

**Annual Lignite Energy Council Education Seminar:
Energy, Economics & Environment**

**Grant Submitted by
Lignite Energy Council**

**Principal Investigator
Lignite Energy Council**

Grant Deadline: June 1, 2009

Amount Requested: \$156,000

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Lignite Energy Council Annual Teachers Seminar

ABSTRACT

The objective of the Lignite Energy Council's Annual Teachers Seminar (Seminar) is to educate teachers from North Dakota and neighboring states about the economic benefits, career opportunities and operations of the lignite industry, enabling them to educate their students about the industry.

Expected results of the Seminar include providing an on-going information dissemination effort to educate students through their classroom activities and field trips about the industry. This awareness will create a favorable mindset about the lignite industry in educators and students, which will translate into their overall knowledge of energy and a positive public image of lignite-based electricity and synthetic natural gas in particular.

A positive public opinion will attract a workforce and create an interest and awareness of the career opportunities afforded by the North Dakota lignite industry.

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

The funding request is for a two-year program. The total budget for the Seminar as described is \$156,000 annually, of which \$78,000 annually is requested from the Lignite Research Council. The other \$78,000 represents in-kind services provided by The Lignite Energy Council and representatives of the lignite industry who serve as faculty for the seminar and coordinate the seminar plus support and host the seminar participants. The Lignite Energy Council is the primary funder of the Seminar; however, we also receive \$1,000 annually from the American Coal Foundation.

PROJECT SUMMARY

The mission of the Lignite Research Council is to assist in marketing as well as research and development activities. The Seminar 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 is critical to the future success of the energy industry in our state. Public awareness of the value of the industry to the state is important for public acceptance and support of this industry which will be helpful when trying to attract a workforce. Providing teachers with an understanding of the lignite industry and related career opportunities will likely provide teachers 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 10 years – both at the mines and coal conversion facilities. The demand for a qualified workforce is also increased by the number of environmental technology improvements that are

needed at existing plants and further construction projects as the lignite industry expands with new plants and production.

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, career opportunities, environmental, transmission and research and development topics.

Each participating teacher is eligible to receive two graduate credits 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, a DVD of various generation, mining and reclamation videos 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 2009 seminar will be held at the National Energy Center of Excellence on the campus of Bismarck State College in Bismarck, ND, on June 15-18. The annual seminar attracts educators in 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 120-130 educators attend annually.

STANDARDS OF SUCCESS

Success will be determined by improving and maintaining the public image of lignite-based electricity among educators and students; informing educators and students about career opportunities and demonstrated Web site promotion and classroom activities. Teachers attending the Seminar complete evaluations at the completion of the seminar and the evaluations are used in setting the agenda for future Seminars.

Evaluations have been very positive, and many teachers are surprised at how much they learned in the Seminar and comment about how little they knew about the industry, its impact on the state's economy and the career opportunities in the lignite industry. Many say their opinion of the coal industry changed dramatically after taking the seminar.

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 Renee Walz, the director of education with the Lignite Energy Council. The presenters work in the industry and speak from experience on their various topics.

The Lignite Energy Council was selected as the 2008 winner in the "Advancement of Energy Education" category by the American Coal Council. More than 2,400 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.

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:

John Dwyer serves as President of the Lignite Energy Council and has participated in the annual teachers seminar for the lignite industry for over 20 years. He also serves as the elected 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.

Sandi Tabor joined the Lignite Energy Council in October 2006 as its general counsel. Tabor earned her law degree from the University of North Dakota and worked for the Knife River Coal Mining Company and MDU Resources Group, Inc., earlier in her career. She also served as the executive director of the State Bar Association of North Dakota and mostly recently worked for the North Dakota Attorney General's office as the deputy attorney general.

Jeff Burgess is the director of the research, development and marketing program for the Lignite Energy Council and is the technical advisor to the North Dakota Industrial Commission. He received a bachelor's degree in civil engineering from North Dakota State University, a master's degree in environmental engineering from the University of Cincinnati, and a master's degree in public administration from the University of North Dakota. He is a registered professional engineer in North Dakota and served as division director of air quality at the North Dakota Department of Health prior to joining the Lignite Energy Council.

Steve Van Dyke serves as director of communications for the Lignite Energy Council. A 1980 graduate of the University of Montana's school of journalism, Steve has worked in the North Dakota energy industry for over 20 years. Prior to joining the Lignite Energy Council in 2002, he worked for MDU Resources as its corporate communications manager and contributed to the MDU history book: "The Mondakonians: Energizers of the Prairie." Steve's energy background allows him to work closely with all the presenters to ensure the information and activities provided are of value to the teachers.

