Minnkota Power COOPERATIVE
A Touchstone Energy® Cooperative

5301 32nd Ave S
Grand Forks, ND 58201-3312

Phone 701.795.4000
www.minnkota.com

March 1, 2022

Clean Sustainable Energy Authority
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard Ave Dept 405
Bismarck, ND 58505-0840

Subject: Project Tundra CSEA Application

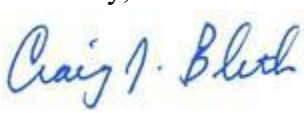
Dear Clean Sustainable Energy Authority:

Minnkota Power Cooperative is pleased to submit an electronic copy of its Project Tundra Clean Sustainable Energy Authority (CSEA) application. An original and one copy of the subject proposal will also be submitted by mail.

Enclosed you will find an application for a $150 million loan through the CSEA to support the commercialization of a transformational technology that will provide widespread benefits to the lignite industry. Included in the application is a preliminary construction milestone and construction draw schedule, this construction and draw schedule will be refined and revised prior to final investment decision. The Project Tundra team is committed and ready to complete the project as described in the proposal with the support of the CSEA. The goal of Project Tundra is to demonstrate post combustion carbon capture (PCCC) and storage in North Dakota, preserving the use of lignite and the associated jobs, ensuring enough reliable and dispatchable power is on our grid, and moving North Dakota closer to its carbon neutral goal.

If you have any questions, please contact me by phone at (701) 794-7261 or by email at cbleth@minnkota.com.

Sincerely,



Craig J. Bleth
Minnkota Vice President of Power Supply

APPLICATION CHECKLIST

Use this checklist as a tool to ensure that you have all of the components of the application package. Please note, this checklist is for your use only and does not need to be included in the package.

☐	Application
☐	Transmittal Letter
☐	Tax Liability Statement
☐	Letters of Support (If Applicable)
☐	Confidentiality Request
☐	Business Plan (Appendix)
☐	Historical Financial Statements (3 years) (Appendix)
☐	Budgeted Projections (Appendix)
☐	Loan/Loan Guarantee Application (if Applicable, Appendix)
☐	Other Appendices (If Applicable)

When the package is completed, send an electronic version to sustainableenergy@nd.gov and 2 hard copies by mail to:

Clean Sustainable Energy Authority
North Dakota Industrial Commission
State Capitol – 14th Floor
600 East Boulevard Ave Dept 405
Bismarck, ND 58505-0840

For more information on the application process please visit:
http://www.nd.gov/ndic/csea-infopage.htm

Questions can be addressed to Al Anderson (701) 595-9668.

Clean Sustainable Energy Authority

North Dakota Industrial Commission

Application

Project Title: Project Tundra

Applicant: Minnkota Power Cooperative

Date of Application: March 1, 2022

Amount of Request
Grant:
Loan: $150,000,000 requested

Up to $150,000,000 in potential future requests

Total Amount of Proposed Project: $1,450,000,000

Duration of Project: Construction – 4 years

Operations – 20 years

Point of Contact (POC):
Andrew Sorbo, Minnkota Senior Manager of Legal & Property

POC Telephone: 701-795-4204

POC Email: asorbo@minnkota.com

POC Address: 5301 32nd Ave. South
Grand Forks, ND 58201

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ABSTRACT

Objective: The goal of Project Tundra is to demonstrate post combustion carbon capture (PCCC) and storage in North Dakota, preserving the use of lignite and the associated jobs, ensuring enough reliable and dispatchable power is on our grid, and moving North Dakota closer to its carbon neutral goal. At 4,000,000 metric tons per year, Project Tundra will be the largest single-train PCCC in the world that will feature a "station" approach to carbon dioxide emissions control as opposed to the "dedicated unit" configuration being proposed by the rest of the industry. The loan requested in this application will be a strong demonstration of commitment to a first of a kind project like Tundra and thereby paving the way for a possible start of construction for Project Tundra by the end of 2022.

Expected Results: A commitment from the Clean Sustainable Energy Authority (CSEA) for a low interest loan of $150 million (or series of future loans totaling $300 million) will demonstrate that Project Tundra is worthy of consideration by capital markets and at the same time appropriately reinforce the income statement of the project to attract needed investment. Past support from the NDIC has directly funded Project Tundra project development, along with the U.S. Department of Energy and private companies, which enabled Minnkota Power Cooperative Inc. (Minnkota) to advance the project to the point of "ready for construction." Likewise, a loan commitment from the CSEA will encourage others to partner with Minnkota to fund the balance of the total project cost.

Duration: Construction of Project Tundra is estimated to take four years to complete. The operating life thereafter is designed for at least 20 years.

Total Project Cost: Construction and commissioning costs of the PCCC and supporting balance of plant is estimated at $1.45 billion. The adjacent carbon dioxide storage facility is anticipated to cost an estimated $120 million to be ready to start receiving carbon dioxide.

Participants: Minnkota is the project sponsor and will be a partner in the ownership of the project. We expect the U.S. Department of Energy (DOE) will participate in funding capital cost of the project either through direct demonstration grants or through loan guarantees.

Non-funding major participants will be Fluor Corporation (Fluor) as the technology provider and EPC contractor. Sargent & Lundy will be the Owner's Engineer. Minnkota will provide overall construction management on behalf of the project owners and lenders for both the PCCC and the CO_2 Storage Facility.

PROJECT DESCRIPTION

Objectives: Project Tundra is an initiative to build the world's largest post-combustion carbon dioxide (CO_2) capture facility at the existing Milton R. Young Station (MRYS), a lignite-based power plant in North Dakota. The proposed project is designed to capture 4 million metric tons of CO_2 annually from MRYS. The captured CO_2 will be safely and permanently stored in geologic formations approximately 5,000 and 9,000 feet underground.

The proposed project is being developed by Minnkota Power Cooperative, Inc.[1] (Minnkota), a regional generation and transmission cooperative that provides wholesale power to 11 member-owner distribution cooperatives in eastern North Dakota and northwestern Minnesota. Minnkota is the operator of the two-unit MRYS. The MRYS is a valuable asset for Minnkota due to its reliable, resilient, and cost-competitive operating characteristics. MRYS has dispatched at 85%

[1] www.minnkota.com

average capacity factor over the past five years in the competitive Midcontinent Independent System Operator (MISO) electric market, which demonstrates its favorable production cost relative to the market. However, it is anticipated that the facility has the potential to face a carbon-constrained or carbon-managed future through policy changes, regulatory requirements, or other mechanisms. Project Tundra will help preserve this important power resource for Minnkota's cooperative members, while also maintaining the existing high-paying jobs and essential economic impact for the local communities and surrounding region. The MRYS and adjacent lignite mine are the largest employers in Oliver County and according to data from the North Dakota Job Service, Oliver County had the highest average annual wages in the state in 2020.

Methodology

The economics of the proposed project are based on:

- The Internal Revenue Service Section 45Q federal tax credit program, which will provide a tax credit of $50/tonne of CO_2 captured and permanently sequestered in secure geologic storage. The period during which tax credits can be claimed is 12 years from the start of commercial operation and the value of the credits is indexed to inflation which in the project's model increases the credits to near $90/tonne at the end the 12-year period;
- An environmental attribute for every ton of CO_2 stored, bought by Minnkota, for a nominal amount during the tax credit period (average $2/ton over 12 years) and for a price that covers project opex and remaining capex during the final 8 years of the project life;
- A CO_2 purchase and sale agreement between StorageCo and CaptureCo, under which StorageCo will purchase all of the CO_2 captured by CaptureCo for a price equal to the value

of the tax credits minus the operating expenses of CaptureCo and minus a monetization and sequestration fee.

- A Tax Equity transaction under which the tax equity investor will (a) make a small upfront contribution, (b) pay for 99% of the operating expenses of StorageCo (including the costs of purchasing the CO_2), and (c) make on-going payments a portion of which will be dependent upon the project performance.

StorageCo will be owned by Minnkota (or one of its affiliates) and the Tax Equity Investor. CaptureCo will be owned by Minnkota (or another one of its affiliates) and possibly another partner to be identified.

In the base case, the $123 million StorageCo capital expenditures will be funded by a tax equity investment and an Minnkota investment. The $1.45 billion in costs for CaptureCo will be funded by a senior secured loan facility, a CSEA loan, grants from the DOE, and an investment from Minnkota.

