

**Finding of No Significant Impact
for
North Dakota CarbonSAFE: Project Tundra
Oliver County, North Dakota**

LEAD AGENCY: U.S. Department of Energy; National Energy Technology Laboratory

ACTION: Finding of No Significant Impact

SUMMARY:

In accordance with the National Environmental Policy Act (NEPA), as amended ([Public Law 91–190] [As Amended Through P.L. 118–5, Enacted June 3, 2023]), the Council on Environmental Quality’s NEPA implementing regulations (40 Code of Federal Regulations [CFR] Parts 1500-1508), and DOE’s NEPA implementing procedures (10 CFR Part 1021), DOE prepared an Environmental Assessment (EA) (DOE/EA-2197) to analyze the potential environmental, cultural, and socioeconomic impacts of partially funding a proposed project to design, construct, and operate an amine-based post-combustion carbon dioxide (CO₂) capture technology at a coal-fired power plant. This EA identifies the potential environmental, cultural, and socioeconomic impacts of DOE providing cost-sharing financial assistance to Minnkota Power Cooperative, Inc. (Minnkota) for the North Dakota CarbonSAFE: Project Tundra. The project would include new infrastructure and equipment for the capture and geologic storage of CO₂ generated by the existing lignite-fired Milton R. Young Station (MRY) in Center, Oliver County, North Dakota, and would utilize Mitsubishi Heavy Industries’ (MHI) Kansai Mitsubishi Carbon Dioxide Recovery (KM CDR) amine-based post-combustion carbon capture technology. All discussions and findings related to the Proposed Action and the No-Action Alternative are presented in the attached Final EA and Appendices. The Final EA is hereby incorporated by reference.

Minnkota, as the project sponsor and host-site, has proposed to construct the project, which would be the world’s largest post-combustion CO₂ capture and geologic storage project, and would capture and permanently store CO₂ emissions from Minnkota’s existing MRY facility, a lignite-fired power plant in Oliver County, North Dakota. Based on the best available projections, the project’s cost is estimated to be approximately \$77 million, and the DOE share would be approximately \$38.5 million. The project partners are required to obtain funding for the remaining 50 percent of the project cost. It is important to note that the costs are estimates, based on DOE’s knowledge of the cost of construction for Carbon Capture, Utilization, and Storage (CCUS) projects. Exact costs are not available, because Minnkota has not been selected to receive DOE funding for the proposed project at this time.

Based on the analysis in the EA, DOE finds that implementing the Proposed Action would not constitute a major federal action that would significantly affect the quality of the physical, biological, or human environment, within the meaning of NEPA. Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this Finding of No Significant Impact (FONSI).

ALTERNATIVES CONSIDERED:

PROPOSED ACTION

DOE proposes to provide cost-shared financial assistance to the proposed Project Tundra. DOE funding of Phase IV would include only the construction of the CO₂ storage facility and its infrastructure; however, because the project cannot proceed without the capture facility, and operation of the storage facility can reasonably be expected to occur after the construction is completed, these indirect effects are included in the analysis of the proposed project’s impacts for the purposes of the EA.

Under the Proposed Action, DOE proposes to provide Minnkota with approximately \$38.5 million of cost-shared financial assistance under Funding Opportunity Announcement (FOA) DE-FOA-00002711, an estimated 50 percent of the estimated \$77 million total project cost. The project partners are required to obtain funding for the remaining 50 percent of the project cost.

The project would consist of the carbon capture facility, a 0.5-mile-long CO₂ flowline; Class VI injection wells (up to three); Class I disposal wells (up to two); one underground source of drinking water (USDW) monitoring well; and deep subsurface monitoring wells (up to two). The project surface facilities are located on Minnkota-owned property. One of the deep subsurface monitoring wells is proposed to be installed approximately 2.0 miles northeast of the injection site. The Class I injection wells are proposed for disposal of non-hazardous process wastewater generated by the carbon capture process.

