

School of Energy Resources Update
January 12, 2022

1. SER Academics program update:
 - a. SER has recently emphasized increasing enrollment in its academic program and is now seeing results. For example, for the following Fall, in January 2021 SER had 3 admitted students, while in January 2022 SER has 14 admitted students.
 - b. The new Energy Resource Minor was launched in Fall 2021 and has already ushered the first two graduates of the program into the job force. We currently have 9 other students declared in this minor, one of whom will graduate in Spring 2022.
 - c. SER is launching a mentoring program for all ERMD major and ERM minor students in SP22. SER already has 14 interested students.
2. SER selected UW faculty members Caleb Hill (Chemistry) and Tara Righetti (Law/SER) to serve as co-directors for the Nuclear Energy Research Center, which will initially be focused on capacity building (i.e., colloquium, faculty visits to national labs and leading nuclear-research universities, student internships, etc.).
3. SER was awarded approximately \$650,000 by the US Department of Energy to assess the economic impacts of fossil energy production in Wyoming and evaluate opportunities and research needs to deploy clean hydrogen technologies.
4. SER's Center for Economic Geology Research (CEGR) continues its research on carbon storage, hydrogen and critical minerals research. Select highlights include:
 - a. In collaboration with Basin Electric Power Cooperative, a team of researchers and partners on the Wyoming CarbonSAFE Project recently began drilling a second deep test well for site characterization for CO₂ storage potential. Spudding of the test well near Basin Electric's Dry Fork Station near Gillette began Dec. 23 and is complete and testing is underway.
 - b. In conjunction with the drilling, the SER Outreach and CarbonSAFE team hosted a media day to share key information about the project and carbon capture and storage in general.
 - c. SER is currently in the hiring process for several research positions in this center, based on external projects (soft funding).
5. 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. Interdisciplinary collaboration between faculty and SER professional staff team from across campus, continues to successfully deliver required results.
 - b. The recent departure from UW of two senior faculty members and pending retirement of another, is expected to challenge the available knowledge and know-how research base in the short-term for SER's research program in the carbon engineering field.
 - c. SER is working with engineering contractors (to design and construct field pilots and demonstrations of its coal refinery) and engagement with industry partners.

- d. A coal building products demonstration house will be constructed on UW campus, in close proximity to the High Bay Research Facility (HBRF). The performance of the coal based building products used, will be compared to conventional building materials.
6. The Center for Energy Regulation and Policy Analysis (CERPA)
- a. CERPA staff are finalizing the first paper in a two-part series focused on development of a rare earth element industry in Wyoming.
 - b. CERPA staff recently published a primer on electricity regulation and made it available to the public.
7. The 3D Visualization Center
- a. Progress is being made with the external grant writer to aid in the application for numerous research in the coming months. 5 NSF opportunities have been identified, ranging from AI research, to support for new digital infrastructure.
 - b. The 3D Viz Center continues to fulfill its obligations to two Provost Strategic Investment Fund projects 1. The Pioneer Program (enabling Entrepreneurial students and business to connect), 2. A Human-Centered Artificial Intelligence Learning Platform (enabling faculty to listen to an Artificial Intelligence layer to support engagement in remote teaching)
 - c. The 3D Viz Center continues to explore the use of Digital Twins to allow for remote monitoring of research orientated physical infrastructure, and the development of a proposal with a \$1M fund raising goal outlining the potential statewide benefit of an interactive visualization tool supporting the teaching, research, and economic use of the North Platte River, by mapping the riverbed morphology.