

WINTER  
2023

IN THIS ISSUE:

SER Executive Director  
Featured in  
'60 MINUTES' Interview

UW Selected to Lead  
Fourth CarbonSAFE  
Project in South-Central  
Wyoming

SER Celebrates Fall  
2023 Graduates

NERC Names Faculty  
Scholars

CERPA Launches White  
Paper Series Evaluating  
an Integrated Nuclear  
Industry

Students Visit Industry  
Sites to Enhance  
Learning

New Faces at SER



UNIVERSITY  
OF WYOMING

School of  
Energy Resources

**QUARTERLY  
NEWSLETTER**

Vol. 4, Issue 4

**ACADEMICS**

**RESEARCH**

**OUTREACH**

## MESSAGE FROM THE EXECUTIVE DIRECTOR

To the SER Community:

Greetings from the School of Energy Resources! Rounding out our winter months, we wanted to share the latest developments in energy-driven research, outreach, and education in support of Wyoming and its energy sector.

Our students remain the brightest source of optimism for the future of Wyoming and the Nation. SER celebrated the latest round of graduates from the Energy Resource Management and Development bachelor's degree program at the winter commencement ceremony. The celebration also marked a major success in the recently launched certificate program with three students completing their certificates in Land Administration. Our effort to expand access to energy-focused coursework throughout UW is yielding results and we are seeing an uptick in enrollment in our major, minor, and certificate programs.

On the research front, our team was pleased to be selected for a carbon storage project in partnership with Williams to conduct a feasibility study for current and future industries in the Echo Springs area of south-central Wyoming. This marks the fourth CarbonSAFE project to be under the leadership of SER, moving us closer to deploying commercial-scale carbon storage solutions. Leveraging existing infrastructure and expertise in the State, carbon capture is vital to support the growth and sustainability of Wyoming's vast natural resources including coal, oil, natural gas, and more.

SER is also excited to have been selected as the host site for the internationally recognized Nuclear Innovation Bootcamp. Through the efforts of our Nuclear Energy Research Center (NERC), the two-week intensive short course will bring together an international cohort of students and young professionals to learn about issues, advancements, and opportunities in the advanced nuclear sector – and the role that Wyoming has to play. From showcasing Wyoming's legacy uranium mining industry to the advanced nuclear reactor demonstration project, SER's involvement in this event will ensure that Wyoming is highlighted in the global nuclear conversation.

Meanwhile, SER's Center for Energy Regulation and Policy Analysis (CERPA) continues to undertake evaluations of policy, regulatory frameworks, and economic impact assessments. For example, CERPA released the first of six white papers dedicated to exploring a Wyoming integrated nuclear industry. That work, along with other white papers and research briefs on a myriad of Wyoming-specific energy topics are available to download from the SER website.

Finally, we wanted to take a moment to share the latest additions to the hardworking team at SER. Helping to keep pace with the growing research portfolio, and to work behind the scenes administratively, our team has grown exponentially to better position ourselves for success in the coming years.

We are so excited by all we have accomplished and we are looking forward to another busy year dedicated to serving this great State. Stay tuned for more ways to engage!

Sincerely,

*Holly Krutka*  
Holly Krutka, Ph.D.



### CONTACT US

University of Wyoming  
School of Energy Resources  
1000 E. University Ave.  
Dept. 3012  
Laramie, Wyoming 82071

Energy Innovation Center  
11th and Lewis  
Laramie, Wyoming

(307) 766-6897  
serforum@uwyo.edu  
uwyo.edu/SER

### FOLLOW US





## ACADEMICS

### UW Students Visit Hydraulic Fracturing Operation in Northeast Wyoming

Six students in the Energy Resource Management and Development bachelor's degree program visited a hydraulic fracturing operation in northeast Wyoming.

Students **Rachel Reese**, of Johnstown, Colo.; **Kendall Klos**, of Johnsbury, Ill.; **Ainsley Harris**, of Erie, Colo.; **Cass Lolley**, of Littleton, Colo.; and **Lars Quinlivan** and **Tyler Schlagel**, both of Cheyenne, are participants in the School of Energy Resources Mentorship Program and were invited to attend the field tour as part of the professional development component of the program.

The WRC Energy Group -- an independent oil and natural gas company that was formed through the combination of Wold Energy Partners LLC and Rebellion Energy II LLC -- along with Camino Natural Resources LLC hosted the students to witness the fracking process for two horizontal wells north of Glenrock.

