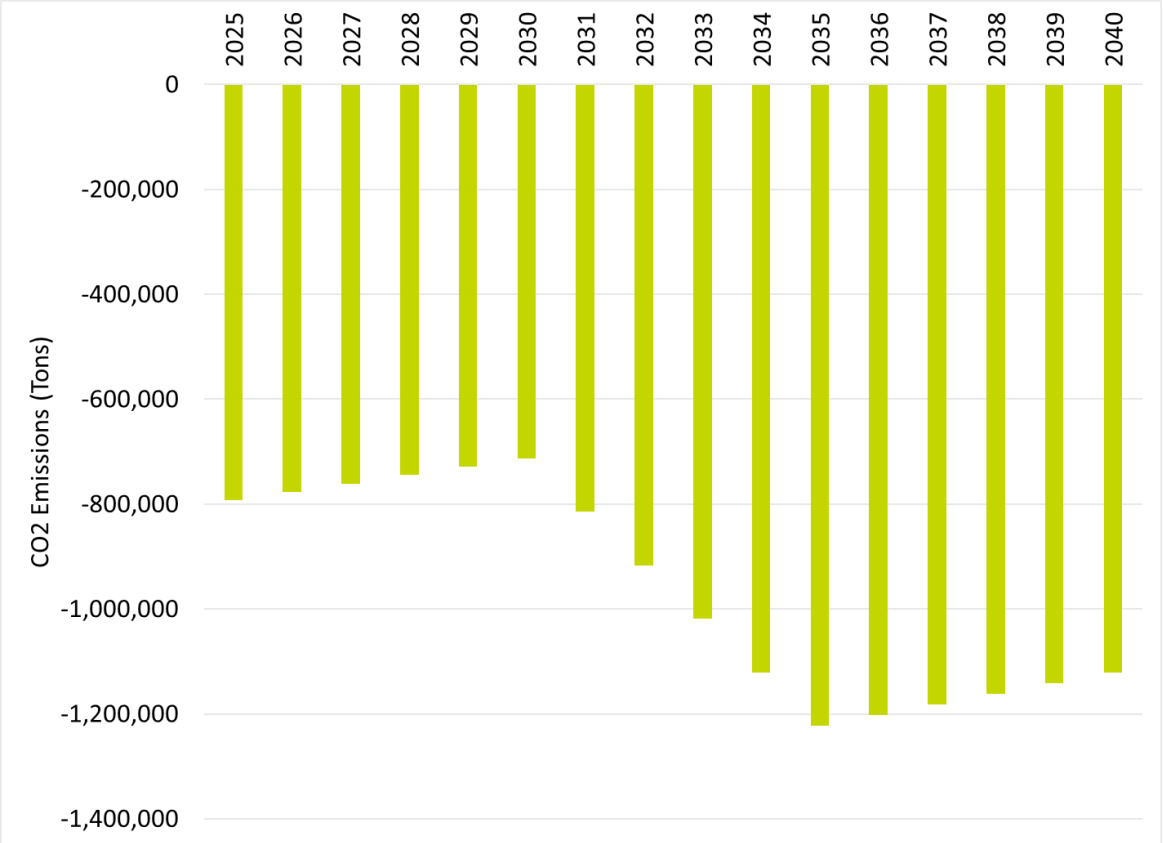
- The combustion turbine will be equipped with oxygen monitors as part of a continuous monitoring (CEM) system.
- Each SF_6 circuit breaker will be equipped with a low-pressure alarm to detect leaks.
- The natural gas and fuel oil piping components will be monitored with leak detection instruments.

Additionally, an impacts analysis was performed for an assessment of potential adverse impacts on soils, vegetation, visibility, and growth from the emission of GHGs. This analysis was performed in accordance with EPA and WDNR guidelines for an additional impacts analysis as part of the PSD permit application. It was concluded that the Project will not have a significant adverse impact on the air quality, soils, vegetation, visibility, and growth in the surrounding area.

While natural gas is a less carbon intensive fuel than coal, there are emissions associated with its production and use. The Project is anticipated to emit 2,739,294 tons per year of CO_2e including a permitted emission level of up to 2,242,381 tons per year of CO_2[5]. However, the Project is expected to be one of the most efficient dispatchable facilities in MISO and its operation is expected to result in less coal generation in both MISO West and specifically in Dairyland and Minnesota Power service territories (Appendix B; Figure 3-1).

[5] The air construction application Project potential to emit (permitted values) represents worse-case continuous operation and does not represent "typical" operation.

Figure 3-1: 2025 – 2040 MISO West Annual CO_2 Emission Reductions with NTEC



Nodal Production Cost Modeling was performed to estimate the quantity of electricity produced from different generation facilities in future years (Appendix B). The production cost modeling was performed using ABB's PROMOD IV (PROMOD) production cost modeling software. PROMOD performs hourly chronological security-constrained unit commitment and economic dispatch (SCUC/SCED/Dispatch). The PROMOD simulations performed evaluated unit dispatch across all of MISO and the other regions within the eastern interconnect. The objective of the production cost simulations within PROMOD is to minimize cost while adhering to constraints, such as generating unit operational characteristics, transmission topology, and balancing energy supply with customer demand. Using PROMOD for production cost modeling, at a high level, forecasts the MISO day-ahead energy market dispatch of generators while adhering to multiple constraints to dispatch the most efficient, lowest variable cost generators. For purposes of this analysis, PROMOD simulations were performed to simulate and isolate the impact NTEC has on generation dispatch and emissions across the region.

This analysis utilized MISO's Transmission Expansion Plan (MTEP) models, which are developed by MISO annually and are used for economic analysis. MISO develops MTEP models annually for use with PROMOD production cost modeling. Each planning cycle begins by collaboratively building regional

models with various stakeholders. MISO uses the models to evaluate and recommend transmission investments. Since 2003 over $42 billion[6] of assets have been approved as part of the MTEP process. MISO develops PROMOD MTEP models for the fifth, tenth, fifteenth, and twentieth years into the future.

MISO models existing generation in its MTEP models along with projected future generation fleet changes during the model time periods. These project changes, referred to by MISO as MISO Futures, incorporate utility integrated resource plans, state and utility emissions goals, and industry trends to project the continued fleet transition currently underway throughout MISO. As part of the 2021 MTEP process, three different futures were developed. However, as of the time this study was performed, only the base future, Future 1, PROMOD model had been developed.

For this NTEC production costing study, minor adjustments were made to the underlying MTEP models based on Minnesota Power and Dairyland input[7]. These changes were made to reflect more recent information regarding existing unit retirements, such as retirement dates determined during Minnesota Power or Dairyland's integrated resource planning process or other analysis performed after the MTEP models were developed. These unit retirement updates which were made are outlined below in Table 3-7.

[6]https://cdn.misoenergy.org/MTEP21%20Full%20Report%20including%20Executive%20Summary611674.pdf
[7] Basin did not provide input on the MTEP assumptions due to the timing of this analysis in relation to Basin's joining of the partnership on NTEC

Table 3-7: MTEP Model Requirement Updates

Generator	MTEP Retirement Year	Updated Retirement Year[8]
Boswell 1	2029	Retired before first model year
Boswell 3	2026	2030
Boswell 4	2026	2050
Cannon Falls Energy 1	2024	2050
Cannon Falls Energy 2	2024	2050
Coal Creek 1	2022	2050
Coal Creek 2	2022	2050
Duane Arnold	2026	Retired before first model year
John P Madgett 1	2026	2050
Sherburne 3	2031	2029
Silver Bay PC:2	2026	Retired before first model year
Taconite Harbor EC:1	2026	Retired before first model year
Taconite Harbor EC:2	2026	Retired before first model year

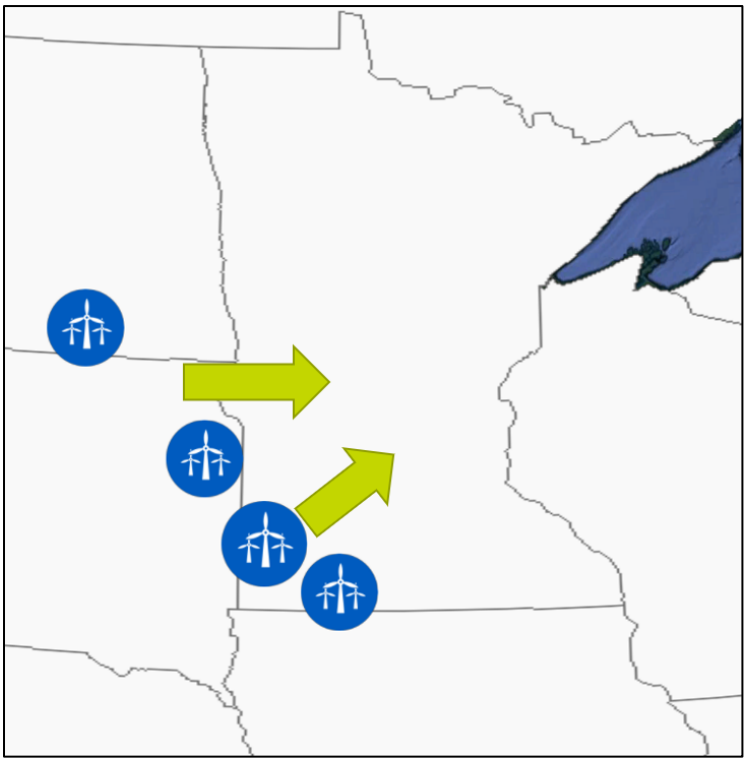
In addition to generator retirement date updates, the Great River Energy Coal Creek high-voltage direct current transmission line, which was recently sold, was updated in the modeling to stay online throughout the study period. Before Coal Creek's sale[9], when the MTEP models were being developed, there was uncertainty around the high-voltage direct-current line's future. With the recent sale of the Coal Creek line it is not expected to retire in 2022 as was originally included in the MTEP models.

