MEETING MINUTES
LIGNITE RESEARCH COUNCIL
Thursday, November 14, 2019, 1:30 p.m. (CT)
Ramada Bismarck Hotel (Judicial Room), Bismarck, ND

Lignite Research Council Members (or their authorized alternates) PRESENT:
Jason Bohrer – Lignite Research Council
Dean Moos – North Dakota Public Service Commission
John Bauer – Great River Energy
Al Rudeck – ALLETE Energy
Randy Bartsch – IBEW 11th District (ND)
Bryan Walther – North American Coal Company
Gerry Pfau – Minnkota Power Cooperative
Dave Glatt – North Dakota Dept. of Environmental Quality
Rita Faut – ND Farm Bureau
Ed Murphy – North Dakota Geological Survey
John Phillips – Coal Conversion Counties
Jay Skabo – Montana-Dakota Utilities Co.
Jeff Delzer, Representative – ND House of Representatives – District 8
Gerard Goven – Falkirk Mining Company
Jim Sheldon – Basin Electric Power Cooperative
Brad Zimmerman – Otter Tail Power Company
David Lehman - North Dakota Department of Commerce
Jay Volk – BNI Coal
Ed Steadman - Energy & Environmental Research Center (EERC)

OTHERS PRESENT:
Mike Holmes – Lignite Research Council
Dave Allard – Lignite Energy Council
Angie Hegre - Lignite Energy Council
Kay LaCoe – Lignite Energy Council
Karlene Fine – North Dakota Industrial Commission
Vince Herda – Great River Energy
Adam Dunlap - Midwest Ag Energy Group
Chris Martin - Energy & Environmental Research Center (EERC)

I. CALL TO ORDER

Meeting called to order:
Lignite Research Council (LRC) Chairman, Jason Bohrer, called the LRC meeting to order at 1:33 p.m. (CT) on November 14, 2019 at the Ramada Inn, Bismarck, North Dakota.

II. APPROVAL OF MINUTES

Approval of August 15, 2019 LRC Meeting Minutes:
Bohrer asked for a motion to approve the minutes of the August 15, 2019 LRC meeting. Al Rudeck so moved; seconded by Jay Skabo. Motion carried.

III. PROGRAM FINANCIAL SUMMARY

Program Financial Summary:
Karlene Fine gave a financial summary regarding the Lignite Research, Development and Marketing Program. (A copy of the financial summary is available in the Lignite Research Program files.)

Fine distributed a spreadsheet and explained that we are now working in our 2019-2021 biennium. She explained that state government operates on a 2-year basis.

Fine stated the Lignite Research Program cash balance began in July with approximately $30 million. After revenues and expenditures, as of September 30th the cash balance is $29.7 million. She reviewed the current outstanding commitments that total $26.8 million. This leaves a non-committed cash balance of $2.9 million.

Fine shared that the anticipated revenues for the 2019-2021 biennium are $19.8 million. This includes the $10 million dollar Oil and Gas tax allocation contained in HB 1066 (Prairie dog bill) and MN restitution that came in at a little over a half a million dollars.

Fine reviewed the 2019-2021 budget of $49.6 million. With $28 million of that total being committed already, the remaining balance available to fund other projects is around $21.5 million.

Fine recommended that the Council recommend the proposed budget of $49.6 million to the Industrial Commission.

Bohrer as Chairman stated this supports the priorities that we as the Lignite Research Council are tasked with. He stated it supports the level of commitment for our major members and our research partners. It does a great job of putting us on a solid path to meet the challenges of the changing, evolving industry by also giving us the flexibility we need to go forward.

Approval of Budget Recommendation:
At 1:42 p.m. Bohrer asked for a motion to approve the budget recommendation of $49.6 million to the Industrial Commission. Rita Faut so moved; seconded by Gerry Pfau. Motion carried.

IV. LIGNITE RESEARCH, DEVELOPMENT & MARKETING PROGRAM UPDATES

Holmes shared a brief overview of historical successes of the R & D program in partnership with the State. He shared various successes such as the lignite industry being responsible for $5.7 billion of economic activity and 14,000 jobs. He shared progress on projects since February 2017 to this past year.