The Project would be sized for capture and saline formation geologic storage of an average of 4.0 million metric tons per year (MMT/yr) of CO₂. The CO₂ would be compressed, piped via a new approximately 0.5-mile-long CO₂ flowline to the storage complex, and injected into deep geologic reservoirs. Construction would begin in 2024 and would be complete by 2028.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, DOE would not provide cost-shared funding to the proposed project. The project would be delayed if other funding sources were pursued. Alternatively, the commercial-scale carbon capture and storage project (Project Tundra) may not be constructed. DOE assumes, for the purposes of a meaningful NEPA evaluation of the impacts of funding the project, that the recipient would not pursue the project. Consequently, the commercial-scale geologic storage complex would not be constructed, and the risks would not be reduced for future storage complexes and widespread commercial CCUS would not be advanced.

ENVIRONMENTAL CONSEQUENCES:

The Final EA examined the potential effects of the Proposed Action and No-Action alternatives on the following 14 resource areas of environmental and socioeconomic concern: air quality, greenhouse gases and climate change, geology and soils, water resources, biological resources, health and safety, solid and hazardous waste, infrastructure and utilities, land use, visual resources, cultural and paleontological resources, socioeconomic conditions, noise, and environmental justice. No resource areas were screened from further analysis. The EA also considered cumulative impacts that might reasonably occur as a result of the Proposed Action.

Based on the analysis contained in the Final EA, DOE determined that the construction and operation of the proposed project would not have significant adverse impacts, either individually or cumulatively, on the physical, biological, or human environments. Implementation of the proposed project would result in short-term and long-term negligible to minor adverse impacts, which are described in the following paragraphs. Under the No-Action Alternative, the project would not be constructed at CWLP, and existing conditions would remain unchanged. As such, implementation of the No-Action Alternative would not result in impacts to considered resource areas.

Air Quality. According to the EPA's assessment of air quality attainment status, the air quality in the region has been designated as in attainment for all criteria pollutants. MRY is an existing major Prevention of Significant Deterioration (PSD) and Title V facility. MRY currently has a Title V permit to operate (T5-F76009), and the permit will expire May 12, 2025. Minnkota will submit a renewal request prior to the expiration of its current Title V operating permit. The proposed project would have the consequential benefit of reducing further the emissions of CO₂, sulfur dioxide (SO₂), and particulate matter from the existing MRY Unit 1 and Unit 2 flue gas streams.

In December 2023, the North Dakota Department of Environmental Quality (NDDEQ) approved the project's application for an Air Permit to Construct. The NDDEQ staff determined that the project would comply with all applicable air pollution control rules and is protective of human health and the environment. The project owners are expected to apply for and secure a Title V operating permit for the project. The project would be regarded as a single source adjacent to MRY. The operation of the project would abide by all federal and state air quality standards. The project's maximum potential emissions would fall below the PSD significant emission rates for all regulated pollutants. The project would have its own air emission limits outlined in a separate permit. The air emissions limits previously established for other emissions units at MRY are present in the existing Title V permit for the electricity generating facility.

Greenhouse Gases and Climate Change. During project construction, direct GHG emissions would result from vehicular emissions and internal combustion engine emissions from construction equipment. Indirect GHG emissions would result from electricity consumption (e.g., lighting). During project operation, direct GHG emissions would result from operation of the CO₂ compressor due to releases during startups and discharges as well as fugitive releases from the transportation of the CO₂. The CO₂ compressor would be electric, and the project does not include the installation of emergency generators. Therefore, the project would not have any GHG emissions due to fuel consumption. Project operation would result in indirect GHG emissions from electricity consumption (e.g., lighting, electric-powered process equipment) and steam consumption (e.g., process heat).

A screening-level GHG assessment was conducted in accordance with the requirements outlined in Appendix J of DE-FOA-0002962. The goal of the analysis was to begin quantifying environmental impacts from the implementation of the proposed project. The project would result in a net reduction in CO₂ emissions (emissions that would otherwise be released to the atmosphere) every year over the anticipated operating life of the project. The project is designed to capture a minimum of 95 percent of unit-wide CO₂ emissions and store the captured CO₂ in secure subsurface geologic formations. Note that a 95-percent unit-wide capture indicates that a 95-percent capture efficiency is occurring at Unit 1 or Unit 2 at MRY.