Based on the Production Cost Model forecasts for year 2040 modeling showed total CO_2 emissions for MISO West without NTEC at 65,880,966 tons per year. With NTEC, modeling for 2040 showed a total CO_2 emissions of 64,759,361 tons per year, a reduction of 1,121,600 tons per year. As modeled, the Project is expected to reduce CO_2 emissions in MISO West by an average of 964,000 tons per year (2025-2040; Appendix B). With the Project displacing coal generation and requiring less frequent operation of less efficient fossil fuel units, there is a net decrease in GHG emissions.

[8] Retirement year of 2050 is representative of a date later than 2040 which is the last year of the model simulations
[9] https://greatriverenergy.com/rainbow-energy-center-to-purchase-coal-creek-station/

Additionally, the proposed location of NTEC will reduce transmission congestion across the region as well, which will result in more generation from renewable resources, specifically wind, due to a reduction in renewable resource curtailment (Appendix B). Congestion exists between the renewables-heavy western portion of MISO and the load centers in the eastern portion of MISO (Figure 3-2).

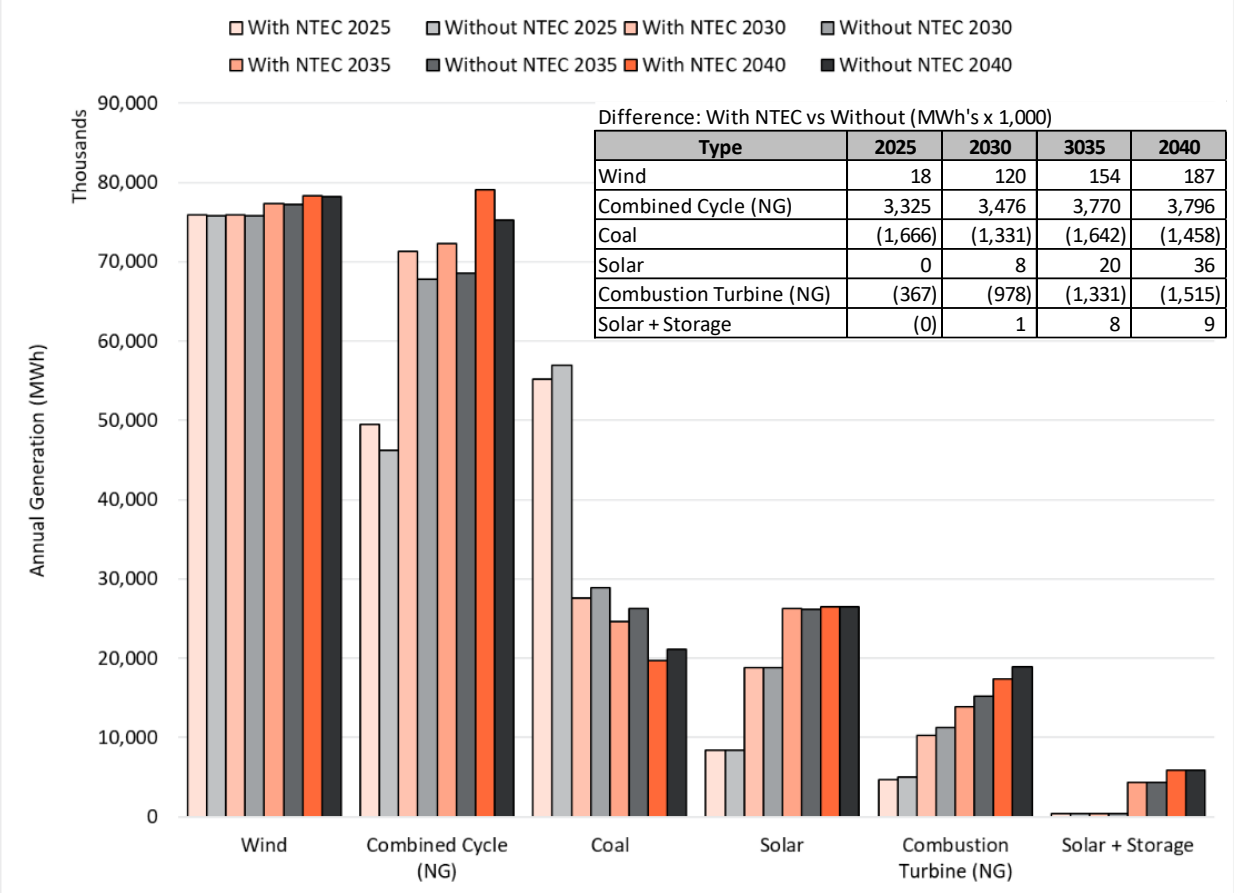
Figure 3-2: Flow Direction and Location of Wind Rich Areas in MISO West



NTEC would be located in the eastern portion of MISO West, relieving congestion between renewable generation and the load centers.

Figure 3-3 provides annual generation in megawatt-hour by resource type in two scenarios (with and without NTEC) from 2025 through 2040. Removing NTEC from the model results in less efficient (i.e., uses more fossil fuel to produce energy), higher production cost resources, generating more frequently. This shift results in more reliance on coal, natural gas peaking, and fuel oil generators – these generation technologies typically emit more carbon per megawatt-hour than NTEC.

Figure 3-3: Annual Generation by Resource Type With and Without NTEC



Difference: With NTEC vs Without (MWh's x 1,000)

Type	2025	2030	3035	2040
Wind	18	120	154	187
Combined Cycle (NG)	3,325	3,476	3,770	3,796
Coal	(1,666)	(1,331)	(1,642)	(1,458)
Solar	0	8	20	36
Combustion Turbine (NG)	(367)	(978)	(1,331)	(1,515)
Solar + Storage	(0)	1	8	9

NG – natural gas

Additionally, petitions for the SEA requested that climate impacts of upstream methane emissions during extraction and due to leaks be assessed for the Proposed Action. Specific sources of natural gas to be transported to the NTEC facility are unknown and may change through the operation of NTEC. Due to this, the environmental impacts of upstream natural gas production are not reasonably foreseeable to predict with any specificity. As of April 2022, the Federal Energy Regulatory Commission (FERC) has concluded similarly in other recent NEPA analyses that upstream environmental impacts of methane extraction are not quantifiable due to "the following unknown factors: the location of the supply source; whether transported gas would come from new or existing production; and whether there would be any potential associated development activities, and if so, its location" (FERC, 2022). FERC has concluded in other natural gas infrastructure proceedings that "the environmental effects resulting from natural gas production are likely neither caused by a proposed project nor are they reasonably foreseeable consequences of its approval of a project, as contemplated by CEQ regulations" (FERC, 2022).

Overall, while the analysis of upstream methane emissions cannot be quantified with any precision, the potential upstream emissions from natural gas extraction and transportation are expected to be lower than coal in terms of GHGs emissions. Coal requires active mining and transport, both of which require the burning of additional fossil fuels. Natural gas infrastructure is existing and the gas is currently piped to the Superior area. In addition, due to the high efficiency NTEC, it is expected to reduce the amount of natural gas burned at less efficient facilities so that the overall use of natural gas in the region is less per megawatt-hour of generation from the natural gas fleet.The reduction in natural gas burned at less efficient facilities is evidenced through reduced generation from less efficient facilities with NTEC shown in Table 3 of the NTEC Production Cost Analysis (Appendix B). In Table 3, with NTEC in MISO West the generation from natural gas-fueled combustion turbines, internal combustion engines and steam turbines goes down as compared to a scenario without NTEC in MISO West. Each of these natural gas-fueled facility types is less efficient than NTEC from the standpoint of megawatt-hours produced for million British thermal units (Btu) of natural gas consumed.

In addition to CO_2 and methane, the following SF_6 containing equipment is proposed at each site:

- Three 345-kV circuit breakers are proposed for the substations located at each site. The substation circuit breakers will be monitored via a pressure switch and alarms.
- Two 19-kV (estimate) low-side generator circuit breakers will be located in the plant at each site before the step-up transformers that feed the onsite switchyard. The generator circuit breakers will be monitored via a pressure switch and alarms.

Each of the circuit breakers will contain SF_6. SF_6 is a potent GHG with a global warming potential of 22,800 times that of CO_2. The circuit breakers are state-of-the-art and will be sealed and, therefore, SF_6 leakage will be minimized. The circuit breakers will each be equipped with a two-stage pressure switch with a low-pressure alarm to indicate a potential leak. Modern circuit breakers and switches are designed as totally enclosed-pressure containing systems with far lower potential for SF_6 emissions than older circuit breakers. The current International Electrotechnical Commission (IEC) standards are that new equipment be built to low leakage limits (less than 0.5 percent per year). The effectiveness of these leak-tight closed systems is further enhanced by equipping them with an alarm that provides a warning when SF_6 has leaked from the breaker. The Project will also include six disconnect switches at each substation site; however, the switches are open air type switches and do not contain SF_6.

3.2.2.2 No Action Alternative

The No Action Alternative will result in higher GHG emissions due to the continued higher reliance on less efficient fossil fuel generation and experience higher wind curtailment than with the addition of NTEC, as presented in production cost modeling (Appendix B). Without the addition of NTEC, MISO West will not experience a net decrease in GHG emissions as less efficient units will be required to continue operating at a higher level to meet energy needs. Without the addition of NTEC, congestion will continue to exist between the renewables-heavy western portion of MISO West and load centers in the eastern portion of MISO West, resulting in higher dependence on existing fossil fuel generation. Higher congestion can also prevent some level of additional renewable resources being added to the system. The overall climatic benefits from the reduction of GHGs resulting from the Project would not be recognized.

3.2.3 Mitigation

During construction, steps will be taken to prevent excessive emissions of GHG resulting from construction activities and vehicular traffic. These steps may include reducing the idling of construction vehicles.

The Owners submitted the PSD permit application for the Project to WDNR and will adhere to conditions and requirements of the application during operation of the Project. The Owners will also be working with the equipment vendors to realize equipment efficiency gains between approval and commercial operation that can be incorporated into construction and operation of the facility.

Nodal Production Cost Modeling for year 2040 showed total CO_2 emissions for MISO West without NTEC at 65,880,966 tons per year. With NTEC, modeling for 2040 showed a total CO_2 emissions of 64,759,361 tons per year, a reduction of 1,121,600 tons per year. As modeled, the Project is expected to reduce CO_2 emissions in MISO West by an average of 964,000 tons per year (2025-2040; Appendix B). With the Project displacing coal generation and requiring less frequent operation of less efficient fossil fuel units, there is a net decrease in GHG emissions.

