



October 2, 2017

Karlene Fine
Executive Director
North Dakota Industrial Commission
Attn: Lignite Research Program
600 East Boulevard Avenue
Bismarck, ND 58505

Subject: Grant Application Submittal: "Annual Lignite Energy Council Education Program"

Dear Karlene:


The Lignite Energy Council (hereinafter Council), a regional trade association of producer, utility and business members who produce approximately 30 million tons of lignite and generate electricity from lignite that serves two million people in the Upper Midwest region, is pleased to submit the enclosed proposal to seek funding for the "Lignite Energy Council Education Program."

The Council will provide the matching funds for this project.

Thank you for the opportunity to submit this proposal.

Sincerely,

LIGNITE ENERGY COUNCIL



Jason Bohrer
President

JB/kl

Enclosures: 2 Copies of Grant Application
\$100 check

Annual Lignite Energy Council Education Program

**Grant Submitted by
Lignite Energy Council**

**Principal Investigator
Lignite Energy Council**

Grant Deadline: October 2, 2017

Amount Requested: \$100,000

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ABSTRACT

The objective of the Lignite Energy Council's (LEC) Education Program is to educate teachers, students and members of the general public about career opportunities, economic benefits and operations of the lignite industry.

With support from the Lignite Energy Council's Lignite Education Seminar, education website and other outreach efforts, the expected results of the Education Program include facilitating open communication between the industry and educators, increasing the awareness and understanding of the industry and improved favorability of the industry. Ultimately, a positive public opinion will attract workforce and create interest and awareness of the career opportunities afforded by the North Dakota lignite industry.

In 2014, a period of transition fostered the expansion of the Lignite Education Seminar to an all-encompassing Education Program.

The funding request is for a one-year program. The total budget for the Education Program as described is \$215,000, of which \$100,000 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 mission of the Lignite Research Council is to assist in marketing as well as research and development activities. The Education Program as outlined in this grant request is an effective way for the Lignite Energy Council to continue to market the industry, its economic benefits and its career opportunities to educators and students in the states of North Dakota, Minnesota, South Dakota and Montana.

Education and public outreach are critical to the future success of the energy industry in our state. Public awareness and support for the value of the industry to the state will be helpful when trying to attract a workforce. Providing educators with an understanding of the lignite industry and related career opportunities will likely provide them with the background knowledge to encourage students to consider the career opportunities in North Dakota's energy industry when they begin to look at career choices.

Attracting a future workforce is crucial as the industry faces a 50 percent retirement bubble in the next few years – both at the mines and coal conversion facilities. Environmental technology improvements that are needed at existing plants and new construction projects in the future will increase the demand for a highly skilled workforce.

The flagship piece of the Education Program is the Lignite Education Seminar. The four-day Seminar, which is held each June, includes tours of mines and coal conversion facilities along with presentations and panel discussions on a number of relevant issues including history, geology, mining and reclamation, converting lignite to electricity, converting lignite to synthetic

natural gas, economics of the lignite industry, career opportunities, environmental challenges, transmission and research and development 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 submission of a lesson plan. 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 home 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 2018 Seminar will be held at the National Energy Center of Excellence on the campus of Bismarck State College in Bismarck, ND, on June 11-14. The annual Seminar has attracted educators 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 attend the four-day Seminar. Approximately 125-135 educators attend annually.

STANDARDS OF SUCCESS

In 2009, the Education Seminar expanded from a one-credit (two and a half days) to a two-credit (four-day) Seminar. This change required more face-to-face time between instructors and teachers. It also gave the LEC the opportunity to make some capital improvements, such as an electronic Audience Response System, which allows more interactivity between the instructor and the audience.

The Audience Response System has allowed staff to track changes in opinions about the industry, what participants have learned throughout the Seminar and what they are interested in learning more about.

During the last four Seminars, a survey of participants has indicated an increase in favorability opinions from the beginning of the Seminar to the conclusion of the Seminar. Additionally, most participants indicated that they will make use of material and knowledge gained through the Seminar when they return to their classrooms.

In 2017, Seminar attendees were asked a series of questions that mirrored a North Dakota and Minnesota public opinion study conducted in 2014. The same questions were asked to attendees before and after the Seminar. The findings following the conclusion of the Seminar were:

- 93.83% respondents said that they favor the use of coal to produce electricity – a 16.05% change.
- 77.92% strongly agreed that coal energy is vitally important to our region's power supply – a 20.78% change.
- 75% strongly disagreed that coal is a dirty form of energy and should not be part of our energy future – a 17.5% change. (This question demonstrated a 20% increase in the favorability of coal as compared to the responses in 2016.)

In the fourth quarter of 2014, the LEC sent out a similar survey to those who attended the Seminar since 2009, when the Seminar expanded to a two-credit program. Here are some notable results from that survey:

- 82% indicated that they have incorporated Seminar information into their teaching plans.
- 73.53% have promoted the job opportunities in the lignite industry to their students.
- 86.1% of the teachers indicated that the subject matter of the Seminar was applicable to the subject matter they teach.
- 70% of attendees indicated that learning more about the industry was the primary reason for attending.
- 62.10% indicated that receiving two graduate credits was a major factor in their attendance.

