

MEETING MINUTES
LIGNITE RESEARCH COUNCIL
May 19, 2005
Doublewood Inn, Bismarck, ND

MEMBERS (or their authorized alternates) PRESENT:

Michael Altavilla, Dakota Westmoreland Corporation / Westmoreland Coal Company
Steve Benson, Energy & Environmental Research Center
Warren Candy, Minnesota Power
Randel Christmann, North Dakota Senate (Dist. 33)
John Dwyer, Lignite Research Council
Bob Engler, LUSCAR Ltd.
Layton Freborg, North Dakota Senate (Dist. 8)
Paul Govig, ND Department of Commerce
Mark Hager, International Brotherhood of Electrical Workers
Carlyle Hillstrom, North Dakota Farm Bureau
Mike Hummel, BNI Coal
Bruce Imsdahl, Montana-Dakota Utilities Co.
Luther Kvernen, Minnkota Power Cooperative
Vernon Laning, Basin Electric Power Cooperative
Ed Murphy, North Dakota Geological Survey
Russ Nelson, Great River Energy
Terry O'Clair, North Dakota Department of Health
Dean Peterson, The North American Coal Corporation
Jan Rudolf, Otter Tail Power Company
Dave Smith, SaskPower
Fred Stern, Dakota Gasification Company
Susan Wefald, North Dakota Public Service Commission

OTHERS PRESENT:

Dave Allard, Lignite Energy Council
Jeff Burgess, Lignite Vision 21 Program
Jim Deutsch, North Dakota Public Service Commission
Karlene Fine, North Dakota Industrial Commission
Vicki Gilmore, Lignite Energy Council
Harvey Ness, Lignite Research Council
Srivats Srinivasachar, ALSTOM Power, Inc.
Rich Weinstein, The Falkirk Mining Company

Lignite Research Council (LRC) chairman John Dwyer called the LRC meeting to order on May 19, 2005 at the Doublewood Inn, Bismarck, North Dakota.

Approval of November 19, 2004 LRC Meeting Minutes

Dwyer asked for a motion to approve the minutes of the November 19, 2004 LRC meeting. Dean Peterson so moved; seconded by Vern Laning. Motion carried.

Financial Summary as of April 30, 2005

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, 2005, available funding balances from the Lignite Research Fund (LRF) for the 2003-2005 biennium were as follows: \$124,729 for administration of the Program; \$268,000 for non-matching funds for lignite marketing feasibility studies (LMFS); \$48,909 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 \$6,179,802 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 26 Lignite Research, Development and Marketing Program projects: two LMFS projects, 20 small research projects and four demonstration projects. He said that from 1987 to the present, there have been 116 small research projects totaling \$12.4 million in NDIC funds, nine demonstration projects (excluding Lignite Vision 21 Program projects) totaling \$11.3 million in NDIC funds, and two Lignite Vision 21 Program projects totaling \$11.6 million in NDIC funds.

For LMFS-21 (Regional Lignite Energy Marketing Plan), the Partners for Affordable Energy program's image advertising focus includes a public opinion survey that is being conducted in Minnesota and North Dakota (results in late June 2005), the completion of the first three flights of ads in Minnesota and North Dakota, and the scheduling of two flights of ads for the fall of 2005. Results from the public opinion survey will be used to create the 2006 image advertising campaign.

Lignite Vision 21 Program Update

Updates about the LV21 Program's environmental issues 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, and Great Northern Power Development.

Federal, State Update

Dwyer, Burgess and Ness spoke briefly about federal issues, including the Energy Bill, clean coal technology, the Clear Skies Act legislation relating to SO₂, NO_x and mercury, the Clean Air Interstate Rule (CAIR), the Clean Air Mercury Rule (CAMR), the Regional Haze Best Available Retrofit Technology (RHBART) Rule, and the Clean Air Interstate Rule (CAIR). Dwyer gave a brief update about the 2005 Minnesota and North Dakota legislative sessions, including North Dakota legislative bills dealing with full funding of \$15.5 million for the Lignite R&D Program (SB 2014); creation of the Transmission Authority that will be governed by the NDIC (HB 1169); tax exemptions for upgrades and repowering projects for plants burning lignite (HB 1268); allowing North Dakota to join the Interstate Mining Compact (HB 1166); and SB 2170, which provides sales tax exemption for tertiary oil recovery and gas projects (CO₂ storage). During the 2005-2006 interim, North Dakota legislators will be studying bills including HB 1008 (study of Public Service Commission jurisdiction), HB 2268 (study of the costs of recycling rubber goods products), HB 2393 (study about the repeal of sales tax exemption for new power plants), and HCR 3028 (study of abundant energy sources to attract new industry to North Dakota). The Minnesota Legislature is scheduled to adjourn May 23rd. Minnesota's "omnibus energy bill" (1344) provides greater incentives for transmission investments. It provides for pass-through of transmission investment costs to ratepayers without utilities filing a full rate case. There will be a study to determine the impact on rates and reliability from increasing wind capacity in Minnesota to 20% by 2020.

Grant Round LIII (53) Grant Application LRC-LIII-A: "Field Demonstration of Enhanced Sorbent Injection for Mercury Control"; Submitted by: ALSTOM Power Environment Inc.; Principal Investigator: Srivats Srinivasachar, Ph.D.; Request for: \$200,000; Total Project Costs: \$1,644,260; Project Duration: 13 months.

Ness said that the objective of the proposed project is to conduct a seven-week full-scale demonstration of mercury capture at the Leland Olds Station. Ness said that the LOL Station uses low chloride lignite and a high temperature flue gas entering an electrostatic precipitator (EST), and represents one of the most challenging boiler configurations for mercury control. Different enhanced sorbents (chemical additives) and test parameters will be evaluated for effectiveness of mercury capture.