Any GHG and VOC emissions from the piping components will have fugitive emissions. Fugitive emissions are, by their nature, very difficult to monitor directly, as they are not emitted from a discrete emission point. Therefore, the Owners propose the following compliance demonstrations, recordkeeping, and monitoring requirements:

- Conduct instrument monitoring inspections on piping components each calendar quarter to detect leaks of natural gas and fuel oil.

- Keep a log of all the quarterly instrument monitoring inspections from piping components that are part of this Project.
- Develop a Facility Leak Detection Plan

These proposed work practices are consistent with the BACT determinations identified above and in the PSD Application (Appendix A).

3.3 Tribal Environmental Justice

The following sections describe potential environmental consequences of the Project related to climate change and tribal communities.

3.3.1 Affected Environment

The Red Cliff Band of Lake Superior Chippewa Indians and the Fond du Lac Reservation Resource Management Division sent letters to USDA-RUS requesting that RUS conduct a SEA to consider climate change from associated GHG emissions from the Project, as well as how the Project may impact treaty rights and other cultural resources, including upstream extraction of natural gas. The following sections discuss tribal considerations and social characteristics in the Project area and provides a regulatory overview.

3.3.1.1 Tribal History and Traditional Cultural Properties

The State of Wisconsin has a long history of human occupation. There are numerous cultural traditions recognized in Wisconsin (Table 3-8). Traditions refer to a time of technological, social, and economic continuity across geographic areas. Generally, during each tradition, populations organized tools, living areas, and subsistence strategies in ways that produced similar archaeological signatures and assemblages (e.g., projectile points types, pottery manufacturing and motifs, house patterns, mortuary practices). Traditions can help contextualize the archaeological record and highlight behavioral shifts over time. Stages and phases within the traditions are more temporally refined periods. This section provides an overview of the cultural traditions of Wisconsin.

Table 3-8: Cultural Traditions and Stages in Wisconsin

Cultural Period	Estimated Calendar Date
Paleoindian Tradition	11000-8500 B.C.
Archaic Tradition	8500-1000 B.C.
Early Archaic Stage	8500-6000 B.C.
Middle Archaic Stage	6000-3000 B.C.
Late Archaic Stage	3000-1000 B.C.

Cultural Period		Estimated Calendar Date
Woodland Tradition		1000 B.C. – A.D. 1100
Early Woodland Stage	Emergent	1000-300 B.C.
Middle Woodland Stage	Terminal	300 B.C – A.D. 400
Late Woodland Stage		A.D. 400 – A.D. 1100
Mississippian Tradition		A.D. 1000 – Present
Middle Stage – Aztalan / Points South Phases		A.D. 1000 – A.D. 1500
Upper Stage – Oneota Phase		A.D. 1000 – A.D. 1800
Post-Contact Tradition		A.D. 1630 – Present
Euro-American		A.D. 1630 – Present
American Indian		A.D. 1630 – Present

Source: Brown 1986; Birmingham et al. 1997; Ritzenthaler 1985

The early 19th century was characterized by continued Euro-American encroachment and by several treaties that forced the Ojibwe bands off their lands. In 1830, the United States government passed the Indian Removal Act. The law allowed the government to grant unsettled lands west of the Mississippi River to tribes in exchange for their lands within the boundaries of established states. This law was used as the impetus for treaties in 1837, 1842, and 1854 that forced the Ojibwe and other tribes to relinquish large amounts of land. However, the groups were supposed to retain the right to hunt and fish on their ancestral lands (Wisconsin Historical Society [WHS], 2017).

In 1850, a removal order was issued for all Ojibwe bands, but they sent a delegation to President Fillmore protesting their treatment and asking for permanent reservations. Four years later, the government established reservations at Bad River, Lac Courte Oreilles, Lac Du Flambeau, and Red Cliff; however, the tribe was still supposed to have the right to hunt and fish on their ceded lands (WHS, 2017). In 1854, a group of Native American tribes ceded a portion of northeastern Minnesota to the United States (approximately 6.4 million acres). This treaty allowed for the tribes to retain their rights to hunt, fish, and gather on the ceded lands. The following tribes exercise those rights today: the Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Grand Portage Band of Lake Superior Chippewa (Stults et al., 2016.) The 1854 Treaty Authority was established as an inter-tribal natural resource management organization tasked with managing off-reservation rights within the ceded lands.

Stults et. al. (2016) studied species and ecosystems of significant cultural importance to the bands in the 1854 ceded territory that are likely to be impacted by climate change. The study assessed the sensitivity and adaptability of the resources to the effects of climate change, and suggested adapatation strategies for

each of the species/habitats studied. Detailed adaptation plans were developed for the following: air quality, walleye, sturgeon, culturally significant plants, sugar maple, wild rice, Labrador tea, water quality/quantity, moose, paper birch, and boreal wetlands. General adaptation strategies were developed for all species/ecosystems considered in the study and 269 detailed strategies were developed for the 11 focus species/ecosystems listed above. Adapatation actions were grouped into one of five categories: collaboration; conservation; preservation and maintenance; education; monitoring and assessment; and restoration.

Treaties and government actions demonstrate the extensive ties of Native Americans to the lands of Wisconsin. Along with archaeological sites and remains for Native Americans, cultural resources may also include traditional cultural properties (TCPs), defined as sites or places of traditional cultural or religious importance to specified social or historical groups. TCPs are often cultural resources that meet the eligibility criteria for listing on the National Register of Historic Places (NRHP) and are considered "historic properties" under the National Historic Preservation Act (NHPA).

The National Park Service (NPS) *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1998) define "traditional" as referring to those beliefs, customs, and practices of a living community of people that have been passed down through the generation, usually orally or through practice. The significance of a traditional cultural property is in the role that the property plays in a community's historically rooted customs, beliefs, and practices. Examples of properties possessing significance include:

- A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice;
- A location associated with the traditional beliefs of a Native American group relating to its origins, its cultural history, or the nature of the world;
- A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historical identity;
- A rural community whose organization, buildings, and structures, or patterns of land use reflect the cultural traditions valued by its long term residence;
- Or an urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices.

Often TCPs are overlooked or not identified during archaeological, historical, or architectural surveys. The existence and significance of TCPs, and their locations, can only be determined through ethnographic research. In many cases TCPs may not be discernible to anyone other than a knowledgeable member of the group that attribute significance to the TCP.

Of the six recognized bands of Ojibwe with connections to the region, the Fond Du Lac Band of Lake Superior Chippewa maintained a special association with the Project vicinity. In 1918 or 1919, approximately 180 deceased members of the Fond du Lac Band of Lake Superior Chippewa were removed from their Wisconsin Point Cemetery and buried in a mass grave at the St. Francis Xavier Cemetery. Minnesota Steel, a U.S. Steel subsidiary, facilitated the removal of the burials to build an ore dock and rail terminal. Agate Land Company acted as their land purchasing agent (Carlson, 2009). However, the ore dock and rail terminal project were never constructed in the Wisconsin Point Cemetery removal area.

The Ojibwe (aka Chippewa) used this portion of Wisconsin Point as a cemetery from at least the seventeenth century until the early 20th century. The remains of many prominent Chippewa individuals, including Chief Joseph Osaugie (also spelled Osawagee or Osagi), were reportedly buried there and moved to the St. Francis Cemetery (Carlson, 2013). At present, the Fond du Lac Band of Lake Superior Chippewa maintain the remaining portions of the cemetery at Wisconsin Point. Both the Wisconsin Point and St. Francis Xavier cemeteries are culturally significant places to the Fond du Lac Band of Lake Superior Chippewa.

3.3.1.2 Social Characteristics

The U.S. Census Bureau (2019) American Community Survey 5-Year Estimates has published demographic data for 2015-2019 and limited data from the 2020 Decennial Census. Table 3-9 shows the population for Douglas County, the City of Superior, the Town of Superior, the Town of Parkland, and for the census tracts within which Project components would be located (Figure 3-4).

The Study Area population composition is primarily white, with small percentages of black or African American, American Indian, Asian, and other races. The median household income levels within the Study Area range from $44,792 to $77,235. The City of Superior had the greatest percentage of people whose income in the past 12 months was below poverty level (14.1 percent) while the Town of Superior had the lowest percentage (5.2 percent). American Indian populations in these geographies range from 0.3 percent to 3.0 percent. Approximately 1.0 percent of the population of Douglas County overall is American Indian or Alaska Native.