A similar study conducted with 2015-2017 attendees also indicated that real life examples of why certain subjects are important for energy-related careers was what they felt they learned most about during the Seminar.

North Dakota Energy Activities Trunks

As a result of the findings from the Education Advisory Group, the Lignite Energy Council has been collaborating with the State Historical Society of North Dakota to build North Dakota Energy Activities Trunk with Objects (NdEATO). The goal is to produce a product that would be available for school districts to check-out and use in the classroom. Another goal for the product would be something for substitute teachers to have at their disposal when preparation time and/or when their knowledge of the subject is minimal.

The NdEATO trunk contents go hand-in-hand with *Energy: Powered by North Dakota* energy curriculum, a product of the EmPower ND Commission. Additionally, the activities and instruction follow the syllabus of the *Lignite Education Seminar*.

Lignite Education Video Series

As part of our continual improvement efforts, we have been focusing more attention and resources to update and broaden our library of videos that showcase various aspects of the lignite industry.

Completed video projects in 2017 include:

- **Electricity and Lignite Coal in North Dakota** – an educational animated video about how lignite coal produces electricity in North Dakota.
- Nine videos featuring North Dakota lignite mines and plants:
 - Freedom Mine
 - Coal Creek Station
 - Antelope Valley Station
 - Great Plains Synfuels Plant
 - Falkirk Mine
 - Milton R. Young Station
 - Center Mine
 - Leland Olds Station

- Coyote Station

Completed video projects in 2016 included:

- Allam Cycle
- Miss North Dakota
- Internships

Allam Cycle – This six-minute video provides a history of the lignite industry’s efforts to reduce emissions and increase plant efficiency before explaining how the Allam Cycle works to create a near-zero emissions plant that would produce both electricity and pipeline-quality carbon dioxide. The video also explains the timeline that is necessary for this plant to reach fruition. The purpose of the video is to show that the lignite industry is working on an R&D solution to meet the requirements of the Clean Power Plan, but time and resources are required to meet the target.

Miss North Dakota – Delanie Wiederich, a native of Hazen, North Dakota, and Miss North Dakota 2015, is featured in two videos that talk about the lignite industry’s impact on her hometown and Mercer County. She further explains how the Clean Power Plan could shut down half of the lignite industry if the state is to meet the 45 percent cut in carbon dioxide emissions by 2030. The purpose of the video is to call attention to the harmful effects of the Clean Power Plan both on the state of North Dakota and Coal Country communities.

Interns – Three videos produced this summer show college interns working at the area mines and power plants. The interns talk about career choices and how the right education can prepare them for careers in the lignite industry, a homegrown industry in the heart of North Dakota. The interns also talk about the environmental regulations and how the mines and plants not only comply but beat the standards in place through state and federal regulation. The purpose of the videos is to put a human face on the industry, provide a voice from young people talking about the industry and inform the public about career opportunities in the lignite industry.

With funding from the 2016 LRC grant, the Lignite Energy Council also began the process to develop new education videos that would pair with the Lignite Education Seminar. When videos were completed 20 years ago, the utilities in the lignite industry would often provide the Lignite Energy Council the video as an in-kind contribution. However, competition and down-sizing in the energy industry has limited, if not ended, that practice completely. Thus, the LEC must look for the lowest-cost video contractors to rebuild our library. KAT Communications was chosen and approved by the Lignite Research Council in 2016 to act as an independent contractor.

As part of that process, the LEC has been working with local media company KAT Communications to draft and carry out a plan for a series of four 15-minute videos. The Lignite Energy Council and KAT Communications have worked through all four phases of the project on video one: Lignite 101/Industry Overview and will have a completed 15-minute video to preview to the Lignite Research Council.

Work has also begun on the second video: North Dakota Lignite Geology, Mining and Reclamation with funding from the 2017 Lignite Research Council grant. This video is expected to be completed in late 2017 or first quarter 2018. Both fully completed videos will be available to attendees of the 2018 Lignite Education Seminar.

Additional Education Outreach/Materials

The LEC has begun the process to update and improve educational materials available to all teachers that will be made available by way of the education website. Materials will include lesson plans for multiple grade levels, hands-on activities and up-to-date workforce information. Through website analytics and follow-up with those who download the material, the LEC will be able to provide facts and figures on their usage.

In addition to the planned new education section on the website, the Lignite Energy Council employed KAT Communications to video all the sessions of the 2017 Lignite Education Seminar and have incorporated slide presentations with presenters' spoken words into easily consumable videos which will be made available on the Lignite Energy Council website.