In the base case, $2.7 billion in total tax credits is converted into $2.4 billion of payments by the Tax equity investors. Over the first 12 years that cash will be used for:

- $1.0 billion to pay for operating costs (covering 99% of opex of both StorageCo and CaptureCo)
- $1.45 billion in senior loan principal, interest and fees, the junior loan interest, and a significant portion of the junior loan principal (including debt service reserve LC fees on both)
- $60 million in “fixed payments” as consideration for the tax equity share in the StorageCo

- $60 million in “bonus payments” to the members of the StorageCo. Bonus payments will be tied to achieving a minimum production target and controlling costs within the project’s base case operating budget

During the remaining 8 years, another $0.7 billion in operating costs and remaining capex amortization will come from the environmental value to Minnkota to mitigate carbon emissions costs.

The remaining development work needed to close on the financing described above and begin construction is:

By May 2022, the project development team will: **1)** have completed Front-End Engineering and Design (FEED) studies for the CO_2 capture plant and the short on-site CO_2 pipeline; **2)** have a near-final cost estimates for the capital costs for the CO_2 capture plant, CO_2 pipeline, and CO_2 geologic storage facility; **3)** have estimates for the operating costs for all project components, and **4)** have critical path permits either in hand or applications pending with applicable agencies – specifically the storage facility and Class VI drilling permits for the geologic storage facility and the air permit to construct the CO_2 capture plant.

With this work as the foundation, Minnkota and its team will be working throughout 2022 on Engineering, Procurement and Construction (EPC) contracting and project financing with a target to begin construction by the end of 2022.

To meet that target, the following are the key milestone and target dates:

- All permits and approvals in hand: July/August 2022

- Financial close for equity, loans, and tax equity commitments: October/November/December 2022
- Commence site preparation and construction: Q1 2023
- Commercial operation: 2025-26 (~3.5-year construction and commissioning schedule)
- Marketing the output: 2026-27 (45Q credits available for submittal to IRS about one year after commercial operation commences)

ANTICIPATED RESULTS

CO_2 Capture Plant

Unique features of the proposed CO_2 capture plant include:

- Use of Fluor's Econamine FG+ capture technology, which brings much needed commercial-ready technology to the carbon capture industry.
- Demonstrating carbon capture and sequestration (CCS) on coal-fired flue gas at full utility-scale with an increase of 2.5X compared to the largest current existing similar project, Petra Nova.
- The proposed project will capture and store an average of 4 million tonnes per year of CO_2.
- The first utility-scale application of the Econamine FG+ technology on coal-fired flue gas.
- The first time CCS technology will be applied on lignite coal flue gas demonstrating methods to mitigate challenges unique to lignite, including ultrafine particulate produced during lignite combustion.

- The project will demonstrate construction and operation methods for the North Dakota climate with design strategies to mitigate the impact of cold weather on a process and piping that runs with large volumes of water.
- A steam supply source extracted from multiple units simultaneously.
- The project will demonstrate a "station" approach by simultaneously drawing flue gas from two lignite boilers at the site showing that CCS technology is capable of decarbonizing the power production of multiple units with one capture system.

CO_2 Geologic Storage Facility

As with the CO_2 capture plant/technology, Project Tundra includes unique, new, and innovative features in the geologic storage component. These are summarized below:

- An estimated 4X increase, in terms of volume of CO_2 injected, over the next largest existing saline formation geologic storage project in the U.S. (ADM Decatur project).
- First multi-million tonne per annum commercial geologic storage project in North Dakota.
- Use of "stacked storage" that involves the injection and storage of CO_2 into multiple geologic horizons. This design optimization minimizes the aerial extent of the CO_2 pool in the subsurface.

Facilities

Minnkota is a regional generation and transmission cooperative headquartered in Grand Forks, ND, providing wholesale power to 11 member-owner rural electric distribution cooperatives. Minnkota is also affiliated with Northern Municipal Power Agency (NMPA), which serves the

electric needs of 12 municipalities in the same geographic region as the Minnkota member-owners. Minnkota serves as the operating agent of NMPA. Figure 1 provides a map showing the Minnkota and NMPA service territory.

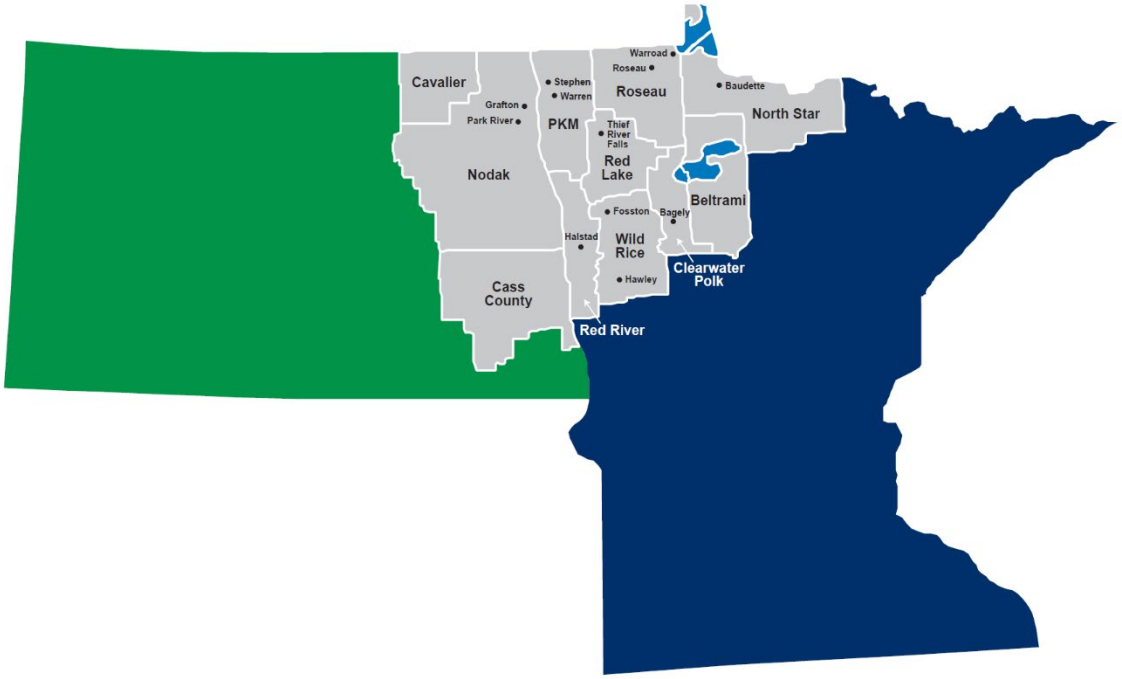

Figure 1. Minnkota-NMPA Service Territory

Minnkota's primary firm and dispatchable generating resource is the two-unit Milton R. Young Station (MRYS), a lignite coal-fired power plant in North Dakota and the host plant for the proposed carbon dioxide (CO_2) capture and geologic storage project. Unit 1 at MRYS is owned and operated by Minnkota. Unit 2 at MRYS is owned by Square Butte Electric Cooperative (Square Butte) and as Square Butte's operating agent, Minnkota operates Unit 2. Square Butte has the same 11 member-owners as Minnkota (but has a separate set of individuals from the 11 member-owners sitting on the board of directors) and only has one employee, the General Manager, who is also the President & CEO of Minnkota.

Resources

A. Amount of Expected Equity Investments

The Borrower (Minnkota) expects that in order to raise tax equity to monetize federal tax credits and tax losses, there will be a sponsor equity contribution needed from Minnkota. The balance of the $1.45 billion capital needed for the PCCC system plus the capital needed for the CO_2 storage facility will be sourced from project loans, equity from Tax Equity, and demonstration grants from DOE.

B. Preliminary Funding Plan for Guaranteed Obligation

The Guaranteed Obligation will be a loan in the amount of $150-300 million made to the project company, which will be the owner of the PCCC system.

C. Timing of Equity Contributions and Debt Funding

The Borrower contemplates there will be a construction loan facility with a guaranteed take-out commitment (upon final commercial operation of the project) from project lenders and Tax Equity partners. The Sponsor equity and the DOE grants will be funded pro-rata with the construction loan facility during the construction period.

