

MEETING MINUTES
LIGNITE RESEARCH COUNCIL
May 20, 2004
Doublewood Inn, Bismarck, ND

MEMBERS (or their authorized alternates) PRESENT:

Michael G. Altavilla, Dakota Westmoreland Corporation
Steve Benson, Energy & Environmental Research Center
Dick Bergstad, International Brotherhood of Electrical Workers, # 714
John Bluemle, ND Geological Survey
Warren Candy, Minnesota Power
Randel Christmann, North Dakota Senate (Dist. 33)
John Dwyer, Lignite Research Council
L. David Glatt, ND Department of Health
Layton Freborg, North Dakota Senate (Dist. 8)
Lee Peterson, North Dakota Department of Commerce
Terry Hildestad, Knife River Corporation
Carlyle Hillstrom, North Dakota Farm Bureau
Mike Hummel, BNI Coal
Dennis James, The North American Coal Corporation
Doug Kane, MDU Resources Group
Luther Kvernen, Minnkota Power Cooperative
Vernon Laning, Basin Electric Power Cooperative
Russ Nelson, Great River Energy
David L. Porsborg, North Dakota Coal Conversion Counties Association
Jan Rudolf, Otter Tail Power Company
Fred Stern, Dakota Gasification Company
Susan Wefald, North Dakota Public Service Commission

OTHERS PRESENT:

Ron Aberle, Red Trail Energy L. L. C.
Dave Allard, Lignite Energy Council
Gerald Bachmeier, Red Trail Energy
Fred Braun, Red Trail Energy L. L. C.
Jeff Burgess, Lignite Vision 21 Program
Jason Carter, Greenway / Red Trail Energy
William Cornatzer, Red Trail Energy L. L. C.
Charlene Crocker, Energy & Environmental Research Center
Jim Deutsch, ND Public Service Commission
Bill DuTort, Red Trail Energy L. L. C.
Mark Erickson, Red Trail Energy
Karlene Fine, North Dakota Industrial Commission
Vicki Gilmore, Lignite Energy Council
Larry Heintzelman, Greenway / Red Trail Energy
Ambrose R. Hoff, Red Trail Energy L. L. C.
Jody Hoff, Red Trail Energy L. L. C.
Bernie Hoffman, ICM, Inc.
Curtis Jabs, Basin Electric Power Cooperative
Frank Kirschenheiter, Red Trail Energy L. L. C.
Charles Kraemer, Red Trail Energy
Harvey Ness, Lignite Research Council
Ron Ness, North Dakota Petroleum Council
Eric Oftedahl, Home Federal Savings Bank
Dean Peterson, The North American Coal Corporation
Clifford Porter, Lignite Research Council consultant
Todd Potas, Environmental Resource Group
Bill Price, Red Trail Energy L. L. C.
Nick Ralston, Energy & Environmental Research Center
Marlyn Richter, Red Trail Energy L. L. C.
Dave Smith, SaskPower
Vicky Steiner, North Dakota Coal Conversion Counties Association
Don Striefel, Red Trail Energy
Bonnie Turner, Westmoreland Coal Company
Richard Weinstein, The Falkirk Mining Company
Duane Zent, Red Trail Energy L. L. C.

Lignite Research Council (LRC) chairman John Dwyer called the LRC meeting to order on May 20, 2004 at the Doublewood Inn, Bismarck, North Dakota.

Approval of November 25, 2003 LRC Meeting Minutes

Dwyer asked for a motion to approve the minutes of the November 25, 2003 LRC meeting. Dick Bergstad so moved; seconded by Vern Laning. Motion carried.

Financial Summary as of April 30, 2004

Harvey Ness, technical advisor for the North Dakota Industrial Commission (NDIC) and the LRC, summarized the Lignite Research, Development and Marketing Program (Program) financial information that is available on the NDIC web site. As of April 30, 2004, available funding balances from the Lignite Research Fund (LRF) for the 2003-2005 biennium were as follows: \$292,707 for administration of the Program; \$268,000 for non-matching funds for lignite marketing feasibility studies (LMFS); \$608,444 in uncommitted funds for small research projects; a balance of \$0 for the joint programs with the U. S. Department of Energy, Electric Power Research Institute and other entities; and \$6,816,153 for demonstration projects. Construction commitments for the Lignite Vision 21 projects will be funded from the demonstration projects line item.

Lignite Research, Development and Marketing Program Updates

Ness said that there are currently 22 Lignite Research, Development and Marketing Program projects: Two LMFS projects, 18 small research projects and two demonstration projects. He said that from 1987 to the present, there have been 109 small research projects totaling \$12,175,460 in NDIC funds, seven demonstration projects (excluding Lignite Vision 21 Program projects) totaling \$14.6 in NDIC funds, and two Lignite Vision 21 Program projects totaling \$11.4 million in NDIC funds.

