

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

**Grant Submitted by  
Lignite Energy Council**

**Principal Investigator  
Lignite Energy Council**

**Grant Deadline: April 1, 2011**

**Amount Requested: \$160,000**

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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 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 of teachers. This has worked very well.

The funding request is for a two-year program. The total budget for the Seminar as described is \$160,000 annually, of which \$80,000 annually is requested from the Lignite Research Council. The other \$80,000 represents in-kind services and cash 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.

## **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 8 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 2011 seminar will be held at the National Energy Center of Excellence on the campus of Bismarck State College in Bismarck, ND, on June 20-23. 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. Almost 2,700 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. Over 700 of these teachers were from out of state.

## 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 and CEO of the Lignite Energy Council and has participated in the annual teachers' seminar for the lignite industry for more than 25 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. Tabor's current title is vice president, government affairs.

**Mike Jones** is the vice president of research and development for the Lignite Energy Council and is the technical advisor to the North Dakota Industrial Commission. Jones has been senior research advisor at the Energy & Environmental Research Center and an adjunct professor of physics at the University of North Dakota. He received his Ph.D. and M.S. in physics at the University of North Dakota and his B.S. in physics from Bemidji State University. A Minnesota native, Mike joined the Lignite Energy Council in 2009.

**Steve Van Dyke** serves as vice president 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 more than 25 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 2010, an NDSU economic study showed that approximately 4,000 North Dakotans are directly employed in the lignite industry and another 23,000 indirectly. The industry is expected to generate almost \$3 billion in annual business activity, as well as \$93 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 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, 2011, through December 31, 2012. 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, 2011, through December 31, 2012 is \$320,000 (See page 8).

**MATCHING FUNDS**

The Lignite Energy Council and its members will provide in-kind services and funding of up to \$80,000 annually for two years to match the Industrial Commission’s annual funding of \$80,000 for each of two years. Total funding requested over the two-year period is \$160,000, 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 & CEO  
Lignite Energy Council

### **Proposed Annual Teacher Seminar Budget**

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<b>Facility Cost (BSC)</b> - Meals, Dorm Rooms and Facility Charges for 130 teachers	\$	17,000
<b>UND/Minot/NDSU Graduate Credits</b> \$100 for 2 credits per teacher (Estimate 130 teachers)	\$	13,000
<b>Transportation</b> Bus rental for tours, mileage for teacher presenters and panel members	\$	5,000
<b>Materials &amp; Supplies</b> Brochures, Postage, Binders & Contents, DVDs, speaker gifts, miscellaneous	\$	20,000
<b>Faculty</b> Director's Salary & Benefits Instructor of Record - UND Classroom Teacher Instructors	\$	25,000
<b>Total expenses per year for seminar</b>	<b>\$</b>	<b>80,000</b>
<b>Match by Industry &amp; LEC</b>		
In Kind by Industry Faculty & Staff	\$40,000	
Lignite Energy Council Cash	\$40,000	
	<u>          </u>	<b>\$ 80,000</b>
<b>Total Seminar Cost for One Year</b>	<b>\$</b>	<b>160,000</b>
*Estimated budget for 2012 is also \$80,000		
<b>Total Seminar Cost for Two Years</b>		<b><u><u>\$320,000</u></u></b>





## 2011 Lignite Education Seminar: Energy, Economics & Environment June 20-23, 2011

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### Monday, June 20

- 7:45 a.m. Registration begins – BSC – National Energy Center of Excellence – 3<sup>rd</sup> Floor – Foyer
- 9:00 a.m. Welcome, Introductory Remarks and Pre-Test  
**Renee Walz, Director of Member Services & Education,  
Lignite Energy Council**
- 9:30 a.m. *Lignite: The Region's Best Kept Secret*  
**Steve Van Dyke, Vice President - Communications, Lignite Energy  
Council**
- 10:30 a.m. Break – NECE Fourth Floor
- 10:45 a.m. *North Dakota Geology: From Dinosaurs to Lignite*  
**Ed Murphy, State Geologist & Director, ND Geological Survey**
- 12:30 p.m. Lunch – NECE Fourth Floor
- 1:15 p.m. Return to classroom
- 1:20 p.m. *Lignite Mining and Reclamation Process*  
**Jessica Unruh, Environmental Specialist, The Coteau Properties Co.  
Freedom Mine**
- 2:50 p.m. Break
- 3:00 p.m. *Electricity Generation from Lignite*  
**Mark Thompson, Leland Olds Station Manager, Basin Electric**
- 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 – NECE – Fourth Floor

