

MEETING MINUTES
LIGNITE RESEARCH COUNCIL

November 18, 2014
Ramada Bismarck Hotel (Governor's Room), Bismarck, ND

LIGNITE RESEARCH COUNCIL MEMBERS (or their authorized alternates) PRESENT:

Gavin McCollam – Basin Electric Power Cooperative
Charlie Bullinger – Great River Energy
Gerry Pfau - Minnkota Power Cooperative, Inc.
Bob Fagerstrom – Dakota Gasification Company
Jon Rudnick - BNI Coal, Ltd.
Jay Kost – The Falkirk Mining Company
Brad Zimmerman – Otter Tail Power Company
Jason Bohrer – Lignite Research Council; chairman of the Lignite Research Council
Randy Christmann - ND Public Service Commission
Rep. Jeff Delzer – North Dakota House of Representatives
Paul Lucy – North Dakota Department of Commerce
Sen. Ray Holmberg - North Dakota Senate
Ned Kruger – ND Geological Survey
John Phillips – North Dakota Coal Conversion Counties Association
Randy Bartsch – International Brotherhood of Electrical Workers
Todd Simmons – Minnesota Power
Bill Kuehn – ND Farm Bureau
Mike Holmes – EERC
Rich Voss – Great Northern Properties
Jay Skabo – Montana-Dakota Utilities

OTHERS PRESENT:

Josh Stanislowski – EERC
Steve Benson – Microbeam Technologies, Inc.
Kay LaCoe – Lignite Energy Council
Dave Allard – Lignite Energy Council
Karlene Fine – North Dakota Industrial Commission
Paige Douglas – Lignite Energy Council
Michael L. Jones, Ph.D. - Lignite Research Council Technical Advisor; Lignite Energy Council
Dave Smith, Ph.D. – SaskPower
Jim Deutsch – ND Public Service Commission

Lignite Research Council (LRC) Chairman, Jason Bohrer, called the LRC meeting to order at 1:35 p.m. (CDT) on November 18, 2014, at the Ramada Hotel, Bismarck, North Dakota.

Approval of June 5, 2014 LRC Meeting Minutes:

Bohrer asked for a motion to approve the minutes of the June 5, 2014 LRC meeting. Rich Voss so moved; seconded by Charlie Bullinger. Motion carried.

Program Financial Summary:

Karlene Fine and Michael Jones gave a brief financial summary regarding the Lignite Research, Development and Marketing Program (Program).

Fine said that the Program's available funding (as of 10/1/2014) includes: \$325,162 for administration of the Program; \$874,882 for litigation (Minnesota); \$0 for non-matching Lignite Marketing Feasibility Study (LMFS) projects; \$1,160,441 for Small Research Projects; \$0 for Marketing Projects; and \$2,859,042 for Demonstration Projects.

Program's Project Updates:

Jones, Technical Advisor to the NDIC and the LRC, gave updates about active R&D projects (six carbon capture and storage projects, three gasification projects, three demonstration projects, three Lignite Vision 21 Program (LV21) projects, two metal emissions projects, two education/public relations projects, three NOx projects, one marketing, and one fly ash reuse project. He also gave a non-confidential update about the Enhance, Preserve and Protect project, which included notice that the Federal Judge in the lawsuit between Minnesota and North Dakota regarding the NextGen Act of 2007 had ruled in North Dakota's favor.

Grant Round LXXVIII (78) Grant Application LRC-LXXVIII-A: "Managing Slag Flow Behavior in Combustion and Gasification Systems"; Submitted by: Microbeam Technologies, Inc.; Request for: \$245,065; Total Project Costs: \$785,065; Principal Investigator: Steven Benson, Ph.D.

Jones said that the main objective of this project is to develop methodologies that will allow designers and operators of high-temperature combustion and gasification systems to manage slag slayer thickness and flow properties as a function of fuel composition, system design, and operating conditions.

Jones said that the three technical peer reviewers for this proposal gave the proposal an average weighted score of 208 out of 250 points. The weighted score was 177 out of 250 points from reviewer 15-01, 219 out of 250 points from reviewer 15-02 and 228 out of 250 points from reviewer 15-03. Technical peer reviewers 15-01 recommended the project be considered for funding, and 15-02 and 15-03 recommended that the project be funded. As Technical Advisor to the NDIC and LRC, Jones recommended that the project be funded, subject to the following contingency:

Matching funding received and Technical Advisor participants in advisory group.

Jones said that Minnkota and BNI are the conflict-of-interest parties for proposal LRC-LXXVIII-A.

Steven Benson, Ph.D., with Microbeam Technologies, Inc., gave a presentation in support of proposal LRC-LXXVIII-A.