Renee Walz serves as director of education for the Lignite Energy Council. Renee graduated from Concordia College in Moorhead, MN with a teaching degree in 1968. She has worked for the Lignite Energy Council since 1986 and has assisted with or been responsible for the seminar since 1987, the second year the seminar was offered.

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 nearly 7 percent of the states’ total economic base. Lignite production has been approximately 30 million tons since 1988, making North Dakota one the 10 largest coal producing states. In 2009, an NDSU economic study showed that approximately 4,000 North Dakotans are directly employed in the lignite industry and another 24,000 indirectly. The industry is expected to generate more than \$3 billion in annual business activity, as well as \$100 million in annual state tax revenues.

This Seminar project will assist in:

- Preserving and creating jobs involved in the production and utilization of North Dakota lignite;
- Ensuring economic stability, growth and opportunity in the lignite industry; and
- Maintaining 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. Renee Walz, director of education, is the primary person responsible for the Seminar. Renee reports to John Dwyer, president 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, 2009, through December 31, 2010. The four-day Seminar will be held in June each year in Bismarck with tours of nearby lignite facilities.

BUDGET

The Lignite Energy Council’s Teacher Education Seminar annual budget, including in-kind services, from January 1, 2009, through December 31, 2010 is \$312,000 (See page 8).

MATCHING FUNDS

The Lignite Energy Council and its members will provide in-kind services and funding of up to \$78,000 annually for two years to match the Industrial Commission's annual funding of \$78,000 for each of two years. Total funding requested over the two-year period is \$156,000, which will be matched by the Lignite Energy Council and its members.

TAX LIABILITY

I, John Dwyer, 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.

John Dwyer, President
Lignite Energy Council

Proposed Annual Teacher Seminar Budget - 2009

Facility Cost (BSC) - Meals, Dorm Rooms and Facility Charges for 130 teachers	\$ 20,000
UND/Minot/NDSU Graduate Credits \$100 for 2 credits per teacher	\$ 13,000
Transportation Bus rental for tours, mileage for teacher presenters and panel members	\$ 5,000
Materials & Supplies Brochures, Postage, Binders & Contents, DVDs, speaker gifts, miscellaneous	\$ 14,000
Faculty Director's Salary & Benefits Instructor of Record - UND Classroom Teacher Instructors	\$ 26,000
Total expenses per year for seminar	<u>\$ 78,000</u>
In Kind Match by Industry Faculty & Staff	<u>\$ 78,000</u>
Total Seminar Cost for One Year	<u><u>\$ 156,000</u></u>
*Estimated budget for 2010 is also \$78,000	
Total Seminar Cost for Two Years	<u><u>\$ 312,000</u></u>



**2009 Lignite Education Seminar:
Energy, Economics & Environment
June 15-18, 2009**

Monday, June 15

- 8:00 a.m. Registration begins – BSC – National Energy Center of Excellence –
3rd Floor - Foyer
- 9:00 a.m. Welcome & Introductory Remarks
Renee Walz, Director of Member Services & Education, LEC
- 9:30 a.m. *Lignite: The Region's Best Kept Secret*
Steve Van Dyke, Director of Communications, LEC
- 10:30 a.m. Break
- 10:45 a.m. *Prehistoric Life of North Dakota*
John Hoganson, State Paleontologist, North Dakota Geological Survey
- 11:45 a.m. *From Dinosaurs to Coal*
Ed Murphy, State Geologist & Director, North Dakota Geological Survey
- 12:30 p.m. Lunch – BSC Student Union
- 1:15 p.m. Return to classroom
- 1:20 p.m. *Lignite Mining and Reclamation Process*
**Joe Friedlander, Environmental Manager, The Coteau Properties Co.
Freedom Mine**
- 2:50 p.m. Break
- 3:00 p.m. *Electricity Generation from Lignite*
Alan Welte, Director of Generation, Montana-Dakota Utilities Co.
- 4:30 p.m. Wrap-Up – Questions and comments / Day 2 Preview
- 5:00 p.m. Dorm Check-in
- 5:30 p.m. Dinner / Wild Trivia – BSC Student Union