Geology and Soils. Construction activities would affect surface soils and near surface geology for site grading including vegetation removal, grubbing, topsoil segregation, and excavation as required for foundations. Permanent impacts would occur within the project's permanent facility footprint and the area retained for overflow parking for MRY and project operations. However, these areas are primarily located in previously disturbed lands used for general MRY operations. Use of the temporary construction and laydown areas would require removal of vegetation and addition of rock or gravel as needed to allow vehicle and equipment access; however, these areas would be restored to original conditions. Therefore, impacts to soils and near surface geology are anticipated to be minimal for the permanent facilities and temporary in nature for the construction and laydown areas that will be restored to original conditions following construction.

The intention of the project is to conduct geologic storage operations of CO₂ by injecting it into the deep subsurface and naturally occurring geologic formations (Broom Creek Formation and Black Island-Deadwood Formation). These formations would be negligibly affected by a geochemical reaction with the injected CO₂ and temporarily impacted by the pressure buildup during CO₂ injection. Impacts to the deep subsurface geologic formations from drilling for injection well installation would be limited to the well boreholes. The size of the boreholes and injection facilities would not physically result in a material change to the underlying geologic formations.

Water Resources. The proposed project is adjacent to and south of Nelson Lake near Center, North Dakota, within the Nelson Lake-Square Butte Creek subwatershed, which is a part of the larger Headwater Square Butte Creek Watershed. Nelson Lake makes up a large portion of the surface water present in the Nelson Lake-Square Butte sub-watershed. Recreational and industrial activities associated with MRY power generation are the dominant land uses at and surrounding Nelson Lake. The lake is owned and maintained by Minnkota, and primarily functions to provide cooling water for the power plant complex as well as provide a source of recreation and scenic beauty for the citizens of the area. Minnkota also maintains and operates Nelson Lake Dam.

The project is not located within any Federal Emergency Management Agency (FEMA)-mapped floodplains. Additionally, no surface waters occur within the project boundary and no filling, excavating, or clearing would occur within wetlands. The nearest wetland is over 600 feet from the facility boundaries and approximately 30 feet from the closest temporary laydown and construction area. It is not anticipated that a Clean Water Act Section 404 permit would be required from the U.S. Army Corps of Engineers because project construction and operation would not result in the placement of dredged or fill material into Waters of the United States.

Project construction would require the development of a Stormwater Pollution Prevention Plan (SWPPP), which would contain site-specific measures to avoid and minimize erosion and sediment transport to surface waters

wetlands, and riparian zones, as well as measures to contain and clean up accidental petrochemical spills. Potential impacts to Nelson Lake and Square Butte Creek would be mitigated using site-specific measures and best practices identified in the SWPPP and associated National Pollutant Discharge Elimination System (NPDES) permit (Clean Water Act Section 402), designed for water quality protection and to ensure water quality standards of nearby surface waters are not exceeded. If necessary, the current MRY NPDES permits would be amended as needed to address any operational changes Project Tundra would cause. However, as designed, Project Tundra would operate as a "zero liquid discharge" facility. All regulatory agencies would be consulted prior to implementation of future changes.

Hazardous materials and wastes would be stored and disposed of in accordance with standard operating health and safety procedures of the project sponsor, which will be at least as stringent as those of the site owner Minnkota. Project areas temporarily affected by construction (i.e., not retained for facility operation) would be restored to original conditions.

A new water appropriation of 15,000 acre-feet from the Missouri River has been approved by the North Dakota State Water Commission to supply the water needs for the project, which equates to 0.10 percent of the mean annual discharge recorded at Garrison Dam and the requested withdrawal rate of 13,480 gallons per minute (gpm), or 30.0 cubic feet per second, is 0.14 percent of the mean daily discharge rate. This water appropriation does not represent a significant change to daily flow or annual discharge from the Missouri River. Therefore, the project would not preclude other water users from exercising their right to appropriate water, subject to North Dakota Water Commission permitting requirements and regulatory requirements at North Dakota Administrative Code Title 89-03 and North Dakota Century Code 61-04.