[READ MORE >](#)



Pictured: Tyler Schlagel, Lars Quinlivan, Cass Lolley, Ainsley Harris, Kendall Klos, Rachel Reese



Pictured: SER Academic Director Kami Danaei, Trace English, Talbot Carter, Jacob Schneider, SER Executive Director Holly Krutka

### School of Energy Resources Celebrates Fall 2023 Graduates

The growing academic programs at the School of Energy Resources (SER) recognized ten individuals at the Winter 2023 Commencement Ceremony.

**Talbot Carter** of Hinsdale, Ill., **Nathan Kessler**, of Buffalo, Wyo., **Jacob Schneider**, of Cincinnati, Ohio, and **Trace English**, of Torrington, Wyo. all received a Bachelor of Science degree in Energy Resource Management and Development (ERMD). Carter and Kessler earned their ERMD degrees in the Energy and Environmental Systems (EES) concentration while, Schneider and English earned their degrees in the Professional Land Management (PLM) concentration.

In addition to the B.S. in ERMD, SER offers a minor in Energy Resource Management (ERM), and recently launched two new certificate programs, one in Land Administration and one Carbon Capture, Utilization, and Storage (CCUS). Graduates were recognized in both the minor and one of the newly launched certificate programs.

Supplementing their degrees with the ERM minor were **Noah Forbes** of Cheyenne, Wyo., **Nathaniel Morneau** of Lander Wyo., and **Jacquelynn Van Vleet** of Wright, Wyo. Having completed all of the requisite coursework, **Braidyn Bristow** of Erie, Colo., **Molly Murnane** of Crofton, MD., and **Christine Reed** of Laramie, Wyo. received inaugural certificates in Land Administration.

[READ MORE >](#)

# ACADEMICS

## School of Energy Resources Students Thrive in Industry Internship Programs

Students in the Energy Resource Management and Development (ERMD) program have seen a substantial uptick in mentorship and professional experiences through industry internship programs.

During the summer of 2023, many students in both the Professional Land Management (PLM) and Energy and Environmental Systems (EES) concentrations benefited from industry-led internships to gain valuable hands-on experience and forge important relationships with professionals in the energy field.

Students participating in internships included **Jacob Burns**, of Wheatland, Wyo., **Talbot Carter**, of Hinsdale, Ill., **Russell Ferrell**, of Green River, Wyo., **Connor Fleming**, of Huntersville, N.C., **Ryan Fogg**, of Burns, Wyo., **Jacob Schneider**, of Cincinnati, Ohio, **Kendall Klos**, of Johnsbury, Ill., and **Rachel Reese**, of Johnstown, Colo.

[READ MORE >](#)



Pictured: ERMD Senior Jacob Burns interned for Peabody at their Gillette operations in the Land Division under the Supervision of SER alumnus Fred Eden.

## Academics Highlights

- SER Professor of Engineering **Maohong Fan** was named to the National Academy of Inventors, a member organization comprising U.S. and international universities.



- John Kaszuba**, the University of Wyoming's John and Jane Wold Centennial Chair in Energy and School of Energy Resources Professor of Geology and Geophysics spent the fall semester in Edinburgh, Scotland for a sabbatical. While there, SER supported Ph.D. students **Ellen Polities** and **Sophie Stuart** visited to present on their dissertation research at the University of Edinburgh.


Pictured left to right: Ellen Polities, John Kaszuba, Sophie Stuart



- SER Professor of Geology & Geophysics **Dario Grana** stepped into the role of interim department head for the Department of Geology & Geophysics in fall of 2023.



- The School of Energy Resources will once again host the Rocky Mountain Professional Landman Conference in spring 2024! Mark your calendars and save the date!



*Save the Date*






**MONDAY 29 APRIL**

2024

Laramie, Wyoming

**ROCKY MOUNTAIN PROFESSIONAL LANDMAN CONFERENCE**

Conference 8:15 AM - 4:20 PM	Networking Reception 4:30 PM - 6:30 PM
---------------------------------	---

## RESEARCH

### Center for Energy Regulation and Policy Analysis

#### CERPA Releases Paper on Carbon Dioxide Storage and Plume Migration on Federal Lands and Across State Lines

The Center for Energy Regulation and Policy Analysis (CERPA) released a resource paper exploring challenges posed by carbon dioxide (CO<sub>2</sub>) plume migration when permanently store in the subsurface.