D. Timing of Debt Repayment

The Borrower expects the term of the debt to be twenty (20) years from the time the project commences commercial operations. The payments are expected to be "sculpted" over the term to maintain agreed coverage ratios for senior and junior lenders while considering variations in free cash flow due to operations and maintenance cycles of the capture system and MRYS.

E. Federal Support

To date the project has received several grants, including $26 million ($16.9M-CarbonSAFE, $9.8M-DOE-NETL for the FEED Study) in direct federal DOE grants to

advance Project Tundra to construction. The bipartisan effort to pass §45Q tax credits recognizes the important role carbon capture will play in the nation and world. Carbon capture projects are capital intensive, and there is a recognition that early movers of projects, such as this one, will require enhanced support to get to construction as evidenced by efforts to enhance the value of §45Q and/or provide the large demonstration grants in the recently passed federal Infrastructure Investment and Jobs Act. In the alternative of not receiving a large grant through the infrastructure package, an existing loan guarantee program through the DOE serves as a further opportunity for low-cost financing. Minnkota is in the application process for this program and has passed the first phase of the DOE's diligence. These programs are not additive, thus, if Project Tundra receives a grant from the DOE, the proposed project would not be eligible for a federal loan guarantee or vice versa. In either case, these programs are needed to improve the economics of Project Tundra and there is much optimism about the proposed project's competitive edge to capture one of the large federal demonstration grants or qualify for the loan guarantee program.

F. Other Non-Federal Support/Incentives

At this time, there are no other non-federal government-direct financial incentives available for the construction of the proposed project or during operations other than the CSEA loan program. There are, however, several indirect forms of financial support from North Dakota, such as tax incentives, that will benefit the project. These are listed in Table 1 along with their citations to the North Dakota Century Code. Note that some of these incentives are only applicable to enhanced oil recovery (EOR) projects. EOR is not currently part of the proposed project but may represent an opportunity in the future.

Table 1. *ND tax incentives for CCUS* (ND Century Code Chapters 57-39.2, 57-40.2, 57-51.1, 57-60)

• Sales and use tax exemption for CO_2 equipment to compress, gather, collect, store, transport, or inject CO_2.
• CO_2 capture equipment on a coal (or other) facility is considered personal property, exempt from property tax.
• Oil extraction tax exemptions for incremental production from a secondary or tertiary recovery project.
• Sales and use tax exemption for CO_2 used for EOR.
• CO_2 equipment at a wellsite is considered personal property, exempt from property tax.
• CO_2 capture system exemption from ad valorem and coal conversion facilities privilege tax.
• Sales and use tax exemption for environmental upgrade materials used in power plants and processing plants.
• Property tax exemption for pipeline property and associated transportation and storage equipment used for EOR.
• Coal conversion facilities privilege tax credit for CO_2 capture.

Techniques To Be Used, Their Availability and Capability

This section of the application provides the detailed technical information for the proposed project.

Description of Project Design

There are three major components to the proposed project: 1) the PCCC or CO_2 capture plant, 2) the CO_2 pipeline, and 3) the CO_2 geologic storage facility. This section will provide **information on the basic processes involved in the design of each.**

CO_2 Capture Plant

Figure 2 provides a simplified block flow diagram of the major processes involved in the CO_2 capture plant and how they are integrated with the existing MRYS. As shown, both Unit 1 and Unit 2 are available to provide flue gas to the capture plant. Normal operation involves 100% of Unit 2 and 30% of Unit 1 flue gas being routed to the capture plant with the balance being routed to its existing chimney. During Unit 2 outages, 100% of Unit 1 will be available to feed the capture plant. Unit 2 flue gas can also be routed to its existing chimney during startup/shutdown

or during capture plant outages. Flexibility in the design will also allow 100% of the Unit 1 flue gas being routed to the capture plant with the remaining coming from Unit 2 to utilize the full capacity of the facility.

The capture plant requires a significant quantity of steam for solvent regeneration. This will be provided by extracting steam from Units 1 and 2 steam turbines (~1600 MMBtu/hr heat input). A unique feature of the proposed project, as described previously is that flue gas from both coal-fired units along with extracted steam from both units will be routed to the capture system simultaneously.

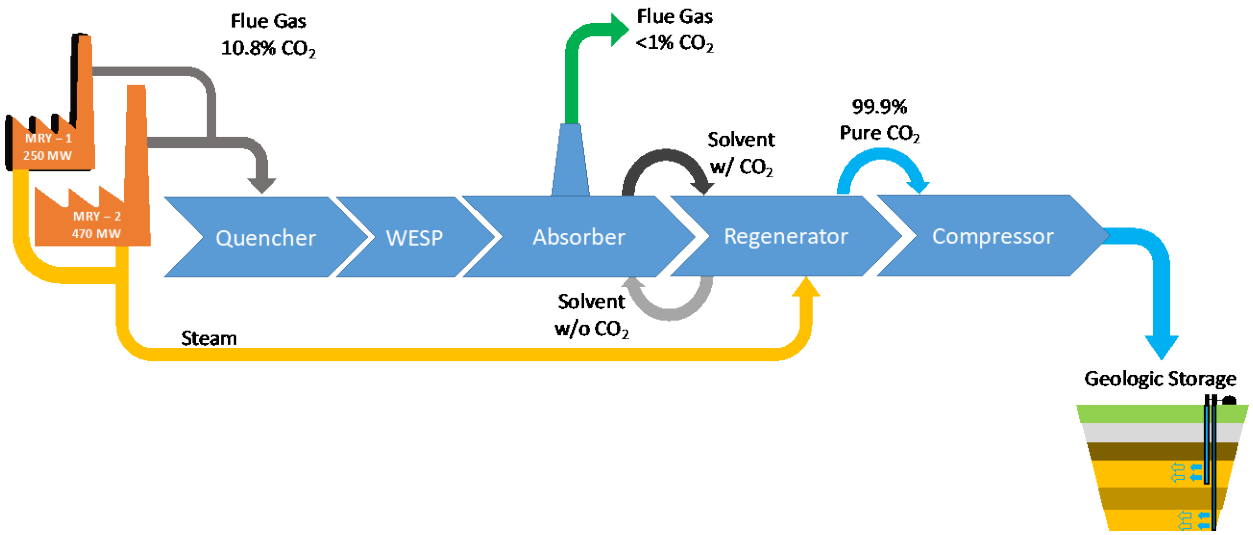

Figure 2*. Block flow diagram for the CO2 capture plant and its integration with the existing MRYS. During normal operation, 100% of Unit 2 flue gas and* ***30%*** *of Unit 1 flue gas is routed to the capture plant. Unit 1 flue gas is available to feed the capture plant during Unit 2 outages. Both Units will provide steam required for the amine solvent regeneration and provide flue gas that feeds the capture system.*

Summary of Fluor's EFG+ Process

Fluor's EFG+ technology (generalized schematic in Figure 3) is an advanced amine-based process specialized for removal of CO_2 from low pressure, oxygen-containing flue gas. The basic plant configuration consists of: **1)** a 2-stage Direct Contact Cooler (DCC) for flue gas cooling and SO_2 removal, **2)** an Absorber for CO_2 separation, **3)** a Regenerator for solvent regeneration and the release of pure CO_2, and **4)** a compression and dehydration system to supply pipeline-ready CO_2 at the fence line. The process begins in the DCC for flue gas conditioning. Then, as the conditioned flue gas flows up the Absorber, CO_2 is chemically absorbed into a circulating solvent stream flowing down the column.

The CO_2-loaded solvent is then pumped from the bottom of the Absorber, through a heat recovery exchanger where it is heated against hot CO_2-lean solvent, and into the top of the Regenerator. As the solvent flows down the Regenerator, it is contacted by steam, which strips the CO_2 from the solvent, producing an overhead mixture of steam and CO_2. The steam/CO_2 product is cooled and the steam is condensed and separated from the CO_2 product. Hot CO_2-lean solvent from the bottom of the Regenerator is pumped back through the heat recovery exchanger where it is cooled against the cold CO_2-loaded solvent before being returned to the top of the Absorber. Although not part of Fluor's standard EFG+ flow sheet, a wet electrostatic precipitator (WESP) is also included in the process design (see Figure 3 on page 18). This is due to challenges unique to the application of the proposed project on North Dakota lignite flue gas.

