MEETING MINUTES

LIGNITE RESEARCH COUNCIL – GRANT ROUND 108

Tuesday, November 18, 2025 – 1:30 p.m. (CT)

Bismarck State College NECE Room 335 or Microsoft Teams

LRC VOTING MEMBERS PRESENT:

Jonathan Fortner – Lignite Energy Council, Chairman (on-line)
Jay Kost – The Falkirk Mining Company
Mike Heger – BNI Energy
Ethan Vaagene – Rainbow Energy Center
Reese Boehm – Nexus Line, LLC
Randy Christmann – North Dakota Public Service Commission
Tom Oakland – North Dakota Commerce
Dave Glatt – NDDEQ
Donn Steffen - Coyote Creek Mine
Trinity Turnbow – Dakota Gasification
Gavin McCollam-Basin Electric Power Company (on-line)
Brad Zimmerman – Otter Tail Power Company
Anna Novak – North Dakota House of Representatives
Charlie Gorecki – EERC
Tim Hagerott – Minnkota Power Cooperative
Keith Boehm – North Dakota Senate
Bill Sawyer – ALLETE
Joseph Heringer – Land Board
Rita Faut – North Dakota Farm Bureau
Brad Hawk-Indian Affairs Commission (on-line)
Ed Murphy – North Dakota Geological Survey
John Phillips-ND Coal Conversion Counties Assn.
Randy Bartsch – IBEW

OTHERS PRESENT:

Jordan Kannianen – North Dakota Industrial Commission
Brenna Jessen – North Dakota Industrial Commission
Carmen Devney – North Dakota Industrial Commission
Mike Holmes – Lignite Research Council
Angie Hegre - Lignite Energy Council
Retha Mattern – Lignite Energy Council
Alison Riter - WDEA
Nolan Theaker – UND (presenter)
Alex Benson – Microbeam (presenter)
Tamara Diedrich – Mineral Logic (on-line)

I. CALL TO ORDER

Meeting called to order:

Lignite Research Council (LRC) Vice-Chairman Randy Christmann called the meeting to order at 1:33 p.m. (CT) on November 18, 2025.

Christmann introduced the new LRC appointees to the committee.
New LRC appointees:

- Representative Anna Novak, ND House of Representatives (ND Legislature Representative)
- Senator Keith Boehm, ND Senate (ND Legislature Representative)

Jordan Kannianen introduced the new NDIC staff member, Carmen Devney

II. APPROVAL OF MINUTES

Approval of May 7, 2025, LRC Meeting Minutes:

Christmann requested a motion to approve the minutes from the above-listed meeting. Bill Sawyer so moved; seconded by Anna Novak, motion carried.

III. UPDATES

Program Management & Financial Report:

Jordan Kannianen shared the financial summary for the Lignite Research, Development, and Marketing Program. (A copy of the financial summary is available in the Lignite Research Program files)

Kannianen displayed a high-level dashboard view summary of all the Industrial Commission-managed funds to the committee. Kannianen shared that the Lignite Research Fund availability as of November 2025, is $7.3 million, which is the amount available to commit to new projects. Kannianen shared that there are three projects before the committee today with an ask of $4.8 million.

Kannianen brought forth to the committee the Lignite Research fund cash balance of $24.5 million with $17.2 million of that having outstanding project commitments. Kannianen shared that the total of $7.3 million is uncommitted and available while considering new projects.

For the Lignite Research Fund, Kannianen provided a cumulative view of the fund. Since the program's inception in 1987, 261 cumulative projects have been funded. Each of those projects brings private capital and private match back to the state of North Dakota. That private match has equaled $2.8 billion project value that has been invested in the state of ND, thanks to projects approved through this program. Currently, there are 16 active projects.

In addition, Kannianen shared the 2025-2027 biennium appropriation and forecasted income. Sharing a graphic showing the Lignite research fund money coming from the Coal Severance Tax, Coal Conversion Tax, Research Tax, and formula funding from Oil Production and Extraction Taxes, showing a total of $18.5 million through the course of the biennium.

The financial data was emailed before the meeting to the LRC members.

IV. CONSIDERATION OF PROJECTS

LRC-108A: Enhance, Preserve, and Protect the North Dakota Coal Industry
Submitted by: Lignite Energy Council
Principal Investigator: Mike Holmes
Request for: $3,316,695
Total Project Costs: $3,316,695
Project Duration: 36 months

The Enhance, Preserve and Protect project continues to build on ongoing commitment and cooperation among government agencies, elected leadership, and the lignite industry to ensure the long-term viability of the North Dakota lignite industry. Its objectives include building on previous work to preserve and protect the existing lignite fleet in North Dakota; employing and updating the Advanced Energy Technology (AET) Program; identifying opportunities to enhance the future of the state's lignite resources; monitoring regulatory policy that could jeopardize the future of lignite; and maintaining flexibility and timeliness while working with industry and regulators to make the best use of lignite. Opportunities already identified include rare earth elements and critical minerals, developing carbon materials from lignite, using CO_2 for Carbon Capture Utilization and Storage (CCUS), and evaluating next-generation lignite conversion systems.

Jordan Kannianen, NDIC Deputy Executive Director, shared that both reviewers recommended funding, and the proposal received an average score of 210.5 out of 250. NDIC Deputy Executive Director's Recommendation: Fund – He recommended to fund with contingencies. Because this is non-match funding, his recommendation includes the following conditions: semi-annual reporting will be provided to the Industrial Commission; at a minimum, an annual presentation will be made to the Lignite Research Council and the Industrial Commission; and funding of studies in excess of $100,000 must be approved by the Office of the Industrial Commission unless already identified in the proposal. He shared that the conflicts of Interest include the Lignite Energy Council.

