Enhance, Preserve and Protect the North Dakota Lignite Industry

Project Management
Research & Development
Environmental & Legal Support
Power Markets & Transmission Strategies

January 1, 2026 – December 31, 2028

Prepared by
The Lignite Energy Council
1016 E. Owens Avenue
Bismarck, North Dakota 58501

Table of Contents

Enhance, Preserve and Protect Project
Project Management, Research & Development, Environmental & Legal Support, Power Markets & Transmission Strategies

ABSTRACT

The Enhance, Preserve and Protect Project (EPP) continues to build on the ongoing commitment and cooperation among government agencies, elected leadership and the lignite industry to ensure the long-term viability of the North Dakota lignite industry. The project began as the result of an extensive analysis by leaders of the Lignite industry focused on the state of the industry in North Dakota, as well as the coal industry nationwide. Early analysis concluded that federal legislative and regulatory policy moved in a direction which jeopardized the future development of North Dakota's vast lignite resources and created great uncertainty regarding the viability of existing lignite generation plants. The regulatory environment continues to be dynamic, and the EPP project will continue to work with industry and regulators so that North Dakota can make the best use of our vast lignite resource into the future.

Early project work included development of a technology development roadmap under the guidance of the lignite industry. This roadmap will continue to be updated as needed to guide technology development required for lignite conversion systems. The EPP Project will focus on preserving and enhancing the existing lignite industry while at the same time providing continued technical support to activities under the Advanced Energy Technology Program which focuses on new opportunities to capitalize on North Dakota vast lignite resources. The State of North Dakota and lignite industry continue to benefit from the EPP project, as they supply energy to regional residents and industry, while strengthening the economy through creating and sustaining jobs and clean, low-cost reliable electricity.

Project Objectives

One of the primary objectives of the EPP Project is to preserve and protect the existing lignite fleet in North Dakota. The Project also continues to look to the future and assist the state and industry in understanding where the "new" opportunities are for this abundant resource in the future. Finally, the Project will continue to explore new avenues to develop value-added opportunities for lignite and its combustion byproducts. Options include rare earth elements and critical minerals that exist in significant quantities in the lignite found in North Dakota, using excess process heat within the plant and to add value to adjacent industry, development of building materials and carbon materials from lignite, and carbon dioxide used for enhanced oil recovery, to name a few. Value-added opportunities will also include demand side technologies that can consume off-peak electricity, such as electric vehicles and data centers.

To achieve the EPP Project objectives the EPP Project team will develop and implement research & development, environmental and legal support, and power markets and transmission strategies. These strategies will include addressing technology challenges for existing plants to achieve compliance with regulations and to discover new and innovative ways to use lignite and its byproducts in order to ensure the future of lignite in

North Dakota for years to come. Additionally, the EPP Project team will enhance the partnership with the state by working with state agencies and officials to understand the legal and economic implications of legislative and regulatory initiatives on the lignite industry, one of North Dakota's largest industries. The Project team will also monitor the progress of current and future Advanced Energy Technology projects and eliminate any potential duplication of efforts among these activities, thereby maximizing value for the State of North Dakota. Strategic studies will be performed to better understand the value of technology developments, provide critical information for the State on the commercial potential of emerging markets, evaluate the economics associated with technologies and the lignite industry, and the impacts of outside factors on the industry and North Dakota.

Key personnel involved in the management of the Enhance, Preserve and Protect Project are Angie Hegre, LEC Research and Development Program Manager and EPP Project Manager; Mike Holmes, LEC Executive Vice President of Research and Development, EPP Principal Investigator, lead of EPP R&D and strategic study efforts, and Technical Advisor to the NDIC; and Jonathan Fortner, LEC President, EPP Project Policy Advisor and Environmental management and power markets lead for the EPP project. The EPP Project team will work together with consultants who have research & development, environmental, legal, power markets, and transmission technical expertise to complete the project activities.

The EPP Project is seeking $3,316,695 from the North Dakota Industrial Commission (NDIC) over a period of 36 months (January 1, 2026 – December 31, 2028).

