MEETING MINUTES
LIGNITE RESEARCH COUNCIL – GRANT ROUND 100
Special Grant Round
Thursday, May 12, 2022 - 1:30 p.m. (CT)
NDACo Building
1661 Capitol Way, Bismarck, ND

LRC VOTING MEMBERS (or their authorized alternates) PRESENT:
Jason Bohrer – Lignite Research Council, Chairman
Gavin McCollam – Basin Electric Power Cooperative
Dale Johnson – Dakota Gas
Mike Heger – BNI Energy
Randy Christmann – North Dakota Public Service Commission
Rita Faut – ND Farm Bureau
John Harju – Energy & Environmental Research Center (EERC)
Jeff Delzer – ND House of Representatives
Jay Kost – Falkirk Mining Company
Gerry Pfau – Minnkota Power Cooperative
Ned Kruger – North Dakota Geological Survey
Brad Zimmerman – Otter Tail Power Company
Jay Skabo – Montana-Dakota Utilities Co.
Bryan Walther – North American Coal Company
Tom Oakland – ND Commerce
Dave Glatt – ND Department of Environmental Quality (NDDEQ)

OTHERS PRESENT:
Karlene Fine – North Dakota Industrial Commission
Mike Holmes – Lignite Research Council
Angie Hegre - Lignite Energy Council
Jonathan Fortner – Lignite Energy Council
Dave Allard – Lignite Energy Council

GUESTS:
John Weeda, ND Transmission Authority (NDTA)
Nolan Theaker, UND (presenter)
Bill Easter, Semplastics (presenter)
Sue Easter, Semplastics

I. CALL TO ORDER

Meeting called to order:
Lignite Research Council (LRC) Chairman, Jason Bohrer, called the LRC meeting to order at 1:38 p.m. (CT) on May 12, 2022.

II. APPROVAL OF MINUTES

Approval of February 18, 2022 LRC Meeting Minutes:
Bohrer asked for a motion to approve the minutes from the above-listed meeting. Jay Skabo so moved; seconded by Rita Faut. Motion carried.

III. PROGRAM FINANCIAL SUMMARY

Program Financial Summary:
Karlene Fine shared the financial summary regarding the Lignite Research, Development and Marketing Program. (A copy of the financial summary is available in the Lignite Research Program files, on the NDIC website, and in the meeting packet provided.)

Fine reviewed the 2021-2023 budget spreadsheet with the group. Fine shared the financial information in the packet and stated we have a cash balance on March 31, 2022 of $21 million. She shared the oil revenue of $10 million she anticipates will come in around the May/June timeframe. Fine shared the uncommitted small research dollars are approximately $4.3 million and the advanced energy technology projects are approximately $9.5 million. Fine stated that there is sufficient funding to fund the projects being presented today if we choose to do so.

Angie Hegre emailed the financial spreadsheet one week prior to the meeting to the LRC members so the group saw all the details provided by Karlene Fine.

IV. GRANT ROUND (100) APPLICATION

LRC-C (100) A: "Incorporation of Coal and Coal Waste into High-Value Materials"

Submitted by: Semplastics
Request for: $850,000
Total Project Costs: $4,206,633
Principal Investigator: Walter Sherwood and William Easter
Project Duration: 3 years

Holmes shared the proposed project would further the ongoing effort led by Semplastics to integrate coal and coal ash into plastics to make safe and strong building materials. The project would include two efforts focused on the following.
1.) manufacturing with large 3D printers, and
2.) assembling a partial building using coal-based material.
The technological target is to provide new improved building materials out of lignite-based resources. The economic impact is to provide additional markets for lignite-based resources. The underlying benefit of the project is to create value-added coal-based products.
The total budget is $4.2 million with $850,000 being sought from the North Dakota Industrial Commission. The majority of the money would come from the U.S. Department of Energy with other funds coming from Semplastics as well as other research partners.

As the Technical Advisor for this project, Holmes recommended fund. Holmes shared that two of the technical reviewers recommended funding may be considered and one recommended to fund. The proposal received an average score of 178.6 out of 250. Holmes stated the proposed project is a good fit for the Lignite Research Program, as a pursuit of emerging markets for building materials from lignite and ash. The project provides a strong leverage of state funding at roughly 5:1. Semplastics has been asked to provide details of the work scope and a discussion of the lignite focus, in response to reviews. The recommendation is to fund if the LRC is satisfied with the description of the lignite focus, scope of work, and budget in the proposal presentation.

Holmes recommended that funding be subject to the Technical Advisor participating in project reviews and the Technical Advisor reviewing the projects management plan with the project team, including a detailed review of work scope. Also, funding would be subject to receipt of the industry and federal matching funds.

Holmes stated conflicts of interest include EERC and Letter of support from North American Coal.

