

FALL
2023

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HAROLD HAMM

GAME CHANGER
FIRESIDE CHAT AND BOOK SIGNING

Thursday,

September 14, 2023



UNIVERSITY
OF WYOMING

School of
Energy Resources

QUARTERLY NEWSLETTER

Vol. 4, Issue 3



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MESSAGE FROM THE EXECUTIVE DIRECTOR

To the SER Community:

Fall is moving quickly into winter, the change seemingly accelerated by a fun, busy fall semester. It was an extremely robust time for outreach and engagement. One highlight was hosting oil and gas pioneer and CEO of Continental Resources, Harold Hamm, for a fireside chat about his newly published book, *Game Changer*. Meeting Harold Hamm and hearing/reading his story inspired us at SER - we can and will have a meaningful impact if we work as a team to bring novel energy projects to Wyoming. SER remains committed to providing opportunities for balanced outreach and engagement as we look forward to another busy year ahead.

On the research front, our team continued to make significant headway in areas of carbon engineering, carbon capture, use, and storage (CCUS), rare earths and critical minerals, hydrogen, nuclear capacity building, new oil and gas production and more. Autumn was a significant period on that front in which we were able to expand our efforts on the Mowry Shale Project by sponsoring research across UW to unlock the potential of a known abundant resource in Wyoming.

In order to help facilitate the deployment of new energy technologies in Wyoming and beyond, SER's policy and regulation is of vital importance. Under new leadership, the Center for Energy Regulation and Policy Analysis has hit its stride in providing timely research and guidance for law and policy makers on emerging topics. The results of the latest 'Social License to Operate' survey conducted by Selena Gerace and Jessica Western has been especially informative in gauging the opinions of Wyomingites regarding novel and legacy energy development projects. It has also been extremely useful in identifying gaps in the education, outreach, and engagement for newer research areas. We look forward to making informed and concerted efforts to engage with Wyoming communities to share more about our projects and other energy work occurring in the state.

On a related note, the fall semester brought new opportunities to students and working professionals alike. The certificate programs in Land Administration and CCUS officially went live and have multiple students enrolled in both programs. We are pleased by the excitement and growth in energy education at UW as well as the support we receive from companies hiring our students and sponsoring our programs. One such example is the generous gift from NextEra Energy to the Professional Land Management concentration. Because of this and other philanthropic support, students are able to better engage and network in the industry and learn in real-world scenarios. These learning experiences significantly enhance the education offered at SER and create graduates with a better understanding of the energy industry in Wyoming.

As the year begins to wrap up, we are continually grateful for your unwavering support and interest in SER and look forward to sharing more exciting news in 2024!

Sincerely,



Holly Krutka, Ph.D.



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ACADEMICS

University of Wyoming Faculty, Staff and Students Visit Idaho National Laboratory

A cohort of University of Wyoming faculty, staff and students visited Idaho National Laboratory (INL) in Idaho Falls, Idaho, as part of a collaborative effort to strengthen connections and facilitate research opportunities between the two entities.

Hosted by INL and coordinated with the UW School of Energy Resources (SER) and the College of Engineering and Physical Sciences, the multidisciplinary group represented 10 different departments, including the departments of Geology and Geophysics, Chemistry, Mathematics and Statistics, Physics and Astronomy, and multiple engineering disciplines.

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Kristen Pritchett Joins UW School of Energy Resources as Director of Professional Land Management Program

The University of Wyoming School of Energy Resources (SER) is pleased to announce **Kristen Pritchett** as the director of Professional Land Management (PLM) program.

As the director of an accredited program through the American Association of Professional Landmen (AAPL), Pritchett is responsible for communicating regularly with the organization to ensure that the program meets the standards set forth for accreditation, and to guide students within the program to broaden the role and bandwidth of land professionals and their development within the industry.

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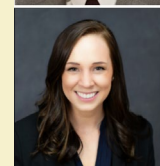
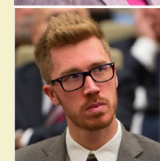


Academics Highlights

- Senior **Jacob Burns** introduced Wyoming Superintendent of Public Instruction **Megan Degenfelder** as a keynote speaker at the Petroleum Association of Wyoming's Annual Rockies Petroleum Conference. **READ MORE >**
- SER Professor of Geology and Geophysics **Subhashis Mallick** received the 2023 SEG Reginald Fessenden Award. This honor is awarded to those who have made a specific technical contribution to exploration geophysics.