Ness said that the three technical peer reviewers gave the proposal an average weighted score of 201.3 out of 250 points. (The weighted scores were 225 out of 250 points from reviewer 05-01, 211 out of 250 points from reviewer 05-02, and 168 out of 250 points from reviewer 05-03.) Technical peer reviewers 05-01 and 05-02 recommended that the project be funded; technical peer reviewer 05-03 recommended that the project not be funded.

As technical advisor, Ness said that his recommendation is that the proposal be funded at a level not to exceed \$200,000.

Ness said that the conflict-of-interest parties for this proposal are Basin Electric Power Cooperative and Minnkota Power Cooperative.

Srivats Srinivasachar, Ph.D., of ALSTOM Power Environment Inc. gave a presentation in support of the proposal.

Grant Round LIII (53) Grant Application LRC-LIII-B: “Investigation of Mercury and Carbon-Based Sorbent Reaction Mechanisms – Comparison of Surface Analysis Techniques”; Submitted by: Energy & Environmental Research Center; Principal Investigator: Charlene Crocker; Request for: \$19,500; Total Project Costs: \$60,000; Project Duration: 7 months.

Ness said that the proposed project is an extension of LRC-LI (51)-131 (“Investigation of Mercury and Carbon-Based Sorbent Reaction Mechanisms”). Additional fundamental work will focus on bonding on carbon surfaces using two more refined techniques of x-ray photoelectron spectroscopy and x-ray absorption fine structure spectroscopy. The results will define carbon sorbent surface structural features before and after exposure to a flue gas stream, providing direction to improving effectiveness. The technical peer reviewers gave the proposal an average weighted score of 183 out of 250 points. (The weighted scores were 204 out of 250 points from reviewer 05-04, 146 out of 250 points from reviewer 05-05, and 199 out of 250 points from reviewer 05-06). Reviewer 05-04 and reviewer 05-06 recommended that the project be funded. Reviewer 05-05 recommended that the project not be funded.

As technical advisor, Ness said that his recommendation is that the proposal be funded at a level not to exceed \$19,000.

Ness said that SaskPower is the conflict-of-interest party for this proposal.

Steve Benson, Ph.D., of the Energy & Environmental Research Center (EERC), gave a presentation in support of the proposal.

Grant Round LIII (53) Grant Application LRC-LIII-C: “Activated Carbon Production from North Dakota”; Submitted by: Energy & Environmental Research Center; Principal Investigator: Steve Benson, Ph.D.; Request for: \$250,000; Total Project Costs: \$770,000; Project Duration: 9 months.

Ness said that the proposed project will determine the feasibility to develop a commercial process for activated char (AC) production from lignite, by scaling results from EERC bench-scale screening tests to vendor pilot-scale reactors that would provide data for a commercial scale technology. The effectiveness of the AC mercury capture produced by the vendor would be evaluated in pilot plant and slipstream tests. The project will involve conducting a market assessment and conceptualizing a commercial AC production plant that would be collocated with an existing power plant.

Ness said that the three technical peer reviewers gave the proposal an average weighted score of 171.7 out of 250 points. (The weighted scores were 181 out of 250 points from reviewer 05-07, 188 out of 250 points from reviewer 05-08 and 146 out of 250 points from reviewer 05-09). Reviewers 05-07 and 05-08 recommended that the project be funded. Reviewer 05-09 recommended that funding may be considered.

As technical advisor, Ness said that his recommendation is that the proposal be funded in an amount not to exceed \$250,000 and subject to the following contingency: confirmation of industry matching cost share. Ness said that conflict-of-interest parties for this proposal are BNI Coal and Minnesota Power.

Benson gave a presentation in support of the proposal.

Ballot Results

Dwyer announced that the LRC members voted as follows to recommend that the NDIC approve funding of the three Grant Round LIII (53) requests:

Grant Round LIII (53) Grant Application LRC-LIII-A: “Field Demonstration of Enhanced Sorbent Injection for Mercury Control”; Submitted by: ALSTOM Power Environment Inc.:

- **Fund:** 22 votes.
- **Do not fund:** 0 votes.

Grant Round LIII (53) Grant Application LRC-LIII-B: “Investigation of Mercury and Carbon-Based Sorbent Reaction Mechanisms – Comparison of Surface Analysis Techniques”; Submitted by: Energy & Environmental Research Center:

- **Fund:** 21 votes.
- **Do not fund:** 1 vote.

Grant Round LIII (53) Grant Application LRC-LIII-C: “Activated Carbon Production from North Dakota”; Submitted by: Energy & Environmental Research Center:

- **Fund:** 22 votes.
- **Do not fund:** 0 votes.

NDIC Meeting – May 24, 2005

The LRC's recommendations for the three Grant Round LIII (53) requests will be considered by the NDIC at its meeting on May 24, 2005.

Remaining Grant Rounds for 2005

Dwyer said that in addition to the October 1st grant round, there will be an additional grant round for 2005. EERC and Basin Electric Power Cooperative have requested a July 1st grant round. This request will be brought to the attention of the NDIC members at the May 24th NDIC meeting. The LRC will meet on August 10th to consider the grant applications that will have been submitted for the July 1st grant round.

Other Business

Dave Smith of SaskPower and Bob Engler of LUSCAR Ltd. spoke briefly about lignite issues in Canada. They are addressing mercury-related issues and are awaiting Canadian regulatory decisions.

Adjournment

There being no further business, Dwyer requested a motion to adjourn the LRC meeting. Vern Laning so moved; seconded by Bruce Imsdahl. Motion carried.

Vicki Gilmore, Recording Secretary