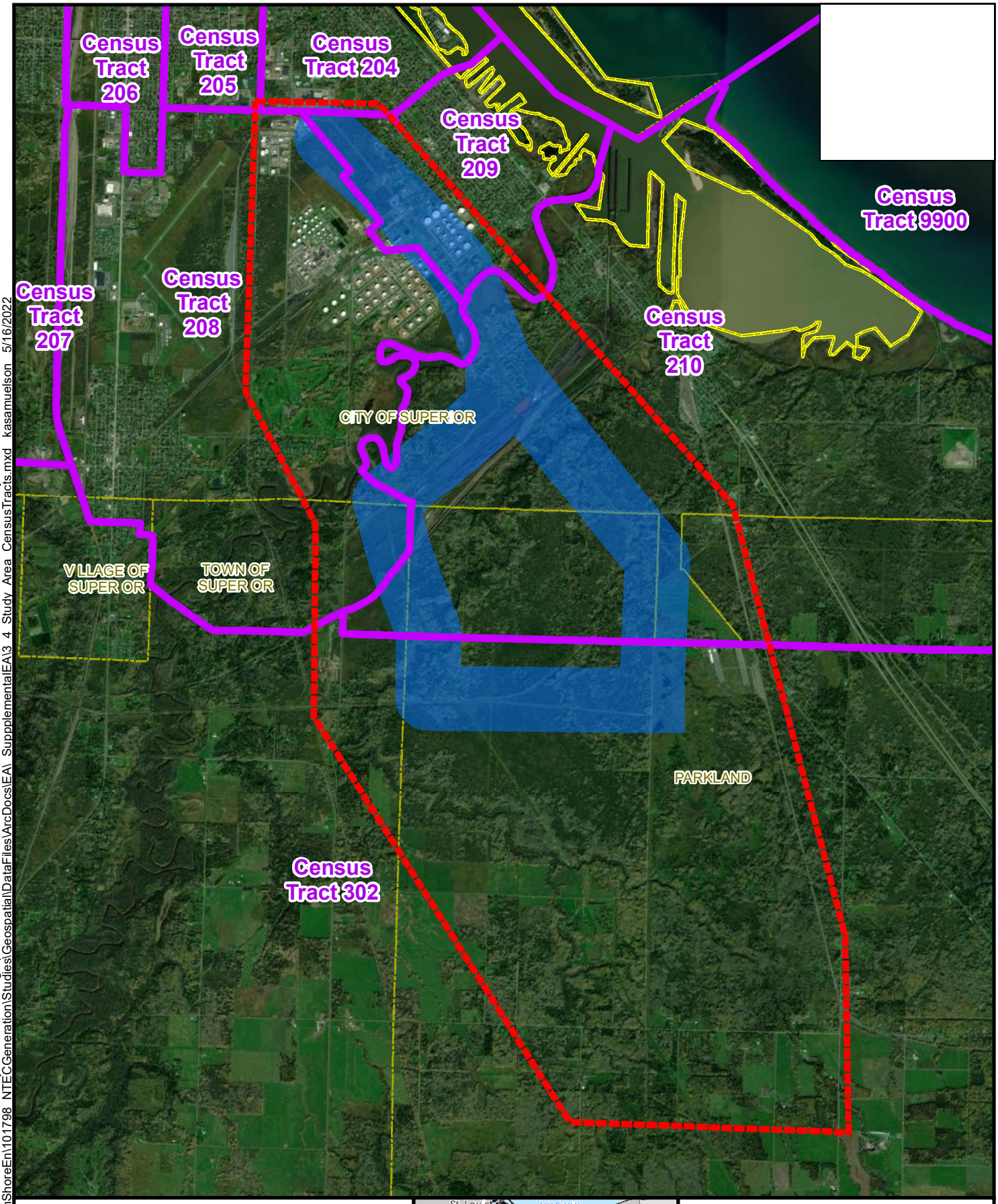


Figure 3-4
Census Tracts
SSE and DPC
Nemadji Trail Energy Center
Douglas County, WI

Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Path: Z:\Clients\ENS\SouthShoreEn\101798_NTECGeneration\Studies\GeospatialDataFiles\ArcDocs\EA\SupplementalEA\3_4_Study_Area_CensusTracts.mxd kasamuelson 5/16/2022

Source: Esri, Minnesota Power, USGS PADUS, FAA, USGS NHD, and Burns & McDonnell Engineering Company, Inc.

Issued: 5/16/2022

Table 3-9: Population Characteristics – City of Superior and Census Tracts near Project

Demographic Group	Douglas County, Wisconsin	City of Superior	Town of Superior	Town of Parkland	Census Tract 204	Census Tract 205	Census Tract 208	Census Tract 209	Census Tract 210	Census Tract 302
Total population	43,295	26,223	2,078	1,354	3,255	2,768	3,492	2,260	1,855	5,236
White (percent)	92.9	91.4	97.5	95.3	96.9	89.3	91.3	99.0	85.1	94.6
Black or African American (percent)	1.4	2.0	0.0	0.0	0.4	3.1	1.2	0.1	6.8	0.6
American Indian and Alaska Native (percent)	1.9	2.0	1.1	2.8	0.3	1.4	1.3	0.8	3.0	2.1
Asian (percent)	1.2	1.8	0.3	0.2	0.6	4.8	0.4	0.0	3.7	0.3
Native Hawaiian and Other Pacific Islander (percent)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Some other race (percent)	0.2	0.3	0.0	0.0	0.0	0.4	0.7	0.0	0.0	0.1
Two or more races (percent)	2.4	2.4	1.1	1.7	1.8	0.8	5.1	0.2	1.5	2.4
Hispanic or Latino (percent)	1.6	2.1	0.0	1.5	1.9	2.9	2.0	0.2	0.0	0.7
Median household income	$ 53,986	$ 46,957	$77,235	$59,522	$57,069	$51,289	$61,705	$44,792	$49,962	$71,042
All people whose income in the past 12 months is below the poverty level (percent)	12.0	14.1	5.2	5.3	9.2	11.4	10.7	10.3	9.1	7.4

Source: U.S. Census Bureau American Community Survey 5-Year Estimates, 2015-2019; U.S. Census Bureau 2020 Decennial Census.

It has been reported that Native American women are more likely to experience violence than white women, and women in some tribal communities are ten times more likely to be murdered than the national average (Bachman et al., 2008). Over 5,700 Native American and Alaska Native women and girls were reported missing in 2017. This epidemic has been referred to as the Missing and Murdered Indigenous Women and Relatives (MMIWR) epidemic. Extractive industries, such as for oil and natural gas, have been investigated in recent years to assess their impacts on crime in local communities (North Dakota State and Local Intelligence Center, 2012; Ruddell, 2014). Man camps, also known as modular housing, provide temporary dwellings for transient workers on pipeline projects. These camps are often in rural areas where law enforcement is not equipped to handle large influxes of temporary residents. These camps have been implicated in higher rates of violence against Indigenous women in North America (National Inquiry into Missing and Murdered Indigenous Women and Girls, 2019). Duluth's harbor, just opposite the border of Superior, has been identified as a site for trafficking of Native people (PAVSA, 2022; CBS Minnesota, 2011; Star Tribune, 2013).

3.3.1.3 Regulatory Overview

The American Indian Religious Freedom Act of 1978 (42 U.S.C § 1996) established policy to protect and preserve rights for Native American groups to believe, express, and exercise their traditions. These rights include access to sites with historical or religious value, use and possession of sacred objects, and the freedom to worship through traditional rites and ceremonies.

The Native American Grave Protection and Repatriation Act (NAGPRA; 25 U.S.C. §§ 3001–3013) was enacted in 1990 and requires federal agencies and institutions receiving federal funding to return cultural items to lineal descendants, Native American tribes, and Native Hawaiian organizations. Cultural items include human remains, funerary objects, sacred objects, and objects of cultural patrimony. The act describes procedures for inadvertent discovery of cultural items on federal or tribal lands.

In 1994, President Clinton published the Government-to-Government Relations with Native American Tribal Government Presidential Memorandum (59 FR 22951). This memorandum reiterated the federal government's commitment to a government-to-government relationship with federally recognized Native American and Alaska Native tribes, and to advance self-governance of tribes. The memorandum provided principles for interaction between the federal government and federally recognized Native American tribes and required consultation with such tribes prior to taking actions that would have substantial direct effects on tribal governments.

EO 13175 provided guidelines for federal agencies to have "an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications," and reiterated the right of self-governance by tribes and the U.S. commitment to have a government-to-government relationship. The EO also set forth guidelines to reduce the imposition of unfunded mandates upon Native American tribes.

In addition, the letter from the Red Cliff Band of Lake Superior Chippewa Indians mentioned the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) which was adopted in 2007. Although approved by a number of countries, UNDRIP has not yet been approved by the United States. The United States has declared support for UNDRIP, however. UNDRIP establishes "universal framework of minimum standards for the survival, dignity and well-being of the indigenous peoples of the world" (United Nations, 2022). The UNDRIP expands on human rights as related to indigenous peoples.

3.3.2 Environmental Consequences

The following sections provide potential environmental consequences of the proposed Action Alternatives and No Action Alternative related to tribal environmental justice and climate change.

3.3.2.1 Proposed Action Alternatives

The Proposed Action will increase GHG emissions in the immediate Project vicinity, while reducing GHG emissions from the regional power fleet. The Fourth National Climate Assessment (U.S. Global Change Research Program [USGCRP], 2018) highlighted how climate change poses a unique threat to indigenous livelihoods and economies, and that the interconnected social and ecological systems that the physical, mental, and indigenous values-base health are based on are being disrupted by climate change (Chapter 15). As noted in the *The Status of the Tribes and Climate Change Report* (2021, pg. 22):

> "Tribes are often at the leading edge in adapting to climate change; implementing locally based, scientifically supported actions to mitigate climate change; and creating the necessary systemic shifts to reconnect people with both environment and community. Despite this resiliency, climate change impacts for many Tribal communities are already severe, the challenges they face responding to impacts are daunting, and the need to take action is urgent."

As discussed in Section 1.4 and Section 3.2 of this SEA, coal-fired power plant retirements are accelerating and high efficiency dispatchable energy sources like the Project will close the gap needed until renewable energy sources are capable of covering energy needs. GHG emission modeling was completed for the MISO West region with and without NTEC incorporated. Based on these modeling results, although the NTEC facility itself will contribute to GHG emissions, it is anticipated that NTEC

will reduce current overall net emissions of GHGs throughout the MISO system through the increased reduction in coal generation, and provide an opportunity for more renewable energy generation, while also maintaining reliable energy production to avoid blackouts.

The Proposed Action is not anticipated to require additional oil or gas development. The Proposed Action would use existing, developed sources for natural gas. As such, the Proposed Action would not contribute to a need for more man camps or other development boom circumstances linked to increases in criminal activity, including human trafficking.

As discussed in Section 3.3.1.1, approximately 180 Ojibwe burials were moved from the Wisconsin Point Cemetery to the St. Francis Cemetery around 1918-1919. The Fond du Lac Band of Lake Superior Chippewa consider the St. Francis Xavier Cemetery a TCP because it contains these burials. The St. Francis Catholic Cemetery is located to the northeast of the NTEC Site along 31st Ave E and is buffered by approximately 130 feet of trees. As noted in October 2020 EA, the St. Francis Xavier Cemetery would not be impacted by the Project. Additionally, as the Project would result in a net decrease in GHGs, it would not contribute to future climatic changes such as increased rainfall and flooding that could lead to changes in erosional patterns that may impact graves in the cemetery.