Mike Holmes and Jonathan Fortner from LEC presented on behalf of the applicant.

A copy of the PowerPoint presentation is available in the LRP files.

LRC-108B: Pilot Expansion and Testing for Improving Lignite Fuels and REE Processing
Submitted by: University of North Dakota
Principal Investigator: Nolan Theaker
Request for: $1,100,000
Total Project Costs: $2,200,000
Project Duration: 24 months

Holmes shared that the University of North Dakota is proposing this Pilot Expansion and Testing for Improving Lignite Fuels and REE Processing project in the amount of $1,100,000 in requested funding. He shared that the proposed work has four overarching objectives: i) pilot-scale demonstration and economic evaluation of a dedicated coal cleaning approach to generating a premium fuel with reduced boiler fouling potential, ii) testing, validating and scaling approaches to improving UND's process for extracting and concentrating rare earth elements and critical minerals from lignite, iii) expanding the scope and improving the capabilities of UND's existing rare earths pilot plant to enable scaled testing of process/product improvements, and iv) preparing UND and partners for near-term commercialization using U.S. Dept. of Energy funding that is expected to be released in late 2025 (under contract in late 2026 / early 2027).

Holmes shared that the proposed project is the next step for the UND IES pursuit of REE's and CM's from North Dakota lignite. The project would provide performance data on fuel and combustion properties of physically and chemically beneficiated lignite and economic improvements to existing state-of-the-art REE/CM processing techniques. This will directly position UND and partners to pursue commercial opportunities. All three of the technical reviewers recommended funding the project. The proposal received an average score of 229 out of 250. The project provides leverage to state funding by obtaining funding from the DOE and lignite industry partners (50%).

Holmes shared that the funding would be subject to the Technical Advisor participating in the project reviews and reviews the project management plan with the project team. Holmes stated the conflicts of interest include Minnkota Power Cooperative, North American Coal, and BNI Energy.

Nolan Theaker presented on behalf of the applicant.

A copy of the PowerPoint presentation is available in the LRP files.

LRC-108C: Efficient Refining of Germanium Metal from Fly Ash-Derived Concentrates
Submitted by: Microbeam Technologies, Inc.
Principal Investigator: Alex Benson
Request for: $400,000
Total Project Costs: $1,200,000
Project Duration: 24 months

Holmes shared that Microbeam Technologies is proposing a two-year project. The objective of this project is to demonstrate the ability to efficiently refine germanium–rich concentrates derived from lignite fly ash materials. This project builds on Microbeam's demonstrated ability to produce >60% Ge concentrates from lignite-derived fly ash. To achieve the project objective, Ge concentrate will be exposed to a direct reduction process to produce Ge metal (>90% purity). The Ge metal will be further refined to 99.999% pure Ge metal (5N Ge) using zone refining. This process significantly decreases the cost of the production of 5N Ge and reduces the environmental impact by bypassing extensive hydrometallurgical steps. He shared the funding they were asking for was $400,000 with a total project cost of $1,200,000.

Holmes shared that the technical reviewers recommended funding. He stated the proposed project would provide information on the ability to produce 5N Ge from lignite-derived Ge concentrates at a lower cost and environmental impact. The project will involve the production of concentrates using Microbeam's pyrometallurgical process. Two of the technical reviewers recommended funding while the third reviewer recommended funding may be considered pending more information on the experimental setup and the rationale for why they believe it will work. The proposal received an average score of 212.3 out of 250. The project provides good leverage of state funding by obtaining two-thirds of the funding from AmeriCOM.

Holmes shared that the funding would be subject to the Technical Advisor participating in the project reviews and reviews the project management plan with the project team. Holmes stated the conflicts of interest include North American Coal.

Alex Benson presented on behalf of the applicant.

A copy of the PowerPoint presentation is available in the LRP files.

V. Voting Process – Ballots distributed, returned and tabulated.

VI. EXECUTIVE COMMITTEE

Discussion and consideration of including Executive LRC representatives in the Technical Advisor transition

and selection occurred. This team would include Randy Christmann (PSC), Jonathan Fortner (LEC, Jay Kost (NA Coal), Ethan Vaagene (Rainbow Energy), Ed Murphy (ND Geological Survey), Brad Zimmerman (OTPC), and Gavin McCullam (Basin).

Christmann requested a motion to approve the Executive Team to move forward with the Technical Advisor transition and selection. John Phillips so moved; seconded by Rita Faut, motion carried.

VII. RESULTS

All three projects were unanimously approved.

LRC-108A: Enhance, Preserve, and Protect the North Dakota Coal Industry

Submitted by: Lignite Energy Council
Fund: 22
Do Not Fund: 0
Abstain: 0

LRC-108B: Pilot Expansion and Testing for Improving Lignite Fuels and REE Processing

Submitted by: University of North Dakota
Fund: 22
Do Not Fund: 0
Abstain: 0

LRC-108C: Efficient Refining of Germanium Metal from Fly Ash-Derived Concentrates

Submitted by: Microbeam Technologies, Inc.
Fund: 22
Do Not Fund: 0
Abstain: 0

VIII. OTHER BUSINESS

Christmann announced that the next North Dakota Industrial Commission meeting, where these recommendations will be considered, is scheduled for November 25, 2025.

Christmann reminded the group that the spring grant application deadline is April 1, 2026, and the next LRC meeting is scheduled for May 12, 2026 (later to be changed to May 8, 2026).

IX. ADJOURNMENT

There being no further business, the meeting was adjourned

Angie Hegre, recording secretary