Going forward Holmes stated the continued focus will be with the next phases of carbon capture, utilization and storage and how to clear the path to commercial application of those technologies. He explained the potential with DOE focusing on emerging markets, value added opportunities for coal and everything from carbon materials to rare earth elements to fertilizers from coal.

V. GRANT ROUND XCI (91) APPLICATIONS

Grant Round Application LRP-XCI (91)

LRP-XCI (91) A: Annual Lignite Energy Council Education Program

Submitted by: Lignite Energy Council
Principal Investigator: Kay LaCoe
Project Duration: 1 year
Request for: NDIC: $100,000; Total Project Costs: $207,800 AET or Small research/demonstration

Fine shared the application of the LEC annual education program. Fine served as the technical person as the application was submitted by the Lignite Energy Council. Fine shared the objective of this submission is to educate teachers, students, and members of the general public about career opportunities, economic benefits, and operations of the Lignite Industry. The tasks include a four-day annual Lignite Education seminar, program management, professional services provided by the North Dakota Energy Career Coordinator and website / e-campus, and video development.

Fine had two technical reviewers evaluate the application. Fine said that the two technical peer reviewers gave the proposal an average weighted score of 212 out of 250 points. The weighted score was 240 out of 250 points from reviewer 01-01 and 184 out of 250 points from reviewer 01-02. Reviewer 01-02 suggested if a milestone chart isn't currently being utilized, that maybe it should be a consideration to ensure the program could be easily managed and provide supervisors with an understanding of the associated responsibilities. Both technical peer reviewers 01-01 and 01-02 recommended to **fund** the project.

As the Executive Director for this project, Fine recommended to **fund** the project with consideration based on both reviewer's recommendations and positive comments about the project. The Principal Investigator responded positively to the suggestion regarding the inclusion of a milestone chart in future funding requests

Fine said that Lignite Energy Council and its members have conflicts of interest for this project.

Kay LaCoe, Lignite Energy Council Director of Membership Marketing / Education Program Administrator presented on behalf of the applicant. (Her presentation is available in the LRP files.)

LRP-XCI (91) B: Preliminary Front End Engineering and Design (pre-FEED) Study for a full-scale carbon dioxide capture system at Coal Creek Station (CCS2)

Submitted by: Great River Energy
Principal Investigator: John Bauer
Project Duration: 14 months
Request for: NDIC: NDIC: $4,239,000; Total Project Costs: $8,478,000

Holmes shared the goal of this project is to better quantify the costs, benefits and operational issues of integrating a system to capture and store carbon dioxide from the Coal Creek Energy Park, which includes both the Coal Creek Station and the Blue Flint Ethanol Plant. GRE is in the early stages of evaluating a potential carbon capture and storage project to determine if it is an economically feasible means of reducing carbon emissions at Coal Creek Station.

Holmes stated that the study would include five different objectives necessary to provide information related to overall costs, benefits and operational issues and opportunities associated with integrating a carbon dioxide capture system. The benefits to North Dakota include continued operation of the state's largest lignite-based plant by identifying technologies that significantly reduce the carbon dioxide footprint in a cost-effective manner. In addition, the project's technology and information development could benefit other lignite-based generating stations.

Holmes said that the three technical peer reviewers gave the proposal an average weighted score of 231.7 out of 250 points with very favorable reviews and comments. The weighted score was 227 out of 250 points from reviewer 21-01, 236 out of 250 points from reviewer 21-02, and 232 out of 250 points from reviewer 21-03. Technical peer reviewers 21-01, 21-02, and 21-03 all recommended to **fund** the project.

As the Technical Advisor for this project, Holmes recommended **fund** based on the three very positive technical reviewers' feedback. As with the PCOR project, facilitating commercial CCUS is a primary focus for sustaining use of our vast lignite reserves. Carbon management is a primary focus of the lignite industry R&D Roadmap and the Lignite Research Program. The project would address the largest challenge facing the lignite industry at North Dakota's largest lignite-fired plant and provide information of benefit to the other North Dakota plants.

