

Lignite Energy Council Education Program

Grant Submitted by

Lignite Energy Council

Principal Investigator

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Lignite Energy Council

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Amount Requested: \$550,000

Contents

- Abstract3
- Project Summary4
- Value to North Dakota5
- Project Description5
 - Lignite Education Seminar6
 - Background7
 - Recruitment8
 - Seminar Attendance8
 - Management9
 - Lignite Education Foundation and License Plates9
 - STEM Technology Grant10
 - Direct Community and School Engagement10
 - Hands-on Simulator Experience11
- Standards of Success11
 - Objectives11
 - Deliverables12
 - Outcomes12
- Qualifications12
- Timetable13
- Budget14
- Matching funds16
- Tax liability16
- Confidential information16

Abstract

The Lignite Energy Council's (LEC) Education Program was created under authorization of Lignite Research Council per Chapter 54 of the North Dakota Century Code which states, in part, that the legislative assembly finds that "it is an essential government function and public purpose to... support educational activities relating to the lignite industry."

This program, now in its 40th year, continues to build on the ongoing success of the Lignite Education Seminar as well as education initiatives to educate teachers and students about the regional lignite industry including energy production and the economic and environmental impacts of lignite.

Through the Lignite Energy Council's Lignite Education Seminar and other education-focused outreach efforts, the expected outcomes of the Education Program include:

- Improved perception of lignite coal as an energy resource;
- Increased awareness of the regional lignite economy; and
- Increased understanding of future growth opportunities within the lignite industry.

These outcomes will be achieved through deliverables that facilitate open communication and awareness, expand the use of educational hands-on activities in classroom settings, and through providing multi-day, expert-level education for teachers and administrators. Ultimately, the Lignite Education program will achieve the overarching goal of educating teachers, students, and other key stakeholders about the lignite industry in the region.

The funding request is for a 39-month program with a project start date of April 1, 2026 to allow the ongoing work of industry and the Lignite Energy Council to be included in the overall scope. The total budget for the Education Program as described is \$1,150,000, of which \$550,000 is requested from the Lignite Research Council. The matching funding for the Education Program comes from the Lignite Energy Council and in-kind services from the Lignite Energy Council and representatives of the lignite industry.

Project Summary

The goal of the Lignite Education Program is to educate teachers and students about the lignite industry through in-person connection, community outreach events, and educational and awareness opportunities through both hands-on and online delivery options. Ensuring the Program invests resources in multiple avenues and mediums is crucial in ensuring that many subsets of the target audience is reached, and that the message is reinforced through repetition and various delivery modalities.

The flagship piece of the Education Program has long been the Lignite Education Seminar. The four-day Seminar, which is held each June in Bismarck, includes tours of mines, power plants, and other coal-related facilities along with instruction on issues such as history, geology, mining and reclamation, the conversion of lignite to electricity or synthetic natural gas, and the economics of the lignite industry. The seminar also includes panel discussions and presentations regarding industry-related career opportunities, environmental challenges, transmission needs and timely research and development topics. Other supplemental activities and undertakings as part of the Education program are described through this application.

Providing factual information about the lignite coal is essential in fostering a positive and favorable view of the industry. That basis then aids in favorable regulatory, business and career climates for the industry. Access to educational opportunities and easily consumable industry information is crucial in providing awareness about the industry, especially with younger generations. Teaching the teachers and providing them with accurate information about lignite coal and the positive impacts of the industry on North Dakota and the region ensures that they are providing accurate instruction to their students.

This grant application will repeat the timeline of a three-year initiative, allowing for continued flexibility due to technological upgrades, including the ability to educate teachers and students with up-to-date materials reflecting any potential regulatory or other changes. The expanded grant also shows a commitment to continued education regarding lignite coal as an energy resource for today and tomorrow. The expanded timeline will continue to allow for investments in Year 1 (including encumbered expenses to be included as Year 1 match) that will positively impact the effectiveness of the program in Year 2 and Year 3.