Grant Round LXXVIII (78) Grant Application LRC-LXXVIII-B: "Demonstration of Pilot-Scale Hydrogen and CO₂ Separation Membrane Technology on Lignite-Derived Syngas"; Submitted by: Energy & Environmental Research Center; Request for: \$225,000; Total Project Costs: \$2,039,608; Principal Investigator: Joshua Stanislawski, Tyler Curran, and Michael Swanson.

Jones said that the main goal of the proposed project is to conduct a pilot-scale demonstration of coal-to-hydrogen production technology using warm-gas cleanup techniques and hydrogen separation membranes. Five separate tasks will be performed to enable the demonstration of the technology. Tasks 1 and 2 will involve membrane acquisition and installation, and additional modifications to the TRDU and warm-gas cleanup system will be needed to facilitate the test runs. The test runs will occur in Task 3, and the data derived will be used in an economic analysis to be conducted in Task 4. Task 5 is for management and reporting. Tasks 1 and 2 are currently under way with the project sponsors, and Tasks 3 and 4 will begin in December 2014.

Jones said that the three technical peer reviewers for this proposal gave the proposal an average weighted score of 208 out of 250 points. The weighted score was 197 out of 250 points from reviewer 15-04, 223 out of

250 points from reviewer 15-05, and 204 out of 250 points from reviewer 15-06. Technical peer reviewers 15-4 and 15-05 recommended this project to be funded, and reviewer 15-06 recommended the project to be considered for funding.

As Technical Advisor to the NDIC and LRC, Jones recommended that the project be funded, contingent on the following: Matching funding received and Technical Advisor participate in advisory group.

Jones said that Basin Electric is a conflict of interest for proposal LRC-LXXVIII-B.

Joshua Stanislawski with the Energy & Environmental Research Center did a presentation in support of proposal LRC-LXXVIII-B.

Grant Round LXXVIII (78) Grant Application LRC-LXXVIII-C: “Annual Lignite Energy Council Education Seminar: Energy, Economics and Environment”; Submitted by: Lignite Energy Council; Request for: \$80,000; Total Project Costs: \$160,000; Principal Investigator: Kay LaCoe.

Karlene Fine said that the main objective of the Lignite Energy Council’s annual Teachers Seminar is to educate teachers from North Dakota and surrounding states about the economic benefits, career opportunities and operations of the lignite industry.

Fine said that the technical peer reviewers for this proposal gave the proposal an average weighted score of 203.3 out of 250 points. The weighted score was 211 out of 250 points from reviewer 01-01, 199 out of 250 points from reviewer 01-02, and 200 out of 250 points from reviewer 01-03. Technical peer reviewers 01-01, 01-02, and 01-03 all recommended that the project be funded.

As Technical Advisor to the NDIC and LRC, Fine recommended that the project be funded.

The Lignite Energy Council and its members are the conflicts of interest for this proposal.

Kay LaCoe with the Lignite Energy Council was the presenter in support of proposal LRC-LXXVIII-C

Motion for Closed Confidential Session – Enhance, Preserve and Protect updates

Bohrer asked for a motion to close the meeting prior to the confidential session regarding the updates on the EPP. It was moved by Charlie Bullinger and seconded by Todd Simmons that the Lignite Research Council meeting be closed pursuant to 54-17.5-06. Motion carried.

Motion to Open Session following closed confidential session:

Bohrer asked for a motion to open the meeting following the confidential session. Senator Ray Holmberg so moved; seconded by Todd Simmons. Motion carried.

Next LRC Meeting, NDIC meeting to consider LRC’s recommendations, 2015 Grant Round deadlines:

Bohrer announced that the next LRC meetings are scheduled for May 19, 2015 and November 17, 2015.

The application deadline dates for submitting proposals to the NDIC for the next grant rounds are: April 1, 2015 and October 1, 2015.

Ballot Results:

Bohrer announced the results of the LRC's confidential ballots concerning the LRC's recommendations to the NDIC regarding the three Grant Round LXXVIII (78) proposals as follows:

- **Grant Round LXXVIII (78) Grant Application LRC-LXXVIII-A:** "Managing Slag Flow Behavior in Combustion and Gasification Systems":

Fund: 19 votes

Do Not Fund: 0 votes

- **Grant Round LXXVIII (78) Grant Application LRC-LXXVIII-B:** "Demonstration of Pilot-Scale Hydrogen and CO₂ Separation Membrane Technology on Lignite-Derived Syngas":

Fund: 17 votes

Do Not Fund: 1 vote

Abstain: 1 vote

- **Grant Round LXXVIII (78) Grant Application LRC-LXXVIII-C:** "Annual Lignite Energy Council Education Seminar: Energy, Economics and Environment":

Fund: 19 votes

Do Not Fund: 0 votes

Adjournment:

There being no further business, Bohrer requested a motion for adjournment of the LRC meeting. Rich Voss so moved; seconded by Paul Lucy. Motion carried.

Paige Douglas, recording secretary