Native American access to ceded lands for hunting, fishing, and gathering may be temporarily curtailed or restricted during Project construction. Fishing access to the Nemadji River is provided at 18th Street and 11th Street. There are also several hunting areas owned by the City of Superior and Douglas County within the Study Area that may be used by Native Americans to access local resources (Figure 3-5). As identified in Stults et. al. (2016), several fish species are of great cultural significance to tribes in the 1854 territory, including black crappie, walleye, northern pike, sturgeon, brook trout, lake trout, and whitefish. The study also identified multiple species that occur within the Project study area that could be hunted (white-tailed deer, turkey, etc.) or gathered (berries, wild rice, etc.) The fishing access at 18th Street and Nemadji canoe launch are accessed from roads also used to access the Nemadji River Site and are near the transmission routes south of the Nemadji River Site. Though not directly crossed, the access may be limited or temporarily closed during construction of facilities through temporary road closures and temporary increased noise associated with construction. If the Nemadji River Site is constructed, there would be increased traffic and operation noise near the fishing access at 18th Street during operation. Traffic during operation would primarily include employees entering or exiting the plant facility, as well as occasional maintenance vehicles. Traffic during operation of the Project would increase vehicles on nearby roads but is not anticipated to significantly increase traffic due to the number of employees anticipated or reduce access to these facilities.

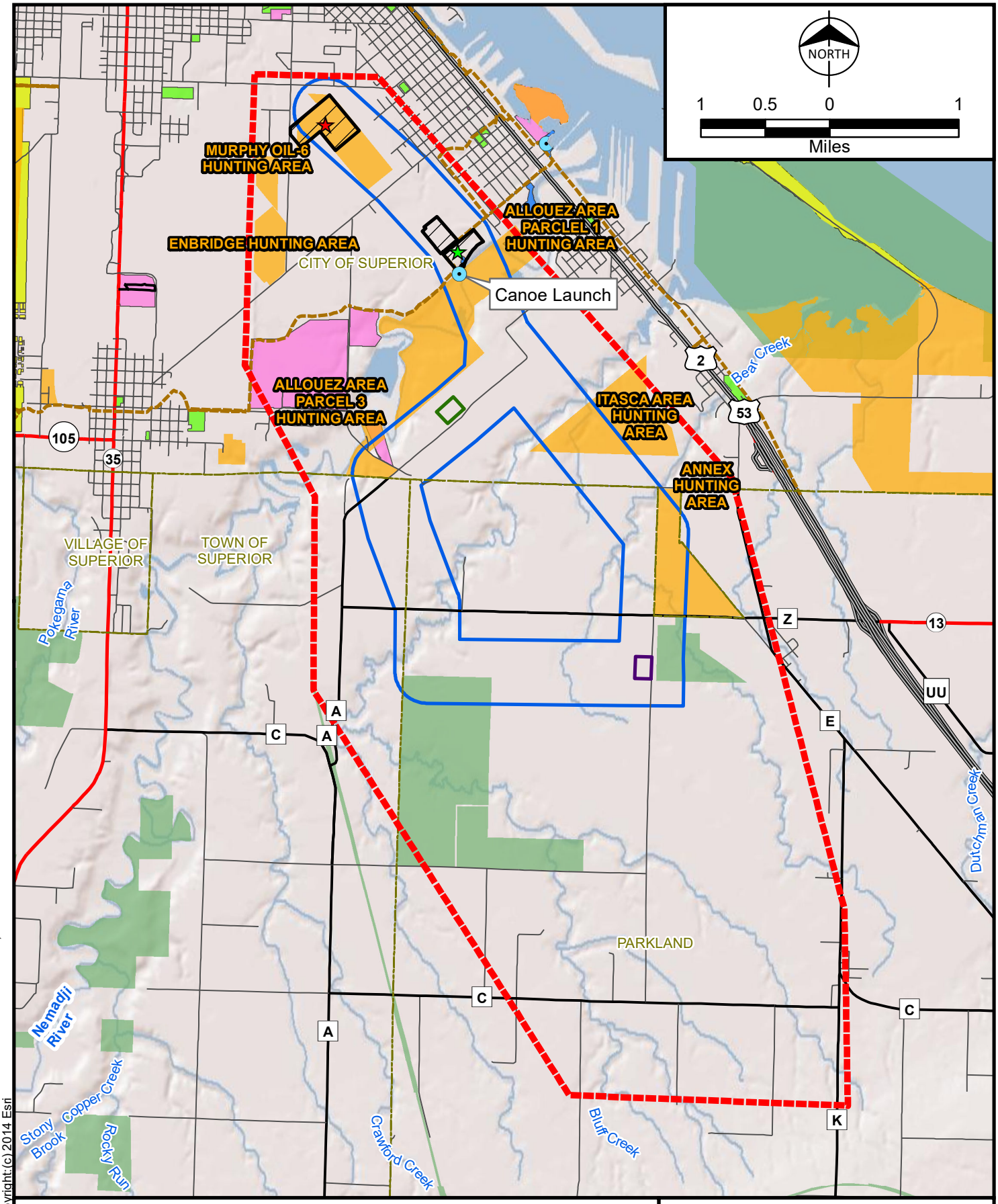


Figure 3-5
Conservation and Recreation Areas within the Study Area
Nemadji Trail Energy Center
Douglas County, WI

Source: Esri, Minnesota Power, City of Superior, USGS PADUS, Wisconsin DNR, FAA, USGS NHD, and Burns & McDonnell Engineering Company, Inc. Issued: 6/8/2022

The Preferred Site is not located within a hunting area. The transmission line route south of the Nemadji River Site would require clearing woodland in a portion of the Allouez Area Parcel 1 hunting area, the Itasca Area hunting area, and the Annex hunting area. The route generally follows existing transmission line and natural gas line through these parcels, however. Clearing would remove woodland habitat and result in a minor change to the habitat mix on these areas. Access to all or portions of these areas may also be controlled during construction. Once completed, access to these areas would be restored.

While the Proposed Action will cause GHG emissions in the direct vicinity to these tribes, climate change occurs on a global scale. No guidelines or thresholds for local climate impacts due to localized GHG emissions have been developed or identified by the US EPA. There are no NAAQS or health exposure thresholds for GHGs. While criteria pollutants such as NO_x, SO_2, CO and particulates cause localized health impacts, GHGs have effects on the global carbon cycle and cause system-wide changes (EPA, 2021). As described in Section 1.4, the construction of this Project will aid in the transition to renewable electricity, and in turn cause a net decrease in GHG emissions. This transition to renewables will reduce the effects of climate change on a global and, subsequently, a local level.

3.3.2.2 No Action Alternative

The No Action Alternative will result in higher GHG emissions due to the continued higher reliance on less efficient fossil fuel generation and experience higher wind curtailment than with the addition of NTEC, as presented in production cost modeling (Appendix B). Without the addition of NTEC, MISO West will not experience a net decrease in GHG emissions as less efficient units will be required to continue operating at a higher level to meet energy needs. Without the addition of NTEC, congestion will continue to exist between the renewables-heavy western portion of MISO West and load centers in the eastern portion of MISO West, resulting in higher dependence on existing fossil fuel generation. Higher congestion can also prevent some level of additional renewable resources being added to the system. The overall climatic benefits from the reduction of GHGs resulting from the Project would not be recognized.

3.3.3 Mitigation

If the Archaeological Study Area configuration is changed, additional archaeological investigations; documentation of historic-age, non-archaeological resources; and NRHP evaluations may be necessary.

If buried cultural resources are encountered during Project construction, land-disturbing activities in the immediate area must be halted, and the investigators and WHS/State Historic Preservation Office (SHPO) archaeologists must be notified. Any exposed cultural resources will be evaluated for their significance and appropriate actions to address these finds coordinated with WHS/SHPO.

The Owners will continue to consult with the Tribes throughout the construction and operation of the Project.

The Owners will coordinate the proper construction signage near recreation area access points on the roads used by construction vehicles for the Project to make drivers aware of the increased hazards associated with the construction vehicle(s) presence.

4.0 CUMULATIVE IMPACTS

This chapter lists the past, present, and reasonably foreseeable future actions (RFFAs) in the Study Area that may affect the resources analyzed in this EA. An assessment of cumulative effects of the Project is provided as well. See the NTECEA for a discussion of cumulative effects of the Project for other resources analyzed. The CEQ regulations implementing NEPA defines cumulative impacts as, "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such action." (40 CFR §1508.7).

4.1 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and RFFAs that have affected the resources of the Douglas County include:

- Construction of a new 16-inch natural gas line from the Nemadji River Site to the existing Great Lakes Transmission natural gas line
- Relocation of 10-inch natural gas line at the Nemadji River Site
- Relocation of the fiberoptic cable between the Nemadji River Site and the Hill Avenue Site
- Relocation of existing electric transmission at the Nemadji River Site
- Construction of two parallel single circuit electric transmission lines from the Superior Switching Station to a tap point on the existing Arrowhead to Stone Lake transmission line (if the Superior Switching Station Alternative is constructed)
- Past residential and business development in the surrounding area
- Existing Husky Energy Superior Refinery operations and April 2018 fire
- Forest management and timber harvesting in Douglas County

4.2 Cumulative Impacts

Previous activities in the Study Area that have impacted air quality and contributed to GHG emissions include construction activities associated with residential and business development, and forest management activities. The existing Husky Energy Superior Refinery had a fire in April 2018. Residents were evacuated in the surrounding area. The incident at the refinery included the combustion of oil and asphalt, which contributed to air emissions in the area. Husky Energy monitored air quality between April 2018 and June 2018 at the Superior Refinery site and in the surrounding area. None of that monitoring showed concentrations above health-based thresholds.

The following RFFAs would contribute to vehicle emissions in the area: construction of a new 16-inch natural gas line from the Nemadji River Site to the existing Great Lakes Transmission natural gas line; relocation of a 10-inch natural gas line at the Nemadji River Site; the relocation of the fiberoptic cable between the Nemadji River Site and the Hill Avenue Site; the relocation of existing electric transmission at the Nemadji River Site; and construction of two parallel single circuit electric transmission lines from the Superior Switching Station to a tap point on the existing Arrowhead to Stone Lake transmission line (if the Superior Switching Station is constructed). These construction activities are anticipated to be intermittent and temporary in nature, ceasing after construction is complete. During operation, the transmission line, pipelines, and fiberoptic cable may require periodic inspection and maintenance. Vehicles used during these activities would contribute to vehicle emissions in the area, though these activities would also be intermittent and temporary in nature.