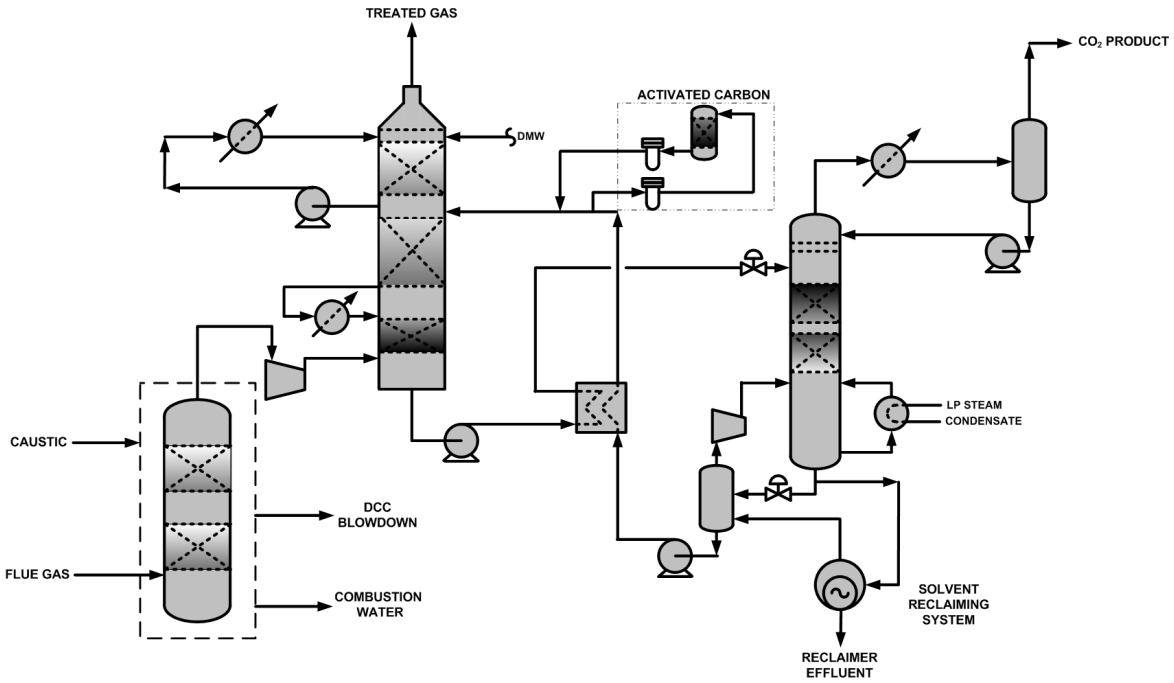

Figure 3. *Generalized schematic of Fluor's EFG+ CO2 capture technology*

CO_2 Pipeline

In 2021, Burns & McDonnell completed a FEED study for the CO_2 pipeline. Building on this FEED study, Minnkota assisted by Sargent & Lundy and Oxy Low Carbon Ventures are currently in the process of design and engineering for the CO_2 pipeline. The proposed project currently contemplates one (1) CO_2 injection well pad, which would contain up to three injection wells. The well pad is located 0.25 miles to the south of MRYS. The CO_2 pipeline and its associated infrastructure and instrumentation will enable transport and metering of the captured and compressed CO_2 from the capture plant to the injection wells.

A common metering station will be located at the boundary limit of the CO_2 capture plant and one (1) 16-inch (OD) underground pipeline will transport the CO_2 in a dense phase to the well pad location.

The well pad will include its own metering station. No pump stations or mainline valves are expected to be required; the CO_2 compressor located at the CO_2 capture plant is being designed to provide all of the pressure needed to accommodate the pipeline pressure drop and the hydrostatic injection pressure for the Broom Creek geologic formation where the majority of the CO_2 is planned to be stored. If needed, an injection booster pump will be installed to enable injection in the Deadwood formation, the deeper formation with higher pressure of the two target formations.

Although the proposed project does not contemplate selling CO_2 for enhanced oil recovery (EOR), a tie-in point will be included in the design in the event a market for CO_2-EOR develops in the future.

CO_2 Geologic Storage Facility

The proposed project targets dedicated CO_2 geologic storage in multiple saline formations beneath the MRYS and the adjacent lignite mine. Dedicated storage is possible in sedimentary basins where there are layers of porous and permeable rocks (i.e., sandstone) that are sealed above and below by impermeable caprocks (i.e., shale). The proposed project overlies the Williston Basin and there are multiple suitable layers for dedicated geologic storage. Figure 4 provides the stratigraphic column underlying the proposed project area and notes the lowest underground source of drinking water (USDW) and three geologic horizons that are currently being characterized by the Project Tundra team for injection and storage of the captured CO_2.

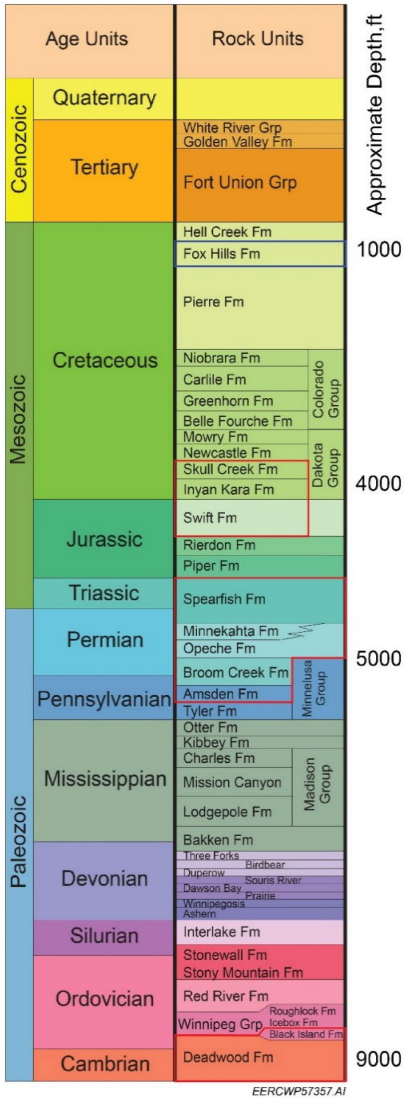

Figure 4. *Stratigraphic column underlying the area near the proposed project. The lowest USDW (Fox Hills) and the three target formations (Inyan Kara, Broom Creek, Deadwood) and their overlying and underlying cap rocks are highlighted.*

Minnkota worked with the Energy & Environmental Research Center (EERC) and Oxy Low Carbon Ventures in developing the proposed plan for the Project Tundra storage site (Tundra SGS). Currently, the storage facility permit and Class VI drilling were issued by the North Dakota Industrial Commission (NDIC) on January 21, 2022, NDIC Order No. 31583-31588. The proposed storage development consists of two phases beginning with Phase 1 CO_2 storage operations in the Broom Creek Formation. Two wells are proposed for Phase 1 into the Broom

Creek Formation. Upon construction and operation of those two wells, an assessment will be made of their operational capabilities to determine whether there is a need for additional capacity. If needed, Phase 2 of development would commence which includes the construction and operation of one additional well and the booster pump for injection into the Black Island–Deadwood Formation. There are a number of contingency options available for fine-tuning injection operations such as a possible construction of a third injection well into the Broom Creek if needed.

Environmental and Economic Impacts while Project is Underway

Impact on Environment/Greenhouse Gas Emissions

The proposed project is a post-combustion CO_2 capture and storage project that will capture and geologically store approximately 4 million tonnes/year of CO_2. There are two (2) sources of the CO_2 for this project. The design specification is 90% of the CO_2 in the Unit 2 and Unit 1 flue gas entering the capture plant will be captured during normal operation (Unit 2 at 100% of its total flue gas flow while 30% of Unit 1's total flue gas flow) and only 100% of either Unit 1 or Unit 2 when one is in an outage.

When considering planned outages on each of the units (3-5 short cleaning outages per year and one major maintenance outage every 3 years), provided below is an average of the total contribution of captured CO_2 from each of the sources.