BACKGROUND

A. State Policy

In 1991, the North Dakota Legislative Assembly enacted legislation creating the Lignite Research, Development and Marketing Program and declaring that:

> "...it is an essential governmental function and public purpose to assist with the development and wise use of North Dakota's vast lignite resources by supporting a lignite research, development, and marketing program that promotes economic, efficient, and clean uses of lignite and products derived from lignite in order to maintain and enhance development of North Dakota lignite and its products; preserve and create jobs involved in the production and utilization of North Dakota lignite; ensure economic stability, growth, and opportunity in the lignite industry; and maintain a stable and competitive tax base for our state's lignite industry for the general welfare of North Dakota….." (NDCC § 54-17.05-01)

In the past the North Dakota Legislative Assembly has appropriated funding from the Lignite Research Fund for the purpose of contracting services that will focus on the preservation of existing jobs and production as well as the growth of the lignite industry. The NDIC, with policy advice and funding recommendations from the Lignite Research Council, has administered this program. As guidance to the NDIC for the use of the nonmatching funding, the Legislature stated that:

> "…Moneys appropriated pursuant to this section may … be used for the purpose of contracting for nonmatching studies and activities in support of the Lignite Vision 21 Project; for litigation that may be necessary to protect and promote the continued development of lignite resources; for nonmatching externality studies and activities in externality proceedings; or other marketing or environmental activities that assist with marketing of lignite-based electricity and lignite-based byproducts…" (Chapter 14, Section 11, 2011 ND Session Laws)

During the 2017 North Dakota Legislative Assembly, the State approved an additional $3 million from the Strategic Infrastructure and Improvements Fund for supporting the Advanced Energy Technology (AET) projects directed at late-stage evaluation of technologies under consideration for commercial application in North Dakota. In the 2019 North Dakota Legislative Assembly, the State approved an additional $10 million and that was made continuous in the 2021 Assembly. The AET program allows expansion of projects to include technological solutions for existing plants, including carbon capture and low carbon options.

An amendment to Contract LMFS-22-43 to meet the legislative intent of Section 17 of House Bill 1014 passed by the Sixty-eighth Legislative Assembly of North Dakota and to remove Transmission Authority base funding, which was appropriated directly to the Commission by the Sixty-eighth Legislative Assembly. The Commission voted to accept the recommendation of the Lignite Research Council and authorize the amendment to Contract LMFS-22-43 on July 28, 2023.

In the 2025 legislative session, the enrolled version of Senate Bill 2014 updated that section of law:

> **SECTION 13. LIGNITE RESEARCH, DEVELOPMENT, AND MARKETING PROGRAM - LIGNITE MARKETING FEASIBILITY STUDY - REPORT TO THE SEVENTIETH LEGISLATIVE ASSEMBLY**. 1. Pursuant to the continuing appropriation under section 57-61-01.6, up to $4,500,000 from the lignite research fund may be used for the purpose of contracting for an independent, nonmatching lignite marketing feasibility study or studies that determine those focused priority areas where near-term, market-driven projects, activities, or processes will generate matching private industry investment and have the most potential of preserving existing lignite production and industry jobs or that will lead to increased development of lignite and its products and create new lignite industry jobs and economic growth for the general welfare of this state. Moneys designated under this section also may be used for the purpose of contracting for nonmatching studies and activities in support of advanced energy technology and other technology development programs; for litigation that may be necessary to protect and promote the continued development of lignite resources; for nonmatching externality studies and activities in externality proceedings; or other marketing, environmental, or transmission activities that assist with marketing of lignite-based electricity

and lignite-based byproducts. Moneys needed for the purposes stated in this section are available to the industrial commission for funding projects, processes, or activities under the lignite research, development, and marketing program.

2. The industrial commission shall report to the appropriations committees of the seventieth legislative assembly on the amounts spent pursuant to this section.

The latest legislation continued the authority to continue this type of work by explicitly authorizing the use of Lignite Research Fund, *"Moneys designated under this section also may be used for the purpose of contracting for nonmatching studies and activities in support of advanced energy technology and other technology development programs; … for nonmatching externality studies and activities in externality proceedings; or other marketing, environmental, or transmission activities that assist with marketing of lignite-based electricity and lignite-based byproducts."*

In summary, the North Dakota Legislative Assembly has consistently reaffirmed the importance of lignite to the state's economy and energy future through sustained policy direction and dedicated funding. From the creation of the Lignite Research, Development, and Marketing Program in 1991 to the expansion of support for advanced energy technologies and the most recent updates in Senate Bill 2014, the Legislature has provided clear authority and resources to preserve existing lignite production, foster innovation, and create new opportunities for jobs and growth. This enduring commitment ensures that lignite remains a cornerstone of North Dakota's energy strategy while adapting to evolving technological and environmental challenges.

B. Industry Economic Impact, Challenges, and Opportunities

Over the years, lignite producers in North Dakota have maintained a steady annual production level at nearly 30 million tons. North Dakota ranks as one of the top ten coal producing states in the country and as of 2019 is the top lignite mining state in the country.