- Tara Righetti**, a School of Energy Resources (SER) Professor of Law and the Occidental Chair in Energy and Environmental Policies, led a collaborative, international issue about Carbon Capture and Storage (CCS) in the Oil and Gas Energy Law (OGEL) Journal with **Matteo Fermeglia** of Hasselt University in Belgium. The online issue features an introduction from Righetti and Fermeglia, as well as an article from SER Research Scientist **Madeleine Lewis** on her research exploring transboundary challenges of geologic carbon storage in interstate and federal pore space. **READ MORE >**



RESEARCH

Center for Energy Regulation and Policy Analysis

UW's SER Releases Replication Study Tracking Wyoming Residents' Perspectives About Energy

The University of Wyoming's School of Energy Resources (SER), in collaboration with the Ruckelshaus Institute of Environment and Natural Resources, released a new study exploring the evolution of Wyoming residents' perspectives on energy development, focusing on "social license," or the level to which Wyoming residents approve of or accept different forms and amounts of energy development.

A replication of the 2020 study, the comparative analysis explores the perspectives, values, needs and concerns of Wyoming residents in relation to energy in Wyoming and how they have evolved over time. Both studies were motivated by a desire to understand what Wyoming residents want in relation to energy and why.

Once again, the research was led by **Jessica Western**, a research associate and adjunct professor with the UW Haub School of Environment and Natural Resources, who has a background in human dimensions of natural resources and collaborative approaches to natural resource problem-solving; and **Selena Gerace**, an SER associate research scientist.

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SER's Center for Energy Regulation and Policy Analysis Releases Publication on Hydrogen Development with Carbon Capture and Storage in Wyoming

The School of Energy Resources (SER) Center for Energy Regulation and Policy Analysis (CERPA) has released a study examining the development of a hydrogen industry in Wyoming when paired with carbon capture and storage (CCS) technology.

The paper is the result of a collaboration between SER and the Plains Carbon Dioxide Reduction (PCOR) Partnership.

Led by CERPA Research Scientist **Madeleine Lewis**, the paper provides an overview of existing and developing applications for hydrogen, a description of existing hydrogen production methods (aka the "Hydrogen Rainbow"), and the increasing demands and incentives for hydrogen deployment.

Co-authors on the paper include SER Senior Director of Research **Scott Quillinan** and **Eugene Holubnyak**, Director of SER's Hydrogen Energy Research Center (H₂ERC).

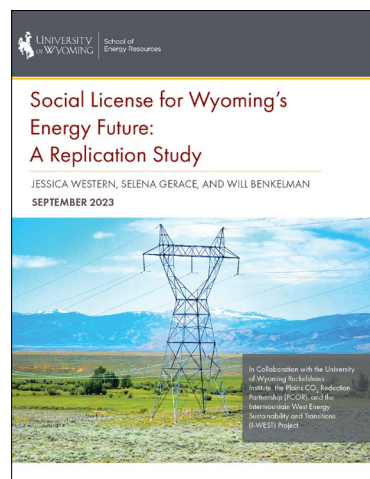
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Hydrogen Energy Research Center

UW Team Receives WIP Funding for New Blue Hydrogen Project

The Wyoming Innovation Partnership (WIP) has selected the University of Wyoming to receive \$693,514 in support of creating a new hydrogen economy.

The project led by **Haibo Zhai**, a UW professor and the Roy and Caryl Cline Distinguished Chair in Engineering, examines the technical, economic, environmental, social and policy issues related to nuclear-powered hydrogen produced from conventional and renewable gas resources in Wyoming. **READ MORE >**



Other Research Initiatives

Projects Selected for Mowry Project Phase II by UW School of Energy Resources

Thirteen proposals from University of Wyoming faculty and researchers have been selected by UW's School of Energy Resources (SER) for funding under Phase II of the Mowry Project.

Spearheaded by SER, in collaboration with UW's Enhanced Oil Recovery Institute and Wyoming State Geological Survey, the project aims to study the Mowry Shale in the Powder River Basin and assess the potential of unlocking and producing the hydrocarbons locked within. Mowry Shale is a tight geological formation that houses oil and gas reserves.

The Wyoming Energy Authority (WEA) and Wyoming Legislature provide funding for the project.

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UW's Wyoming Integrated Test Center Featured in WGA Workshop in Gillette

As chair of the Western Governors' Association (WGA), Gov. **Mark Gordon** hosted a special workshop at Gillette College and the Wyoming Integrated Test Center (ITC) Sept. 21 to showcase efforts driving carbon capture, utilization and storage (CCUS) technology in Western states.

As part of Gordon's WGA Chair initiative, Decarbonizing the West, the workshop convened federal, state, local and industry stakeholders from around the West to discuss various aspects of CCUS, including federal programs, regulatory implications and technology implementation.

Gordon kicked off the workshop, followed by remarks from **Brad Crabtree**, assistant secretary for the U.S. Department of Energy's Office of Fossil Energy and Carbon Management.