Holmes shared that funding would be subject to the Technical Advisor participating in project reviews and reviewing the project management plan with the project team.

Holmes said that GRE, EERC, and North American Coal all have conflicts of interest on this project.

John Bauer, Director of ND Generation, Great River Energy, presented on behalf of theapplicant. (A copy of his Power Point presentation is available in the LRP files.)

LRP-XCI (91) C: Wastewater Recycling Using a Hygroscopic Cooling System

Submitted by: Energy and Environmental Research Center (EERC)
Principal Investigator: Chris Martin
Project Duration: 3 years
Request for: NDIC: NDIC: $100,000; Total Project Costs: $820,625

Holmes described the project and indicated that the EERC is teaming with Great River Energy and a product provider – Baltimore Aircoil Company – on a proposed three-year study to reduce water usage at power plants. Hygroscopic cooling has been developed at EERC and would be demonstrated at a coal-based generation station to improve the plant's overall water efficiency, thus reducing costs and the amount of water required for cooling purposes. While Great River Energy's Coal Creek Station will be the host site for the study, the technology would be applicable to all North Dakota power plants. The primary benefits to the state and industry is the reduced amount of water used by the power plants, which helps both with costs and reduced regulatory burdens.

Holmes said that the three technical peer reviewers gave the proposal an average weighted score of 210.3 out of 250 points. The weighted score was 246 out of 250 points from reviewer 21-04, 201 out of 250 points from reviewer 21-05, and 184 out of 250 points from reviewer 21-06. Technical peer reviewers 21-04, 21-05, and 21-06 all recommended to **fund** the project.

As the Technical Advisor for this project, Holmes recommended **fund** based on the three technical reviewers' feedback and review. Holmes stated that the reviewers had favorable comments and environmental managers are looking for options to deal with any future regulatory needs. In addition to cost impacts, technologies for clean-up and reduced use of water can help address current and future regulations. This project would significantly leverage the North Dakota investment at a ratio of 1 to more than 8.

Holmes shared that funding would be subject to the Technical Advisor participating in project reviews and reviewing the project management plan with the project team.

Holmes said that EERC, GRE and North American Coal all have conflicts of interest on this project.

Chris Martin, Energy and Environmental Research Center (EERC) presented on behalf of the applicant. (A copy of his PowerPoint presentation is available in the LRP files.)

LRP-XCI (91) D: PCOR Initiative to Accelerate CCUS Deployment

Submitted by: Energy and Environmental Research Center (EERC)
Principal Investigator: Neil Wildgust

Project Duration: 5 years
Request for: NDIC: NDIC: $2,000,000 ($500,000 initial, with the additional $1,500,000 contingent on future incremental DOE awards at the same cost share ratio; Total Project Costs: $6,254,617.

Holmes described the project as the EERC – through its Plains CO_2 Reduction (PCOR) Partnership –working with partners in the lignite industry to secure $500,000 initially from the Lignite Research Council with another $1.5 million set aside for anticipated increased funding from the Department of Energy (DOE). The goal of this project is to accelerate and facilitate the buildout of CCUS infrastructure in North Dakota and neighboring states. The PCOR Partnership includes the primary players in North Dakota's lignite industry who have been working with the EERC over the last 16 years to validate the technical and economic viability of CCUS technology. This new project – which will be largely funded by the DOE – will benefit North Dakota by working towards monetizing recently passed Federal legislation that provides tax credits for energy companies to capture and geologically store CO_2.

Holmes said that the three technical peer reviewers gave the proposal an average weighted score of 229.3 out of 250 points. The weighted score was 228 out of 250 points from reviewer 20-07, 219 out of 250 points from reviewer 20-08, and 241 out of 250 points from reviewer 20-09. Technical peer reviewers 20-07, 20-08, and 20-09 all recommended to **fund** the project.