- Unit 2 at MRYS (455 MW) – 3.20 million tonnes/year
- Unit 1 at MRYS (250 MW) – 0.80 million tonnes/year
- Total CO2 captured and sequestered – 4.0 million tonnes/year

Ultimate Technological and Economic Impacts

Economic Impacts

One of the primary motivating factors for Minnkota's pursuit of the proposed project is preserving the MRYS in the face of a likely carbon-managed future and the availability now of federal and state programs to pay for its installation and operation. The MRYS today employs roughly180 people and the associated Center Mine employs roughly 180 more. The average salary for employees of the MRYS and Center Mine is more than $100,000, about double the North Dakota state average.[2] If the MRYS and the Center Mine (MRYS is its only customer) were forced to retire early (years ahead of their useful lives), as with numerous other coal plants and mines in the U.S., the negative economic impact on Oliver County and the State of North Dakota would be tremendous.[2] Additionally, the cost of an early facility closure has a complex impact to Minnkota, including likely having to raise electric rates for tens of thousands of North Dakotans. Minnkota and its members serve a diverse consumer base, including agricultural centers, rural areas and many low-income communities. Conversely, Minnkota's service territory also includes the growing areas of Fargo and Grand Forks, where the price of electricity is directly tied to their economic competitiveness regionally and nationally.

Why the Project is Needed

One of the key drivers for the proposed project is the continued utilization of the MRYS in the face of a likely carbon managed future. MRYS is a valuable asset for Minnkota providing low-cost, reliable baseload power that has proven to be reliable and resilient – no matter if it is 100 degrees above zero or 30 degrees below zero Fahrenheit. The proposed project will also preserve

[2] https://lignite.com/news/new-economic-study-shows-impact-of-lignite-industry-on-north-dakota-2/

the high-paying jobs and essential economic impact in the local communities and surrounding region. MRYS has dispatched at 85% average capacity factor over the past 5 years in the MISO electric market, which demonstrates its competitive production cost and important role the electric market.

STANDARDS OF SUCCESS

The standards by which the success of the project is to be measured.

A. Emissions reduction

The proposed project will capture and geologically store approximately 4 million tonnes/year of CO_2, and achieve an additional reduction of 214 tonnes/year of particulate and 2,000 tonnes/year of SO_2 that would otherwise be emitted to the atmosphere.

B. Increased energy sustainability.

The proposed project provides a low-carbon source of dispatchable, reliable electric capacity that provides grid stability needed to support existing intermittent renewable generation such as wind turbines.

C. Value to North Dakota

North Dakota has the opportunity to lead the region, nation and world on not only reducing carbon emissions, but to lead the world in developing new carbon markets. Project Tundra represents an enormous advancement of technology to capture and safely store emissions. Preservation of reliable electric baseload assets is of tantamount importance in this project, but also represents potential future opportunity in this state of enhanced oil recovery, greenhouse development and other utilization opportunities.

D. Explanation of how the public and private sector will make use of the project's results, and when and in what way.

The learnings and confidence gained from a successful demonstration of Project Tundra will help make follow-on projects more successful and give capital markets more confidence to invest in this space.

E. The potential commercialization of the project's results.

Project Tundra can help serve as a blueprint for carbon capture technology on other coal-fired power plants, gas-fired plants and other industrial processes. The potential advancement of this technology will require multiple vendors and will benefit from competition.

F. How the project will enhance the research, development and technologies that reduce environmental impacts and increase sustainability of energy production and delivery of North Dakota's energy resources.

Project Tundra will be the largest PCCC project in the world and will demonstrate that coal has a place in the low-carbon energy market we are transitioning toward. Further, the availability of large volumes of CO_2 for future EOR activities in North Dakota's oil fields (including possibly the Bakken) sets the stage for the state's produced oil to be certified with a lower carbon intensity than most oil on the market today.

G. How it will preserve existing jobs and create new ones.

Project Tundra is expected not only to preserve the high paying jobs for the 360 direct employees of the MRYS and Center Mine (not to mention the many indirect jobs that support North Dakota's lignite industry), it is expected to add several additional high-paying construction (temporary) and permanent jobs.

H. How it will otherwise satisfy the purposes established in the mission of the Program.

The outlined purpose of the CSEA program is to support research, development and technological advancements through partnerships and financial support for projects ready for commercialization that reduce environmental impacts. Project Tundra brings together each part of that mission, for all the reasons previously stated in this application. If constructed, this project plays a critical role in current and future energy production, natural resource development, environmental stewardship, while also preserving and enhancing jobs in the state.

BACKGROUND/QUALIFICATIONS

Project Sponsor Capabilities and Qualifications

The Project Sponsor, Minnkota, has the experience, expertise, and wherewithal to develop, finance, construct, and operate this project successfully. Minnkota owns and operates MRYS Unit 1, while also operating Unit 2 on behalf of its owner Square Butte, which is owned by the same 11 distribution member cooperatives that own Minnkota. Minnkota's generation portfolio also includes energy purchased from three North Dakota wind farms and hydroelectricity purchased from the Garrison Dam in central North Dakota. Minnkota operates and maintains a robust set of electric transmission infrastructure, including more than 3,350 miles of transmission line and 260 substations.

As the project developer, Minnkota is coordinating all aspects of the project development and has dedicated staff in place for project management, engineering & design, environmental/permitting, legal, and financing. As the operator of MRYS, Minnkota has unique

knowledge that is necessary for the integration of the CO_2 capture plant. Minnkota also has more than fifty (50) years of experience in coal-fired generation and the use of lignite fuel and its unique characteristics. Minnkota has hosted and managed several major construction projects at MRYS, with the most recent being $425 million in environmental upgrades completed in 2007-2011 (described in more detail below).

In addition to construction projects at MRYS, Minnkota's Power Delivery division manages a portfolio of construction and maintenance projects ranging from $35-50 million annually. The capital budget from 2018-2020 totaled $125 million with approximately half of that being associated with 69 kV transmission line projects. The remaining amount was used on distribution substation upgrades and maintenance, high voltage substation and line work and telecommunication and demand response system uprates. Projects are scoped and scheduled in-house and utilize both in-house and contracted labor. One of the largest transmission projects in Minnkota's history, the $350 million Center to Grand Forks 345 kV line, was completed in 2014 (described in more detail below).

Experience in the Fossil Sector

Prior to describing two specific examples that demonstrate Minnkota's experience on similar large construction projects, this section will first describe Minnkota's significant experience in the fossil power sector.

Minnkota's Joint System has interests in three (3) coal units, which represent approximately 55% of the Minnkota Joint System's generation capacity and 67% of the energy production. The three coal units are all located in North Dakota and fire North Dakota lignite coal:

- MRYS, Unit 1: Owned and operated by Minnkota, Unit 1 has nominal rating of 250 MW_{net} and was placed in service in 1970. It is a single wall cyclone-fired unit that is equipped with the following controls: advanced separated over-fire air (SOFA) and selective non-catalytic reduction (SNCR) for nitrogen oxide (NO_X) control, wet lime flue gas desulfurization (WFGD) scrubber for sulfur dioxide (SO_2) control, an electrostatic precipitator (ESP) for particulate matter (PM) control, and a halide and post-combustion activated carbon injection for mercury control.
- MRYS, Unit 2: Owned by Square Butte and operated by Minnkota, Unit 2 has a nominal rating of 455 MW_{net} and was placed in service in 1977. It is an opposed wall cyclone-fired unit that is equipped with the following controls: SOFA and SNCR for NOx control, WFGD for SO_2 control, ESP for PM control, and halide and post combustion activated carbon injection for mercury control.
- Coyote Station: NMPA owns 30% of Coyote and Minnkota is the operating agent for NMPA (Otter Tail Power operates Coyote). Coyote is a single unit, with a nominal rating of 427 MW and was placed in service in 1981. Coyote has a cyclone-fired boiler and is equipped with the following controls: SOFA for NOx control, dry flue gas desulfurization and fabric filter baghouse for SO_2 and PM control, and uses activated carbon injection for mercury control.

Minnkota has been an active participant in research and deployment of cutting-edge technology with years of cooperation and partnership in projects with the University of North Dakota and EERC. Together with the EERC, Minnkota is currently providing cost share and engineering support for a number of related DOE-funded research projects, including: **1)** demonstration of multi-gamma based sensor technology for as-fired coal property measurement (DE-

FE00031750), **2)** mitigation of aerosol impacts on ash deposition and emissions from coal combustion (DE-FE00031756), **3)** rare earth element extraction and concentration at pilot-scale from North Dakota coal-related feedstocks (DE-FE00031835), **4)** novel concepts of the utilization of CO_2 from utility and industrial sources (DE-FE00031916), and **5)** energy storage for fossil power generation (DOE project number not yet assigned).