As part of a continual improvement plan, the Lignite Energy Council launched a new website in the first quarter of 2017. As part of this launch, there is a \$5,000 KAT Communications in-kind contribution to the Education Program that will be utilized to create a 5-hour classroom lesson plan which will complement the Teacher's Seminar with readily available resources and teaching plan for teachers to educate their students about the lignite industry. This is expected to be completed during the 2018 calendar year and utilize submitted lesson plans and suggestions from past attendees.

Other projects the Lignite Energy Council is engaged in as part of education/outreach are:

- The Lignite Energy Council is hosting a graphics contest with 82 students from the Coal Country Leadership Academy. On September 19 at Lewis & Clark Heritage Center, speakers Greg Kasowski from KAT, Kayla Torgerson from the Freedom Mine and Kevin Thomas from Minnkota's Young Station spoke about how to integrate infographics with mining, reclamation, power plant compliance and environmental regulations. The students can voluntarily compete for one of three prizes by completing an infographic about environmental stewardship at the mines or power plant.
- The Lignite Energy Council completed a series of "baseball cards" that feature all the power plants, coal mines and the synthetic natural gas plant with information regarding each of the lignite facilities. This information was shared with Coal Country Leadership Academy students.
- The Lignite Energy Council promoted the good paying jobs in the lignite industry with a social media campaign around the Labor Day holiday. The campaign featured eight positions at the Center Mine and Young Station and discussed job responsibilities and annual pay.

Lesson Plans

Finally, the Lignite Energy Council is working with local teachers to develop new and revamped lesson plans that would be available for all teachers to utilize. To start that process, the LEC worked with Instructor of Record, Terry Hagen, to identify the top five lesson plans submitted.

Teachers at the 2016 and 2017 Seminar were given a cash award incentive to create their best possible lesson plan. Again, this fall, the Lignite Energy Council will be selecting the first, second and third place lesson plans. First place will be awarded \$100, second \$50 and third \$25. By incentivizing lesson plan submissions, the LEC will have a good pool of lesson plans to draw from for further development and implementation.

BACKGROUND

The Lignite Energy Council has been offering the Seminars since 1986. The Seminar is reviewed by UND faculty member Terry Hagen, who oversees the Seminar as part of UND's School of Business and Public Administration. The coordination of the Seminar is handled by Kay LaCoe, the Director of Membership Marketing with the Lignite Energy Council. The various presenters work in the industry and speak from experience on their various topics.

More than 3,200 teachers in 600 schools have completed the Seminar and it is estimated that more than 60,000 students receive some education about lignite and its role in the regional economy every year. More than 750 of these teachers are from out of state.

Recruitment

Each year, the Seminar's administrator works closely with recruitment representatives with each of the electric utilities that have customers in targeted states. The Lignite Energy Council provides these recruiters with printed and electronic promotional material. The recruiters are responsible for disseminating the information 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 or print and submit a completed form.

In the past, a portion of the recruitment budget has been dedicated to printed material (approximately \$7,200 for 2014). Staff tested additional methods to recruit such as social media ads, direct email marketing and advertisements in school district publications. The goal is to use recruitment money in a more effective method. Research conducted in 2015 indicated that printed material and direct-mail remains the most effective way to recruit.

Recruitment in North Dakota consists of a printed direct-mail piece sent to every licensed teacher in the state. Additional recruitment methods used include a letter and several recruitment brochures sent to every school principal, targeted Facebook advertisements and advertisements in regional trade publications.

In the future, the Lignite Energy Council plans to work directly with school administrators to encourage participation in the Seminar by principals, career counselors and other administrators. The Lignite Energy Council and industry representatives believe that it is crucial that administrators are made more aware of the benefits to teachers of their attendance at the Seminar. The best way to achieve that awareness, we believe, is to have them attend in person.

Additionally, the Lignite Energy Council plans to contract with one or more teachers to attend and outline the Seminar by educational standards – either as a Seminar as a whole or by session.

We are told from the educational sector that this would help better connect the Seminar's applicability to both teachers and administrators.

Seminar Attendance

Accommodations are made at Bismarck State College to house teachers in dorm rooms on campus. This cost is paid for out of the Seminar budget. Sponsorships 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 open to kindergarten through 12th grade teachers 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.

Seminars held 2013 – 2017 hosted 577 teachers, 414 of which were from North Dakota and 163 from other states such as Minnesota, South Dakota, Montana, Wyoming and Iowa. While participants represented every grade, subject matter and discipline, there is a well-balanced representation of approximately one-third grade school, one-third middle school and one-third high school teachers. Physical and earth sciences, math, and social studies teachers represented a majority of subject-specific teachers, while grade school teachers teaching all subject matters also make up a large portion of participants.

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 recruitment, activities, Seminar presentations and tours.

As part of the Seminar's expansion in 2009, special consideration was made to add content to the Seminar to heavily stress the job and career opportunities associated with the North Dakota lignite industry. The Lignite Industry Career Choices section was a special addition that features a speaker who not only works as the Energy Career Awareness Program Coordinator for the Bismarck Public School System, but also owns an energy-related company doing business with the lignite industry. Additionally, each presentation has been specifically tailored to highlight specific education requirements or future learning opportunities directly related to current and future workforce needs. Finally, in 2015 a panel dedicated to workforce issues and needs was added to the agenda.