Lignite Vision 21 Program Update

Updates about the LV21 Program's environmental strategies and transmission issues were presented by Jeff Burgess, LV21 Program manager of environmental services. There are currently two applicants under contract with the NDIC for LV21 demonstration projects: Montana-Dakota Utilities Co./Westmoreland (contract approved May 2, 2001), and Great Northern Power Development (contract approved September 7, 2001).

Grant Round L (51) Grant Application LRC-LI-A: "Lignite Coal Test at a Transport Reactor Gasification Facility in Wilsonville, Alabama"; Submitted by: Basin Electric Power Cooperative; Principal Investigator: Michael Paul; Request for: \$125,000; Total Project Costs: \$250,000; Project Duration: 15 months.

Ness said that the objective of the proposed project is to conduct short-term and long-term tests using an advanced IGCC clean coal technology gasification system, Transport Reactor Integrated Gasified (TRIG), at the Department of Energy facility in Wilsonville, Alabama. Ness said that the three technical peer reviewers gave the proposal an average weighted score of 201 out of 250 points. (The weighted scores were 227 out of 250 points from reviewer 04-01, 185 out of 250 points from reviewer 04-02, and 191 out of 250 points from reviewer 04-03.) All three technical peer reviewers recommended that the project be funded.

As technical advisor, Ness said that his recommendation is that the proposal be funded, and that the contingency is that matching funds must be confirmed.

Ness said that the conflict-of-interest parties for this proposal are Basin Electric Power Cooperative, Great Northern Power Development, Great River Energy, Montana-Dakota Utilities Co., Otter Tail Power Company, Dakota Westmoreland Corporation, BNI Coal, Ltd., and The North American Coal Corporation.

Michael Paul of Basin Electric Power Cooperative gave a presentation in support of the proposal.

Grant Round LI (51) Grant Application LRC-LI-B: “The Health Implications of the Mercury-Selenium Interaction”; Submitted by: Energy & Environmental Research Center; Principal Investigator: Nicholas V. C. Ralston; Request for: \$50,000; Total Project Costs: \$153,846; Project Duration: 24 months.

Ness said that the proposed project would explore interactions between mercury and selenium in experimental models designed to closely approximate human patterns of exposure. The project will examine the effects of dietary intakes of methylmercury and the protective effects of dietary selenium. Ness said that the three technical peer reviewers gave the proposal an average weighted score of 202.7 out of 250 points. (The weighted scores were 191 out of 250 points from reviewer 04-04, 191 out of 250 points from reviewer 04-05, and 226 out of 250 points from reviewer 04-06). Reviewer 04-04 and reviewer 04-06 recommended that the project be funded. Reviewer 04-05 recommended that funding may be considered.

As technical advisor, Ness said that his recommendation is that the proposal be funded.

Ness said that there are no conflict-of-interest parties for this proposal.

Nicholas Ralston of the Energy & Environmental Research Center gave a presentation in support of the proposal.

Grant Round LI (51) Grant Application LRC-LI-C: “Investigation of Mercury and Carbon-Based Sorbent Reaction Mechanism”; Submitted by: Energy and Environmental Research Center; Principal Investigator: Charlene R. Crocker; Request for: \$54,000; Total Project Costs: \$240,870; Project Duration: 20 months.

Ness said that the proposed project will improve mercury capture efficiency of carbon sorbents through a better understanding of mercury-sorbent reaction mechanisms. The project will produce information to develop more effective and lower-cost sorbent to control elemental mercury emissions.

Ness said that the three technical peer reviewers gave the proposal an average weighted score of 183.3 out of 250 points. (The weighted scores were 141 out of 250 points from reviewer 04-07, 195 out of 250 points from reviewer 04-08 and 214 out of 250 points from reviewer 04-09.) Reviewer 04-07 recommended that funding may be considered; reviewers 04-08 and 04-09 recommended that the project be funded.

As technical advisor, Ness said that his recommendation is that the proposal be funded.

Ness said that BNI Coal, Ltd., The Coteau Properties Company, The Falkirk Mining Company and Westmoreland Coal Company are the conflict-of-interest parties for this proposal.

Charlene Crocker of the Energy & Environmental Research Center gave a presentation in support of the proposal.

Grant Round LI (51) Grant Application LRC-LI-D: “Benefiting Agriculture Through Coal Ash Use”; Submitted by: Energy & Environmental Research Center; Principal Investigator: Debra F. Pflughoeft-Hassett; Request for: \$16,000; Total Project Costs: \$49,230; Project Duration: 12 months.

Ness said that this proposal has been withdrawn by the Energy & Environmental Research Center and is expected to be considered at the November 18, 2004 LRC meeting.