Entitled, "Regulatory Considerations for Carbon Dioxide Storage and Plume Migration on Interstate and Federal Lands," the paper identifies and analyzes the scope of legal and regulatory concerns arising from the potential for interstate CO<sub>2</sub> storage by looking at the current regulation and permitting structures in Wyoming's neighboring states as well as the challenges posed on federal lands.

[READ MORE >](#)

#### SER's Center for Energy Regulation and Policy Analysis Release First White Paper Evaluating an Integrated Nuclear Industry

The Center for Energy Regulation and Policy Analysis (CERPA) released the first in a series of six white papers exploring and evaluating the components of a domestic integrated nuclear industry.

The paper, "Wyoming's Nuclear Supply Chain Opportunities and Challenges: Uranium Enrichment," quantifies the opportunities and the economic outcomes of fostering a uranium enrichment industry in Wyoming.

Leveraging economic and industry expertise, the paper was collaboratively authored by **Alex Gebben**, an energy economist in the UW Center for Business and Economic Analysis, and CERPA Nuclear Industry Research Consultant **Michael Peck**. Peck previously served as a senior resident inspector at the Nuclear Regulatory Commission and as a reactor engineer.

[READ MORE >](#)

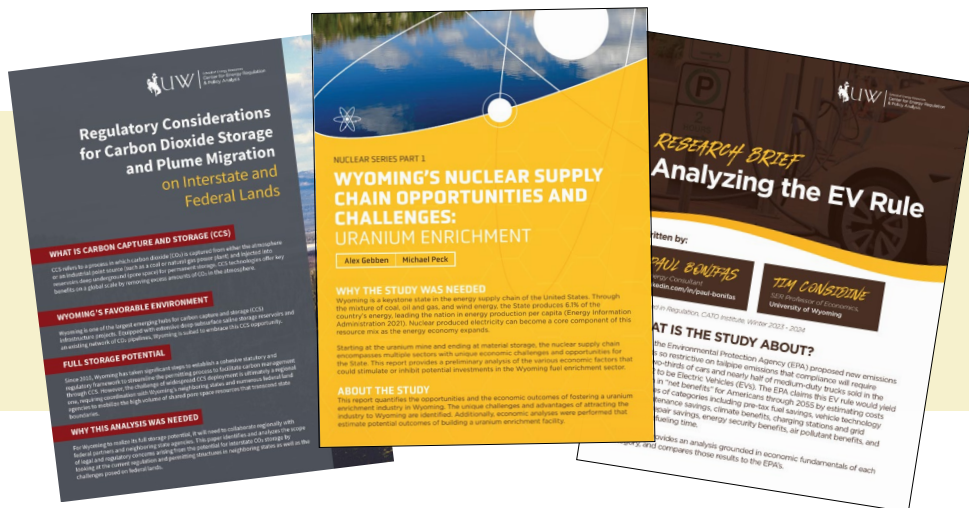
#### SER's Tim Considine and Paul Bonifas Publish Economic Analysis of Proposed EV Rule

An article penned by energy consultant **Paul Bonifas** and School of Energy Resources Professor of Economics **Tim Considine** analyzing a proposed rule aimed at accelerating the adoption of electric vehicles (EV) in the United States was published in the Winter 2023-2024 issue of Regulations by the *Cato Institute*.

[READ MORE >](#)

Short on time or simply want a general overview? Download our research briefs for a summary of the CERPA white papers!

[RESEARCH BRIEFS >](#)





## Center for Economic Geology Research

### UW Selected to Lead Fourth CarbonSAFE Project in South-Central Wyoming

The U.S. Department of Energy (DOE) has selected the University of Wyoming School of Energy Resources to lead a fourth major carbon capture and storage project under the Office of Fossil Energy and Carbon Management's Carbon Storage Assurance Facility Enterprise (CarbonSAFE) Initiative.

The planned \$11.2 million Williams Echo Springs CarbonSAFE project aims to conduct a storage complex feasibility study to develop a saline carbon dioxide (CO<sub>2</sub>) storage hub for current and future industries in the Echo Springs area of south-central Wyoming.

To be conducted in collaboration with midstream natural gas company Williams, the two-year study plans to permit and drill a deep stratigraphic test well and interpret the resulting data, models and documents for further site development.