The Lignite Energy Council has also engaged in other educational and promotional opportunities to support and supplement the Education Seminar and the promotion of the industry.

The LEC also established a charitable 501(c)(3) organization. The primary goal of the Lignite Energy Foundation is to raise funds to support education and scholarship programs for students and teachers in the Upper Midwest who are served by coal-based electricity. The Foundation will provide 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. For an additional \$25 each year vehicles registered and licensed in North Dakota can display their pride for the coal industry and a portion of those sales support the Lignite Energy Foundation.

QUALIFICATIONS

The Lignite Energy Council will be responsible for managing the Seminar. 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, development and marketing; education; and public relations. 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.

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

Jason Bohrer 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 joined the Lignite Energy Council in December 2016 as the vice president of research and development. 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. His principal areas of interest and expertise include CO₂ 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. Prior to his work at EERC, Holmes spent 15 years working on coal-related research and development and commercial projects for Babcock & Wilcox, a major supplier of advanced energy and environmental technologies for the power industry. He received a master's of science degree in chemical engineering from the University of North Dakota and a bachelor's of science degree in chemistry and mathematics from Mayville State University. He is a member of the National Coal Council and has been an Executive Member and served on the Board of Directors of the Fuel Cell and Hydrogen Energy Association.

Kay LaCoe serves as the Director of Membership Marketing for the Lignite Energy Council. Kay has a Bachelor of Science Degree in Business Communications from the University of Mary. She has worked extensively with the Seminar since 2008 prior to assuming the role of the Seminar's facilitator in 2014.

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 proposed speaker slate is included as an appendix to the application.

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; 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. The industry comprises four percent of the states' total economic base. 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 2017, an NDSU economic study showed that 4,000 North Dakotans are directly employed in the lignite industry and another 12,000 indirectly. The industry is expected to generate almost \$3.5 billion in annual business activity, as well as \$100 million in annual state tax revenues.

This Seminar project 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.

MANAGEMENT

The Lignite Energy Council will manage and oversee the Seminar and its Board of Directors has authorized the program and budget. Kay LaCoe, Director of Membership Marketing, is the primary person responsible for the Seminar. Kay reports to Jason Bohrer, President and CEO of the Lignite Energy Council. 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.

TIMETABLE

The Lignite Energy Council's Teacher Education Seminar described in this grant request runs from January 1, 2018, through December 31, 2018.

BUDGET

The Lignite Energy Council's Teacher Education Seminar annual budget, including in-kind services, from January 1, 2018, through December 31, 2018 is \$215,000 (See page 13).

MATCHING FUNDS

The Lignite Energy Council and its members will provide in-kind services and funding of at least \$100,000 for one year to match the Industrial Commission's funding of \$100,000 for one year. Total funding requested for the one-year period is \$100,000, which will be matched by the Lignite Energy Council and its members.

TAX LIABILITY

I, Jason Bohrer, 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.

Appendix

- Proposed Budget
- KAT video production proposal
- Presenter credentials

Jason Bohrer, President & CEO
Lignite Energy Council



Lignite Energy Council Education Program Budget

10/2/2017

Income

	LRC Share	Applicant's Share	Applicant's In-Kind
Teachers' Seminar	\$80,000	\$45,000	\$35,000
North Dakota Energy Education Outreach		\$10,000	
Additional Materials/Outreach/Scholarship Program	\$20,000	\$20,000	\$5,000
TOTAL	\$100,000	\$75,000	\$40,000

TOTAL EXPENSES	\$215,000
Total grant request	\$100,000
Lignite Energy Council	\$115,000

Expenses

Facility Costs for Teachers Seminar		
• Meals	\$16,000	
• Dorm Rooms	\$6,000	
• Administration	\$2,600	
• Facility Rental	\$1,900	
• Audio	\$600	\$27,100

Recruitment Efforts		
• Brochures	\$3,500	
• Postage	\$2,800	
• Envelopes	\$300	
• Advertising/Posters	\$1,000	\$7,600

Credits (\$100/teacher – est. 130 teachers)		
• NDSU, UND and MSU	\$13,000	\$13,000

Speaker/Transportation/Participant Networking		
• Bus transportation	\$7,000	
• Entertainment/Lodging	\$5,000	
• Speaker Fees and Transportation	\$2,500	
• Audience response/research	\$500	\$15,000

Management/Administrative Expenses		
• Program management	\$57,000	
• Instructor of Record	\$2,300	
• Professional services	\$25,000	
• Additional staff resources	\$2,000	
• Office expenses/Overhead	\$4,000	\$90,300

Materials & Supplies		
• Classroom material	\$5,000	
• Contingency/Misc.	\$2,000	\$7,000

Education Outreach		
• NdEATO Trunks, Classroom Materials	\$5,000	
• Lesson plan creation, classroom development	\$5,000	
• Video development	\$45,000	\$55,000

TOTAL EXPENSES	\$215,000
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Proposal
Video Production

Prepared for
Lignite Energy Council

Submitted by:
KAT Communications, Inc.