Value to North Dakota

The North Dakota Legislature has a long history of supporting the lignite energy industry. Specifically, the North Dakota Legislature has enacted legislation which “ ... declares that it is an essential government function and public purpose to assist with the development ... of North Dakota’s vast lignite resources ... in order to maintain and enhance development of North Dakota lignite and its products; support educational activities relating to the lignite industry; 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.”

The lignite energy industry is vital to North Dakota’s economic health. Annual lignite production has been approximately 30 million tons since 1988, making North Dakota one of the 10 largest coal producing states in the nation. In 2024, an NDSU economic study showed that 3,400 North Dakotans are directly employed in the lignite industry and another 8,500 indirectly. The industry is expected to generate almost \$5.5 billion in annual business activity, as well as \$100 million in annual local and state tax revenues.

This Education Program is part of the larger LEC mission which seeks to:

- 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 North Dakota’s lignite industry for the general welfare of North Dakota.

The Program will also curate and share content gleaned through the program’s administration with other efforts in which the Lignite Energy Council engages, furthering the impact of information, curriculum, and resources developed through the Program.

Project Description

The Lignite Education Program has traditionally focused on impacting the educational awareness and understanding of the K-12 student community through direct classroom engagement, and direct engagement with those who teach at the K-12 level in a classroom setting. In recent years the Lignite Energy Council, with support from the Lignite Research Council and industry partners, has been enabled to expand the impact and range of its educational efforts through other community outreach initiatives. Targeted newer

audiences include community groups, business leaders, and potential lignite industry employees, as well as K-12 students outside of the traditional classroom setting.

As planning continues to broaden the reach and impact of the Lignite Education Program and Lignite Education Seminar, the budget included in this proposal will reflect opportunities to remain flexible with the program while maintaining support for the annual Lignite Education Seminar, and adapting its impact in response to any changing conditions.

Opportunities to engage in continued educational programming for these identified communities will be within the scope of this application, including those outlined and described below:

- Lignite Education Seminar
- Lignite Education Foundation and License Plates
- STEM Technology Grant
- Direct community and school engagement
- Hands-on simulator experiences

Lignite Education Seminar

Future Lignite Education Seminars funded through this proposal are scheduled to be held at the National Energy Center of Excellence on the campus of Bismarck State College in Bismarck, ND, on June 8 – 11, 2026; June 7 – 11, 2027; June 12 – 15, 2028; and on June 11-14, 2029. The annual Seminar has historically attracted educators primarily from a four-state area – North Dakota, South Dakota, Minnesota and Montana. School superintendents, principals and teachers of all grade levels from elementary to senior high are encouraged attend the four-day Seminar. Approximately 50 – 100 educators attend annually.

The previous Lignite Energy Council Education Program funding expired on March 31, 2026. In order to provide funding for the 2026 seminar, the beginning date of this proposal will be April 1, 2026. In order to ensure future continuous coverage of seminar dates, the proposal shall cover through the end of June 2029 – encompassing an approximately three-year time period during which four seminars will be held.

Teachers attending the Seminar will complete one of three assignment options in order to demonstrate comprehension of topics discussed, with the intention that they incorporate these reflections in their classrooms. Through an online platform, teachers will begin to have the opportunity to share completed assignments with others who have attended the Seminar, increasing the impact of the Seminar outcomes back in the classroom for years to come. While prior assessments had consisted of the creation of lesson plans and

summaries of sessions, a rise in the prevalence of generative AI has led to the need of more individualized assignments.

Attendees may now complete one of the three options for assessment:

1. Reflective Analysis: Participants may submit a 3-4 page reflective essay referencing specific sessions or tours, providing a lookback of the seminar and incorporating their thoughts, OR
2. Application of new learning: Participants are to complete a classroom implementation plan to translate seminar learning into teaching context. This should be specific to the individual classroom, incorporating multiple activities or elements from the seminar and include how student understanding will be assessed, OR
3. Developing an applied analysis of energy use within their own school district, with direct specific references to what was learned during the seminar. This would address where their district's power comes from, related career paths in their region, and misconceptions students bring to the classroom.