**READ MORE >**

### Greater Green River Basin and Wind River Basin CORE-CM Project Hosts Second Annual Forum

The School of Energy Resources, along with project partner Colorado Northwestern Community College (CNCC), hosted the second annual forum for the Carbon Ore, Rare Earth, and Critical Mineral (CORE-CM) project in the Greater Green River Basin and Wind River Basin (GGRB-WRB).

The event was held at CNCC's Craig, Colo. campus, as well as online.

With over 60 people in attendance, the day-long forum provided updates and overviews of the varying tasks on the project, as well some featured keynote presentations and an open discussion session to plan for future phases of the project.

**READ MORE >**

### Draft EA Assessment for Proposed CarbonSAFE Project Open for Public Comment

The draft Environmental Assessment (EA) for the proposed University of Wyoming (UW) CarbonSAFE Project led by the Center for Economic Geology Research was opened for public comment on January 20. UW's proposed project would capture carbon dioxide (CO<sub>2</sub>) from Basin Electric's Dry Fork Station in Gillette, Wyoming, and transport it via pipeline to several EPA Class VI Underground Injection Control (UIC) permitted injection wells for permanent geologic storage.

Copies are available for review in the following locations:

*Campbell County Public Library*

*UW William Robertson Coe Library*

The public is invited to provide written or e-mail comments to DOE on the EA during the comment period, from January 20 through February 20, 2024.

Comments should be provided to the National Energy Technology Laboratory, Cochran Mill Rd, Pittsburgh, PA 15236-0940, Attention: Pierina Fayish or [Pierina.Fayish@NETL.DOE.GOV](mailto:Pierina.Fayish@NETL.DOE.GOV).

Comments received after February 20, 2024 will be considered to the extent possible.



## Nuclear Energy Research Center

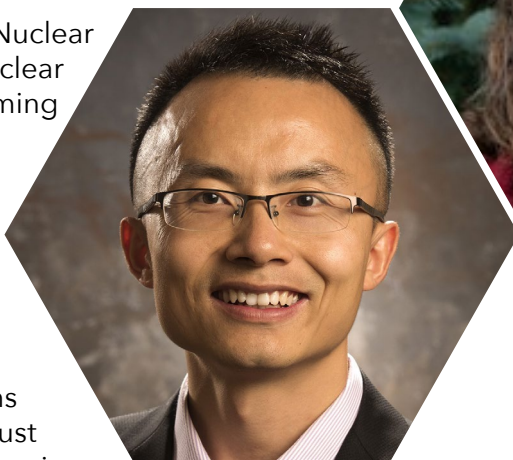
### UW Nuclear Energy Research Center Selects Faculty Scholars

The Nuclear Energy Research Center (NERC) at the University of Wyoming has selected faculty members **Xiang Zhang** and **Wes Eaton** to receive funding under the Faculty Scholars Program.

The program, supported by a grant from the Nuclear Regulatory Commission's (NRC) University Nuclear Leadership Program and funds from the Wyoming Legislature, focuses on developing new areas of nuclear-focused research and supporting junior faculty advancement.

Selected through a competitive proposal process, Zhang and Eaton were recognized for their efforts in expanding nuclear-related research in their respective disciplines – and their potential to make important contributions to Wyoming and to the development of a robust community of researchers and students working in nuclear energy on campus.

**READ MORE >**



Pictured: Top Right - Wes Eaton, visiting assistant professor with the Haub School of Environment and Natural Resources.  
Bottom Left - Xiang Zhang, assistant professor in the Department of Mechanical Engineering.

## Research Highlights

- The research team led by **Kam Ng**, the provost's term professor in the department of Civil and Architectural Engineering and Construction Management, has developed and is currently testing a coal char-based aggregate for bridge and pavement structures.



- SER Adjunct Professor and Associate Professor of Energy and Petroleum Engineering **Soheil Saraji** was a guest on Ripple's All About Blockchain podcast talking about the innovative and interesting work being done at UW in blockchain research.



**LISTEN HERE >**

- Assistant Researcher Professional **Resham Thapa** in the *Center for Carbon Capture and Conversion* began a project in partnership with Peabody Energy at their North Antelope Rochelle Mine near Gillette, Wyo. to evaluate coal char used for reclamation on coal mine disturbed land. The team will begin soil sampling and plant growth monitoring in the spring.



- The Wyoming Integrated Test Center (ITC) had a busy year with active tenants testing carbon capture technologies in the test bays at the facility. The ITC released a 'year in review' summary highlighting the activities of 2023.



