

SEPTEMBER
2021

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UNIVERSITY
OF WYOMING

School of
Energy Resources

**QUARTERLY
NEWSLETTER**

Vol. 2, Issue 3

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MESSAGE FROM THE EXECUTIVE DIRECTOR

To the SER community,

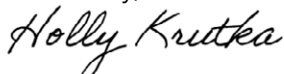
The last three months have been busy and productive for the School of Energy Resources. SER has had the privilege of hosting esteemed guests to campus to share our energy-related research for the state of Wyoming, as well as to forge new partnerships and launch new endeavors. Noted guests include members of the Wyoming Legislative Joint Minerals Committee, members of the Wold Foundation and family, representatives from Williams, and one of my personal heroes -- the CEO of Occidental, Vicky Hollub. In this issue you will read about those visits and get a glimpse of the exciting project advancements that are up and coming this year.

As we enter the last quarter of 2021, it is important to remember the mission of SER -- energy-driven economic development for the state of Wyoming. In striving to achieve our objectives, SER has continued to build its team internally with driven and enthusiastic people. Dr. Kami Danaei has moved into a new role as the academic director for the Energy Resource Management and Development degree program, and our research centers of excellence have continued to expand and add staff positions to bolster the expanding research portfolio. For the first time ever, the Center for Carbon Capture and Conversion has created internal research positions to help administer the center, and we are pleased to welcome Dr. Stefan Holberg to our research team.

Finally, we want to remind our readers that much of what we do is possible because of your interest and support. Keep us in mind as we approach the end of the calendar year. The University will host its annual giving day festivities on October 20-21, and we hope you'll consider making a gift to support the continued success of our students.

Thank you for sharing in our energy journey and love for Wyoming!

Sincerely,



Holly Krutka



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School of
Energy Resources

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ACADEMICS

UW School of Energy Resources Launches New Minor in Energy Resource Management

The University of Wyoming's School of Energy Resources (SER) is now offering a new minor in energy resource management (ERM).

The new minor will allow a wider array of UW undergraduate students to gain access to specialized energy instruction to supplement and enhance their education. The minor will benefit students who are interested in business, economics, finance, engineering, science, law, real estate, lab sciences, land management, political science, sociology, agriculture, and environment and natural resources. By acquiring a foundational knowledge of diverse energy topics and interdisciplinary training, students will gain a competitive edge to expand career opportunities.

An additional strength of the program is that it is built entirely from existing courses throughout the university that have an emphasis on energy. There are no incremental costs associated with the program, and the added credential will help to boost enrollment and curricular overlap.

READ MORE >

NEW MINOR PROGRAM!

ENERGY RESOURCE MANAGEMENT




Kami Danaei

Danaei Named New UW School of Energy Resources Academic Director

Kami Danaei is the new academic director of the School of Energy Resources (SER) academic program at the University of Wyoming.

She will oversee the curriculum, course development and scheduling of the degree program. Danaei also is tasked with the management of accreditation reports and requirements; establishment of learning outcomes and assessment standards in accordance with accreditation standards; and leading professional development efforts.

A Wyoming native, Danaei came to SER in April as the academic advising manager for the ERMD degree program. Since joining the staff, Danaei has helped to bolster the program, garnering enthusiasm and camaraderie among the students, and innovating the recruiting efforts to strengthen the degree and grow the program. In addition to serving as the new academic director, Danaei will continue to advise current students, assist with career development and deployment, and recruit new SER students.

Danaei succeeds Tim Considine, who stepped down from the interim position in early September. A professor of energy economics for SER, Considine will return as a full-time faculty member and continue to teach core courses in the energy resource management and development (ERMD) degree program.

READ MORE >

To learn more about the minor in Energy Resource Management visit:
<http://www.uwyo.edu/ser/academic-programs/minor-erm>

Members of the Wold Family and Foundation Visit School of Energy Resources for Presentation and Unveiling

The School of Energy Resources (SER) was pleased to host members of the Wold family and representatives of the Wold Foundation on September 24.

During the visit, the party met with professor of geology and geophysics, **John Kaszuba**, who was the most recently named the recipient of the John and Jane Wold Centennial Chair in Energy. In addition to hearing about the current efforts Prof. Kaszuba is leading, students in his research group attended the meeting to present on their research, offering a first-hand account of the effects the Wold family's investment in energy education.