Grant Round LI (51) Grant Application LRC-LI-E: “Lignite Fuel Enhancement: Dry Process Coal Cleaning”; Submitted by: The Falkirk Mining Company; Principal Investigator: Richard Weinstein; Request for: \$250,000; Total Project Costs: \$1,331,035; Project Duration: 12 months.

Ness said that the goal of the proposed project is to address reducing sulfur, mercury, moisture, ash and other minerals in lignite using air and magnetic separation processes and without the use of water. It would be applied to lignite currently mined, and for future use, with the potential of reducing sodium and ash-related power production operational issues. Commercialization of the proposed process will be assessed.

Ness said that the three technical peer reviewers gave the proposal an average weighted score of 193.7 out of 250 points. (The average weighted scores were 206 out of 250 points from reviewer 04-14, 225 out of 250 points from reviewer 04-15, and 150 out of 250 points from reviewer 04-19.) Reviewers 04-14 and 04-15 recommended that the project be funded; reviewer 04-19 recommended that funding may be considered.

As technical advisor, Ness said that his recommendation is that the proposal be funded.

Ness said that the conflict-of-interest parties for this proposal are Basin Electric Power Cooperative, Great River Energy, The Coteau Properties Company, The Falkirk Mining Company and The North American Coal Corporation.

Richard Weinstein of The Falkirk Mining Company gave a presentation in support of the proposal.

Grant Round LI (51) Grant Application LRC-LI-F: “Demonstrating North Dakota Lignite’s Profitability in Energy Production and Agricultural Processing”; Submitted by: Red Trail Energy L. L. C.; Principal Investigator: Frank Kirschenheiter; Request for: \$5,000,000; Total Project Costs: \$85,255,700; Project Duration: 22 months.

Ness said that the proposed project would utilize a lignite-fired Fluid Bed Combustion boiler to generate process steam and electricity for a corn-based ethanol production plant.

Ness said that the three technical peer reviewers each gave the proposal an average weighted score of 126.7 out of 250 points. (The average weighted scores were 152 out of 250 points from reviewer 04-16, 99 out of 250 points from reviewer 04-17, and 129 out of 250 points from reviewer 04-18.) Reviewer 04-16 recommended that funding may be considered; reviewers 04-17 and 04-18 recommended that the project not be funded.

As technical advisor, Ness said that consistent with Lignite Vision 21 Program project financing, he recommends that the proposed project be funded at a level not to exceed \$350,000, with the following contingencies: Red Trail Energy (RTE) provide written commitments from financial lenders (e. g., Home Federal Savings and others); an updated RTE Feasibility Study & Business Plan; an updated Project Management Plan and Schedule; and Fluid Bed Combustor energy & mass balance, updated capital cost. Ness said the following grant conditions must be met: Fund drive reaches goal of \$25,000,000; private industry matching funds are to be dedicated to the lignite-fired Bubbling Fluidized Bed; after the first year of operation, funding shall be repaid to the Lignite Program in annual payments of \$22,000 over 10 years (63% of the grant award); and after the first year of operation, ND lignite use shall represent a minimum of 75% of the primary fuel (on a Btu basis). If the primary fuel is less than 75% of the total fuel usage (on a Btu basis), an additional \$13,000 shall be repaid for each year of reduced lignite use.

Prior to Frank Kirschenheiter's presentation concerning this proposal, Lignite Research Council consultant Clifford Porter gave a presentation about the BBI International lignite/ethanol feasibility study titled "Feasibility of Lignite-Powered Ethanol Plants in North Dakota".

Frank Kirschenheiter of Red Trail Energy L.L.C. gave a presentation in support of the proposal. Kirschenheiter introduced the following, who each spoke in support of the proposal: Mark Erickson of Red Trail Energy L.L.C., Gerald Bachmeier of Red Trail Energy L.L.C. and Greenway Consulting, Bernie Hoffman of ICM Engineering, Inc., and Eric Oftedahl of Home Federal Savings Bank.

Votes on Procedural Motions

Dwyer announced that votes on procedural motions will be by public roll call vote. As allowed by state law, the final votes on whether a proposal is to be recommended to the NDIC for a specific amount of funding, or not recommended, will be by confidential ballot vote. Motions on the level of funding for the confidential ballot will be deemed procedural. Motions must carry by a majority of LRC members present, or 12 members. All ballot votes must carry by a majority of LRC members present, or 12 members.

Susan Wefald made a motion that the confidential ballot for proposal LRC-LI-F is to indicate that the LRC recommends the NDIC fund the proposal in the amount of \$1,000,000. Dave Porsborg seconded the motion. The LRC voted as follows:

15 voted NO: John Dwyer, John Bluemle, Mike Hummel, Doug Kane, Richard Bergstad, Luther Kvernen, Fred Stern, Dennis James, Jan Rudolf, Vern Laning, Terry Hildestad, Warren Candy, Mike Altavilla, Steve Benson, Russ Nelson.