During construction of the Project, exhaust emissions, fugitive dust, and other construction-related emissions would occur. However, these increases would be temporary in nature and cease when construction is complete. As such, these emissions are not anticipated to substantially impact the overall air quality in the region, and no cumulative impacts to air quality would occur as a result of construction activities.

The Project is expected to be one of the most efficient, lowest GHG emitting, dispatchable facilities in MISO and its operation is expected to result in less coal generation in both MISO West and specifically in Dairyland and Minnesota Power service territories. The cumulative impact study area for GHG modeling was the MISO service territory as presented in the Production Cost Modeling Study (Appendix B). With the Project displacing coal generation, there is a net decrease in GHG emissions and less efficient units operate less frequently. The Project is expected to reduce CO_2 emissions in MISO West by an average of 964,000 tons per year (Appendix B). This equates to electrifying approximately 190,000 cars per year. Additionally, the proposed location of NTEC will reduce transmission congestion across the region as well, which will result in more generation from renewable resources, specifically wind, due to a reduction in renewable resource curtailment (Appendix B). Congestion exists between the renewables-heavy western portion of MISO West and the load centers in the eastern portion of MISO West. NTEC would be located in the eastern portion of MISO West, relieving congestion between renewable generation and the load centers.

5.0 SUMMARY OF MITIGATION

The following is a summary of mitigation proposed in this SEA as well as previous mitigation measures in the NTECEA for the Project. Air Quality (Section 5.1) has been updated to reflect additional greenhouse gas information from this SEA.

5.1 Air Quality

During construction, steps will be taken to prevent excessive emissions of GHGs and particulate matter resulting from construction activities and vehicular traffic. These steps may include increasing the efficiency of the vehicle technology, using lower-carbon fuels, be efficient where the vehicles travel throughout the construction site, and reducing the idling of construction vehicles, as well as compacting, seeding, covering, paving, wetting, sweeping, or otherwise controlling particulate matter emissions.

Post-construction, the areas disturbed during construction will receive final cover to eliminate dust. All exposed soil areas will be seeded to grow grass, lesser-traveled road surfaces will be graveled and compacted, and the new main roads on-site will be surfaced with asphalt. The roads will be monitored and either wetted or swept to clean any fugitive dust that may occur due to on-site wheeled traffic.

The selective catalytic reduction (SCR) and oxidation catalyst will be integrated into the HRSG design by the supplier of the HRSG. The HRSG supplier will also provide ports in the stack to monitor HRSG stack emissions. The Continuous Emissions Monitoring System (CEMS) will monitor the HRSG NO_x stack emissions through these ports.

The Owners submitted the PSD permit application for the Project to WDNR and will adhere to conditions and requirements of the application during operation of the Project. The Owners will also be working with the equipment vendors to realize equipment efficiency gains between approval and commercial operation that can be incorporated into construction and operation of the facility.

Nodal Production Cost Modeling for year 2040 showed total CO_2 emissions for MISO West without NTEC at 65,880,966 tons per year. With NTEC, modeling for 2040 showed a total CO_2 emissions of 64,759,361 tons per year, a reduction of 1,121,600 tons per year. As modeled, the Project is expected to reduce CO_2 emissions in MISO West by an average of 964,000 tons per year (2025-2040; Appendix B). With the Project displacing coal generation and requiring less frequent operation of less efficient fossil fuel units, there is a net decrease in GHG emissions.

Any GHG and VOC emissions from the piping components will have fugitive emissions. Fugitive emissions are, by their nature, very difficult to monitor directly, as they are not emitted from a discrete emission point. Therefore, the Owners propose the following compliance demonstrations, recordkeeping, and monitoring requirements:

- Conduct instrument monitoring inspections on piping components each calendar quarter to detect leaks of natural gas and fuel oil.
- Keep a log of all the quarterly instrument monitoring inspections from piping components that are part of this Project.
- Develop a Facility Leak Detection Plan

These proposed work practices are consistent with the BACT determinations identified above.

5.2 Biological Resources

The following sections describe the avoidance, minimization measures, and WDNR-identified actions for the Project to help conserve federally protected species, Wisconsin's rare species, and high-quality natural communities.

5.2.1.1 Northern Long-eared Bat

Reproductive females and their young are highly vulnerable to mass mortality during their maternity period (June 1 – July 31) because they aggregate in maternity colonies. Young northern long-eared bats start flying by 18 to 21 days after birth and therefore cannot leave the roost for several weeks after birth (U.S. Fish and Wildlife Service [USFWS], 2015; Federal Register, 2016). To follow the USFWS 4(d) rule for the Northern Long-Eared Bat (NLEB), one of the following options should be implemented to avoid take of the NLEB:

1. Assume the bats are present within suitable habitat and avoid removal of known occupied maternity roost trees or any trees within 150 feet of a known occupied maternity roost tree from June 1 – July 31. For suitable habitat that occurs outside of 150 feet of a known occupied maternity roost tree or outside of 0.25 miles of a NLEB hibernaculum, implement the avoidance measures outlined in the Cave Bat Broad Incidental Take Permit and Authorization. According to the WDNR, if the Project can implement these avoidance measures, there will not be any further Project restrictions related to the NLEB. If the Project cannot completely avoid take of the NLEB, WDNR recommends that the Bureau of Natural Heritage Conservation Incidental Take Coordinator be contacted to determine possible Project-specific avoidance measures. If take cannot be avoided, consultation with the USFWS will be necessary.

2. Not assume the NLEB is present within suitable habitat along the alternative routes and have a qualified biologist conduct surveys to determine if the NLEB is present (a copy of the survey biologist's credentials and a copy of the survey protocols must be sent to the WDNR Endangered Resources Review Program for approval prior to the initiation of surveys). According to the WDNR, if the NLEB is not found within the Study Area as a result of the surveys, there will be no Project restrictions related to these species. If surveys are conducted and the NLEB or maternity colonies are detected, option 1 must be followed. Survey results should be submitted to the Endangered Resources Utility Liaison.

5.2.1.2 Eagles

While the bald eagle was removed from the Federal Endangered Species list in August 2007, it is still federally protected by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Golden eagles are considered a nonbreeding, infrequent inhabitant in Wisconsin. Eagles can be sensitive to human disturbance, especially during the breeding and nesting seasons. Per the USFWS National Bald Eagle Management Guidelines (2007), human activity within 660 feet of an active nest should be avoided from January 15 – July 30. No bald eagle nests were observed during field surveys that occurred within the Study Area; however, if a bald eagle nest should be identified within the Survey Area, the USFWS National Bald Eagle Management Guidelines (2007) would be followed.

5.2.1.3 Invasive Species

In compliance with Wisconsin Administrative Code (WAC) Chapter NR 40 Invasive Species Identification, Classification and Control Rule, the Owners will mitigate the potential to spread invasive plant species during Project activities. Invasive plant species locations will be shown on the construction plans and flagged on-site to avoid during construction, where feasible. In areas where impacts to the invasive plant species are unavoidable, equipment will be cleaned prior to moving from an infested area to a non-infested area.

Equipment cleaning will primarily be conducted by brush, broom, or other hand tools along the Project. The Owners may periodically require equipment to be cleaned by compressed air. Equipment used during ground disturbing activities will be cleaned prior to leaving the Project ROW to reduce the risk of spreading invasive plant species beyond the Project ROW.

Construction equipment brought on-site will be required to be free of muck and invasive species. In accordance with Wisconsin DATCP Chapter 20, WAC, seed mixtures that contain potentially invasive species or species that may be harmful to native plant communities will be avoided.

5.2.1.4 Revegetation

Construction activities will include clearing, grubbing, grading, excavation, infrastructure construction, and re-vegetation. In areas were restoration is required, seeding and mulching will be completed in accordance with WDNR Technical Standard 1059 – Seeding for Construction Site Erosion Control. The seed mix used will be appropriate to the surrounding area and similar to pre-construction conditions. The seedbed will be adequately prepared to promote successful germination. Seed mixes will not contain invasive species. Permanent seed mixtures will be selected to produce dense vegetation based on soil and site conditions, along with intended final use. Temporary seeding will be applied to areas of exposed soil where the establishment of vegetation is desired, but the areas have not been brought to final grade or on which land-disturbing activities will not be performed for a period greater than 30 days, but vegetative cover is required for less than 1 year. Areas needing protection during periods when permanent seeding is not applied, will be seeded with annual species.

Upon completion of restoration, each work location will be monitored to document stabilization and re-vegetation. Monitoring will continue until vegetative cover reaches 70 percent of previous cover.

5.2.1.5 Migratory Birds

The Migratory Bird Treaty Act prohibits the take of migratory birds and their eggs, young, or active nests. The loss of plant and animal habitat within the footprint of the proposed Project, would primarily occur adjacent to existing areas that have already been developed or are associated with existing utility and public road ROWs. The Nemadji River Site is adjacent to an existing tank farm and utility corridors and this area has experienced some level of habitat fragmentation associated with development in and around the City of Superior. The Eastern Transmission Route for the transmission line would be constructed within an existing utility corridor that contains a natural gas pipeline and overhead electrical transmission lines or the Western Transmission Route would be constructed parallel to existing linear infrastructure; however, woody vegetation would be cleared from forested lands and shrubland habitats along the edges of the existing utility corridor to widen the corridor and accommodate the additional line. During the extent of the Project, trees that would be removed would be done so outside of the migratory bird nesting period for Wisconsin (May 15 to August 1) to avoid impacts to nesting migratory birds (U.S. Department of Agriculture, 2018).

5.3 Cultural Resources

If buried cultural resources are encountered during Project construction, land-disturbing activities in the immediate area must be halted, and the investigators and WHS/SHPO archaeologists must be notified.

Any exposed cultural resources will be evaluated for their significance and appropriate actions to address these finds coordinated with WHS/SHPO.