Background

The Lignite Energy Council has been offering the Seminar since 1986. The Seminar will be coordinated and reviewed by Retha Mattern, Executive Director of Public Engagement at the Lignite Energy Council. Retha will also serve as the Instructor of Record for the Seminar, eliminating the need for an outside faculty contract. The various presenters work in the industry and speak from experience on their various topics.

Each participating teacher is eligible to receive two graduate credits, paid for by the Lignite Energy Council, from the North Dakota University System (UND, NDSU and Minot State University) upon the completion of the Seminar and successful submission of assignments. Teachers also receive ancillary information for classroom work including classroom activities, videos about generation, mining and reclamation and samples of coal and coal combustion byproducts.

The Seminar focuses on sending teachers back into their schools with practical and applicable information and classroom tools. It places an emphasis on technology and hands-on learning to help the teachers prepare lesson plans. The anticipation is that teachers will implement these activities in their own classroom and share them with peers, increasing the reach and impact of the Education Program.

More than 4,000 teachers representing more than 600 schools have completed the Seminar. As a direct result, an estimated 60,000+ students have received some education about lignite and its role in the regional economy every year. More than 750 teachers have attended from out of state.

Recruitment

Each year, the Seminar's administrator works closely with recruitment representatives from electric utilities with customers in targeted states. The Lignite Energy Council provides these recruiters with printed and electronic promotional material. The recruiters then assist in disseminating information about the Seminar to schools and teachers within their service territories. Applicants are directed to the Lignite Energy Council's website (<https://www.lignite.com/teachers>) to complete an online application.

Recruitment in North Dakota consists of a printed direct-mail poster and letter sent to 2,000 licensed teachers in the state, followed by a recruitment postcard. The Lignite Energy Council also engaged in a multi-phased email campaign encouraging attendance. Emails were directed towards teachers and administrators, with administrators also receiving a digital poster to print and display. Teachers in Minnesota who are served by member cooperatives were targeted through an email campaign, as well as through targeted digital ads including video ads on social media.

Seminar Attendance

Accommodations are made at Bismarck State College to house teachers in residence halls on campus. This cost is paid for out of the Seminar budget. Sponsorships by member cooperatives are available for transportation reimbursement to and from the Seminar for eligible teachers in Montana, South Dakota, Minnesota and Iowa. North Dakota teachers are responsible for their own transportation costs to and from the Seminar but are eligible for housing during the Seminar.

The Seminar is targeted to those who teach kindergarten through 12th grade, or are administrators at such schools, from North Dakota, South Dakota, Minnesota or other states where North Dakota lignite-based electricity is used. Teachers are accepted on a first-come, first-served basis; however, preference may be given to those who teach math, science or social studies. College faculty and teachers who are not actively teaching are accepted to the seminar on a space available basis. Additionally, LEC member companies have sent new employees or those who are moving into an educationally-focused role to attend the seminar as a way to enhance their own understanding of and knowledge about the industry, enabling them to provide a more accurate representation of the lignite industry to others. These attendees are not eligible for the provided housing or graduate credits. However, their attendance has proven to expand the impact and reach of the information provided in the seminar.

As part of the industry's in-kind contribution, North Dakota and Minnesota cooperatives and investor-owned utilities provide sponsorships for out of state teachers to attend.

These sponsorships typically cover transportation and meal costs incurred during travel to and from the Seminar. Additionally, industry devotes more than 150 hours for presentation time, seminar recruitment, and materials as well as providing food and beverages during on-site tours.

Management

The Lignite Energy Council will manage and oversee the Seminar. Its Board of Directors has authorized the program and budget. Retha Mattern, Executive Director of Public Engagement, is the primary person responsible for the Seminar and will also serve as the Instructor of Record for the Seminar. Retha reports to Jonathan Fortner, President and CEO of the Lignite Energy Council. Other Lignite Energy Council employees assist with providing logistical support, presentations, and other assistance needed throughout the seminar.