September 28, 2016





Thank you for considering KAT Communications as your partner for your project. We work according to an ideology that includes our team getting on board with your team. The relationship we build together is critical to success. We'll work hard to ensure we are all on the same page. It's simple at KAT. Four steps take care of everything: Discover, Plan, Blueprint, and Build. The reason for this simplicity is to provide consistency in a world full of variables.

LEC's primary objective is clear—to inform and educate the audience about the lignite industry. This will be accomplished by targeting these audiences:

During more than 20 years of service to the lignite industry, we've been one of the industry's most engaged students and informed proponents. We understand how to take technical information and translate it into a language understood by those unfamiliar with the industry. For example, we worked with LEC to develop a video explaining the complicated Allam Cycle to a general audience. We will work hard for LEC's to become as THE source for credible information.

The KAT Four-Step Process

We are devoted to our four-step development process; so much so that we created a video to explain it: https://youtu.be/2sda9-cgc_o.

1. **Discovery:** (Learn critical project elements) We'll ask questions and gather information about due dates, target audiences, messaging and other pertinent project information to make sure the videos are completed on scope, on time, and on budget. This early detailed communication gives both our teams a strong, confident start.
2. **Plan:** Development of a timeline, topic outline, and a project strategy including creative ideas in order to communicate project direction. We may need an email that tells us stakeholders are on board in order to move to the next step.

We understand the obstacles ahead for the coal industry, and turning the next generation into coal industry advocates requires smart strategies. We believe it's extremely important that we help younger people overcome the knowledge gap to understanding the benefits of the coal industry, especially the environmental benefits.

3. **Blueprint:** Development of the specific instructions to follow for building media to be utilized within the project. Examples include scripts & storyboards, and print layouts. We require a signature approval on the blueprint before we move to the Build step.
4. **Build:** The Build is just as it sounds. Information accumulated and developed during the first three steps is used as the detailed instructions to build media components.

Pricing: The pricing information below is indicative of the production value recommended to engage and maintain the attention of the target audience throughout the duration of the each of the four videos proposed.

Video #1: <i>Lignite 101 / Industry Overview (length = 15 minutes)</i>	Cost
<p>Discovery (see description on page 2) Project due date: TBD Target audience: Primary = ND Students and Teachers, Secondary = General Public and Policy Makers</p>	\$2,500
<p>Plan (see description on page 2) Timeline: TBD Topic Outline:</p> <ul style="list-style-type: none"> • What is lignite • How was lignite formed • How do we get lignite out of the ground • What is lignite used for • What is the economic impact of the lignite industry on the region • Workforce 	\$3,500
<p>Blueprint: Scriptwriting and Storyboard (see description on page 2)</p>	\$7,500
<p>Build: (see description on page 2)</p> <ul style="list-style-type: none"> • Pre-production: shot list development, shoot planning • Producing/Directing • Videography: 2 cameras, audio engineering, drone, GoPro, and up to four trips within 100 miles of Bismarck, ND • Graphic Design • 2D animation of processes and comparisons • Video Editing • Professional voice-over narration • Music bed (from a licensed music library) • Encode to Pro-resolution files and format compatible with online delivery 	\$46,500
<p>Estimate Total: \$60,000</p>	

Video #2: North Dakota Lignite Geology, Mining and Reclamation (length = 15 minutes)	Cost
<p>Discovery (see description on page 2) Project due date: TBD Target audience: Primary = ND Students and Teachers, Secondary = General Public and Policy Makers</p>	\$2,500
<p>Plan (see description on page 2) Timeline: TBD Topic Outline:</p> <ul style="list-style-type: none"> • From dinosaurs to coal • Core sampling • Permitting • Mining process • Reclamation process • Bond release 	\$3,500
<p>Blueprint: Scriptwriting and Storyboard (see description on page 2)</p>	\$7,500
<p>Build: (see description on page 2)</p> <ul style="list-style-type: none"> • Pre-production: shot list development, shoot planning • Producing/Directing • Videography: 2 cameras, audio engineering, drone, GoPro, and up to four trips within 100 miles of Bismarck, ND • Graphic Design • 2D animation of processes and comparisons • Video Editing • Professional voice-over narration • Music bed (from a licensed music library) • Encode to Pro-resolution files and format compatible with online delivery 	\$46,500
<p>Estimate Total: \$60,000</p>	