## Tuesday, June 21

- 7:00 a.m. Breakfast, National Energy Center of Excellence – 4<sup>th</sup> Floor
- 8:00 a.m. *Environmental Issues*  
**Sandi Tabor, Vice President of Government Affairs,  
Lignite Energy Council**
- 9:15 a.m. **Break**
- 9:30 a.m. *Energy Conservation: Teaching “Negawatt” Basics*  
**Carl Pedersen, NDSU**
- 10:30 a.m. **Break**
- 10:45 a.m. *Enhancing Lignite’s Future through Research & Development*  
**Mike Jones, Vice President, Research & Development,  
Lignite Energy Council**
- 12:00 p.m. Lunch – National Energy Center of Excellence – 4<sup>th</sup> Floor
- 12:45 p.m. *Energy and CO2 Management: Carbon Capture and Storage*  
**Dan Daly, Plains CO2 Reduction Partnership, Energy &  
Environmental Research Center, University of North Dakota**
- 2:00 p.m. Break
- 2:15 p.m. *Economics and Electricity*  
**Terry Hagen, Economics Professor, University of North Dakota**
- 3:30 p.m. Break
- 3:45 p.m. *Lignite Industry Career Choices and NECE tours*  
**Kent Ellis – Bismarck Public Schools Special Projects Coordinator**
- 5:00 p.m. Wrap-Up – Questions and comments / Day 3 Preview
- Evening on your own

## Wednesday, June 22

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*

### Group One

9:00 a.m.        Tour Freedom Mine

11:00 a.m.       Bus leaves for Antelope Valley Station

11:15 a.m.       Tour Antelope Valley Station

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

8:15 a.m.        Tour Center Mine

10:15 a.m.       Bus leaves for Milton R. Young Station

10:30 a.m.       Tour Milton R. Young Station

12:00 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 4 Preview**

**7:00 p.m.        Buses Return to BSC Student Union Building**

## **Thursday, June 23**

- 7:00 a.m. Breakfast, National Energy Center of Excellence – 4<sup>th</sup> Floor
- 8:00 a.m. *Transmission – Transporting Electricity by Wire*  
**Darcy Neigum, System Operations and Planning Manager,  
Montana-Dakota Utilities Co.**
- 9:00 a.m. Break
- 9:15 a.m. **Environmental Issues Panel**  
Moderator: To be announced  
Panel Members:  
**ND Public Service Commission**  
**ND Department of Health**  
**Farmer who farms reclaimed land**  
**John Dwyer, President and CEO, Lignite Energy Council**
- 11:00 a.m. Break
- 11:15 a.m. *Lignite: The Fuel of Choice*
- 12:00 p.m. Lunch – National Energy Center of Excellence – 4<sup>th</sup> Floor
- 1:00 p.m. Lignite Energy Council Web Site Demonstration  
**Kay LaCoe, Communications Specialist, Lignite Energy Council**
- 1:15 p.m. Post Test
- 1:30 p.m. Lignite Education Classroom Sessions, Various Classrooms  
**Vickie Pomonis, Bismarck, ND – Grade 4**  
**Karen Preszler, Bismarck, ND – Grade 5**  
**Hank LaBore, Bismarck, ND – Grades 6-8**  
**Vicki Olson, Almont, ND – Jr. High ND Studies/History**  
**Thom Schmid, Burlington, ND – Sr. High Geology**  
**Jeff Beck, Minot, ND – Sr. High Social Studies**
- 2:30 p.m. Seminar adjourns