Biological Resources. The proposed project site would be located within the existing MRY facility in an area historically used for coal pile storage that has since been reclaimed. No sensitive habitats or ecologically sensitive terrain are present at the proposed project site. Impacts to aquatic species could occur as a result of water quality impacts described previously. The potential for accidental impacts to water quality and, consequently, to aquatic species would be minimized with the implementation of the SWPPP, NPDES permits, and site-specific engineering controls and BMPs.

While the area is undeveloped, it provides minimal, low-quality wildlife habitat due to the disturbed and industrial nature of the area. The areas surrounding the project area are generally low-quality wildlife habitat, including the adjacent landfill, coal mines, and industrial facilities. The project would not result in the loss of quality wildlife habitat. While wildlife may potentially use the area, the past and present disturbances for plant operations provide limited, minimally vegetated wildlife habitat.

Due to the lack of suitable nesting and foraging habitat within the project area, no direct impacts on migratory birds would be expected to occur. Human presence and noise currently exist in the project area and would increase only slightly under the Proposed Action; therefore, any impacts on migratory birds or North Dakota Species of Conservation Priority are anticipated to be short term and would not result in population-level impacts.

Federally listed species are not anticipated to be present in the project area. DOE has contacted U.S. Fish and Wildlife Service (USFWS) to confirm the proposed project is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat. The USFWS has not identified any concerns. Impacts to special status species are expected to be negligible.

Health and Safety. Construction and operation of the proposed project would result in minor potential for health and safety impacts to proposed project construction, operations, and decommissioning personnel, Minnkota employees, and members of the public. Potential health and safety impacts to project construction and operations personnel would include workplace (occupational) injuries during construction, operation, and decommissioning including those related to operation of mechanical and electrical equipment; fall hazards; vehicle accidents; and potential occupational exposure to hazardous materials from transport, storage, and use of process chemicals

(including diesel fuel, gasoline, lubricating oils, hydraulic fluid, paints, solvents, or other corrosive, flammable, or toxic chemicals).

All project-related construction personnel and operations personnel would receive training in areas relevant to construction and operational safety and their job requirements including Hazard Communication/Right-to-Know, Hazardous Materials Management/Chemical Hygiene, Job Safety Assessment, and Hazardous and Solid Waste Management. Adherence to Occupational Safety and Health Administration (OSHA) requirements, project-specific safety plans, and standard safety practices would minimize these potential risks to health and safety.

Solid and Hazardous Waste. Construction of the proposed project would generate solid and hazardous wastes including construction debris from site clearing, excavation, and construction, and potentially waste oils, spent solvents, and other solid waste (e.g., scrap metal) from construction activities. Solid and hazardous wastes generated from construction activities would be managed pursuant to federal and state environmental regulations.

New operational waste streams would be generated due to the carbon capture facility processes. All new waste streams would be profiled and either sent offsite to be disposed of by properly licensed disposal providers or disposed of in the MRY landfill in accordance with the landfill's permits. Hazardous waste would not be expected from any of the new waste streams, but if a waste was determined to be hazardous it would be disposed of in accordance with state and federal regulations.

Infrastructure and Utilities. Construction and operation of the proposed project is not anticipated to result in adverse impacts to infrastructure and utilities. Negligible adverse impacts to water and wastewater are expected during construction. High-pressure steam, low-pressure steam, cooling water, and potable water would be provided to the project by MRY through direct connections to MRY electrical, steam, and process water systems. The project would utilize the local rural water utility for potable water service. Various utilities, per the final project financial arrangements, would be directly metered by MRY.

Wastewater and stormwater streams resulting from operation of the project would include a continuous and discontinuous flow. Continuous flow would result from condensate from the quencher flue gas treatment process, which would be collected and re-used in the project cooling water system. Discontinuous flow results would be liquid waste from process water containing trace amine solvent concentrations; liquids from cleaning/flushing process equipment during maintenance activities; and stormwater runoff from the site.