In addition to Lignite Energy Council staff, the LEC relies on the expertise provided by industry and education representatives to provide the bulk of instruction for the Seminar.

The University of North Dakota, North Dakota State University and Minot State University have approved the program for eligibility of two graduate credits for the Seminar. Graduate credits are awarded on either a S/U basis or as a letter grade, per institution policy. The Seminar will be held on the campus of Bismarck State College in Bismarck, ND, with options for housing and meals for participants facilitated through the campus or others as needed.

Lignite Education Foundation and License Plates

The LEC also established a charitable 501(c)(3) organization. The Foundation provides funds for educational programs and activities which educate about the coal industry, processes, and economic impact; promote industry-related career opportunities; and aim to facilitate opportunities to actively engage students with the industry.

One program that the Lignite Energy Council is most proud of is the North Dakota license plate program. Funding for the scholarship program is derived, in part, through a special-interest license plate available from the North Dakota Department of Transportation. Today, more than \$15,000 has been raised through the license plate program.

With support from the Lignite Foundation, teachers who attend the Education Seminar are eligible to apply for a grant of up to \$500 in order to take their students on a field trip to a lignite-related facility. This opportunity was developed in response to feedback from seminar attendees who expressed a desire to take their classes on a trip similar to what they experienced during the seminar, but were faced with financial difficulties at the

school level. Many schools do offer limited or no funding for field trips. The grant is available for up to three years after a teacher attends the seminar, and has been awarded three times.

STEM Technology Grant

Teachers play a valued role in sharing information learned during the Seminar with students. In order to raise awareness of the seminar and the Education Program, the Lignite Energy Council sponsors Teacher Appreciation Night at the Bismarck Larks one night each summer. As part of this initiative, students are invited to nominate their teachers to receive a \$1,000 STEM Technology Grant awarded to their school, along with a \$250 gift card for classroom supplies. Throughout the game, the Public Announcers read facts about lignite and its role in North Dakota, and play an educational video on the video screen for all attendees to view. All teachers who are nominated are invited to attend the Teacher Appreciation Night game, and finalists are recognized on-field, along with the student who nominated them. The grant has proven to be a popular and successful award.

Direct Community and School Engagement

Career exploration opportunities have become a popular way for schools to expose students to opportunities after high school. School leaders often offer such programs to middle and high school students. Some school districts employ “Career Advisors” in addition to traditional school counselors, and all North Dakota high schools are required to provide two units of career and technical education to students.

This emphasis on hands-on, career-oriented learning opportunities frequently results in teachers looking for guest presentations and activities provided by industry experts. Through the Education Program, the Lignite Energy Council will be able to be a resource to facilitate in-person engagement with schools and other community groups when requested. In addition, the Lignite Energy Council continues to develop stand-alone, hands-on classroom activities to be provided and facilitated by teachers or other individual when requested.

There are also many opportunities to provide education about the lignite industry beyond the traditional K-12 audience. These include events such as the Leadership Bismarck-Mandan program, which holds an annual “Energy Day.” Participants in the LBM program represent a range of community leaders. Attendees learn about various areas of economic importance to the region, and the Lignite Energy Council has been able to work with member companies to facilitate a one-day program to discuss energy generation, transmission, and use in the region. Participants then leave with a better understanding of the industry that they can share with their colleagues and areas of influence.

Hands-on Simulator Experience

There has been an increasing demand for hands-on, immersive experiences as a way to provide career exploration opportunities for students through the K-12 levels. As a way to meet this need, the Lignite Energy Council is working with industry partners to identify ways to use or repurpose industry training simulators at various locations. These simulators would allow students of all ages to experience operating heavy equipment, running the controls at a coal-fired power plant, or engage in other similar activities that relate to the coal industry.

