

School of Energy Resources Update
July 12, 2022

1. The SER Academics program continues to focus on recruiting, evaluating its offerings and supporting student success. Select updates include:
 - a. SER and the College of Law's quick start proposal for a 3+3 program in which students could earn a BS in Energy Resource Management and Development (ERMD) and a Juris Doctorate in six years is fully approved and being actively marketed to students.
 - b. SER learned that the application for American Association of Professional Landman reaccreditation for the Professional Land Management (PLM) concentration was successful! This reaccreditation and site visit is required every five years.
 - c. 53% of SER's ERMD majors in Spring 2023 were on an honor roll at UW.
 - d. 100% of Spring 2023 graduates were employed prior to graduation in May.

2. The SER research program continues to grow and diversify. In response to this growth, SER recently hired two Project Specialists, who will assist Project Managers and Principal Investigators with various administrative tasks to support overall project execution and provide additional support for proposal development.
 - a. SER Centers of Excellence are created to focus multidisciplinary teams on a shared energy topic, funding opportunity, or specific emerging energy challenge important to Wyoming. Each BOT update, SER will highlight at least one of these faculty-led centers.
 - b. This quarter we are pleased to provide an update on the Center for Air Quality, which is under the leadership of Dr. Shane Murphy and Dr. Dana Caulton in the Department of Atmospheric Science. The Center for Air Quality is a national leader in methane emission detection and quantification. Highlights from the CAQ include:
 - i. Participation in the Colorado Coordinated Campaign (C3). This project, led by CSU with the CAQ being a co-PI, is funded by the Colorado Dept. of Public Health and Environment and companies representing ~80% of production in the WY/CO Denver-Julesburg Basin. CAQ aims to develop a full emission model for the basin.
 - ii. CAQ is developing a drone platform to test new methods for methane emission measurement
 - iii. CAQ continues to work with Wyoming industry partners and the Environmental Defense Fund across the Rocky Mountain Region and Permian Basin to reconcile measurements of methane.

3. SER's Center for Economic Geology Research (CEGR) continues its research on CO₂ storage, hydrogen and critical minerals research. Select highlights include:
 - a. Under the SER's flagship CO₂ storage project, Wyoming CarbonSAFE, two wells have been completed to Class VI standards (the type of wells required for CO₂ injection) as well as completing the state's first multi-component (e.g., CO₂ soil sensors, seismic activity, etc.) baseline monitoring system. The project team is currently focused on completing injection permits for the greater storage hub.
 - b. The CORE-CM projects, which are focused on building new industries in carbon ore, rare earths and critical minerals in the Powder River Basin and the Greater Green River Basin, have begun assessing the highest potential technologies for new resource extraction.

- c. CEGR continues to expand its research focus to support Wyoming industries, with recently awarded projects that will study a proposed gold mine west of Cheyenne, as well as providing a geotechnical assessment of the proposed build site for the Natrium reactor.
4. SER's Center of Excellence for Carbon Capture & Conversion (CCCC) continues to progress research and technology development associated with the future of Wyoming coal.
 - a. Leadership of the CCCC has transferred to Trina Igelsrud Pfeiffer as interim Director and Richard Horner is now serving as a Senior Advisor to the SER Executive Director.
 - b. Thanks to approval of the BOT, UW/SER has signed and executed a lease and site preparation contract with Wood Group for field demonstration of a coal pyrolysis unit in Gillette, Wyoming.
 - c. The coal-derived building products demonstration house is completed. A consulting company has been put in place to monitor the impact of Wyoming's extreme weather conditions on these coal-derived building products over the coming year.
 - d. The solvent extraction pilot plant has been making higher yield extracts from coal for downstream products research. The extraction unit is one of the main processes for the coal refinery.
5. The Center for Energy Regulation and Policy Analysis (CERPA) is focused on supporting other SER centers, state elected and appointed officials and leading its own research programs. Select updates include:
 - a. A search is underway for a CERPA director.
 - b. A paper was recently published on Wyoming energy community perspectives and preferences, available on the CERPA website. Notably, respondents strongly supported carbon capture, use and storage. Other low-carbon technologies listed from strongest to weakest support were solar, nuclear, wind and hydrogen. Further surveys are underway now.
6. SER's newest research staff-led center, the Hydrogen Energy Research Center (H₂ERC) is now up and running with the following highlights:
 - a. Research projects are underway with Tallgrass MLP and Williams to focus on hydrogen produced from natural gas and electrolysis of water (green), respectively
 - b. H₂ERC held a kickoff meeting for a principally DOE-funded study titled 'A Mid-Century Net-Zero Scenario for the State of Wyoming and its Economic Impacts'
 - c. SER is contributing significantly to the four-state coalition that will respond to the hydrogen hub funding under the Infrastructure Investment and Jobs Act (IIJA) when a solicitation is released.