To conclude the day, the School of Energy Resources paid tribute to John and Jane Wold and their generous contribution to UW through the unveiling of a wall display affixed in the Energy Innovation Center. The fixture highlights the duo and the impact that their support has had and will continue to have on the growth and development of energy research and education in Wyoming. **READ MORE >**



UW School of Energy Resources Student Conducts Fieldwork in Mobile Air Quality Lab

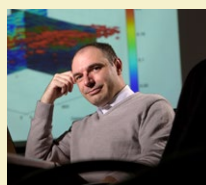
Isaac Boettcher, an Idaho Falls, Idaho, senior in the School of Energy Resources (SER), recently conducted fieldwork to survey methane emissions as part of an internship with the Center for Air Quality (CAQ) at the University of Wyoming.

Boettcher was awarded the research internship through a generous endowment from the Nielson family as part of his studies in the energy and environmental systems concentration for his degree. He is a student in SER's energy resources management and development degree program.

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Academics Highlights

- Professor Dario Grana has organized a series of seminars on Diversity and Inclusion in Geoscience. Seminars are held on Wednesdays at 12 pm on Zoom. Seminars are open to everybody interested in the topic. See the full schedule and register **HERE >>>**



- Save the Date! SER is participating in the University of Wyoming's Annual Giving Day! UW Giving Day is an annual UW tradition that raises thousands of dollars in a single day for students and programs across campus. UW Giving Day will take place **October 20-21, noon to noon**, in conjunction with Homecoming.



RESEARCH

The Anschutz Corporation Donates to UW SER to Kick-Start Hydrogen Energy Research Center

The University of Wyoming's School of Energy Resources (SER) has received a generous donation from The Anschutz Corporation to help launch the school's new Hydrogen Energy Research Center (HERC).

The donation is the first substantial private financial investment made in support of the center, which will focus on clean hydrogen produced by diverse energy sources. The gift is intended to kick-start the center and advance research into key technical aspects of the hydrogen production, delivery and deployment sector, which stands to complement and enhance Wyoming's already robust energy sector, helping to diversify its economy.

READ MORE >



» SER and Williams Representatives

UW School of Energy Resources, Williams Cos. Join Forces on Hydrogen Project

Representatives of the University of Wyoming School of Energy Resources (SER) and The Williams Cos. Inc. recently met on campus to discuss the UW school's initiatives and development opportunities, as well as the energy infrastructure company's clean energy strategy in Wyoming.

A partnership between the two entities has been forged based on a mutual desire to invest in and explore new energy ventures for Wyoming – especially in hydrogen and carbon capture.

Recently, Williams, based in Tulsa, Okla., was awarded a grant by the Wyoming Energy Authority to support efforts to develop a hydrogen production and transportation hub in the southwest part of the state. The Wyoming Hydrogen Pilot Project will research hydrogen production from renewable energy sources. Williams will evaluate the impact of hydrogen on its local assets to include its pipelines in southwest Wyoming.

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Research Highlights

- The School of Energy Resources is looking for qualified applicants to direct the new Hydrogen Energy Research Center (HERC)! This is an at-will administrative position that manages the duties and budgets of HERC's research operations and communication efforts. This is a leadership position reporting to the Senior Director of Research.
APPLY HERE >>>
- **Emma-Jane Alexander** of the The 3D Visualization Center (3D Viz) participated in a panel during the fourth annual Blockchain Stampede and WyoHackathon.
- The Shell 3D Visualization Center (3D Viz) hosted an open house as part of UW's "Digi-Know?" Innovative Tech Open House Series.
- Researchers in the Center of Excellence for Produced Water Management have received a National Science Foundation (NSF) grant to investigate new membrane materials for purification and desalination of water. The research was developed from an initial \$200,000 seed funding investment from SER nearly 3 years ago.

Center for Economic Geology Research

UW School of Energy Resources Hosts Public CarbonSAFE Project Program in Gillette Aug. 3

The University of Wyoming School of Energy Resources' (SER) Center for Economic Geology Research (CEGR) – along with Basin Electric Power Cooperative – hosted a public outreach meeting at the Integrated Test Center at Dry Fork Station in Gillette on Tuesday, Aug. 3.