Video #3: <i>Electricity Generation and Coal Conversion (length = 15 minutes)</i>	Cost
<p>Discovery (see description on page 2) Project due date: TBD Target audience: Primary = ND Students and Teachers, Secondary = General Public and Policy Makers</p>	\$2,500
<p>Plan (see description on page 2) Timeline: TBD Topic Outline:</p> <ul style="list-style-type: none"> • Once inside the power plant • Transmission • Other byproducts/products of lignite and processes (synthetic natural gas, dry fining, flex crete) 	\$3,500
<p>Blueprint: Scriptwriting and Storyboard (see description on page 2)</p>	\$7,500
<p>Build: (see description on page 2)</p> <ul style="list-style-type: none"> • Pre-production: shot list development, shoot planning • Producing/Directing • Videography: 2 cameras, audio engineering, drone, GoPro, and up to four trips within 100 miles of Bismarck, ND • Graphic Design • 2D animation of processes and comparisons • Video Editing • Professional voice-over narration • Music bed (from a licensed music library) • Encode to Pro-resolution files and format compatible with online delivery 	\$46,500
<p>Estimate Total: \$60,000</p>	

Video #4: <i>Environmental Impact/Stewardship (length = 15 minutes)</i>	Cost
Discovery (see description on page 2) Project due date: TBD Target audience: Primary = ND Students and Teachers, Secondary = General Public and Policy Makers	\$2,500
Plan (see description on page 2) Timeline: TBD Topic Outline: <ul style="list-style-type: none"> • Land • Water • Air – Energy and CO₂ Management • Research & Development • The future of the lignite industry 	\$3,500
Blueprint: Scriptwriting and Storyboard (see description on page 2)	\$7,500
Build: (see description on page 2) <ul style="list-style-type: none"> • Pre-production: shot list development, shoot planning • Producing/Directing • Videography: 2 cameras, audio engineering, drone, GoPro, and up to four trips within 100 miles of Bismarck, ND • Graphic Design • 2D animation of processes and comparisons • Video Editing • Professional voice-over narration • Music bed (from a licensed music library) • Encode to Pro-resolution files and format compatible with online delivery 	\$46,500
Estimate Total: \$60,000	

Additional fees may apply if there are changes from this estimate



Notes:

Thanks for the opportunity to provide this estimate. Any variance from bid, as specified, may require renegotiation of prices quoted. Change orders for adjusted project scope are billed at an hourly rate. Written quotations for services automatically expire thirty (30) calendar days from the date issued. For services requiring quick turnaround delivery, unless specifically exempted in writing my KAT Communications, services shall be billed at the regular and customary rates plus (25%). If at any time, Client desires to make any change or variations from the work in progress additional costs shall be payable in accordance with the terms of this Agreement.

Payment Terms:

Invoices are to be paid within 30 days of invoice submission dates. Invoices will be submitted upon completion of work.

Half due upon signing of contract.

Half due upon final completion and delivery of all media.

Termination of this agreement may be made by written notification by either party. Lignite Energy Council will be responsible to compensate KAT Communications for services incurred up to the date of termination.

Please sign and return to KAT Communications to indicate acceptance of this quote unless provisions are made otherwise through contract or purchase order.

By this signature I affirm my legal ability to bind this agency into this contract and all its contents therein.

Client: Lignite Energy Council

Name/Title: _____

Signature: _____

Date: _____

Seminar Speakers

2018 Lignite Education Seminar: Energy, Economics and Environment June 11 – 14, 2018

Seminar Facilitator

Kay LaCoe is Director of Membership Marketing with the Lignite Energy Council. Kay joined the Lignite Energy Council in 2008 as a Communications Specialist. She is a graduate of the University of Mary with a Bachelor's of Science degree in Business Communications. Kay's background includes project management, writing, website development, graphic design, integrated marketing and social media management. Prior to joining the Council, Kay was a Communications and Marketing Coordinator at Agency MABU and an Intern at Basin Electric Power Cooperative. Kay lives with her husband, son and hunting dogs just outside of Bismarck. She is an avid hunter and also competes with her horse in the Cowboy Mounted Shooting Association.

Lesson Plan Collaborative Work

Terry Hagen is the Instructor of Record for the Lignite Energy Council's Lignite Education Seminar. He will be grading your completed lesson plans. Terry is here today to discuss without some expectations of your lesson plans, suggestions on what to listen and look for in the upcoming days and answer questions you may have going into the Seminar regarding your lesson plans. Terry is an instructor at the University of North Dakota. He has a Master's degree in Regulatory Economics from the University of North Dakota. He has taught at the University of North Dakota and Lake Region State College since 1993 and has farmed the family farm west of Grand Forks since 1987. He has served on local Boards and on the Agriculture Advisory Committee for the 9th District Federal Reserve in Minneapolis.

Lignite: The Region's Best Kept Secret

Steve Van Dyke has worked for the Lignite Energy Council since 2002 and is currently the vice president - communications. A 1980 graduate of the University of Montana's school of journalism, Steve has worked in the North Dakota energy industry since 1985. Prior to 2002, he worked for MDU Resources Group, Inc., as its corporate communications manager and contributed to the MDU history book: "The Mondakonians: Energizers of the Prairie." His background also includes working at newspapers in Beach, North Dakota; Baker, Montana; and Bismarck, North Dakota; along with serving as a community relations specialist with Mid-Rivers Telephone Cooperative in Glendive, Montana.

