

Lignite Research Program- Grant Round 76- Application Summaries

Application Number	Application Title	Applicant	Project Duration	Summary of Project	Funding Requested	Total Project Cost
LRC-76-A	Investigating the Use of Fly Ash and Nanomaterials for Sustainable Concrete Infrastructure	University of North Dakota- Department of Civil Engineering	12 Months	To develop a more sustainable concrete by replacing ordinary Portland cement with locally sourced fly ash and nanomaterials. Researcher will evaluate how four nonmaterial improve concrete strength, durability, and performance while reducing environmental impacts, energy use, and greenhouse gas emissions. The study will test concrete properties and analyze material structure to determine whether fly ash-based concrete can match or exceed traditional concrete performance.	\$14,559	\$60,642
LRC-76-B	Continuation of Underground Coal Gasification Study in Western ND	Scott F. Korom (PI, Ph.d., Associate Professor) Peng Pei (Ph.D., Research Engineer) Jarda Solc (D.Sci., Senior Engineer) Hadi Jabbari (Ph.D., Assistant Professor) Steve Benson (Ph.D., Professor) Institute for Energy Studies	24 Months	To continue research into underground coal gasification (UCG) in North Dakota by collecting additional geological and groundwater data to determine the feasibility of converting lignite coal into syngas, liquid fuels, and chemicals. The project includes drilling and monitoring wells, testing coal and surrounding rock and assessing the economic viability of future UCG development.	\$299,958	\$719,958

		Department of Petroleum Engineering University of North Dakota				
LRC-76-C	ION Advanced Solvent CO2 Capture Project	ION Engineering	45 Months	To evaluate ION's advanced carbon dioxide (CO2) capture technology under realistic power plant operating conditions using 0.7-1.0 Mwe slipstream system. The goal is to collect long-term performance data needed to support scale-up to commercial systems ranging from 10-50 MW, advancing carbon capture technologies that reduce greenhouse gas emissions from power generation.	\$1,000,000	\$20,194,044
LRC-76-D	Alstom's Chemical Looping Combustion Technology with CO2 Capture for ND Lignite Utilization	Mr. Iqbal F. Abdulally Dr. Shin G. Kang Alstom Power Inc.	36 Months	To evaluate chemical looping combustion technology using North Dakota lignite to generate power while capturing carbon dioxide for sequestration or utilization. The research will test and optimize combustion performance, emissions, and fuel characteristics to advance commercial-scale deployment of low-cost, carbon-capture power generation.	\$500,000	\$10,489,821