In 2023, the Lignite Industry employed approximately 3,228 direct workers in all segments of the industry. Direct, indirect, and induced economic effects were estimated to support a total of 12,032 jobs in the state of North Dakota. The lignite industry also supports about $1 billion in labor income, which represents wages, salaries, benefits, and sole proprietor's income. The industry also contributes $2 billion to the state's gross domestic product, and the industry's gross business volume was estimated at $5.5 billion. In addition, industry continues to provide clean, low-cost, reliable electricity that is the cornerstone of our state economy.

After strong growth in the 70s and 80s, the market for electricity produced by North Dakota Lignite reached a plateau. The start-up of the combined heat and power Spiritwood facility near Jamestown in 2014 marked the first new Lignite-based energy conversion facility in

over 20 years. This was a significant milestone considering the challenges facing the lignite industry. These challenges include increasingly stringent federal environmental regulations; carbon dioxide capture, utilization and storage targets; competition from other energy sources; legislative mandates from surrounding states which impact the continued use of lignite-based electric generation and concerns about the adequacy of transmission infrastructure in light of oil and gas development in western North Dakota, as well as constant monitoring of the status of export constraints on the existing transmission system. In addition to limiting sale of lignite fired electricity, transmission constraints can increase the impact of regional wind power on the existing coal units.

Another challenge to the State of North Dakota and the lignite industry is to design a comprehensive program to alter the present "anti-coal" campaign and replace it with a strategy that recognizes the importance of all forms of energy as a way to ensure our nation's energy security as well as the strategic importance of the many value-added opportunities available through innovations that have been identified. Lignite-based electric generation has been at the heart of North Dakota's economy for decades, providing low-cost reliable and dispatchable electricity to farmers, ranchers, businesses (large and small) and consumers. If the on-going campaign to eliminate coal is successful, affordable electricity to fuel North Dakota's future will be a thing of the past. To continue to address this changing landscape the Lignite industry plans to continue the focus on its regulatory / legislative program, as well as enhancing its research and development work. The purpose of the EPP Project is to continue to align industry efforts with the state's mission to "maintain and enhance development of North Dakota lignite" to strengthen the industry / State partnership. Through this refocused effort, the State of North Dakota will benefit from continued access to low-cost, reliable, and clean energy as well as have the opportunity to see new industries located in ND like Rare Earth and Critical Element extraction to provide critically needed material for numerous 21st Century applications that require these materials. This is one of the many emerging markets with potential for application in North Dakota. Others include construction materials, carbon-based materials, additional fertilizer production, and combined heat and power projects that use the remaining process heat from lignite power plants.

A continually growing focus of the State / Industry partnership has been in solutions for carbon management. North Dakota has a unique opportunity to diversify the products from lignite-fired power plants by adding CO_2 as a commodity. CO_2 captured from lignite-fired power plants could facilitate a second round of oil recovery from the conventional oil fields as well as in the Bakken formation. This would greatly increase the tremendous economic boom experienced over the last decade, resulting in economic activity to the benefit of all North Dakotans. A study performed to evaluate the impact of carbon capture and use in North Dakota oil recovery showed that the impact on employment alone could be as high as 14,000 additional jobs. In the near term, the industry is looking to fund additional geologic storage of CO_2 through a federal incentive (45Q).

PROJECT DESCRIPTION

A. Overall Objectives

The objective of the EPP Project is to protect and extend operation of the existing lignite facilities while at the same time seeking technology solutions for existing plants and new technologies for the future of the North Dakota lignite industry. To achieve the EPP Project objectives, the Lignite Energy Council (LEC), in conjunction with the lignite industry partners, will continue to develop, and implement research and development, environmental and legal support, power markets and transmission strategies that will enhance, preserve, and protect existing facilities and support the future development of North Dakota's lignite resources. The EPP Project team will monitor progress, avoid duplication of services, and maximize value to the State by working with industry, technology developers, federal and state agencies, and other interested parties in finding solutions that will allow the state to maintain existing lignite facilities and to provide for new growth in the lignite industry. Activities and tasks that will be addressed by the EPP Project include:

- Project Management
- Research & Development Studies and Activities
- Environmental Strategies & Legal Support and Activities
- Power Markets & Transmission Strategies and Activities

The project team will work along with consultants who have legal, research & development, environmental, and transmission technical expertise to execute the project. A detailed description of the management organization and qualifications of key personnel are outlined on pages 12 through 13, and the organizational chart is provided in Appendix 3.