North Dakota Geology: Coal Bearing Rocks in the Northern Great Plains

Kendra Kungu is originally from Dickinson, ND. She always loved the outdoors, playing in the dirt, and collecting rocks. Kendra attended Dickinson State University for 1 year, then transferred to South Dakota School of Mines and Technology in Rapid City, SD. She earned her Bachelor's Degree in Geological Engineering, graduating in 2009. She started at The Coteau Properties Company after graduation in 2009 and became a registered Professional Engineer in North Dakota in 2014. She has two sons.

Lignite Mining and Reclamation Process

Sarah Flath is Environmental Manager for the Coteau Properties Company's Freedom Mine, the nation's largest lignite coal mine, located north of Beulah. She's worked for North American Coal in North Dakota since 1999. She started in Coteau's environmental and short range engineering departments, then worked for Coyote Creek Mine as part of the team to plan, permit and develop Coyote Creek Mine, the state's first new coal mine since the 1980's, before returning to Coteau as Environmental Manager. She serves on the American Society for Mining and Reclamation's National Executive Committee, the Mercer County Economic Development Board, the Hazen Chamber Board and has been a past president of the ND chapter of the Society for Range Management. She received her bachelor's degree in Range Science from North Dakota State University and her master's in Rangeland Ecosystem Science from Colorado State University. Sarah resides in Hazen, ND with her husband, Jesse, and their two daughters.

Electricity Generation Choices

John Bauer is director, North Dakota generation, for Great River Energy. He oversees Great River Energy's generation facilities in North Dakota including Coal Creek Station, Spiritwood Station and Stanton Station. John attended the power plant technology program at Bismarck State College prior to starting his career at Great River Energy's Coal Creek Station in 1981 where he advanced through various operations positions before his most recent position as manager of North Dakota operations services. John currently serves on the power/process plant advisory board for Bismarck State College. As the "power plant" chair for the board, he provides recommendations on BSC's energy curriculum. He also serves as chair of the Electric Power Research Institute's operations management and technology program which collaborates and develops best practices on how people, process and technology can be best integrated to reduce cost, improve productivity and achieve safe, reliable, cost-effective and environmentally responsible power generation.

Synfuels Production from Lignite

Joan Dietz, Dakota Gasification Company/Basin Electric Power Cooperative communications specialist, has worked for Dakota Gas and Basin Electric for nearly 32 years. Joan began her career at the Synfuels Plant, in Beulah, ND, working as a records management administrative assistant in August of 1984. She also worked in human resources prior to moving to the communications department in November 1988. Joan oversees various aspects of the communications department at the Synfuels Plant including external and internal public and employee communications. She administers the advertising program, the public tours program and publishes a weekly newsletter for the facility, as well as contributes to other company publications. She has worked at Dakota Gas' parent company, Basin Electric Power Cooperative offices in Bismarck, since December 2014 and travels to the Synfuels Plant site each week. Joan lives in Bismarck, with her husband, Jeff, after living in Hazen for 30 years. They have three adult children who live in the area, and one grandchild.

Transmission – Transporting Energy by Wire

Matthew Stoltz earned a bachelor's degree in electrical engineering from North Dakota State University. He worked for the Western Area Power Administration in Loveland, Colorado and Boulder City, Nevada from 1986 through 1999. His positions with WAPA included transmission system planning, project management and operations and maintenance. He has worked for Basin Electric Power Cooperative in Bismarck, North Dakota, since 1999. He is the director of transmission services with Basin Electric and is responsible for transmission system planning, operations, and analysis.

Enhancing Lignite's Future through Research and Development

Mike Holmes joined the Lignite Energy Council in December 2016 as the vice president of research and development. 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. His principal areas of interest and expertise include CO₂ 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. Prior to his work at EERC, Holmes spent 15 years working on coal-related research and development and commercial projects for Babcock & Wilcox, a major supplier of advanced energy and environmental technologies for the power industry. He received a master's of science degree in chemical engineering from the University of North Dakota and a bachelor's of science degree in chemistry and mathematics from Mayville State University. He is a member of the National Coal Council and has been an Executive Member and served on the Board of Directors of the Fuel Cell and Hydrogen Energy Association.

Economics and Electricity 101

Dr. Brian P. Kalk is the Director of Energy Systems Development at the EERC, where he leads a multidisciplinary team of scientists and engineers focused on research, development, and commercialization of innovative energy technologies as they relate to coal utilization and emissions, carbon management, and alternative fuels and renewable energy. He holds a Ph.D. degree in Natural Resource Management and an M.S. degree in Environmental Engineering from North Dakota State University and a B.S. degree in Social and Political Science from Campbell University, Buies Creek, North Carolina. Dr. Kalk began his career in the Marine Corps, where he served overseas in Desert Storm, Bosnia, and Iraq. He retired in 2006 as a Major. Upon retirement, Dr. Kalk joined North Dakota State University, teaching courses in Natural Resources, Logistics, and Political Science. From 2009 to 2017, he served as a member and Chair of the North Dakota Public Service Commission, where he held portfolios in Electric Generation and Transmission, Pipeline Safety, and Telecommunications.

