



INDUSTRIAL COMMISSION OF NORTH DAKOTA

Doug Burgum
Governor

Wayne Stenejem
Attorney General

Doug Goehring
Agriculture Commissioner

For Immediate Release

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Industrial Commission approves funding for three Lignite R&D grants

BISMARCK - The North Dakota Industrial Commission (Commission) approved funding totaling \$970,004 for three lignite research projects. In a joint statement, the Commission consisting of Governor Doug Burgum, Attorney General Wayne Stenejem and Agriculture Commissioner Doug Goehring, stated, "The lignite industry is always looking forward and developing new markets and new technologies to improve existing operations. The projects that we funded today will continue the success of this industry that is so important to the state and its citizens."

The largest proposal is the Williston Basin CORE-CM (carbon ore, rare earth, and critical minerals) Initiative. The Energy & Environmental Research Center (EERC) will lead a diverse and experienced coalition team of nearly 30 partners focused on laying the foundation for a new industry for the Williston Basin. The initiative is modeled after the successful Plains CO₂ Reduction (PCOR) program with current funding for Phase I of a potential three-phase program. The team will gather and assess the existing available data for rare earth elements (REEs), critical minerals (CM) and non-fuel carbon-based products (CBPs). The EERC recently received a \$1.5 million grant from the U.S. Department of Energy for this project. The NDIC will invest \$750,000 in the Phase I project. Other partners providing financial resources include BNI Energy, North American Coal Corporation, Basin Electric Power Cooperative and Minnkota Power Cooperative, making the total project budget \$2.45 million. The team will also include university researchers and other industry partners.

The goal of the Williston Basin CORE-CM Initiative is to lay the foundation for a new industry, as well as drive the expansion and transformation of the existing coal and coal-based resources industry in the Williston Basin. The project is expected to be completed in less than two years. A preliminary analysis for the Williston Basin opportunity shows that a fully developed REEs industry could contribute \$500 million in state revenues yearly based on an excise tax alone.

The demand for REEs in electric cars, wind generators, catalysts, cell phones, medical and military applications is growing dramatically. Currently, China is the primary source of rare earth elements; however, the United States would like to produce more domestically to ensure a reliable and affordable supply.

The second project approved by the Commission is an ammonia-based energy storage technology that could be used on lignite power plants to increase their operating efficiencies. Currently, coal-based power plants are often “following the wind,” which means they must adjust their fuel consumption to match electricity production from wind turbines. The proposed process would turn electricity, water and nitrogen into ammonia, which could either be sold commercially or used to make electricity using a fuel cell. This technology would allow the plants to operate more uniformly thus eliminating the ups and downs of generation. The project would be led by the EERC and is scheduled to be completed in one year. The NDIC will invest \$101,390 in the \$426,390 project. Project partners include Basin Electric Power Cooperative, Minnkota Power Cooperative and Otter Tail Power Co., in addition to the U.S. Department of Energy.

The third project focuses on the optimum amount of bottom ash, a byproduct of coal combustion, that can be used in sustainable concrete infrastructure. The Commission will fund \$118,614 of the \$289,271 project to test the hypothesis that there is an optimum content of bottom ash as a fine aggregate and cement replacement. The proposal focuses on the use of bottom ash in concrete to reduce cost, conserve energy and resources, reduce environmental impact, and enhance workability and durability.

The project was submitted by the Civil Engineering Department at the University of North Dakota and is scheduled to be completed in 15 months. Partners include regional utilities and construction companies.

The Lignite Research Council recommended funding the grant proposals at its meeting on May 13 in Bismarck. Prior to that meeting, each of the proposals was peer reviewed and recommended for funding.

The Commission is a partner with the regional lignite industry in the Lignite Research Program. State dollars are leveraged with industry investments for research and demonstration projects. Since 1987 when the partnership began, the state has invested more than \$90 million in lignite research funds. Total investment in more than 200-plus projects is in excess of \$750 million.

Besides the State Lignite Research Fund dollars, R&D funding also comes from industry sources such as mines and utilities, research entities such as the Energy & Environmental Research Center, and the U.S. Department of Energy.

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