The public learned about carbon capture, utilization and storage, and heard updates on the Wyoming CarbonSAFE Project. A glimpse into the upcoming field activities at that site were also discussed.

The Wyoming CarbonSAFE Project (Carbon Storage Assurance Facility Enterprise) is among 13 original carbon capture, utilization and storage (CCUS) project sites in the U.S. funded by the Department of Energy, with the ultimate goal of ensuring carbon storage complexes will be ready for integrated CCUS system deployment.

The Wyoming CarbonSAFE Project, in the Powder River Basin near Gillette, is in Phase 3 of the multiphase project and is housed at Basin Electric Power Cooperative's Dry Fork Station.

Preparations are underway by the project team to oversee the drilling of a second test well at the CarbonSAFE site later this year. Led by CEGR Director Fred McLaughlin, the team is developing a plan to launch the field activities.

A recording of the meeting is available upon request. Please contact the SER Director of Outreach at christine.reed@uwyo.edu for access.



CEGR Research Scientist John Jiao Published Article in Environmental Science & Technology

CEGR research scientist John Jiao published an article in Environmental Science & Technology. The article entitled, "Decarbonizing the Coal-Fired Power Sector in China via Carbon Capture, Geological Utilization, and Storage Technology," indicates that coal power CCUS is likely to be a cost-effective and key technology for helping China reach the ambitious goal of carbon neutrality. The article can be read or downloaded [HERE >>>](#)



CEGR Highlights

- Award negotiations for the CORE-CM projects in the Powder River Basin (PRB) and the Greater Green River Basins (GGRB) have been finalized. The official start date was September 1.
- CEGR research scientist **Davin Bagdonas** presented at the AGNC 2021 Economic Development Summit on September 9 where he discussed Rare Earth Elements (REE) as an alternative use for coal.



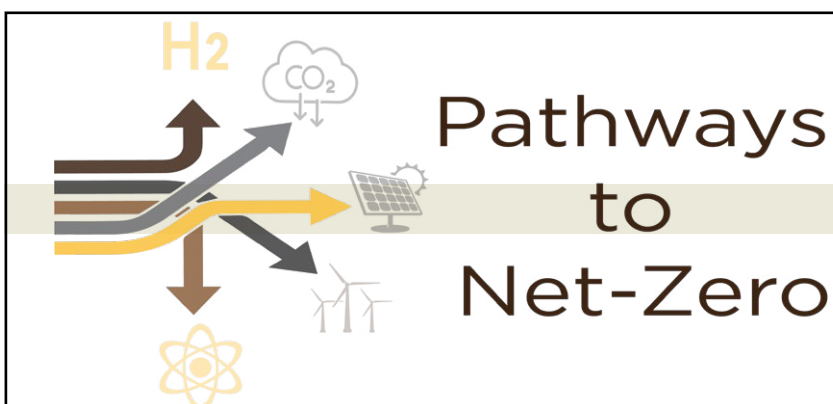
- The Center for Economic Geology Research (CEGR) has received funding for two new hydrogen projects in Wyoming -- one blue (in partnership with Tallgrass Energy), one green (in partnership with Williams).
- CEGR is hiring! With expanding projects, CEGR is seeking geologic analysts, CORE-CM research scientists, a chemical engineer, and additional staff for the Wyoming CarbonSAFE project. Apply for open positions [HERE >>>](#)

Center for Energy Regulation and Policy Analysis

University of Wyoming School of Energy Resources Hosts 'Pathways to Net Zero' Workshops

The University of Wyoming School of Energy Resources (SER) is hosting two 'Pathways to Net Zero' workshops for local Wyoming communities to discuss goals, needs, and concerns in achieving a net-zero energy mix for Wyoming.

The state-based workshops are part of a larger Department of Energy (DOE) funded consortium project, Intermountain West Energy Sustainability & Transitions (I-West). Led by Los Alamos National Laboratories the group was formed to develop a regional technology roadmap using place-based approaches to achieve carbon neutrality in the Intermountain West. SER was invited to participate along with Arizona State University, Colorado School of Mines, Montana State University, New Mexico Tech, San Juan College, University of New Mexico, and the University of Utah. [READ MORE >](#)



CERPA Hires Melissa Firestone as Contract Economist

The Center for Energy Regulation & Policy Analysis (CERPA) hired **Melissa Firestone** on a contract-basis to assist the center with the economic analysis of several ongoing energy projects in Wyoming. A graduate of the University of Wyoming for both her B.S. and M.S. in economics, Firestone has initiated a market assessment of Rare Earth Elements (REEs) in the state that is anticipated to be completed later this year.