7 voted YES: Senator Layton Freborg, Carlyle Hillstrom, Susan Wefald, Senator Randy Christmann, Dave Glatt, Dave Porsborg, Lee Peterson.

Lee Peterson made a motion that the confidential ballot for proposal LRC-LI-F is to indicate that the LRC recommends the NDIC fund the proposal in the amount of \$500,000. Wefald seconded the motion. The LRC voted as follows:

14 voted NO: John Dwyer, John Bluemle, Mike Hummel, Doug Kane, Richard Bergstad, Luther Kvernen, Fred Stern, Dennis James, Jan Rudolf, Terry Hildestad, Warren Candy, Mike Altavilla, Steve Benson, Senator Randy Christmann.

8 voted YES: Senator Layton Freborg, Carlyle Hillstrom, Vern Laning, Susan Wefald, Dave Glatt, Russ Nelson, Dave Porsborg, Lee Peterson.

Ballot Results

Dwyer announced that the LRC voted as follows to recommend that the NDIC approve funding of the Grant Round LI (51) requests:

LRC-LI-A ("Lignite Coal Test at a Transport Reactor Gasification Facility in Wilsonville, Alabama"; Submitted by: Basin Electric Power Cooperative). Total Project Cost: \$250,000. Request for \$125,000. Contingency: Confirmation of industrial matching cost share.

- **Recommend funding (with contingency: Confirmation of industrial matching cost share): 21 votes.**
 - **Do not fund: 1 vote.**
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LRC-LI-B (“The Health Implications of the Mercury-Selenium Interaction”; Submitted by: Energy & Environmental Research Center). Total Project Cost: \$153,846. Request for: \$50,000.

-Recommend funding: 21 votes.

-Do not fund: 1 vote.

LRC-LI-C (“Investigation of Mercury and Carbon-Based Sorbent Reaction Mechanisms”; Submitted by: Energy & Environmental Research Center). Total Project Cost: \$240,870. Request for: \$54,000.

-Recommend funding: 21 votes.

-Do not fund: 1 vote.

LRC-LI-E (“Lignite Fuel Enhancement: Dry Process Coal Cleaning”; Submitted by: The Falkirk Mining Company). Total Project Cost: \$1,331,035. Request for: \$250,000.

-Recommend funding: 22 votes.

-Do not fund: 0 votes.

LRC-LI-F (“Demonstrating North Dakota Lignite’s Profitability in Energy Production and Agricultural Processing”; Submitted by: Red Trail Energy L.L.C.). Total Project Cost: \$85,255,700. Request for: \$5,000,000.

-Recommend funding (with conditions* and contingencies and at a dollar level of \$350,000): 19 votes.**

-Do not fund: 3 votes.

***Conditions:**

- Successful fund drive (\$25,00,000).
- Private industry matching funds dedicated to lignite-fired Circulation Fluid Bed boiler.
- After the first year of operation, funding shall be repaid in annual payments of \$22,000 over 10 years (or 63% of the grant award) for a total of \$220,000.
- After the first year of operation, ND lignite use shall represent a minimum of 75% of the primary fuel (on a BTU basis). If the primary fuel is less than 75% of the total fuel usage (on a BTU basis), an additional \$13,000 shall be repaid for each year of reduced ND lignite use.

****Contingencies:**

Red Trail Energy (RTE) to provide the following:

- Written commitments from financial lenders (e. g., Home Federal Savings, others).
- Updated RTE Feasibility Study & Business Plan.
- Updated Project Management Plan and Schedule.
- Fluid Bed Combustor energy & mass balance, updated capital cost.

NDIC Meeting – June 23, 2004

The LRC's recommendations for the five Grant Round LI requests will be considered by the NDIC at its meeting on June 23, 2004.

Grant Application Deadline Remaining for 2004; LRC's Next Meeting

Dwyer said that October 1 is the grant application deadline date remaining for 2004. The next LRC meeting will be held at 12:00 p.m. November 18, 2004 at the Doublewood Inn, Bismarck.

Other Business

Dwyer said that all LRC members and other interested parties present are invited to attend the North Dakota Mercury Task Force meeting scheduled for noon June 10, 2004 at the Doublewood Inn, Bismarck.

Dwyer said that an awards program and reception in honor of John Bluemle will be held at 1:00 p.m. June 23, 2004 at the Capitol. Dr. Bluemle, the state geologist and a member of the LRC, is retiring from employment with the state of North Dakota.

Adjournment

There being no further business, Dwyer asked for a motion to adjourn the LRC meeting. Laning so moved; seconded by Terry Hildestad. Motion carried.

Vicki Gilmore, Recording Secretary.