# OUTREACH

## UW to Host Nuclear Innovation Bootcamp This Summer

The University of Wyoming School of Energy Resources (SER) is set to host the 2024 Nuclear Innovation Bootcamp (NIB) July 21-Aug. 2 in Laramie.

Spearheaded by the Washington, D.C.-based Nuclear Innovation Alliance and hosted by SER's Nuclear Energy Research Center (NERC), the two-week intensive course brings together a select group of students and early-career professionals from all over the world to equip them with the tools and understanding needed to approach clean energy challenges.

In the program, NIB participants get the opportunity to forge connections with people from all over the world represented throughout industry, academia and government. Applicants, who can be in any field, must be undergraduate students who are currently in at least their third year; graduate students, including Ph.D. students; or early-career professionals who have been working fewer than five years.

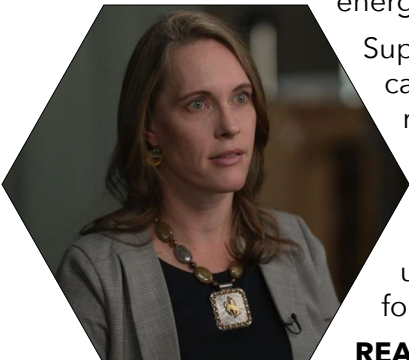
[READ MORE >](#)



## UW's Krutka Discusses Carbon Capture and Storage on '60 Minutes'

University of Wyoming School of Energy Resources (SER) Executive Director **Holly Krutka** was interviewed by national news correspondent **Bill Whitaker** on "60 Minutes" as part of an episode exploring Wyoming's energy strategy and innovation in the state.

The segment on the long-running Sunday night CBS News program focused on Gov. **Mark Gordon** and his pledge to make Wyoming net negative for carbon emissions. In it, he discusses support for every type of energy development while addressing climate concerns through innovation.



Supporting the continued development of fossil fuels through the use of carbon capture and storage technology is an important topic in that conversation, with research led and managed by SER and its collaborators at the forefront.

"The likelihood that we will truly as a world ever move away from fossil fuels is very low," Krutka says. "SER is leading multiple projects in the state – and in the nation – to advance carbon capture and storage technologies that will allow us to continue supplying the country with reliable and affordable energy for the foreseeable future."

[READ MORE >](#)

## Outreach Highlights

- SER was featured multiple times in the latest edition of *UWyo Magazine*! Read articles about CarbonSAFE, coal-derived asphalt, biogenic gas and more! [READ HERE >](#)



- Please stay up to date on our upcoming events by checking the [EVENTS CALENDAR >](#)



- The University of Wyoming School of Energy Resources and the College of Engineering and Physical Sciences hosted New York Times bestselling author **Alex Epstein** for a public presentation and book signing Thursday, Nov. 30. A prominent advocate of fossil fuels, Epstein is the author of "The Moral Case for Fossil Fuels" and "Fossil Future: Why Global Human Flourishing Requires More Oil, Coal and Natural Gas – Not Less." He makes the case that fossil fuels are needed for developing nations to achieve cost-effective energy.





## New Faces at the School of Energy Resources

The University of Wyoming School of Energy Resources experienced a year of tremendous growth and unprecedented project announcements. Throughout the year, our team worked tirelessly to recruit top tier talent to meet the workforce requirements to successfully execute our new projects. We would like to recognize the individuals that came on board during the latter half of the year and share the same drive, passion and sense of commitment with the SER team in pursuit of our mission for energy driven economic development for the State of Wyoming.



### Center for Carbon Capture and Conversion

Resham Thapa  
 Marie Dudgeon  
 Louis Christiaan Muller  
 Yi Yao  
 Eli Ellis  
 Ali Zanjanijam

### Center for Economic Geology Research

Dan Eakin  
 Tyler Brown  
 Autumn Eakin  
 Maryam Lakjaa

### 3D Visualization Center

Cole James  
 Kyle Carncross  
 James Amato

### Center for Energy Regulation & Policy Analysis

Esther Wagner

### Hydrogen Energy Research Center

Will Lawler

### Outreach

Sabrina Kaufman

### Academics

Tanner McClure

### Administration and Finance

Pat McLean  
 Kimmie Takaki  
 Norbert Longsworth

Pictures are in no particular order. Visit our [staff directory](#) > for more details.



---

School of  
Energy Resources