Tuesday, June 16

- 6:15 a.m. **Breakfast at BSC Student Union**
- 7:00 a.m. Load buses in front of Student Union
- 7:15 a.m. Buses leave for *Coal Country Tour* from - Reclamation managers will preview tours of respective mines
- Group One**
- 8:45 a.m. Tour Antelope Valley Station
- 10:30 a.m. Bus leaves for Freedom Mine
- 10:45 a.m. Tour Freedom Mine
- 12:45 p.m. Bus leaves for Great Plains Synfuels Plant
- Group Two**
- 8:15 a.m. Tour Falkirk Mine
- 10:15 a.m. Bus leaves for Coal Creek Station
- 10:30 a.m. Tour Coal Creek Station
- 12:00 p.m. Bus leaves for Great Plains Synfuels Plant
- Group Three**
- 8:45 a.m. Tour Freedom Mine
- 10:45 a.m. Bus leaves for Antelope Valley Station
- 11:00 a.m. Tour Antelope Valley Station
- 12:45 p.m. Bus leaves for Great Plains Synfuels Plant
- 1:00 p.m. Lunch at Great Plains Synfuels Plant
- 1:30 p.m. Synfuels Lecture & Tour of Great Plains Synfuels Plant
Speaker: *Synfuels Production from Lignite*
Bob Fagerstrom, Plant Manager, Great Plains Synfuels Plant
- 2:00 p.m. Tour Great Plains Synfuels Plant
- 3:00 p.m. Depart for Headwaters Fort Mandan Visitors Center
- 4:30 p.m. Tour Fort Mandan and Visitors Center
- 5:30 p.m. Picnic – Fahlgren Picnic Shelters
- 6:30 p.m. Buses leave for Bismarck - **Wrap-Up – Questions and comments / Day 3 Preview**
- 7:00 p.m. Buses Return to BSC **Student Union Building**

Wednesday, June 17

- 7:00 a.m. Breakfast, National Energy Center of Excellence – 4th Floor
- 7:50 a.m. Return to National Energy Center of Excellence
- 8:00 a.m. *Economics and Electricity*
Terry Hagen, Economics Professor, University of North Dakota
- 9:15 a.m. **Break**
- 9:30 a.m. *Energy Conservation: Teaching “Negawatt” Basics*
Carl Pedersen, NDSU
- 10:45 a.m. **Break**
- 11:00 a.m. *Lignite Energy and Environmental Issues*
Bob Eriksen, Basin Electric Power Cooperative
- 12:15 p.m. Lunch – National Energy Center of Excellence – 4th Floor
- 12:50 p.m. *Lignite Industry Career Choices and NECE tours*
Kent Ellis – Bismarck Public Schools Special Projects Coordinator
- 2:15 p.m. **Break**
- 2:30 p.m. *Enhancing Lignite’s Future through Research & Development*
Jeff Burgess, Director, Research, Development & Marketing Program, Lignite Energy Council
- 3:45 p.m. **Break**
- 4:00 p.m. *Energy and CO₂ Management: Carbon Capture and Storage*
Steven Smith, Plains CO₂ Reduction Partnership, Energy & Environmental Research Center, University of North Dakota
- 5:00 p.m. Wrap-Up – Questions and comments / Day 4 Preview

Evening on your own

Thursday, June 18

- 7:00 a.m. Breakfast, National Energy Center of Excellence – 4th Floor
- 8:00 a.m. *Transmission – Transporting Lignite by Wire*
Sandi Tabor, General Counsel, Lignite Energy Council
- 9:00 a.m. Break
- 9:15 a.m. **Environmental Issues Panel**
Moderator: **Shane Goettle, Commissioner, ND Dept. of Commerce**
Panel Members:
James Deutsch, ND Public Service Commission
David Glatt, ND Department of Health
Doyle Johannes, Farmer who farms reclaimed land
John Dwyer, President, Lignite Energy Council
- 11:00 a.m. Break
- 11:15 a.m. *Lignite: The Fuel of Choice*
Ron Harper, CEO & General Manager, Basin Electric Power Cooperative
- 12:00 noon Lunch – National Energy Center of Excellence – 4th Floor
- 1:00 p.m. Lignite Energy Council Web Site Demonstration
Kay LaCoe, Communications Specialist, Lignite Energy Council
- 1:15 p.m. Lignite Education Classroom Sessions, Various Classrooms
Karen Preszler, Bismarck, ND – Grade 5
Hank LaBore, Bismarck, ND – Grades 6-8
Thom Schmid, Burlington, ND – Sr. High Geology
Jeff Beck, Minot, ND – Sr. High Social Studies
- 2:15 p.m. Post Test & Materials Hand-Out
- 2:30 p.m. Seminar adjourns