This demonstrated, strong commitment to advancing fossil energy technology, combined with more than 70 years of experience operating and maintaining fossil fuel conversion plants (retired assets included additional lignite and diesel fired generators) makes Minnkota an experienced and capable developer and sponsor of the proposed project.

MRYS Environmental Upgrades

Background:

From 2007 to 2011, approximately $425 million was invested in MRYS to install a series of air quality control system upgrades on each of the two units to modernize the facility and ensure compliance with environmental regulations. New controls and associated infrastructure were installed for SO_2 and NOx, with each of the major sub-projects for both Units further described below.

The Unit 1 projects consisted of the following five (5) major components:

1. Electrical upgrade of the unit ($51 million) – Construction of the Unit 1 electrical upgrades were necessary to provide fault protection of the existing aging electrical system, and to provide capacity for load additions from the air quality control upgrades. The project included new Unit 1 auxiliary transformers; a replacement generator breaker; an electrical building to house medium and low voltage switchgear, motor control centers

and distributed control system equipment; isolated phase bus modifications, a new backup diesel generator, a fuel handling electrical upgrade and substation, and duct banks.

2. Installation of a new WFGD scrubber ($113 million) – Construction of a single module wet lime open-spray SO_2 scrubber. The scope included connecting ductwork and structural steel from the boiler exit to the refurbished chimney, two replacement induced-draft fans, all associated foundations, dampers and control devices, buildings, electrical, HVAC and other utility services, and the distributed control system.
3. Upgrade of the former Unit 2 dry chimney to a wet chimney for Unit 1's use ($12 million) – Construction to retrofit the 564-foot "dry" chimney to a chimney suitable for wet service with the new wet scrubber. The chimney was wallpapered by installing 316L stainless over the existing mild steel and Corten metals of the dry chimney.
4. Installation of over-fire air and selective non-catalytic reduction systems on the boiler ($16 million) – Construction included installation of a complete separated over-fire air (SOFA) system and selective non-catalytic reduction system (SNCR) for NOx control on the Unit 1 boiler. The SOFA system components included SOFA piping, nozzles, dampers, control drives, as well as significant modifications to the existing cyclone boiler lignite drying system. The SNCR system involved installation of systems to support urea injection in multiple zones in the boiler. Supporting systems included metering and dilution water modules, storage tanks and supporting systems, and expanding the plant's water treatment system.
5. Installation of a joint new lime reagent preparation system to serve Unit 1 and Unit 2 ($42 million) – Construction to install two new vertical ball mill slakers and associated

pumps, tanks, and distribution systems. The project included two bolted, 3,000-ton lime storage silos.

The Unit 2 projects consisted of the following four major components:

1. Electrical upgrade of the unit ($76 million) – Construction of the Unit 2 electrical upgrades were necessary to provide fault protection of the existing aging electrical system, and to provide capacity for load additions from the air pollution control upgrades. The project included new Unit 2 auxiliary transformers; a replacement generator breaker; an electrical building to house medium and low voltage switchgear, motor control centers and distributed control system equipment; isolated phase bus modifications, a new backup diesel generator, a fuel handling electrical upgrade and substation, and duct banks.
2. Upgrade of the existing WFGD scrubber on Unit 2 ($2 million) – Included assessment for duty of two existing open spray tower absorbers, and installation of minor efficiency improvements, replacement demister panels, and replacement of the outlet ducts from the modules to the new chimney.
3. Installation of new wet chimney ($67 million) – Construction included installation of a 6,425 cubic yard continuous-pour concrete slab-on-grade chimney foundation, and a 550-foot concrete chimney with fiberglass-reinforced plastic flue gas liner.
4. Installation of separated over-fire air (SOFA) and selective non-catalytic reduction systems on the boiler ($18 million) – Construction included installation of a complete SOFA system and SNCR system for NO_X control on the Unit 2 boiler. The SOFA system components included SOFA piping, nozzles, dampers, control drives, as well as significant modifications to the existing cyclone boiler lignite drying system. The SNCR

system involved installation of systems to support urea injection in multiple zones in the boiler. Supporting systems included metering and dilution water modules, storage tanks and supporting systems, and expanding the plant's water treatment system.

Project Management

Minnkota and the project engineering consultant Burns & McDonnell, evaluated options to pursue these projects on an EPC basis or on a "multi-contract" basis. Minnkota selected the multi-contract approach, and utilized plant project managers and Minnkota's procurement department to issue all contracts related to the projects. Burn & McDonnell provided project schedules, design, plans and specifications, bidding assistance, and review of vendor submittals. Burns & McDonnel also provided construction observation, however overall construction management was Minnkota's responsibility. Minnkota did not add personnel to complete the projects.

Operation and Maintenance

As the operator of both Units 1 and 2, Minnkota is responsible for the operation and maintenance of the projects' equipment/infrastructure. With the completion of the final work in 2011, the projects were all in service. The projects have all been in service for at least 11 years and have performed as expected, while additional efficiencies have been gained through operating and maintenance experience. Maintenance is performed using both in-house and contracted labor.

Center to Grand Forks 345 kV Transmission Line

Background

In 2009, it was determined that Minnkota would construct a $350 million, 250-mile-long 345 kilovolt (kV) transmission line in North Dakota between the Center 345 kV Substation (northeast of the Milton R. Young Generation Station, near Center, North Dakota) and the Prairie Substation (west of Grand Forks, North Dakota). The Center to Grand Forks 345 kV Transmission Line Project (CGF Project) was constructed to deliver existing baseload generation to Minnkota's cooperative members in North Dakota and Minnesota.

This project helped provide much needed transmission capacity in North Dakota as new resources are brought on to the grid.

The CGF Project consisted of the following six major components:

1. 345 kV High Voltage Transmission Line – Construction of 250 miles of a new, high-voltage transmission line. The line is constructed with single-pole steel structures approximately 150-feet-high and placed approximately 1,000-feet apart. The typical right-of-way (ROW) is 150-feet-wide. Conductor is 959.6 kcmil Suwanee trapezoidal wire (TW) type aluminum conductor steel reinforced (ACSR) cables and two shield wires – one a fiber-optic static line and the other an extra high strength (EHS) steel cable.
2. Center 345 kV Substation Upgrades – Installation of 345 kV circuit breakers, 345 kV dead-end structures, a new 345/230 kV transformer and associated bus work, new 345 kV switches and associated foundations, steel structures, and control panels. A line reactor was also added to the north end of the substation.
3. Additional 230 kV Tie Line – Construction of a 1,500-foot-long 230 kV tie line paralleling the existing tie line on Minnkota-owned property to complete a transmission-to-transmission interconnection with the Square Butte 230 kV Substation.

4. Square Butte 230 kV Substation Upgrades – Installation of 230 kV circuit breakers and line terminal equipment to the new 345 kV interconnect.
5. Prairie 230/345 kV Substation Upgrades – Installation of new 345 kV circuit breakers, 345 kV dead-end structures, two new 345/230 kV transformers and associated bus work, new 345 kV switches and associated foundations, steel structures, and control panels. Addition of 230 kV circuit breakers to accommodate interconnecting with the existing 230 kV ring bus.
6. Fiber Optic Regeneration Stations – Construction of four fiber optic regeneration stations along the transmission line route to re-amplify the protection and control signals carried in the optical ground wire (OPGW). Each station has a small control building to house the electronic equipment in a fenced in area.

Minnkota was able to coordinate all federal, state and local permitting and environmental requirements and met all applicable guidelines. The project schedule required Minnkota to parallel the design and the route permitting to meet the in-service date. This required engineering, procurement and environmental work to be done simultaneously, something that is typically not done. The extremely short schedule (four years) required a concerted effort in multiple areas, including these primary phases:

- Route application and permitting – This process included determining the 250-mile transmission line route and conducting multiple public hearings across the eleven (11) impacted counties in North Dakota.
- Complete Environmental Assessment (EA) – this included an alternative evaluation study (AES), a macro-corridor study (MCS), a biological assessment (BA), and a Class III Intensive Archaeological Resources Inventory in compliance with Section 106.

- Equipment procurement, manufacture and delivery – To meet in-service date, Minnkota ordered long lead-time items early in the process to allow for delivery and construction on schedule. Due to the expedited nature of the project, this was done before the permitting process was completed.
- Construction – this included simultaneous work on 250 miles of line, two (2) high voltage substation rebuilds, modifications to an existing substation and construction of four (4) repeater stations.