B. Statement of Work

The EPP Project team will provide overall program management responsibility for the project. Key personnel identified above will be responsible for completing EPP Project tasks and achieving program objectives. The timeframe for the project is estimated at 36 months (January 1, 2026, to December 31, 2028) with an estimated budget of $3,316,695. Tasks and timeframes for the project activities are summarized below and outlined in Appendix 2.

Task 1.0: Project Management – 36 months ($518,915)

The LEC will continue its proven project management system to ensure deliverables are met and value is maximized. This will include close coordination with industry and state stakeholders to address needs in technology development, strategic studies, environmental and legal support, and power market and transmission strategies. Angie Hegre will manage project documentation by compiling results with input from the

Principal Investigator, task leads and subcontracts. Mike Holmes will provide technical oversight across project management, R&D, and environmental/legal support, and Jonathan Fortner will oversee environmental/legal activities and power market strategy. These efforts will be carried out collaboratively, with support from the EERC and other subcontractors.

Task 1.1 Reports - The Program Manager will prepare and submit biannual reports, final reports, and other reports as required to satisfy all contractual requirements. The Program Manager and Principal Investigator will prepare other written and oral presentations as requested or required to achieve the objectives of the EPP Project and communicate the activities. The reporting and presentations will be used to extract value and communicate key findings with the NDIC, other state leaders and industry and the North Dakota Public.

Task 1.2 Advanced Energy Technology Contract Administration – Administration of the Advanced Energy Technology (AET) contracts will continue, and the Principal Investigator will oversee compliance with NDIC conditions imposed in the participants' contracts in addition to the following:

1) Review and approval of detailed scopes of work, budget, and milestone charts, progress reports, for each phase of the Advanced Energy Technology participant's activities.
2) Review and approval of activities and studies that evaluate cost-effective North Dakota lignite-fueled generation options and promote efficient and clean use of North Dakota lignite.
3) Review and approval of activities and studies that maximize efficient use of available state and industry funds and avoid duplication among the technology developers and AET participants, particularly in the generation, environmental, and transmission areas.
4) Monitor the continued work on existing AET contracts, allowing these activities to be completed to allow the State of North Dakota to derive the maximum benefit for the work completed in pursuing the objectives of this program.

The Principal Investigator or his designee will meet by conference call or personally with each Advanced Energy Technology participant monthly or as needed to monitor progress and ensure compliance with the NDIC grant conditions.

Task 1.3 Administration and Support Facilities - The LEC will provide the necessary direction, administration, and technical support for the project. The EPP Project team will provide contracts, personnel, and budget supervision throughout the term of the grant. In addition, the EPP team will facilitate communications between the Lignite Research Council, lignite industry, NDIC, North Dakota Legislative Assembly, Congressional delegation, national and regional associations, and other federal and state agencies.

Task 2.0: Research & Development Studies and Activities – 36 months ($1,188,729)

Research and development is at the heart of enhancing, preserving, and protecting the North Dakota lignite industry and all of the residents and industries across the state that depend on clean reliable and affordable electricity. Early stages have supported spectrum of essential technology developments. Some of the examples include technology support for enhanced mine reclamation, support of early technology developments related to the DGC Poly generation system, development of technology for control of primary pollutants followed by mercury and air toxics, support of the Spiritwood power plant, technology and plans for management and utilization of carbon dioxide, and more recently expanded efforts on developing commercially viable additional uses of North Dakota lignite.

Task 2.0 focuses on advancing innovative strategies and studies to strengthen the role of lignite in North Dakota's energy future. The EPP Project team will pursue efforts that address regulatory compliance, expand value-added uses of lignite, and explore emerging technologies and markets. By combining technical innovation, global collaboration, and targeted research, this task ensures continued progress toward reducing carbon footprints and pursuing the opportunity to utilize CO_2 for Enhanced Oil Recovery (EOR) capturing new economic opportunities and maintaining lignite as a competitive and sustainable energy resource.

Task 2.1 The EPP Project team will engage in activities that include:

1) Tailoring criteria pollutant control strategies to meet the regulatory requirements placed on existing and new facilities.
2) Identifying new revenue streams based on value-added products from lignite and/ or products produced from regulated emission streams.
3) Participation as a global player in groundbreaking research, partnering with lignite interests around the world; and
4) Exploring high-risk, high-payoff technology options for the lignite resource.
5) Complete strategic studies on topics related to technology, economic impacts, and commercial potential of emerging markets.

This set of activities will maintain an elevated focus on emerging markets and carbon footprint and will be critical to successfully meet the overall goals of the EPP Project.