Any liquids generated would be monitored and liquids that are not acceptable for treatment in MRY's wastewater treatment plant would be either re-used, treated on site, or disposed of offsite in licensed treatment and disposal facilities. Stormwater found to be contaminated would be either treated on site or disposed of offsite in licensed facilities. Any water that contains amine solvent would be captured and re-used in the process. The project would operate as a "zero liquid discharge" facility; no process wastewater would be allowed to enter the MRY NPDES outfalls.

Land Use. There is no publicly available Comprehensive Plan for Oliver County, and the County is not a part of a Metropolitan Planning Organization or Council of Governments. With the exception of the deep subsurface monitoring well (classified as agricultural land, but on Minnkota-owned property), the aboveground infrastructure associated with the proposed project would be located within an existing industrial footprint large enough to accommodate the carbon capture facility. The project would be consistent with current land uses and would not conflict with surrounding land uses. After construction is complete, disturbed areas would be stabilized as appropriate in accordance with applicable construction and stormwater approvals. As a result, additional erosion during operation of the project would be minimal or avoided.

Visual Resources. The proposed project is designed to be an extension of the existing power plant site. There are no identified tribally sensitive areas or scenic vistas within the proposed project's vicinity. The area around MRY is predominantly undeveloped, characterized by grasslands, herbaceous areas, and cultivated crops. The existing MRY facility, a developed industrial area, is visible from nearby roads, including Highway 25 to the north. The

existing facility's security and safety lighting create a noticeable contrast at night. Because the project is an extension of the existing facility, it would be consistent with the character of the existing viewshed.

Cultural and Paleontological Resources. A small number of cultural sites, primarily lithic scatters, have been recorded within the footprint of the MRY at Nelson Lake. No significant known cultural resources sites or National Register of Historic Places-listed historic resources are present in the proposed project site or surrounding region. The temporary construction and laydown areas were evaluated for architectural and cultural significance pursuant to Section 106 of the National Historic Preservation Act.

As part of the NEPA process, DOE consulted with the North Dakota State Historical Society, State Historic Preservation Office (SHPO) and the following federally-recognized Tribal Nations in the project area: Apache Tribe of Oklahoma; Fort Belknap Indian Community of the Fort Belknap Reservation of Montana; and Three Affiliated Tribes of the Fort Berthold Reservation, North Dakota. DOE received no comments from any Tribal Nations. On June 28, 2024, SHPO concurred that the project would have no effect on historic properties with avoidance of identified cultural resources, which concluded the consultation with SHPO.

Socioeconomic Conditions. Construction and operation of the project would generate socioeconomic activity in Oliver County and potentially surrounding counties. Construction workers from within and outside the immediate area would spend money in the local area; however, expenditures would be short-term and localized. Many of the construction workers would seek temporary housing for varying time periods based on their individual roles in the project, resulting in short-term impacts on local housing. It is anticipated that there would be an adequate supply of temporary housing units available in the region for use by construction workers. Local governments could also experience short- and long-term benefits from sales tax revenue collected during construction of the proposed project.

The project would require approximately 22 permanent employees for operation, maintenance, and supervision of the project. These positions would first be offered to current employees impacted by the retirement of existing power plant units. Impacts on the job market, permanent resident population, and overall socioeconomic status of the counties from the project would be minimal.

Noise. The project would include noise sources similar to those at the existing MRY facility. The project's major noise sources would include the cooling tower, the electrical substation, the boiler, emissions control equipment, and compressors. The operation of this equipment would increase noise levels on the project site, particularly in areas near the new equipment and facilities. However, given the similarity in nature and operation of the equipment to the existing noise-emitting equipment at the MRY facility, offsite sound levels are anticipated to remain comparable to the existing environment. The sound levels generated by the project would significantly diminish over the 2-mile distance to the nearest noise-sensitive receptors. At that distance, the noise contribution of the project would be indistinguishable from the existing MRY facility noise. The operation of the proposed project would not result in any increase in distinguishing noise characteristics.

