School of Energy Resources Update

May 3, 2021

1. SER’s proposed Energy Resource Management and Development minor has received formal approval. We will begin advertising the minor soon. Given that the minor relies on existing classes, students could begin to participate in the minor formally as soon as Fall 2021.
2. SER-funded seed research projects continue and mid-point reports have been received. SER provided competitive seed funding in FY21 to 10 projects under the research categories of Carbon Capture Use and Storage, Energy Economic Development and Impact, Rare Earth Elements, Hydrogen Storage, and Wind. The projects have participation from 20 faculty members in 10 departments. The project are all on track to be completed by the end of the fiscal year.
3. SER’s Center for Economic Geology Research (CEGR) continues its research emphasis on carbon storage research. Select highlights include:
   1. Phase II of the Wyoming CarbonSAFE project is complete and work continues under the Phase III project continues with a focus on developing and permitting what is expected to be the state’s first Class VI well.
   2. CEGR was successful in obtaining nearly $3 million from the U.S. Department of Energy for research focused on expanding and transforming the use of coal and coal-based resources to produce coal-based products, using carbon ore, rare earth elements (REE) and critical minerals (CM). The funds will cover research in the Powder River Basin (PRB) of Wyoming and Montana and the Greater Green River and Wind River basins (GGRB-WRB) of Wyoming and Colorado.
4. The Center for Energy Regulation & Policy Analysis (CERPA) is working on the following interdisciplinary energy policy assessments:
   1. Wyoming H.B. 200, with the goal of making policy recommendations regarding retrofitting coal-fired power plants with CCS/CCUS technology and informing the Wyoming Public Service Commission regarding the same;
   2. Low-carbon policies in states that import Wyoming energy, with the goal of ensuring Wyoming-based energy producers are aware of carbon-based requirements;
   3. Impact of the Paris Agreement on Wyoming; and
   4. Impact of the soon-to-be-unveiled federal Clean Electricity Standard on Wyoming.
5. Regarding SER’s focus on developing new products for Wyoming coal, select projects include:
   1. With the help of the UW legal team, SER negotiated a collaborative project to field demonstrate the UW-invented coal refinery; the site location chosen is adjacent to Atlas Carbon’s activated carbon production facility near Gillette, WY. Wood, an engineering contractor, has been commissioned to develop the concept and undertake the feasibility study for the coal refinery scale, scope and outline design; which will generate budgetary information needed to justify the actual construction and operation.
   2. Field demonstration of coal derived soil amendments started at end March 2021 at three field locations: The UW Lingle and Powell Agricultural Research Stations and at a land restoration site owned by Peabody Energy.
   3. Outline designs for a small building that will be made entirely from Wyoming coal-derived products is complete. Discussions to identify a suitable location on the UW campus and gain the necessary permits are ongoing.
6. The 3D Visualization Center
   1. The UW Grand Challenge submission entitled: Adapting Pandemic-Driven Technological Advancement to Expand Ecosystem Service Reach and Virtual Access to Wyoming’s National Parks was awarded. The 3D Viz Center will support the experimentation of technology to live-stream wildlife experiences to the public, in collaboration with the Haub School of Environment and Natural Resources.
   2. Completion of a proposal in collaboration with external geologists entitled ‘Once Upon an Aquifer’. The Project is inspired by ancient Aboriginal indigenous wisdom of "Caring for Country". The long-term foundation of a vital, healthy, prosperous and surviving community is a custodial caring relationship with your land and your water’ this proposal is complete and now seeking letters of support.
   3. Numerous non-disclosure agreements are in development with external agencies to support collaborative talks on issues such as: 1. Utilizing content management systems to serve digital products to academic markets, 2. To facilitate research orientated discussion leading to collaborative proposals with external business entities.
   4. The 3D Viz Center continues to support the Digital Pillar, and the School of Computing planning process with both strategic comment and graphic illustrations.
   5. Planning is underway with Mississippi State University, College of Forest Resources on collaborative opportunities regarding the use of 360 data capture technologies to provide innovative teaching methods to undergraduates, focusing on surveying and counting birds.