Task 2.0 Strategic Studies

Strategic studies continue to play an important role within the EPP Program. Recent efforts include the initial report from the Lignite Plant of the Future findings, the Coal Counties Study, an Ash training course, the continuation of the Coal Counties Study with an emphasis on evaluating opportunities for thermal integration, and several key

past studies. Examples of the latter include the evaluation of CCR utilization for North Dakota lignite, which helped address and correct misconceptions about the applicability of the technology, and the study of the sulfur removal potential from DGC's CO_2 to evaluate the potential for North Dakota Enhanced Oil Recovery (EOR) applications.

Looking ahead, future studies will be prioritized based on input from lignite industry stakeholders. Two studies have already been identified for the first year of the project and will serve as initial focal points.

Lignite Plant of the Future – Continued Assessment with EERC – Strategic study for up to $200,000 to further the assessment of the lignite plant of the future. It will include forecasts for sustained load growth in the region, necessitating retention and development of dispatchable energy resources. A tremendous opportunity exists for the lignite power sector to provide CO_2 for Enhanced Oil Recovery and continue to increase returns from the Bakken oil formation. Some of the challenges to be addressed include additional economic analysis, feasibility studies including integration of emerging markets, exploring incentives for CO_2 capture including use for EOR, increased understanding of capital expenses for new plants and comparisons with alternate sources of generation.

Review of Improvements for ND Lignite Assets – This is a strategic study done by EERC that is up to $200,000 to evaluate the improvements that can be made to existing ND lignite power generation and utilization facilities. There are many opportunities to expand the value of these facilities. These will be explored and the implications to new source review and other potential regulatory impacts will be evaluated.

Task 2.0 will be managed by the Technical Advisor, currently Mike Holmes. Should a change in the Technical Advisor role occur, the new appointee will be selected with input from the NDIC and the Governor's staff, with the Executive LRC members informed accordingly.

Task 3.0: Environmental Strategies & Legal Support and Activities – 36 months ($821,645)

Task 3.0 focuses on developing environmental strategies and applying technology-based solutions to address the regulatory challenges facing North Dakota's lignite industry. The project team reviews and analyzes proposed and current federal rules that impact mining operations, power plants, and emerging technologies. This work helps build a strong scientific record to guide future decisions, ensuring strategies are supported by sound data and research. The effort also fosters close coordination with environmental managers, the North Dakota Department of Environmental Quality, and the Attorney General's office to align technical and environmental priorities across the state.

In parallel, the project team works with industry to address key environmental issues such as regional haze, new source performance standards, effluent discharges, air quality improvements, and the management of coal combustion residuals. Technical expertise is applied to evaluate options like carbon dioxide management, advanced monitoring, and carbon capture and storage. Legal assistance supports these activities as needed, particularly when environmental or technology strategies intersect with federal policy and regulatory requirements. By engaging regional and national partners and leveraging subcontractor expertise, Task 3.0 strengthens North Dakota's ability to apply innovative environmental and technology solutions that preserve lignite resources and sustain reliable energy generation.

Task 3.1 Technical Services Coordination – The EPP Project Team will coordinate industry responses to environmental issues that may jeopardize the future of existing generation facilities as well as the future growth of the North Dakota lignite industry in order to avoid unnecessary cost and duplication and maximize value for the State of North Dakota. The most significant environmental challenges facing existing generation facilities include:

1. Continued efforts by regulatory agencies and environmental groups to impose stringent new regulations which will create significant issues for the continued use of Lignite.
2. Issue between the EPA and the State of North Dakota over modeling protocols and actual emission monitoring data.
3. Supporting the State's regional haze state implementation plan.
4. Utility maximum achievable control technology determinations for various regulations.
5. New source performance standards for existing plants, carbon dioxide management, and the regulation of carbon capture and sequestration and enhanced oil recovery.
6. Regulation of effluent discharges.
7. New standards for particulate matter and ozone.
8. New standards for cooling water intake structures.
9. Development of stream protection rules; and
10. Regulation of coal combustion residuals as hazardous waste and the regulation of the use of coal combustion residuals at mining operations.

The EPP Project team will continue to coordinate and develop environmental strategies to address these challenges during the grant period, including the development of more aggressive partnerships with national and regional organizations with similar concerns regarding the scientific justification and economic impact of the federal regulatory agenda. The Project team will also develop stronger cooperative programming throughout the region to monitor and address actions by agencies and legislatures in surrounding states that may have negative implications for the Lignite industry. As issues develop the EPP Project team will establish individual tasks that identify the issue and necessary actions to be taken and highlight results. These tasks will be included in the project reports.