The event also featured a panel discussion highlighting the current developers testing technology at the ITC facility. Afterward, attendees toured the test bays and surrounding area to learn more about the individual projects, including the Wyoming CarbonSAFE Project, SER's flagship carbon management project.

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JCOAL and Kawasaki Heavy Industries Collaborate With UW's SER on Major Project

Japan Carbon Frontier Organization (JCOAL) and its partner, Kawasaki Heavy Industries (KHI), held a ceremony Oct. 9 to mark the construction completion of their solid sorbent capture technology at the Wyoming Integrated Test Center (ITC). The facility is adjacent to Basin Electric Power Cooperative's Dry Fork Station near Gillette.

Speaking about the importance of global partnerships to accelerate energy research, U.S. Sen. **John Barrasso** provided remarks during the ceremony along with representatives of Ministry of the Environment, government of Japan (MOEJ); the University of Wyoming School of Energy Resources (SER); JCOAL; KHI; and Basin Electric Power Cooperative.

The ceremony came on the same day SER signed a memorandum of understanding (MOU) with JCOAL to further strengthen the partnership and bolster mutual interests and benefits from applied energy research.

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Research Highlights

- Research Scientist **Lily Jackson** and Program Manager **Erin Phillips** were appointed as adjunct professors in the Dept. of Geology & Geophysics.

- The Center for Economic Geology Research was present at the public comment meetings for the proposed Class VI injection wells in Sweetwater County by Frontier Carbon Solutions on Oct. 4 in Green River and Oct. 24 in Rock Springs.

OUTREACH

UW Hosts Horizontal Drilling Pioneer Harold Hamm

The University of Wyoming School of Energy Resources (SER), in partnership with the College of Engineering and Physical Sciences and the College of Business, hosted a fireside chat and book signing event with Oklahoma oilman Harold Hamm Thursday, Sept. 14.

Hamm was joined on stage for a conversation facilitated by SER Executive Director **Holly Krutka**. Hamm founded Continental Resources in 1967 and currently serves as executive chairman.

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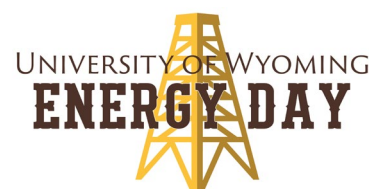
Degenfelder Kicks Off SER's Energy Day Celebration Sept. 23 at UW

The University of Wyoming School of Energy Resources (SER) celebrated the 10th annual Energy Day – in partnership with Wyoming Sports Properties – Saturday, Sept. 23, when the Cowboys took on Appalachian State at War Memorial Stadium.

To recognize Wyoming's energy sector and to share some of the accomplishments in energy research and development at UW, SER hosted engagement opportunities and events.

Wyoming Superintendent of Public Instruction **Megan Degenfelder** kicked off the festivities with a presentation Friday, Sept. 22. Degenfelder discussed the intersection between energy and education in Wyoming as part of the SER Distinguished Speakers Series.

Game day activities included a tailgate hosted by the UW Student Chapter of Energy Resources in Tailgate Park, and a SER-hosted booth with giveaways and information on the cutting-edge research projects going on at SER as well as information on the school's academic program.



School of Energy Resources Represents Regional Partnerships at Global Assembly

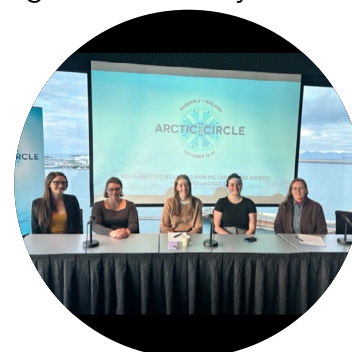
Tara Righetti, the Occidental Chair in Energy and Environmental Policies and a professor of law, represented the School of Energy Resources (SER) at the Arctic Circle Assembly, Oct. 19-21 in Reykjavik, Iceland alongside SER Director of Outreach **Christine Reed**.

Righetti and Reed appeared with INL-led Emerging Energy Markets Analysis (EMA) initiative in a panel discussion focused on work conducted as part of the INL Frontiers Initiative, which is enabling global competition in low-emission industries, including the resulting impact on Arctic strategies and security.

Moderated by **Kathleen Araujo**, professor of sustainable energy systems, innovation, and policy, and director of the Energy Policy Institute at Boise State University, the panel discussed the importance of engaging with local communities, strategies for disseminating information and educational resources, and the importance of regional partnerships and collaborations to share information and lessons learned in order to accelerate the deployment of low-carbon technologies.

The panel also included **Richelle Johnson**, lead analyst for the Center for Economic Development at the University of Alaska Anchorage and **Cassie Koerner**, assistant director of the Energy Policy Institute at Boise State University.