CERPA Highlights

- CERPA research scientist **Jada Garofalo** presented the twelfth Annual Colloquium on Environmental Scholarship at the Vermont Law School. Garofalo served on a panel and presented a working paper entitled, "*An Electricity Regulation Primer for Energy-Economy States: Ensuring a Reliable & Affordable Transition to a Net-Negative Electricity Sector.*" The colloquium is used to gain feedback on working project from interested audience members and academic peers.


- Kipp Coddington** served as panelist on the topic of "CCUS in the Infrastructure Investment and Jobs Act - Opportunities for States" as part of the National Association of State Energy Officials' (NASEO) virtual workshop on "The Future of Carbon Capture, Utilization, and Storage (CCUS) - Technology and Policy Considerations."

Center for Carbon Capture and Conversion

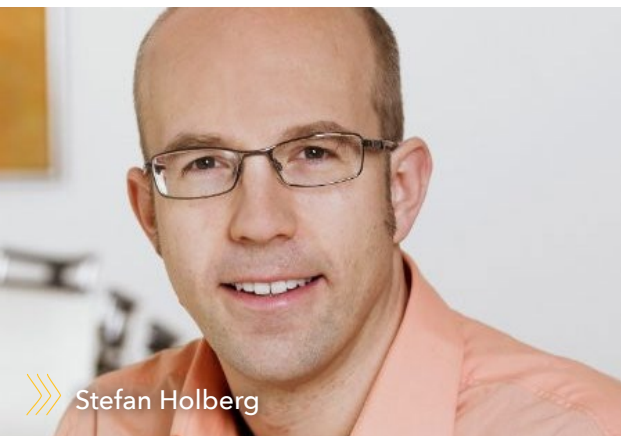
SER Center for Carbon Capture and Conversion Welcomes New Research Scientist

The School of Energy Resources (SER) is pleased to welcome **Dr. Stefan Holberg** into the Center for Carbon Capture and Conversion (CCCC).

Holberg is the first direct hire into the CCCC, where he will be serving as an associate research scientist. He will work directly with the center's director, Richard Horner, coordinating and facilitating ongoing and new project activities being performed by faculty-led research teams and external partners.

In his new role, Holberg will not only be overseeing ongoing coal to non-energy and fuel projects funded by the CCCC, but will also assist in writing proposals to attract new funding opportunities. Additionally, Holberg will lead new initiatives that leverage his chemistry background and expertise.

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Stefan Holberg

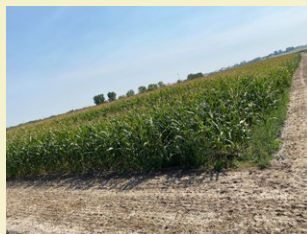


Center for Carbon Capture and Conversion Manufactures Coal-Derived Bricks

Researchers in the Carbon Capture and Conversion Center of Excellence (CCCC) recently completed the construction of 4000 bricks made entirely from Powder River Basin (PRB) coal. The bricks were manufactured on the University of Wyoming campus and will be used in a demonstration building made entirely from coal-derived construction products to be built later this fall. The proprietary process for the creation of the bricks originated in partnership with **Dr. Gang Tan** and his team in the College of Engineering and Applied Sciences (CEAS) department of civil and architectural engineering.

CCCC Highlights

- The **CCCC** harvested crops at the UW Sustainable Agriculture Research and Extension Center at Lingle WY, (SAREC) and the UW Powell Research and Extension Center (PREC) that had been treated with coal-derived soil amendments applied to field trials in March of 2021. Results from the field trials are currently under analysis.