Project Management

Minnkota supported the CGF Project with a project manager (PM) to coordinate all project activities, schedule and budget. Minnkota also provided all of the material procurement from internal resources. Additional contracted labor was required for the following: **1)** line and substation design, **2)** construction management, **3)** environmental and permitting, and **4)** right of way easements. The construction of the 250-mile line was done by contracted labor in addition to the substation civil work. However, Minnkota crews did a majority of the electrical work within the substations and in-house support and guidance was provided by environmental, engineering, operations, legal, finance and various other groups.

Operation and Maintenance

The CGF Project was energized in 2014 and at that time doubled Minnkota's existing 345 kV transmission line assets. The CGF Project is part of the bulk electric system (BES) and therefore meets specified NERC requirements. All 345 kV transmission is included in the high voltage maintenance program and is patrolled annually by helicopter, fixed wing aircraft and ground patrol. Regular vegetation management is conducted and maintenance is done as needed.

The expansion of both the Center and Prairie 345 kV substations added additional assets to the electrical operation's maintenance program and are included in the standard rotation for equipment inspections. Both sites are included in the BES and meet all NERC requirements.

The addition of four (4) repeater stations expanded the telecommunication assets and are regularly inspected and maintained.

Minnkota conducted the design and construction of the Project without adding any additional personnel.

Contracted labor was used during construction but ongoing maintenance is done by Minnkota personnel.

Financing of the MRYS Environmental Upgrades and CGF Project

Minnkota's portion of the $425 million Environmental Upgrade Projects and the $350 million CGF Project were funded by loans from the Rural Utilities Service (RUS), an operating unit of the United States Department of Agriculture, via RUS Guarantees made to the Federal Financing Bank (FFB). As a rural generation and transmission electric cooperative, Minnkota has had tremendous success utilizing the low interest, long amortization loans offered through the RUS. Minnkota's utilization of RUS financing coincides with the preferred industry practice of financing long-term assets with appropriately amortized funds, ensuring intergenerational equity is achieved on large capital projects. Minnkota secures outstanding debt under an Indenture, with U.S. Bank Trust Company, National Association. The Indenture secures certain obligations of Minnkota equally and ratably by a first priority lien on substantially all of Minnkota's tangible assets and certain of its intangible assets, whether now owned or acquired in the future. Square

Butte's portion of the $425 million Environmental Upgrade Projects was financed half through RUS and half through CoBank, ACB, and similarly secured using Square Butte's Indenture.

Principal Participants Capabilities and Qualifications

This subsection of the Application will focus on and describe the capabilities of the team Minnkota has put together to develop and bring the proposed Project Tundra to commercial operation. Minnkota has a fully integrated team in place including all of the technical, legal and financial pieces necessary. The following sections highlight the key team members, their role(s) on the project, and a description of the capabilities that each member brings to the proposed project.

Fluor Corporation[3]

Fluor is both the CO_2 capture technology provider (EFG+) and the Engineering, Procurement and Construction (EPC) contractor for the CO_2 capture plant and select balance of plant (BOP) components.

Minnkota selected Fluor in a competitive process where parallel pre-FEED studies were completed and is now currently working with Fluor to finalize the FEED study.

Fluor is a global, publicly traded EPC and maintenance company, with headquarters in Irving, Texas. Fluor ranks 181 on the FORTUNE 500® list with revenue of $14.3 billion in 2019 and more than 45,000 employees worldwide. Fluor works closely with governments and companies to design, build and maintain complex capital projects that are essential building blocks of development and progress. Fluor has expertise, reach and financial strength to tackle the world's

[3] https://www.fluor.com/

toughest challenges with an integrated life-cycle approach that delivers projects on time, within budget and with an outstanding health, safety and environmental record. Fluor works in five (5) major markets – energy & chemicals, infrastructure & power, mining & metals, advanced technologies & life sciences, and government.

As described previously, Fluor's EFG+ CO_2 capture technology has been deployed on over 30 commercial projects around the world and is one of only a few technologies that are considered commercially ready for utility scale applications. Through performance of the pre-FEED and FEED studies, Fluor and the Minnkota team will deliver the optimum design of the CO_2 capture plant and its integration with MRYS.

Sargent & Lundy[4]

As Owner's Engineer Sargent & Lundy (S&L) is providing engineering and technical support to Minnkota in managing Fluor's portion of the project scope as well as engineering and execution planning for Minnkota's portion of the balance of plant which will be construction and commissioned by Minnkota using various contractors.

S&L is one of the longest-standing and most experienced full-service architect engineering firms in the world. Founded in 1891, the firm is a global leader in power and energy with expertise in grid modernization, renewable energy, energy storage, nuclear power, and fossil-fueled power plants. S&L has been involved in numerous first-of-a-kind projects and concepts throughout our more than 130-year history. S&L's identity is rooted in a culture of innovation and quality. S&L

[4] https://www.sargentlundy.com

has been at the forefront of new design throughout this time, often on initiatives for new technologies or concepts within the power generation markets.

S&L has extensive experience conducting technical evaluations for CO_2 capture projects over the last decade, including feasibility, Pre-FEED, and FEED studies for clients which included preliminary system engineering, project layout, preliminary design, and cost estimates. S&L has completed forth-five (45) projects with an additional twenty-five (25) active projects currently on-going, for nearly forty (40) clients involving 15+ technologies since 2007.

Among the most notable projects for S&L was the Petra Nova Carbon Capture Project, which was awarded the Best Project of Merit award from Engineering News Record (ENR). S&L's work on the Petra Nova project included multiple FEED studies, Owner's Engineer services during project implementation, and detailed design of the 240 MW equivalent (MWe) slipstream carbon capture unit onto NRG's W.A. Parish Unit 8. The Owner's Engineering services included both design oversight and the detailed design of critical systems that tied into the host site, such as the flue gas ductwork supply and wastewater treatment.

David Greeson Consulting (Proven Project Development Group)[5]

David Greeson is a consultant to the carbon capture and power generation industries. Mr. Greeson was the developer (from inception through commissioning) of the $1 billion Petra Nova CO_2 Capture and Enhanced Oil Recovery Project in Texas and is currently working with multiple clients in various stages of development of CCUS projects. Mr. Greeson has been

[5] https://www.davidgreeson.com/

working with Minnkota for about the last three (3) years, focusing on the business development and financing aspects of the proposed project.

Hunt International Energy Services (HIES)

Marion Cole is a principal with HIES, an independent energy industry consulting firm established in 1999. Mr. Cole has forty (40) years of experience in power systems engineering, operations and consulting, with expertise focused on power and pipeline sectors with both U.S. and international clients. Mr. Cole was a key member of the engineering team that developed the Petra Nova project and he supported both the CO_2 capture plant and the 81-mile CO_2 pipeline that transported the captured CO_2 to the enhanced oil recovery fields. Mr. Cole is a consultant to Minnkota focused on the engineering, design and construction aspects of the CO_2 capture plant and the CO_2 pipeline and he is actively engaged currently on both FEED studies.

Global Structured Finance (GSF)[6]

Minnkota has retained the advisory services of GSF to support the full capital stack raise for the proposed project. GSF, founded in 2005, is a structured finance advisor, providing strategic advice and innovative financing solutions to meet its clients' capital raising, investment, tax and accounting needs. More specifically, GSF is engaged in providing advisory services to clients in connection with the financing of assets with significant tax benefits (principally tax credits, as well as depreciation and interests deductions).

GSF also provides placement services and has closed transactions and maintains relationships with all major tax-motivated investors.

[6] https://www.gsfadvisors.com/

The GSF Advisors energy team recently left a major European Bank where they conducted business as Capstar Partners and were responsible for tax equity advisory and investments. Capstar Partners was an independent firm founded in 1990 providing investment banking services to clients in the tax advantaged asset finance market. It was acquired by a European bank in 2001. The team is led by Phil Mintun, who was the founder and head of the Capstar renewable energy tax equity team, and François-Xavier ("FiX") Terrasse, who was responsible for the bank's tax equity investments and led the most highly structured transactions.

Since 2005, the team has raised $20.7 billion from nineteen (19) tax equity investors to finance over 25GW of renewable energy facilities – one-hundred-fourteen (114) wind farms, thirty-seven (37) utility scale solar plants, four (4) geothermal facilities, four (4) distributed generation solar portfolio as well as one (1) fuel cell portfolio and one (1) biomass plant. In addition, the team has been active advising clients on CCS projects over the past several years.