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Pictured: Christine Reed, Tara Righetti, Cassie Koerner, Richelle Johnson, and Kathy Araujo

Blazing the Path toward Energy-driven Economic Development for Wyoming

SER Executive Director **Holly Krutka** penned an op-ed sharing her thoughts on Wyoming's leadership role in developing carbon capture, utilization, and storage (CCUS), promoting emerging energy technologies and driving economic development.

"No other state does a better job balancing energy and mineral production with environmental stewardship. If we seize the opportunities before us, including the acceleration of novel energy technologies, we can continue to maintain a healthy and thriving economy, founded on a robust energy and extractive sector."

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UW Hosts Energy Law and Policy in the Rockies Conference Oct. 13

The University of Wyoming celebrated the 10th annual Landscape Discussion on Energy Law and Policy in the Rockies Friday, Oct. 13.

The conference focused on energy-related legal, regulatory and policy issues of current interest in Wyoming and the Rocky Mountain region. UW's School of Energy Resources (SER), the UW Haub School of Environment and Natural Resources and the UW College of Law's Center for Law and Energy Resources in the Rockies (CLERR) co-hosted the conference.

The conference brings in energy experts from across the nation to discuss important issues across the spectrum of energy topics in Wyoming. Topics covered in this year's program included state primacy in environmental regulation, carbon management, NEPA revisions, oil and gas permitting reforms, as well as a panel discussion on funding and permitting for advanced energy technologies.



Outreach Highlights

- UW's Executive Director of the School of Energy Resources (SER) **Holly Krutka** was honored by the Wyoming Business Report as a 2023 Woman of Influence. Krutka was recognized as the 2023 honoree in the category of Energy, Mining and Utilities, receiving multiple nominations from UW faculty, staff, community members, and industry partners around the state.
- Please stay up to date on our upcoming events by checking the **EVENTS CALENDAR >**



- The School of Energy Resources completed the Distinguished Speaker Series for fall 2023. Featured presentations included:
 - David Greaves** and **Jason Flaherty** of ExxonMobil
 - Charles Sims**, Director of the Center for Energy, Transportation, and Environmental Policy at the University of Tennessee - Knoxville
 - Peyman Mostaghimi**, Professor of Minerals and Energy Resources at the University of New South Wales
 - Megan Degenfelder**, Wyoming Superintendent of Public Instruction
 - Matt Jamieson**, Strategic Systems Analysis & Engineering Senior Life Cycle Analyst at the Department of Energy's National Energy Technology Laboratory
 - Matthew Balhoff**, Department Chair and Professor in the Hildebrand Department of Petroleum and Geosystems Engineering at the University of Texas - Austin.

Some presentations are available to watch on the **SER YouTube channel >**



PHILANTHROPIC SUPPORT

UW SER Receives Gift from NextEra Energy Resources to Bolster Professional Land Management Program

The University of Wyoming announced a major gift from NextEra Energy Resources, LLC to support the growing Professional Land Management (PLM) program in the School of Energy Resources (SER).



The gift of \$30,000 over three years will establish the Excellence Fund in Professional Land Management which will be used to expand the recruiting efforts and maximize student retention.

SER's PLM program is one of two concentrations offered in the Energy Resource Management and Development bachelor's degree. It provides an interdisciplinary learning experience founded in practical engagement and exposes students to many different disciplines, including law, business, mathematics, and environmental science. It is among only 11 undergraduate programs accredited nationally by the American Association of Professional Landmen.

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School of Energy Resources Participates in UW Giving Day 2023

SER participated in the annual UW Giving Day event led by the UW Foundation. Over \$24,000 was raised for SER student support, which including a \$1,500 matching gift from SER Executive Director **Holly Krutka**. While SER works diligently to provide innovative research to the state, it is also focused on providing a quality education for the future energy leaders of Wyoming. SER funds showcased in this year's campaign efforts include:

- The Director's Discretionary Fund - a general, unrestricted fund which allows the SER Director to allocate resources to an area of greatest need across administrative obligations.
- The Student Travel Fund - a fund that supports experiential learning and engagement opportunities. Through the use of this fund, students are able to learn directly from experts in the field through industry visits, network with regional professionals in the energy sector by attending national and regional conferences, and apply what they have learned in the classroom through micro-internships and shadowing visits.
- The Professional Land Management (PLM) Student Fund - a fund that allows students in the ERMD program to engage with their peers through club activities and student involvement opportunities on campus.

Thank you to everyone that made a contribution. Your support and dedication to the School of Energy Resources is what makes our program a success!

Ways to Give

- Private support is a critical piece in supporting scholarly and scientific research, and an enhanced education. If you are interested in making a gift, click on the link below or contact one of our development officers to learn about the unique opportunities available to support important initiatives at the School of Energy Resources. **Give Now >**

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