Task 3.2 Legal Support – Legal assistance, including support and analysis regarding federal and state administrative actions and potential litigation, may be needed on issues resulting from ongoing federal rulemakings or similar state proceedings in North Dakota and other states. The actions listed in Task 3.1 may also warrant legal support. In addition, the ND Transmission Authority may benefit from legal assistance to respond to Federal Energy Regulatory Commission (FERC) proposed rules in addition to rules and policies from Regional Transmission Organizations (RTOs) such as rate tariffs, return on equity, cost allocation, siting, and routing. Legal support may also be needed to help attract developers for the construction of new transmission infrastructure to support a more robust energy industry in North Dakota. The EPP Project team will coordinate these activities.

Task 4.0: Power Markets and Transmission Strategies – 36 months ($787,406)

Task 4.0: Power Markets and Transmission Strategies support the North Dakota lignite industry by ensuring active participation in regional and national transmission and market planning processes. The LEC provides the North Dakota Transmission Authority and industry with critical demand forecasts, market analysis, and regulatory insights to inform planning and decision-making. A key objective is to maintain a united voice for lignite in stakeholder forums, particularly with the Midcontinent Independent System Operator (MISO) and the Southwest Power Pool (SPP), where LEC advocates for stronger price signals for baseload, dispatchable resources. LEC also partners with consultants to provide expert economic, regulatory, and technical analysis, as well as testimony before RTOs and federal and state regulatory bodies.

Examples of this work include partnering with BARR Engineering to forecast long-term power demand related to oil production and population growth, and working with utilities and the North Dakota Transmission Authority to develop transmission strategies consistent with North Dakota's "all of the above" energy policy. These efforts demonstrate the type of analysis, coordination, and advocacy the LEC has provided in the past, and will continue to deliver in the future to ensure North Dakota's energy interests are protected and advanced.

Task 4.1 Midcontinent Independent System Operator (MISO)- LEC staff will engage in the regional electricity market known as MISO to improve generation resource attribute value which is currently not provided in the marketplace. The Lignite Energy Council joined MISO as a member in 2020 to advocate for stronger price signals for baseload, dispatchable resources in the electricity market. In that same year, the Federal Energy Regulatory Commission voted to approve a new stakeholder group to be placed on the MISO Advisory Committee, along with the Planning Advisory Committee (PAC) with an official seat along with voting rights on each committee.

LEC now serves in a leadership position serving as the Chair of the Affiliate Sector, which is one of eleven stakeholder groups with representation and voting rights on the Advisory Committee (AC). LEC's Jonathan Fortner is the Chairman and attends the meetings and provides a voice for coal in the marketplace while also pushing for valuing the attributes that coal possesses in the Midcontinent Independent System Operator (MISO) grid.

To be able to provide tracking coverage of the committee process and in-depth analysis of market activities and proposals, LEC is going to utilize contract support with an energy consulting firm that provides economic, regulatory, and technical analysis and advice to a wide range of energy clients. The firm has been providing analysis of wholesale and retail energy markets and projects and provides a host of analytical and support services for power resources throughout the United States. They provide regulatory support on complex matters and expert testimony at the regional transmission organization (RTO), State, and Federal Energy Regulatory Commission (FERC) level. The firm has expert knowledge of RTOs and maintains an RTO division that is fully dedicated to monitoring and analyzing issues at the RTO level.

Task 4.2 Southwest Power Pool (SPP)- LEC joined SPP in 2021 to advocate for stronger price signals for baseload, dispatchable resources in the electricity market. LEC is a part of the Markets and Operations Planning Committee along with the Membership Committee.

To be able to provide tracking coverage of the committee process and in-depth analysis of market activities and proposals, LEC has contract support for background in rural cooperative electric and electricity market issues.

Task 4.3 Power Demand Forecast- Engage with BARR Engineering to continue to develop power demand forecasting as it relates to the future of North Dakota's electricity generation resources. To help understand the demand for electricity in the growth area in the oil producing counties, along with population growth across the state, the LEC will commission additional studies estimating the growth over the next 20 years.

Task 4.4 Transmission Strategies – The LEC will continue to work with utilities and the NDTA to inform and support development of transmission strategies. Whether the scope of the planning process is national, regional, or state, the Authority will participate to protect North Dakota's interest. The EPP will participate in studies for transmission planning on a regional basis and a national basis as appropriate. Input will be provided that is consistent with North Dakota's policy of "all of the above" energy options.