- The **CCCC** is seeking to hire a senior research scientist to help manage the center. The position will work with partners on technology development projects that concern scaling up, field demonstration and commercialization of proven technology solutions related to Wyoming coal. See the job description and apply **HERE >>>**

OUTREACH

SER Hosts Occidental CEO Vicki Hollub

The School of Energy Resources (SER) was honored to host Occidental Petroleum Corporation (Oxy) CEO, **Vicki Hollub**, for a brief visit to campus on Friday.

Hollub made the trip to Laramie to witness first-hand some of the cutting-edge research at SER and visit with leading scientists, faculty members, and state officials - including Governor Mark Gordon who toured the High Bay Research Facility with Ms. Hollub and witnessed the work at the Center of Innovation for Flow Through Porous Media.

Through the generous support of Oxy, UW was awarded 2 distinguished faculty chair positions - The Occidental Chair in Energy and Environmental Technologies, and the Occidental Chair of Energy and Environmental Policy, which is jointly administered with the Haub School of Environment and Natural Resources.

During Hollub's visit, SER unveiled a wall display in the Energy Innovation Center, dedicated to Oxy and in commemoration of its gift and support.

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Energy Day at UW a Success for School of Energy Resources

The School of Energy Resources (SER) wrapped up its eighth annual energy day at the University of Wyoming in conjunction with Cowboy football.

As a pillar of SER's mission, outreach and engagement with the broader community plays a critical role in raising awareness and the visibility of energy topics important to Wyoming. The weekend was represented by a series of events including a presentation from Dr. Glen Murrell of the Wyoming Energy Authority, campus and building tours, and a networking reception in anticipation of the UW Football game on Saturday, Sept. 18.

Outreach Highlights

- UW students working on projects for SER attended the annual meeting held by the Petroleum Association of Wyoming (PAW) where they presented their research to conference attendees. Graduate students **Ellen Polites**, **Gideon Dordzie**, **Moustafa Aly**, **Nijat Rustamov**, and **Erik Smith** all work on research projects related to carbon capture & storage in Wyoming, and carbon engineering. One lucky student was awarded a scholarship from PAWs for their efforts.
- **Dr. Holly Krutka** discussed issues related to gender norms and the problematic gender gap as relates to education in science, technology, engineering, and mathematics (STEM) in an event presented by Build Mothers, Build the World.
- SER hosted the Joint Minerals Committee meeting in August. SER-supported students showcased their projects over the span of two days to the legislative committee.

UPCOMING EVENTS

2021 Landscape Discussion on Energy Law & Policy in the Rockies

The University of Wyoming's School of Energy Resources (SER) and the UW College of Law's Center for Law and Energy Resources in the Rockies (CLERR) will virtually host the 2021 Landscape Discussion on Energy Law and Policy in the Rockies Conference Friday, Oct. 8.

The conference is presented in collaboration with the Wyoming State Bar's Energy and Natural Resources Section. The event will focus on energy-related legal, regulatory and policy issues of current interest in Wyoming and the region.

EVENT WEBSITE AND REGISTRATION >

2021 Landscape Discussion on
Energy Law & Policy in the Rockies

REGISTRATION NOW OPEN!
FRIDAY, OCTOBER 8, 2021
FREE VIRTUAL WEBINAR
LARAMIE, WYOMING

Topics include:

- Small Modular Nuclear Reactors
- Hot Topics in Oil & Gas
- Low Carbon Energy in the Rocky Mountain West

CLE CREDITS AVAILABLE!

Distinguished Speaker Series Presentations



Dr. Glen Murell,
Wyoming Energy Authority
"Wyoming's Energy Strategy"
September 17, 2021



Dr. Bryan Willson,
Colorado State University Energy Institute
"Defining Characteristics of our Regional Energy Systems"
October 1, 2021 | 11:45am - 12:45pm



Dr. Jonathan Brant,
University of Wyoming College of Engineering & Applied Sciences
"The Center for Produced Water Management"
October 15, 2021 | 12:00pm - 1:00pm



Travis Deti,
Wyoming Mining Association
"Research and Education Support for the Energy Industry"
October 29, 2021 | 12:00pm - 1:00pm



Dr. Sallie Greenberg,
Illinois State Geological Survey
"Carbon Capture and Storage"
November 12, 2021 | 12:00pm - 1:00pm

All Presentations are held in the Encana Auditorium in the School of Energy Resources Energy Innovation Center located at 11th St. and Lewis St.

Lunch is Provided