Bill Easter, Semplastics, presented on behalf of the applicant. (A copy of their Power Point presentation is available in the LRP files.)

LRC-C (100) B Amendment to Rare Earth Element Extraction and Concentration at Pilot-Scale from ND Coal-Related Feedstocks. (Amendment to FY20-XC-221)

Submitted by: Institute for Energy Studies, UND
Request for: $175,000 in new funding is being requested.
In addition to the originally awarded $900,000. Totals $1,075,000.
Total Project Costs: Amendment $650,000.
Original total $6,508,555. Combined total $7,158,555.
Principal Investigator: Nolan Theaker
Project Duration: Change to 42 months from original 30 months.

Holmes shared the University of North Dakota (UND), in collaboration with Microbeam Technologies Inc. (MTI), Barr Engineering Co., Rare Earth Salts (RES) and MLJ Consulting continue to demonstrate novel technology for rare earth element recovery from North Dakota lignite coal feedstocks. The objectives of this project include: 1) Confirm coal seams found within active North Dakota mines have elevated REE content and collect a large sample (300-500 tons) for further processing, 2) Design and construct a pilot-scale facility for REE extraction and concentration with at least 0.25 tons/hr coal feed, 3) Determine optimal operating conditions using existing bench-scale equipment and utilize these optimized parameters to process at least 100 tons of high REE coal, and 4), verify REE product quality with downstream REE refiners (RES) and reduce potential costs and time-to-market associated with coal-related REE materials. The expected technical and economic impacts are the following: 1) Develop a low-cost, environmentally friendly REE concentrate from North Dakota lignite feedstocks, 2) Verify scalability of the process proven at the bench scale and develop a baseline for future commercial demonstration, and 3) Perform rigorous economic modeling equivalent to a preliminary Front End Engineering Design for evaluation of the technology at a potential commercial demonstration site. The request is for adjusting the budget and schedule as noted above.

As the Technical Advisor for this project, Holmes recommended funding. The REE opportunity addresses new value-added uses for lignite and the project is a strong leveraging of NDIC / Lignite Research Program funding. One reviewer recommended funding and two recommended funding be considered, with an average scoring of 201 out of 250. Based on industry, State, and Federal interest in this REE opportunity, the fit within our R&D priorities, and the positive project results to date, funding is recommended. The recommendation for funding also is based on consideration of the technical reviewer comments and responses to reviewer questions.

Holmes recommended that funding be subject to the Technical Advisor participating in project reviews, the Technical Advisor reviews the revised project management plan with the project team including HAZOP considerations, and work/budget schedule breakout. Holmes also stated funding would be subject to the receipt of the industry and federal matching funds.

Holmes stated conflicts of interest include North American Coal, Great River Energy, Minnkota Power Cooperative, BNI Energy and Great Northern Properties.

Nolan Theaker, University of North Dakota IES, presented on behalf of the applicant. (A copy of their Power Point presentation is available in the LRP files.)

V. RESULTS

LRC-C (100) A: "Incorporation of Coal and Coal Waste into High-Value Materials"

Submitted by: Semplastics
Request for: $850,000
Total Project Costs: $4,206,633
Principal Investigator: Walter Sherwood and William Easter
Project Duration: 3 years

Fund: 14 votes Do Not Fund: 2 votes Abstain: 0 vote

LRC-C (100) B Amendment to Rare Earth Element Extraction and Concentration at Pilot-Scale from ND Coal-Related Feedstocks. (Amendment to FY20-XC-221)

Submitted by: Institute for Energy Studies, UND
Request for: $175,000 in new funding is being requested.
In addition to the originally awarded $900,000. Totals $1,075,000.
Total Project Costs: Amendment $650,000.
Original total $6,508,555. Combined total $7,158,555.
Principal Investigator: Nolan Theaker
Project Duration: Change to 42 months from original 30 months.

Fund: 16 votes Do Not Fund: 0 vote Abstain: 0 vote

VI. 2022 CALENDAR

Bohrer announced that the next NDIC meeting is scheduled for May 23, 2022. Bohrer reminded the group that the fall grant application deadline is October 1, 2022, and the next LRC meeting is scheduled for November 17, 2022.

VII. OTHER BUSINESS

VIII. TRANSMISSION AUTHORITY UPDATE

John Weeda shared with the group a Power Demand update. He included an independent look at the electric power forecast for western North Dakota and the current status of the grid.

IX. ADJOURNMENT There being no further business, Jason Bohrer requested a motion for adjournment of the LRC meeting. John Harju so moved; seconded by Dale Johnson. Motion carried.

The North Dakota Industrial Commission meeting, when these recommendations will be considered, will be held on November 29, 2022.

Angie Hegre, recording secretary