QUALIFICATIONS

A. Capabilities and Experience

The Lignite Energy Council is a trade organization comprised of 250+ members including major lignite producers who produce a total of 30 million tons annually, the nation's largest

commercial gasification project, and investor-owned utilities and rural electric cooperatives from a multi-state area that generate electricity from lignite serving millions of people from Canada to Texas. For over 30 years, the Lignite Energy Council has maintained a formal partnership with the NDIC to assist with administration of the Lignite Research, Development and Marketing Program and provide technical assistance to the NDIC.

Besides partnering with the NDIC on the development and implementation of the state's research and development program, the Lignite Energy Council manages a regional public relations program for lignite-based electricity and an education program that trains teachers from across the region about the lignite industry. Because of the important impact that governmental policies have on the competitive position of lignite and the ability to develop new lignite projects, the Lignite Energy Council is also involved in various governmental relations activities such as legislative, Congressional, and public official forums and briefings.

The Lignite Energy Council has effectively managed similar contracts with the NDIC dating back to May 1999. Based on this experience and the above-described capabilities, the Lignite Energy Council is capable of administering the Enhance, Preserve and Protect Program.

B. Key Personnel

- **EPP Project Manager**
  Angie Hegre has more than 16 years of experience in the energy industry. Before she joined the Lignite Energy Council in 2019, she worked for Great River Energy as the Generation Support Coordinator. Ms. Hegre worked with Senior leadership in Minnesota and the North Dakota executive team including the Director of ND Generation. She worked with environmental reporting requirements, and compliance record retention for regulatory and safety. She worked in-line with engineering and operations managing year-end and outage reporting. Ms. Hegre was hired by the LEC in August 2019 and is the Research and Development Program Manager. She has been supporting the Lignite Research Council grant rounds to include working with the NDIC, principal investigators, technical reviewers, and technical advisor. She has taken on the requirement of the bi-annual summaries and EPP reports to the NDIC. Ms. Hegre works with the Director and Deputy Director of the ND Transmission Authority, providing reports, presentations, and research assistance. Angie attended Central New Mexico College and lived in New Mexico for over 20 years before moving back home to North Dakota in 2009.

- **EPP Principal Investigator / Technical Advisor**
  Mike Holmes has nearly 40 years of experience with the development of technologies leading to the clean and efficient use of coal. Prior to coming to the Lignite Energy Council, Mr. Holmes spent 15 years each in technology

development at Babcock and Wilcox in Alliance, Ohio and The Energy and Environmental Research Center (EERC) at the University of North Dakota. At the EERC, he served as director of Energy Systems Development, where he oversaw fossil energy research areas. His principal areas of interest and expertise include CO_2 capture; fuel processing; gasification systems for coproduction of hydrogen, fuels, and chemicals with electricity; process development and economics for advanced energy systems; and emission control technologies. In January of 2017 he was hired to serve as the Senior Vice President of Research and Development for the Lignite Energy Counsel, and the NDIC appointed Mr. Holmes to serve as the Technical Advisor to the NDIC for the North Dakota Lignite Research, Development and Marketing Program. Mr. Holmes received B.S. degrees in Chemistry and Mathematics at Mayville State University and his M.S. degree in Chemical Engineering at the University of North Dakota.

- **Environmental Management and Power Markets Lead**
  Jonathan Fortner is President & CEO of the Lignite Energy Council, where he directs the organization's strategic vision, government affairs, and public advocacy on behalf of North Dakota's lignite industry. Since joining the Council in 2018, he has taken a direct role in regulatory and legal strategy, working on key EPA rules (including MATS, greenhouse gas, regional haze, and coal combustion residuals) as well as the BLM Resource Management Plan. Fortner also represents the industry in regional transmission organizations as Chair of the Affiliate Sector for the MISO Advisory Committee. He holds both an MBA and MPA from the University of North Dakota, is a Policy Fellow at the University of Minnesota's Humphrey School, and a graduate of the Leadership North Dakota Program at the University of Mary.

- **Robert Paine, AECOM** – An expert in environmental and air quality modeling, Robert Paine contributed technical analyses and assessments of the proposed rules' environmental impacts, including data on air quality and emission control feasibility.

- **Isaac Orr, Always On Energy Research** – Leveraging his expertise in energy markets and policy, Isaac Orr conducted analyses on mining practices and regulatory impacts, providing detailed technical and economic data to support public comments and advocacy efforts.

- **Mack McGuffey, Troutman Pepper** – A seasoned attorney specializing in air law, Mack McGuffey provided legal analysis of federal environmental regulations, crafting legal arguments and contributing to the preparation of public comments.