One opportunity exists to establish a new Operator Training Simulator at Bismarck State College, through a joint partnership between BSC, the LEC, and Rainbow Energy Center's Coal Creek Station. There is an existing simulator on-site at BSC that has been used to train operators at CCS, however it is reaching its end of life and is of limited use in outreach efforts and career exploration opportunities. A new simulator to replace it will provide centralized access for student training and alignment with statewide and regional workforce efforts to support the energy industry. Due to its location at BSC, this simulator could be used during events such as the Teacher's Education Seminar or any T-4 events hosted in the Bismarck area.

Other simulator opportunities may include purchasing traveling simulators to be used at T-4 events throughout the state, as well as static simulators that could be housed at Gateway to Science or other similar entities to allow for organic interactions with the industry by visitors to the science center.

Standards of Success

Success of the Education Program is evaluated based on the objectives and outcomes of the goal of the program: Educate regional teachers and students about the lignite industry in the area.

Objectives

- Increase awareness of the regional lignite industry among teachers, administrators and students.
- Improve the favorability of the regional lignite industry among teachers, administrators and students.
- Demonstrate improved understanding of the regional lignite industry among teachers, administrators and students.

Deliverables

- Produce a multi-day, in-person Lignite Education Seminar which provides expert-level instruction on the facets of energy, economics and the environmental impacts of the regional lignite industry.
- Maintain, add and expand student activities that educate about energy, economics and the environmental impacts of the regional lignite industry.
- Maintain, add and expand assets such as videos, graphics and lesson plans which educate about energy, economics and the environmental impacts of the regional lignite industry.
- Provide avenues for dialog and open communication between target audiences and industry personnel such as tours and panels.
- Identify and promote job and career opportunities in the regional lignite industry.

Outcomes

- Participation of 75 educators and/or administrative staff in the Lignite Education Seminar
- Target audience will be able to demonstrate more than 70% comprehension of sources of energy/electricity and pros/cons of each.
- Target audience will indicate more than an 70% agreement that coal is vitally important to our region's power supply.
- Target audience will report more than an 70% favorability of the use of coal to produce electricity.
- Target audience will be able to identify possible career paths available.

Qualifications

The Lignite Energy Council will be responsible for managing the Education Program. The Lignite Energy Council is a regional trade association representing the interests of producers and users of lignite and conducts programs in four separate areas including: government action; research and development; public relations and marketing; and education. Through these programs, the Council seeks to maintain a viable lignite industry and enhance development of North Dakota's abundant lignite resources in a clean, economical and efficient manner. These programs provide timely, accurate information that enables elected officials, government leaders and the public to make sound, informed decisions on lignite issues.

Retha Mattern joined the Lignite Energy Council in September 2022 as the Education & Membership Director and became the Lignite Energy Council's Executive Director of Public

Engagement in June 2025. Retha holds a Master of Science in Management from Minot State University and a Bachelor of Arts in Journalism from the University of Maryland, College Park. Retha previously worked in higher education as the Admissions Director at Bismarck State College, the Business Outreach Coordinator for the college's National Energy Center of Excellence, and as the Director of the Great Plains Energy Corridor. Retha also served on the North Dakota State Board of Higher Education from 2019-2022. Retha has served as the lead instructor for the Seminar since 2023.

Representatives of the Lignite Energy Council who also serve as presenters at the Seminar include:

- **Jonathan Fortner** serves as President and CEO of the Lignite Energy Council. He also serves as the Chairman of the Lignite Research Council (LRC) which includes government, research, environmental and industry representatives. The LRC assists with development and administration of North Dakota's Lignite Research, Development and Marketing Program by providing recommendations to the Industrial Commission.
- **Mike Holmes** is currently serving as the Vice President of Research and Development at the Lignite Energy Council, a role he has held for about a decade. Previously, he had been the director of Energy Systems Development at the Energy & Environmental Research Center (EERC) in Grand Forks, where he oversaw fossil energy research areas. Mike Holmes will be retiring in June 2026, to be replaced by Jason Laumb.
- **Jason Laumb** will join the Lignite Energy Council as Vice President of Research & Development in May 2026. Laumb most recently served as director of Advanced Energy Systems Initiatives at the Energy & Environmental Research Center (EERC) at the University of North Dakota, where he worked on advanced power systems, carbon capture, emissions control technologies, grid analysis, and critical minerals development. At the Lignite Energy Council, Laumb will lead research, development, and technology commercialization efforts supporting North Dakota's lignite industry.