Environmental Justice. Environmental justice concerns the environmental impacts that proposed actions may have on minority and low-income populations, and whether such impacts are disproportionate to those on the population as a whole in the potentially affected area. Oliver County has a larger percentage of Caucasian, non-Hispanic peoples and the same percentage of people in poverty as North Dakota. The City of Center has a larger percentage of Caucasian, non-Hispanic peoples and a larger percentage of peoples living in poverty than North Dakota. However, to be considered a disadvantaged community, a census tract must rank in the 80th percentile of the cumulative sum of 36 burden indicators and have at least 30 percent of households classified as low-income. According to the Council on Environmental Quality's Climate and Economic Justice Screening Tool (CJEST), the City of Center is not considered a community that is economically disadvantaged. The proposed project would not have a disproportionate impact on environmental justice communities.

Cumulative Impacts. DOE identified reasonably foreseeable proposed projects that may have cumulative, incremental impacts in conjunction with the Proposed Action, including future planned infrastructure maintenance

and upgrades at the MRY facility to support future growth, a permitted storage facility 7 miles to the west, and the Midwest Carbon Express CO₂ Pipeline Project in North Dakota. No other planned projects were identified in the project vicinity.

The MRY infrastructure modifications in conjunction with the proposed project would result in temporary minor adverse cumulative impacts to air quality, noise, materials and wastes, and health and safety. There is no planned construction date for the development of the storage facility west of the project; however, it is possible Minnkota could coordinate construction activities for efficiency should it continue to be affiliated with the entity. The route for the Midwest Carbon Express CO₂ Pipeline Project crosses through Oliver County, and there is a planned connection proximate to the Project Tundra sequestration site; however, the timing of construction is dependent on permits being issued in North Dakota, South Dakota, and Iowa. It is not known at this time whether the construction schedules for these projects would overlap.

PUBLIC AVAILABILITY:

DOE encourages public participation in the NEPA process. This EA was released for public review and comment after publication of the Notice of Availability in the Bismarck Tribune on August 19, 2023. Responses to the August 2023 Draft EA were received from one federal agency, one state agency, three non-governmental organizations (NGOs), and five members of the public. Due to the increased level of public interest and number of comments received, DOE prepared a Comment Response document, included as Appendix K, and reissued the Draft EA on April 13, 2024 for an additional 30-day comment period to allow interested parties to review the comments and responses, as well as any edits to the Draft EA. Responses to the April 2024 Draft EA were received from one federal agency, five NGOs, and one member of the public. Those letters are included in the Final EA, and appropriate changes were made in the corresponding sections of the document. Other changes include minor edits to correct typos or improve clarity. Additionally, DOE directed all offices to update the Social Cost of GHG calculation tables to those provided by the USEPA. Those additional calculations were completed and added to the Final EA. Changes to the text of the Draft EA are shown with a line down the left side for ease of comparison.

Copies of the Draft EAs were distributed to cognizant agencies, Native American Tribes, public libraries, and interested parties. Additionally, the Draft EAs were also available for review at Bismarck Veterans Memorial Public Library, 515 N 5th St, Bismarck, ND 58501, and the North Dakota State Library, 604 E Boulevard Ave, Bismarck, ND 58505. All copies of the documents were disseminated electronically, with the exception of hardcopies mailed to the libraries and Native American Tribes.

The Draft and Final EAs are available on the National Energy Technology Laboratory website at <https://netl.doe.gov/node/6939> and DOE's National Environmental Policy Act (NEPA) website at <https://www.energy.gov/nepa/doe-environmental-assessments>.

FOR FURTHER INFORMATION ON THE DOE NEPA PROCESS CONTACT:

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DETERMINATION:

Based on the information presented in the Final EA (DOE/EA-2197), DOE finds that providing cost-shared funding to Minnkota for the proposed project would not constitute a major federal action that would significantly affect the quality of the physical, biological, or human environment, within the meaning of NEPA. Therefore, the preparation of an Environmental Impact Statement is not required, and DOE is issuing this FONSI.

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