- **Mike Nasi, Jackson Walker** – With extensive experience in environmental and energy law, Mike Nasi offered critical insights on regulatory compliance and

litigation strategies, helping ensure alignment between industry objectives and legal frameworks.

- **Wade Mann, Crowley Fleck** - An attorney with Crowley Fleck PLLP, brings extensive experience in lignite mining issues including regulatory analysis, environmental law, and energy policy. His expertise in interpreting federal rules, assessing industry impacts, engaging with stakeholders, and formulating strategic documentation ensures effective responses to regulatory challenges facing the lignite industry.

  (Resumes of EPP Consultants are available upon request)

VALUE TO NORTH DAKOTA

With an existing lignite fleet representing more than $18 billion of capital investment in North Dakota, it is imperative that regulatory and statutory initiatives at the federal level or initiatives by states in the region be cost-effective and based on sound science. Additionally, the EPP supports the development and monitoring of critical R&D projects and strategic studies necessary to sustain and grow the ND lignite industry. The primary objective of the EPP project is to protect and preserve industry investment. The State stands to lose approximately 3,228 direct jobs and a significant portion of the over 12,000 indirect and induced positions related to providing services to the industry if as partners, the State and the lignite industry cannot find technology solutions and proactively address the development of reasonable regulations based on sound science. Also, directly at risk if the existing lignite industry is not protected is state and local revenues of over $107 million and gross business volume for the industry estimated at $5.4 billion annually. The value to North Dakota of the EPP Project grant is the ability to enhance, preserve and protect an industry that has provided low-cost and reliable electricity to the region for many generations.

BUDGET - EPP PROJECT COST SUMMARY BY TASK

No additional facilities are needed to implement this budget. See Appendix 1 for more detailed budget description.

MANAGEMENT

See description of project management under “Project Description, C. EPP Project Task Summaries.” Also see Organizational Chart in Appendix 3.

The LEC will continue to maintain the proven project management system that has supported the effective execution of the EPP Program. The project team will ensure deliverables are met while keeping a clear focus on maximizing value throughout the project. This will be achieved through consistent communication with industry and state stakeholders to identify needs related to technology development, strategic studies, environmental and legal support, and power markets and transmission strategies.

Project Management Roles

- Project Manager: Angie Hegre will serve as project manager, responsible for compiling and documenting results with input from the Principal Investigator, task leads, and subcontractors.
- Technical Oversight: Mike Holmes will provide technical review and oversight for the project management task and will lead technology oversight within the R&D, environmental, and legal support efforts.
- Program Oversight: Jonathan Fortner will oversee activities related to environmental and legal support, as well as power markets and transmission strategies.

Collaborative Approach

These efforts will be guided by input from both industry and state stakeholders, with the LEC team leading collaboratively and leveraging the expertise of outside subcontractors. Examples include technical support from the EERC on strategic studies, subcontractors engaged in environmental and legal efforts such as Crowley Fleck, Jackson Walker, Troutman Pepper, and partners assisting with RTO engagement and state-level power market and transmission strategy development.

Additional details are in the Task 1 description above.

TIMETABLE

The Enhance, Preserve and Protect project will begin under this contract on January 1, 2026, and end on December 31, 2028. Semiannual project reports will be submitted to the NDIC as mentioned in the “Project Description” section.

MATCHING FUNDS

The EPP project will use non-matching funds from the lignite research fund consistent with the intent of the North Dakota Lignite Research, Development and Marketing Program as described in the “Background, A. State Policy” section. Previous grants for the EPP Project were approved to use non-matching funds from the Lignite research fund. The total nonmatching funds requested are $3,316,695

TAX LIABILITY

I, Jonathan Fortner, certify that the Lignite Energy Council is not delinquent on any tax liability owed to the State of North Dakota.

Jonathan Fortner, President
Lignite Energy Council

CONFIDENTIAL INFORMATION

This grant application contains no confidential information.

Budget by Task

1.0	Project Management	36 months	$518,915
2.0	Research and Development Strategies / Activities	36 months	$1,188,729
3.0	Environmental & Legal Support Strategies / Activities	36 months	$821,645
4.0	Power Markets and Transmission Strategies / Activities	36 months	$787,406
	Totals	36 months	**$3,316,695**

STANDARDS OF SUCCESS

The project proposal has included work task objectives (See Project Description, above). The EPP Project team will submit periodic reports addressing progress under each of the tasks. The reports shall demonstrate a portfolio of lignite research program projects that align with state and industry goals. In addition, identification of strategic studies and documentation of final results will provide measurable standards of success for the EPP project. Documented accomplishments and progress in each of the task areas will provide a standard of success.