5.4 Geology and Soils

Best management practice (BMP) erosion control techniques will be used to mitigate soil impacts. Topsoil will be kept separate from subsoils and will be stockpiled in a different location than subsoils. This topsoil will be used after construction to resurface areas disturbed by construction activities. Compacted soils will be disked prior to final stabilization. It is not anticipated that any subsoil removed for excavations will be spread in upland cropland or pasture. The Storm Water Management Technical Standards from WDNR will be used during construction and operation.

A Storm Water Pollution Prevention Plan (SWPPP) will be submitted to WDNR as part of Project permitting activities. The Owners will implement, monitor, and maintain BMPs, described in the SWPPP to minimize erosion and sedimentation. The Owners will comply with the construction site storm water discharge permit (Wis. Admin. Code NR 216) that was submitted to WDNR for the Project in December 2018.

5.5 Infrastructure, Transportation, Public Health, and Waste Management

The following presents mitigation measures for transportation, public health, and waste management resources for the Project. No mitigation measures related to utility infrastructure are proposed.

Transportation

The Owners do not anticipate permanent damage to roads. As a precautionary measure, the Owners will video-document the condition of all roads on the construction vehicle routes to document the road condition prior to the start of construction. Any documented adverse impacts to the roads incurred due to the construction of the Project will be addressed through consultation with applicable road authorities regarding the Owners' responsibility for repairing the adversely impacted roads.

The Owners will coordinate the proper construction signage on the roads used by construction vehicles for the Project to make drivers aware of the increased hazards associated with the construction vehicle(s) presence.

Public Health and Safety

The Owners will develop a Health and Safety Plan (HSP) to address public and worker safety during the construction and operation of the Project. The HSP would identify any requirements for temporary

fencing around staging, excavation, and laydown areas during construction, as well as protocols for emergency responses. The Owners would work with local first responders to develop emergency response procedures in the HSP. The HSP would also include provisions for worker protection as is required under Occupational Safety and Health Administration (OSHA) CFR1926. During construction, all employees, contractors, and sub-contractors would be required to adhere to OSHA safety procedures, which will be taught in mandatory training sessions for all construction workers on site. All heavy equipment would meet OHSA safety standards and personal safety equipment would be required for all workers on site. Any accidents or incidents would be reported to the designated safety officer. During construction there is a risk of accidental fires being started by human activities such as refueling heavy equipment or the use of vehicles in dry vegetated areas. The HSP will have procedures in place to address and restrict the various activities that have a fire-related risk. A fire-suppression system will be incorporated into Project design. The Project will implement industry-approved design measures to reduce fire-related risks.

Waste Management

A Spill Prevention, Control and Countermeasures (SPCC) plan[10] has been created for the Project (SSE, Dairyland, Burns & McDonnell Engineering Company, Inc. [Burns & McDonnell], 2019). This plan establishes procedures, methods and equipment, and other requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

The oil/water separator will be designed to remove 20 micron and larger oil droplets to concentrations of less than 10 ppm. It will be designed to store 1,000 gallons of oil. The oil/water separator will be constructed as a double walled buried tank and will have a leak monitor to detect a breech in the inner tank wall. The tank will be cathodically protected. Any oil collected will be pumped out as required for disposal.

The Project will have a construction superintendent responsible for oil spill containment and cleanup. The construction superintendent will report spills and supervise cleanup and disposal of any contaminated soil and spill cleanup materials for any significant volume (defined as 55 gallons or more) of chemicals such as lubricants, fuel, grease, or other oil. Diesel and gasoline fuel will be temporarily stored at the Project site during construction in aboveground tanks. Preventative measures will be implemented during re-fueling or transfer of these fuels to reduce the risk of spills. Lubricating oils and certain other industrial

[10] The SPCC Plan is available on the PSCW website at: http://apps.psc.wi.gov/vs2015/ERF_search/content/searchResult.aspx?UTIL=9698&CASE=CE&SEQ=100&START=none&END=none&TYPE=none&SERVICE=none&KEY=none&NON=N. PSC Reference No. 357005.

chemicals required for the project will be stored in specially designed and covered containment areas. Equipment will be kept in good working condition through routine inspections and service to reduce the risk of leaks of transmission, hydraulic, or brake fluid. Chemical storage areas will be well marked and include eye wash stations, first aid kits, safety showers, hose stations, and spill kits with absorbent pads and/or material.

Larger spills will be removed from the containment area using a vacuum tank truck or will be pumped into a suitable container for cleanup. Contaminated soil and/or absorbent pads or products used to cleanup a spill will be immediately removed, stored, and disposed of in accordance with Wisconsin state regulations. Absorbent pads or other manufactured absorbent products will be used to cleanup minor spills. These pads and absorbent products will be stored on maintenance trucks and/or in a dedicated cabinet that is readily accessible.

The oil contaminated gravity drain system collects waste liquid which has the potential of containing quantities of oil and conveys the waste through an oil/water separator. Permanent combination safety shower/emergency eyewash stations with tepid water conditioning skid will be installed at all battery rooms and chemical storage areas including near the aqueous ammonia storage tank and SCR vaporization skids.

The Project site will be maintained to contain debris and waste in approved containers and locations. Regular trash and waste removal from the site will occur and a recycling program will be implemented for the site. Wastes are anticipated to be removed and disposed of at a local landfill by a local service provider. Recycling pickup services are anticipated to be provided by a local disposal company.

5.6 Land Use

During construction, portions of the Project site will be cleared, grubbed, graded, excavated, and revegetated. In areas not impacted by these activities, such as riparian vegetation along the Nemadji River outside the ROW and areas of the transmission line ROW that do not require clearing, existing vegetation will be preserved where practicable. The amount of soil exposed during construction will be minimized. Seed mixtures will be selected to produce dense vegetation based on soil and site conditions, along with intended final use. In areas where restoration is required, seeding and mulching will be completed in accordance with WDNR Technical Standard 1059 – Seeding for Construction Site Erosion Control, Chapter DATCP 20, WAC regarding noxious weed seed content and labeling, and Wisconsin Department of Transportation (WisDOT) Mix 75 – Erosion Control Native Mix.

Temporary seeding will be applied to areas of exposed soil where the establishment of vegetation is desired, but the areas have not been brought to final grade or on which land-disturbing activities will not be performed for a period greater than 30 days, but vegetative cover is required for less than 1 year. Areas needing protection during periods when permanent seeding is not applied, must be seeded with annual species.

Final stabilization is achieved when all soil-disturbing activities at the site have been completed and a uniform (i.e., evenly distributed, without large bare areas) perennial vegetation cover with a density of 70 percent of the native background vegetative cover has been established on all unpaved areas or areas not covered by permanent structures or with alternative surfacing, such as riprap or crushed rock.

During construction, areas that have been seeded will be inspected by a qualified person at least once every 7 days and within 24 hours after every precipitation event that produces 0.5 inch of rain or more during a 24-hour period. Where areas of concern are identified, the area will be re-seeded and watered, and fertilizer will be applied, if applicable. The Project site will be inspected at least once per month to monitor vegetative growth until final stabilization is achieved after construction and stabilization activities are complete.

The Owners will comply with WAC, Chapter NR 40, WAC – Invasive Species Identification, Classification and Control during monitoring and management of invasive plant species. The Owners will control any prohibited plant species identified onsite during inspection and monitoring activities and will minimize the spread of restricted plant species beyond their known boundaries throughout the duration of the Project.

In accordance with the Wisconsin DATCP Chapter 20, WAC, seed mixtures that contain potentially invasive species or species that may be harmful to native plant communities will be avoided. Seed will be tested for purity, germination, and noxious weed seed content, and will meet the minimum requirements prescribed in the current edition of Rules for Testing Seed, published by the Association of Official Seed Analysts.

To minimize impacts to agricultural areas, construction of the transmission line will occur after harvest and/or before spring planting and be contained within the existing ROW to the greatest extent practicable, to reduce the potential for loss of crop production. Outside of winter months, matting will be used in wet areas to spread out heavy vehicle loads and minimize soil disturbance.

The Owners will coordinate the proper construction signage near recreation area access points on the roads used by construction vehicles for the Project to make drivers aware of the increased hazards associated with the construction vehicle(s) presence.

5.7 Noise

Within twelve months of the date when the project is fully operational, and within two weeks of the anniversary date of the pre-construction ambient noise measurements, sound level measurements will be repeated both with and without the Project in operation to verify noise levels do not exceed contractually guaranteed levels, as well as EPA guideline levels. Sound measurements will be taken at the same measurement points that were analyzed for the ambient measurements. The Owners will provide notice to nearby residents of expected timeframes for steam blow operation.

5.8 Socioeconomics and Environmental Justice

Construction activities will primarily be scheduled between the hours of 7:00 a.m. and 10:00 p.m. to minimize noise impacts to nearby residences. The Owners will provide notice to nearby residents of expected timeframes for steam blow operation.

The Owners do not anticipate permanent damage to roads. As a precautionary measure, the Owners will video-document the condition of all roads on the construction vehicle routes to document the road condition prior to the start of construction. Any documented adverse impacts to the roads incurred due to the construction of the Project will be addressed through consultation with applicable road authorities regarding the Owners' responsibility for repairing the adversely impacted roads.

The Owners will coordinate the proper construction signage on the roads used by construction vehicles for the Project to make drivers aware of the increased hazards associated with the construction vehicle(s) presence.

Contractors will be chosen from a competitive bid process and will be local whenever practical. Local materials such as concrete, lumber, and general hardware may be purchased from local businesses.

5.9 Visual Resources

Building entrances will be illuminated with fixtures mounted directly above doors. Outdoor light fixtures will be fully shielded and directed downward to minimize light visible from adjacent properties and to reduce glare in the area. Any floodlights required for the operation of the Project will be directed inward towards the facility and will have top and side shields.

Cleared ROW would be revegetated as soon as practicable as described in Section 3.2.3.5. Existing vegetation outside the plant footprint, ROW, switching station areas, and laydown yards will be left intact to reduce visibility of the Project and provide screening. During construction, work areas would be maintained in an orderly manner and trash and construction debris removed to help avoid unsightly areas. All disturbed areas would be restored as soon as practicable. Disturbance would be limited to those areas necessary for construction, limiting clearing and ground disturbance.