Eversheds Sutherland[7]

Eversheds Sutherland has been retained as Project Counsel and has significant experience in energy and infrastructure development and financings.

Eversheds Sutherland (US) LLP's Energy Group has more than seventy (70) lawyers representing every major sector of the energy industry. Their history of excellence in serving the regulatory, compliance and policy needs of clients in addition to commercial, financial and operational experience uniquely positions them to provide legal counsel on increasingly complex transactions. This well-established experience combined with a team of well-regarded, high-

[7] https://www.eversheds-sutherland.com/global/en/index.page

profile litigators, makes Eversheds Sutherland's energy practice well positioned to provide the full range of legal services to Project Tundra.

For more than four decades, Eversheds Sutherland has been privileged to provide services to the electric cooperative industry in the U.S. They have the leading electric cooperative practice in the country, a key component of which is assisting their clients with the development of major projects and obtaining necessary financing. Their lawyers understand the electric cooperative business, and the breadth and depth of their practice experience brings extra value to electric cooperative clients such as Minnkota.

Their lawyers have extensive experience guiding clients through all phases of EPC contracts, each based on individual client and client industry needs offering guidance from design concept, property acquisition and contract negotiations to risk management, contract compliance, claims management, alternative dispute resolution and litigation. Eversheds Sutherland is experienced at resolving disputes arising from EPC and design/build agreements (both through litigation, as well as via arbitration, mediation, negotiation and other forms of alternative dispute resolution). They have tried cases in state and federal courts and arbitration tribunals in virtually all of the United States, and in Puerto Rico, the District of Columbia, the US Court of Federal Claims, Boards of Contract Appeals, and in several Canadian provinces.

Eversheds Sutherland's experience in cooperative finance includes structuring and negotiating an array of financing transactions, including traditional interim (construction) and permanent debt financing, tax exempt bond financing, non- and limited-recourse project financing, leveraged and synthetic leases and other structured vehicles. Both inside and outside the cooperative industry, Eversheds Sutherland represents developers, utilities and their subsidiaries, investors and

financial institutions in the sourcing and negotiation of senior, mezzanine and subordinated project loans, corporate credit financings, domestic and international private placements, Rule 144A offerings, public bond offerings, lease financings, construction and term loan financings, bridge financing and operating lines of credit.

Eversheds Sutherland lawyers are well-versed and able to handle all relevant types of financing documentation, project documentation and the coordination of the two (negotiating and drafting project documentation to be financeable). Eversheds Sutherland broad experience includes the DOE and Department of Agriculture federal loan guarantees and various tax and tax-equity advantaged structures involving monetizing tax credits, cash grants, production tax credits and clean renewable energy bonds (CREBs).

Additionally, Eversheds Sutherland has significant experience representing cooperatives, alternative energy project developers, cash equity sponsors and tax equity investors in tax equity transactions including partnership flips, sale-leasebacks and inverted leases involving wind, solar, hydropower, geothermal, biomass and landfill gas facilities. Given the significant tax benefits associated with alternative energy projects, their team ensures compliance with the requirements to claim federal tax credits (including production and investment tax credits), as well as any available state tax incentives. Their representation of clients in IRS controversies at the IRS administrative level and in trial and appellate level courts provides great insight in properly structuring a transaction to avoid or withstand IRS scrutiny.

MANAGEMENT

Since Project Tundra is currently in development, this section will provide the key staff and summary of roles for Minnkota's development of the proposed project. Once the project reaches the construction phase, this list of key staff will change. Further, each of the key staff listed below are full-time Minnkota employees. Information about Minnkota's external resources (consultants, engineering, permitting, legal, financing) that have been engaged to develop the proposed project can be viewed in the previous section.

Key Minnkota staff are considered the Project Manager and the component leads (Engineering, Geologic Storage, Legal, Financing) and are listed below. The key staff are supported by the CEO, CFO and General Counsel, who are also listed below.

- Robert "Mac" N. McLennan, President & CEO: Overall project oversight and direction.
- Kay L. Schraeder, Vice President & CFO: Overall financial oversight and direction.
- Gerad C. Paul, Vice President & General Counsel, Overall legal oversight and direction.
- Craig Bleth, Vice President of Power Supply: Project Manager
- Gerry V. Pfau, Senior Manager of Project Development: Engineering Lead
- Shannon R. Mikula, Special Projects Counsel: Geologic Storage Facility Lead and In-house Counsel
- Andrew C. Sorbo, Senior Manager of Legal Services and Property: Financing Lead

In addition to the above-named key staff, Minnkota has dedicated (full or in part) several additional staff to this project development. Further, as detailed above, Minnkota's key staff and their expertise are strongly augmented by the external experts retained to bring this project to commercial operation.

TIMETABLE

Because of the first-of-a-kind at this scale and in this application nature of this project, Minnkota is expecting to need all permits and other regulatory approvals completed prior to financial close. To meet the target schedule of start of construction by the end of 2022, Minnkota is preparing permit applications on a schedule to have all approvals by late summer of 2022. The two longest review periods identified are for (a) the air permit "permission to construct" (PTC) application for the CO_2 capture plant and (b) the storage facility permits. The storage facility permits were issued in January 21, 2022, NDIC Order No. 31583-31588. The PTC application is currently in development, with planned submission to the regulatory agency in March 2022, which should enable final approval by late summer of 2022.

BUDGET

Whether a DOE grant is available or not, the financial structure to accommodate a mix of tax equity and debt requires two separate project entities – one for the CO_2 capture plant ("CaptureCo") and one for the CO_2 pipeline and storage facility ("StorageCo"). In this structure CaptureCo sells CO_2 to StorageCo along with the rights to the 45Q tax credits and NOLs (the NOLs and tax credits are referred to as "tax attributes"). StorageCo then monetizes the tax attributes and uses the proceeds to pay for the CO_2 from CaptureCo. The StorageCo capital numbers are provided for completeness; however, it is not expected that StorageCo will be a borrower or a part of the collateral package. Under this structure, CaptureCo would need $1.45 billion in capital and that would come from a senior secured commercial project loan, CSEA junior secured project loan, a DOE grant, and sponsor equity from Minnkota. StorageCo would be capitalize with $123 million funded by an investment from tax equity and from Minnkota.

As noted above, the cost estimates available to date are from FEED studies that produced +/- 15% cost estimates. Upon completion of the next phase of final detailed engineering, the project cost will be updated to reflect the fixed-firm offer in the Engineering, Procurement and Construction (EPC) contract. CapEx costs for the CO_2 geologic storage facility (StorageCo) will consist of a combination of fixed-firm and reimbursable contracts since pricing for drilling activities is not generally fixed.

Preliminary Sources and Uses during construction and at COD: Confidential – Appendix A

Preliminary Cash Flow: Confidential – Appendix A

Construction Milestone and Draw Schedule: The construction is expected to take about 48 months with a draw schedule that is front-end weighted due to large equipment orders. A more detailed project construction milestone and draw schedule is provided in Confidential Appendix A.

PATENTS/RIGHTS TO TECHNICAL DATA

Patents are held by Fluor Technologies, an affiliate of Fluor Enterprises.

STATE PROGRAMS AND INCENTIVES

Any programs or incentives from the State that the applicant has participated in within the last five years should be listed below, along with the timeframe and value.

Project Tundra, through Minnkota as project sponsor, received great support from the North Dakota Lignite Research Council (LRC). Minnkota was awarded in 2018 grant funds for use on the feasibility engineering and design as well as the front-end engineering and design (FEED) for the capture technology retrofit to lignite coal-fired generating assets and for use on a FEED of a pipeline transport captured CO_2 and EOR surface facility system for legacy oilfield west of the Milton R. Young station.

The LRC grant funds were instrumental in the early and intermediary stage of research and engineering of the project to determine the applicability and feasibility of the technology design on lignite fuel gas. Additionally, Minnkota leveraged these LRC grant funds on a 1:4 ratio securing federal funds from the Department of Energy National Energy Technology Laboratory, CarbonSAFE and Office of Fossil Energy. Lastly, in February 2022 the NDIC approved an LRC grant to fund on a 50-50 basis a portion of the final engineering work needed to finance the project and move into the construction phase.