As the Technical Advisor for this project, Holmes recommended **fund** based on the three technical reviewers' feedback and his review. Holmes stated that facilitating commercial CCUS is a primary focus for sustaining use of our vast lignite reserves. Carbon management is a primary focus of the lignite industry R&D Roadmap and the Lignite Research Program. The project would continue to provide strong leveraging of NDIC funding.

Holmes shared that funding would be subject to the Technical Advisor participating in project reviews and reviewing the project management plan with the project team. Incremental $1.5 million contingent upon receipt of additional DOE and industry funding at the initial match rate.

Holmes said that EERC and most of the lignite industry as PCOR partners have conflicts of interest on this project.

Ed Steadman, Energy and Environmental Research Center (EERC) presented on behalf of the applicant. (A copy of his PowerPoint presentation is available in the LRP files.)

VI. ELECTION

Election Term: January 1, 2020 –December 31, 2021
Election: LRC Chairman, LRC Vice Chairman and LRC Executive Committee

Ballots were distributed to the Lignite Research Council members for the election of the Lignite Research Council Chairman, Vice Chairman and Executive Committee. The candidates, proposed nominees were listed on the ballot as follows as well as a write-in option for each:

Chairman: Jason Bohrer, Lignite Energy Council
Vice Chairman: Randy Christmann, ND Public Service Commission
Other Members:
Gavin McCollan, Basin Electric Power Cooperative
John Bauer, Great River Energy
Ed Murphy, ND Geological Survey
Jay Kost, The Falkirk Mining Company
Tim Rogelstad, The Otter Tail Power Company

Results: Unanimous ballots, 1 abstention

2020 Calendar
Bohrer announced that the next LRC meetings are scheduled for May 14, 2020 and November 12, 2020. Bohrer reminded the group that the upcoming grant application deadlines are April 1, 2020 and October 1, 2020.

Other Business
None

Grant Round XCI Ballot Results:

Jason Bohrer announced the results of the ballots concerning the LRC's recommendations to the NDIC regarding the Grant Round XCI (91) proposals as follows:

Grant Round XCI (91)

- **LRP-XCI (91) A: Annual Lignite Energy Council Education Program**
  Submitted by: Lignite Energy Council; Request for: $100,000; Total Project Costs: $207,800; Principal Investigator: Kay LaCoe; Project Duration: 1 year

  Fund: 18 votes Do Not Fund: 0 vote Abstain: 1 vote

- **LRP-XCI (91) B: Preliminary Front End Engineering and Design (pre-FEED) Study for a full-scale carbon dioxide capture system at Coal Creek Station (CCS2)**
  Submitted by: Great River Energy; Request for: $4,239,000; Total Project Costs: $8,478,000; Principal Investigator: John Bauer: Project Duration: 14 months

  Fund: 19 votes Do Not Fund: 0 vote Abstain: 0 vote

- **LRP-XCI (91) C: Wastewater Recycling Using a Hygroscopic Cooling System**

Submitted by: Energy and Environmental Research Center; Request for: $100,000; Total Project Costs: $820,675; Principal Investigator: Chris Martin; Project Duration: 3 years

Fund: 19 votes Do Not Fund: 0 vote Abstain: 0 vote

- **LRP-XCI (91) D: PCOR Initiative to Accelerate CCUS Deployment**

  Submitted by: Energy and Environmental Research Center; Request for: $2,000,000 ($500,000 current and additional $1,500,000 contingent on future incremental DOE award); Total Project Costs: $6,254,617; Principal Investigator: Neil Wildgust; Project Duration: 5 years

  Fund: 19 votes Do Not Fund: 0 vote Abstain: 0 vote

The North Dakota Industrial Commission meeting when these recommendations will be considered will be held on November 25, 2019.

Adjournment:

There being no further business, Bohrer requested a motion for adjournment of the LRC meeting at 3:09 p.m. John Phillips so moved; seconded John Bauer. Motion carried.

Angie Hegre, recording secretary