5.10 Water Resources

Minimization efforts will be utilized to the extent practical where wetland impacts are unavoidable. Construction activities will be prioritized during winter months to take advantage of ground freeze and use of ice roads to limit ground disturbance. Outside of winter months, matting will be used in wetland areas to spread out heavy vehicle loads and minimize soil disturbance. Additionally, tracked vehicles will be used to the extent practical to further spread out vehicle loads throughout wetland area with matting.

Existing site entrances will be used to the extent practical to reduce the number of new roadside and wetland crossings required for construction vehicles to access the site. BMPs outlined in the SWPPP will be used to avoid and minimize stormwater sedimentation and disturbance within wetland areas.

The Sites will be designed to avoid and minimize temporary and permanent impacts to waterways. The post-construction storm water management facilities would be designed to meet the performance standards addressed in NR 151.

To the extent practicable, off-ROW access roads eliminate the need to cross wide waterways during construction. For smaller intermittent and ephemeral waterways within the ROW, temporary prefabricated span bridges will be used to span waterways. Following the removal of all temporary bridges, contours will be regraded to pre-construction conditions as needed.

A SPCC plan has been created for the Project. This plan establishes procedures, methods and equipment, and other requirements for equipment to prevent the discharge of oil from non-transportation-related

onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines. The equipment at the site is outside the 100-year and 500-year floodplain.

The wetlands and waterways WDNR permit application materials were submitted on December 18, 2018. The USACE Section 401 and 404 permit application was submitted in March 2020. The Owners will comply with permit application requirements for wetlands and waterways.

5.11 Tribal Environmental Justice

If the Archaeological Study Area configuration is changed, additional archaeological investigations; documentation of historic-age, non-archaeological resources; and NRHP evaluations may be necessary.

If buried cultural resources are encountered during Project construction, land-disturbing activities in the immediate area must be halted, and the investigators and WHS/SHPO archaeologists must be notified. Any exposed cultural resources will be evaluated for their significance and appropriate actions to address these finds coordinated with WHS/SHPO.

The Owners will continue to consult with the Tribes throughout the construction and operation of the Project.

6.0 COORDINATION, CONSULTATION, AND CORRESPONDENCE

This chapter describes the public outreach for the Project as well as the coordination, consultation, and correspondence with Federal, tribal, state, and local agencies.

6.1 Public Involvement

The Owners developed a communication plan to inform the public about the Project and to request feedback from stakeholders. The ongoing communication efforts include:

- Establishing and updating a website (http://www.nemadjitrailenergycenter.com/)
- Issuing news information to media outlets
- Holding public meetings related to the Project
- Providing regular updates to public officials and area legislators

Five informational meetings were held for the Project between September 2017 and November 2018: an RUS formal scoping meeting, a stakeholder meeting, and three open houses. The meetings consisted of open house style presentations about the NTEC Project, a mapping exercise, and a question and answer portion. See Chapter 6.0 in the NTECEA for a summary of the meetings held and comments received.

6.2 Agency Consultation

Letters or postcards were sent to agencies to inform agency contacts of the stakeholder meeting, three open house meetings, and the RUS formal scoping meeting. The meetings provided agencies and the general public with information on the Project as well as an opportunity to ask questions and provide initial feedback. Agency correspondence and a list of agencies invited to each meeting is provided in Appendix C of the NTECEA. The Owners consulted with multiple federal agencies, including the Federal Aviation Administration, U.S. Fish & Wildlife Service, U.S. Army Corps of Engineers, and numerous tribal leaders. Additionally, the Owners consulted state and local agencies, DATCP; the Wisconsin Legislative Black Caucus; the PSCW; WDNR; Wisconsin Department of Transportation; the Wisconsin Historical Society; the City of Superior; Douglas County; local airport officials; the Superior School District; Superior Chamber of Commerce; University of Wisconsin – Superior; Northwood Technical College – Superior; the Douglas County Highway Department; the Housing Development Corp of Superior; Parkland Sanitary District No. 1; Superior Housing Authority; and the Town of Parkland. Chapter 6 of the October 2020 EA provides a summary of this correspondence as well as lists of permits required from each agency.received.

6.3 Locations for Public Review of Supplemental EA

A Notice of Availability was published in the Superior Telegram which informed the public of the availability of this SEA and the 30-day public comment period from June 24 to July 25, 2022. Table 6-1 provides a list of libraries that received the SEA for public review.[11] These libraries also received copies of the NTECEA and the PSCW CPCN applications. The SEA was also made available online.[12]

Table 6-1: List of Library Locations

Library	Address and Phone Number
Superior Public Library	1530 Tower Avenue Superior, WI 54880 (715) 394-8860
La Crosse Public Library	800 Main Street La Crosse, WI 54601 (608) 789-7100
Murphy Library Resource Center University of Wisconsin – La Crosse	1631 Pine Street La Crosse, WI 54601 (608) 785-8505

6.4 Public Comments Received to Date

USDA-RUS set up a Project public comment email inbox where comments could be submitted for consideration in the NEPA process. Over 500 comments were received after the FONSI was published in June 2021. The comments received primarily discussed concerns over the impacts of GHGs and the government's lack of action on climate change and requests for RUS to not provide funding for the Project. RUS will consider these comments and the SEA as part of its findings on the Project and its decision whether or not to finance Dairyland's portion of the Project. Appendix D contains the list of commenters.

As noted in Chapter 1, RUS received a petition from the Minnesota Center for Environmental Advocacy, Sierra Club Environmental Law Program, Clean Wisconsin, and Honor the Earth to rescind the FONSI and to prepare a SEA to include an analysis of GHG emissions and climate change in June 2021. RUS

[11] Due to the COVID-19 pandemic, it is advised that anyone wishing to view the EA at a public library contact library staff prior to arrival to confirm hours, availability of the EA materials, and schedule an appointment, if necessary.

[12] A copy of the SEA may be viewed online at the following websites: Rural Utilities Service at https://www.rd.usda.gov/resources/environmental-studies/assessment/nemadji-trail-energy-center-wisconsin, on the Dairyland Power Cooperative website at https://www.dairylandpower.com/NTEC/EA, and the project website at http://www.nemadjitrailenergycenter.com/resources.html.

agreed that further analysis of the potential environmental impacts of the Proposed Action was warranted. This SEA has been prepared to address the petition filed.

6.5 Tribal Coordination

On August 11, 2017, letters that provided preliminary Project details were mailed by the Owners to the Red Cliff Band of Chippewa, Bad River Bands of Chippewa, and the Fond du Lac Band of Lake Superior Chippewa (Appendix C). In addition to providing preliminary Project details, the letters invited the tribes to participate with the Owners in the pre-filing process and requested feedback regarding cultural resources in the APE. The letters included an invitation to a public meeting held on September 7, 2017. Advertisements were run in the paper for the open house on September 1 and 5, 2017. On August 16, 2017, the Owners met with the Fond du Lac Band of Lake Superior Chippewa to discuss the Project. On August 21, 2017, the Owners met with Red Cliff and Bad River Bands of Chippewa (separately) to discuss the Project. The Owners met with the Lac Courte Oreilles Band on January 8, 2019. The Owners also reached out to the St. Croix and Forest County Potawatomi Bands, but have not yet received a reply. Jill Hoppe, Tribal Historic Preservation Officer for the Fond du Lac Band of Lake Superior Chippewa, sent the Owners an image of approximate locations of some cultural sites from their cultural database. Three of the locations fall within the Project Study Area and two are adjacent to the Area of Potential Effect but outside of it.

A letter was sent to tribal contacts on June 11, 2019, in regard to the SHPO concurrence that the Project would have no impact on historic properties. This letter was sent to the St. Croix Chippewa Community, Lac Courte Oreilles Band of Lake Superior Chippewa, Bad River Bands of Lake Superior Chippewa, Forest County Potawatomi Community, and Red Cliff Band of Chippewa. A letter was given to the Fond du Lac Band of Lake Superior Chippewa during a meeting on August 5, 2019. The letter requested responses be sent within 30 days. No responses were received. The Fond du Lac Band of Lake Superior Chippewa discussed potential monitoring options during construction at the August 5, 2019, meeting. The group planned to send SSE a proposal by September 9, 2019.

By letter dated March 16, 2020, the following additional Tribes were contacted in regard to the SHPO concurrence that the Project would have no impact on historic properties:

- Fort Belknap Indian Community – Fort Belknap Reservation of Montana
- White Earth Band of the Minnesota Chippewa Tribe
- Lac Vieux Desert Band of Lake Superior Chippewa Indians of Michigan

- Lac du Flambeau Band of Lake Superior Chippewa Indians – Lac du Flambeau Reservation of Wisconsin
- Lac Courte Oreilles Band of Lake Superior Chippewa Indians – Wisconsin
- Menominee Indian Tribe of Wisconsin
- Grand Portage Band of the Minnesota Chippewa Tribe
- Keweenaw Bay Indian Community – Michigan
- St. Croix Chippewa Indians of Wisconsin
- Minnesota Chippewa Tribe
- Sokaogon Chippewa Community – Wisconsin
- Mille Lacs Band of Ojibwe (Mille Lacs Band of the Minnesota Chippewa Tribe Mille Lacs Band of Ojibwe)
- Leech Lake Band of the Minnesota Chippewa Tribe
- Miami Tribe of Oklahoma
- Ho-chunk Nation
- Stockbridge-Munsee Community Band of Mohican Indians
- Oneida Nation of Wisconsin

No responses were received during the response period.

As noted in Section 6.4, the Red Cliff Band of Lake Superior Chippewa Indians and the Fond du Lac Reservation Resource Management Division sent letters to USDA-RUS in October 2021 requesting that RUS conduct a SEA to consider climate change from associated GHG emissions from the Project, as well as how the Project may impact treaty rights and other cultural resources, including upstream extraction of natural gas. These topics are discussed in Section 3.3.

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8.0 LIST OF PREPARERS

The supplemental environmental review for the Project was prepared by Burns & McDonnell under the direction of RUS and Dairyland Power Cooperative. Table 8-1 contains a list of preparers of this document.

Table 8-1: List of Preparers

Name	Organization	Experience	Role in SEA Preparation
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