Energy and CO₂ Management: Carbon Capture and Storage

Dan Daly is a research manager at the Energy & Environmental Research Center at the University of North Dakota in Grand Forks, ND. Dan earned a master's degree in geology from the University of North Dakota and has over 20 years of experience in issues related to energy and the environment. Since the fall of 2003, he has been the lead for public outreach and education with the Plains CO₂ Reduction Partnership (PCOR).

Plant Level Environmental Compliance

Craig Bleth is a 1988 graduate of the University of North Dakota, with degrees in geological engineering and engineering management. He is a registered professional civil engineer in the state of North Dakota. Craig spent two years with the North Dakota State Water Commission before starting his career at Minnkota Power Cooperative, at the Milton R. Young Station in 1990. In his first 16 years at Minnkota Power, Craig worked mostly in the water and solid waste areas as a permitting and compliance engineer. From 2007 to 2011, Craig was named plant environmental superintendent, and project manager of a \$250 million dollar air pollution control upgrade project at the Young Station. After that, Craig led the plant engineering and environmental groups for several years. Craig is now Minnkota's Environmental Manager.

Lignite Industry Career Choices

Kent Ellis took the scenic tour through college and graduated from the University of Northern Colorado. He began his energy career in 1980 as a contract petroleum landman in the Williston Basin; taught with the Bismarck Public Schools, served as the regional School-to-Work Coordinator and is currently the North Dakota's Energy Career Awareness Coordinator. He has significant professional career experience in the construction, energy and education industries. He is the owner of LS Hydrocarbyl, and a partner in White Butte Resources, an oil and gas development company. Kent also sits on the Great Plains Advisory Council for the Minneapolis Federal Reserve Bank.

Energy Sense

Tom Butz has 30 years of both transmission and resource planning experience in the electric utility industry. Tom is currently employed with Power System Engineering as a Senior Planning Engineer, and is responsible for electric utility resource planning evaluations, Integrated Resource Plans, and a range of RTO market evaluations, including the MISO market. Tom's interest in strategic planning in the energy sector has spawned the beginning of the Energy Sense presentation, which has been presented to a number of conferences with updates based on the current energy trends.

Workforce Issues & Needs Panel Discussion

Moderator

Jason Bohrer's background as an attorney, a communications director for the Idaho Republican Party and, most recently, chief of staff to U.S. Rep. Raul Labrador (R-Idaho) provide a diverse skillset in his role as president and chief executive officer of the Lignite Energy Council. He is a graduate of North Dakota State University and earned his law degree from George Mason University. For the past nine years he has lived in Washington, D.C. Besides his work with Rep. Labrador, he also is a former legislative counsel for U.S. Senator Jim Risch (R-Idaho).

Panel Members

Dan Dorfschmidt is Operations Manager for Butler Machinery in Western ND. Butler is your Caterpillar equipment dealer for North and South Dakota. During his career Dan has held various engineering and management positions in both the oil and gas and mining industries. Prior to joining the Butler Team, Dan was a Butler Machinery customer holding the position of Mine Superintendent at Goldcorp's Wharf gold mine in Lead SD. Dan has a degree in Geological Engineering from SD School of Mines.

Bruce Emmil is the Associate Vice President of the National Energy Center of Excellence at Bismarck State College. In this position, Bruce is responsible for the overall day-to-day operations of the NECE which consists of twelve Program Certificate and/or Associate in Applied Science degreed energy programs, one Bachelor of Applied Science in Energy Management degreed program and various non-credit energy training initiatives and apprenticeship programs. Before joining Bismarck State College in 2001, Bruce spent 13+ years working in the generation sector of the energy industry for Northeast Utilities.

Jamey Backus is the Plant Manager at the Leland Olds Station in Stanton, ND. He has worked at Leland Olds for nearly 10 years with roles including Results Engineer and Maintenance Superintendent. His responsibilities include the overall operation, maintenance and compliance of the station as well as workforce planning, labor relations, maintaining budgets and prioritizing capital expenditures. Prior to transferring to LOS he was a Mechanical Engineer at Dakota Gasification for 8+ years. He is originally from south eastern SD and has a degree in Mechanical Engineering from SD School of Mines.

Jay Volk is the environmental manager for BNI Coal where he has been employed for the last 11 years. His department's responsibilities include permitting, environmental compliance, land management, geology, and leasing. Prior to his mining career, Jay was involved in consulting and research. Jay earned a Ph.D. from North Dakota State University and is a native of Bismarck/Mandan.