Timetable

The Lignite Energy Council's Teacher Education Program described in this grant request runs from April 1, 2026 through June 30, 2029. Extending the grant request timeline from 36 to 39 months ensures that the 2029 planned seminar is included in this grant proposal.

Budget

The Lignite Energy Council's Teacher Education Program grant budget, including in-kind services, from April 1, 2026, through June 30, 2029 is \$1,150,000.

The Education Program budget encompasses four main areas – expenses for program management; expenses for the Seminar logistics, venue and Seminar management; expenses for professional services and expenses regarding the outreach of the program.

Items within the budget include, but are not limited to the following:

- Program Management:
 - Includes a percentage of the program director's pay and benefits, as well as the salary costs from other support staff,
 - Costs for expanded educational community outreach opportunities, and
 - Costs related to an administrative software system for program management, seminar participant registration, and assignment submission.
- Teachers Education Seminar Logistics and Venue:
 - Facility rental fees,
 - Recruitment efforts,
 - Attendee transportation, housing and meals,
 - Speaker costs, and
 - Attendee credits.
- Professional Services
 - Costs professional services provided by Shawn Brink, the North Dakota Energy Education Coordinator, in partnership with the North Dakota Petroleum Foundation and Bismarck Public Schools. This position provides expertise, advisement, speaking, in-classroom presentations and curriculum development, along with implementation of the T-4 program for the Education Program.
- Program Materials, Supplies & Digital Assets
 - All classroom materials available to teachers or used in class facilitation,
 - Website and Lignite Learn development and maintenance,
 - Maintenance and creation of video and/or digital assets,
 - Program expansion efforts.
- Community & School Engagement
 - Leadership Bismarck-Mandan programming, including transportation costs
 - Gateway to Science Sponsorships and activity/exhibit development
 - Simulator deployment
 - Bismarck Larks Teacher of the Year recognition programming, and
 - Other opportunities to participate in K-12 outreach events.



Lignite Energy Council Education Program Budget

3/26/2026

Income

	LRC Share	Applicant's Share	Applicant's In-Kind
Grant Request	\$550,000	\$525,000	\$75,000
TOTAL PROGRAM FUNDING			\$1,150,000

Expenses

1 Program Management	3 years		
LEC Administrative Expenses		\$316,000	
Material & Supplies		\$19,250	
Software & Subscriptions		\$158,000	
			\$493,250
2 Teachers Education Seminar	3 years		
Facility Costs		\$27,000	
Recruitment (Materials & Services)		\$163,000	
Meals & Housing		\$43,000	
Credits (Fees)		\$15,500	
Programming		\$29,500	
			\$278,000
3 Professional Services (Labor)	3 years		
ND Energy Career Awareness Program		\$210,000	
			\$210,000
4 Community & School Engagement	3 years		
		\$168,750.00	
		\$168,750	
			\$1,150,000

This chart shows the budgeting outline for the three years of the program and estimated funding for each category. It outlines the anticipated cost-share and in-kind support to meet the requirements of the grant match.

Matching funds

The Lignite Energy Council and its members will provide in-kind services and funding of at least \$600,000 over 39 months to match the Industrial Commission's funding of up to \$550,000. Total funding for the grant proposal is \$1,150,000.

Tax liability

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

Confidential information

No confidential information is included in this proposal.

Retha Mattern, Executive Director of Public Engagement
Lignite Energy Council