

JUNE 2021

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UNIVERSITY
OF WYOMING

School of
Energy Resources

QUARTERLY NEWSLETTER

Vol. 2, Issue 2

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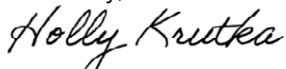
To the SER community,

The mission of the University of Wyoming School of Energy Resources is energy-driven economic development. Our approach to meeting that mission is leading and supporting Wyoming focused education and research on energy topics important to the state. Thus, we recruit top talent in our faculty and staff. In this issue you will read about SER faculty that have been recognized by UW, the state, nationally and even internationally. And while they often can operate under the radar, our staff also deserve similar recognition. For example, SER recently learned that it was awarded \$3 million in new grants from the Department of Energy to support the development of new industries focused on the production of new products from carbon ore, rare earths and critical minerals.

As always, there's much to be excited about in Wyoming's energy sector. The recent announcement of the novel TerraPower first of a kind demonstration facility, in conjunction with Rocky Mountain Power and Governor Gordon's office, is a good reminder that Wyoming continues to be a leader in innovation related to energy production and conversion. With a few organization changes, SER is now positioned to further expand our research portfolio to conduct and support research in areas such as nuclear and hydrogen, while continuing our leadership in carbon capture, use and storage, rare earth elements, coal conversion to non-energy products and much more.

Thank you for sharing our unbridled enthusiasm for this wonderful state and its land grant university!

Sincerely,



Holly Krutka



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School of
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ACADEMICS

UW's Grana Named Wyoming Excellence Chair in Geology and Geophysics

The University of Wyoming has recognized the prodigious work and efforts of **Associate Professor Dario Grana** by naming him the Wyoming Excellence Chair in Geology and Geophysics.

Dr. Grana has a split appointment with the a UW School of Energy Resources in the Department of Geology and Geophysics where he has worked diligently to advance the development of innovative and quantitative methods to improve the characterization of subsurface reservoirs.

The 2006 Wyoming State Legislature established the Excellence in Higher Education Endowment, which included a \$70 million endowment to create senior faculty positions for highly distinguished scholars and educators at UW. The legislation states that the endowed positions must expand university instruction and research in disciplines related to economic and social challenges facing Wyoming.

The UW Wyoming Excellence chairs are nationally and internationally recognized leaders in their fields.

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UW Professor Receives Fulbright Award for Energy Research in France

Tara Righetti, a professor in the University of Wyoming's School of Energy Resources (SER) and College of Law, has received a Fulbright Scholarship to conduct research related to energy transitions. She will conduct research at the Centre de Recherche Droits et Perspectives du Droit – Center for Legal Research and Perspectives in Law – at the University of Lille College of Law in France.

During her 11-month sabbatical from UW, she will collaborate with researchers in Lille to formulate a comparative study of energy, industrial and workforce transition policies in Wyoming and France, with a focus on climate policies, sustainability and the circular economy.

Righetti's current areas of expertise concentrate on legal issues related to split estates, subsurface trespass, energy transition, and carbon capture and sequestration. Her proposed project will build upon her current competencies, while developing new partnerships and expanding her research into international and comparative law.

READ MORE >



»» Dario Grana



»» Tara Righetti

Academics Highlights

- **Professor Bruce Parkinson** was selected to receive the Physical and Analytical Electrochemistry Division David C. Grahame Award from The Electrochemical Society (ECS). **Read Here >**
- SER welcomed **Dr. Kami Danaei** as the new Academic Advising Manager. **Read Here >**
- **Professor Tara Righetti** and **Professor Kris Koski** published an article in the Pace Environmental Law Journal about The Carbon Storage Future of Public Lands. **Read Here >**
- The **Energy, Land and Water** concentration has been re-named **Energy and Environmental Systems**. New name, same great degree program!

»» Kami Danaei



Student Highlights

Student Profile: Meet Alyson White Eagle-SoundingSides

Graduation marks the culmination of years of hard work – time spent pursuing a passion that will open doors to the future. For those that achieve this significant milestone, it serves as an important reminder of all that has been accomplished and all that can be. This anecdote is certainly true for School of Energy Resources (SER) graduate, **Alyson White Eagle-SoundingSides**.

A nontraditional student, White Eagle-SoundingSides was already a wife and mother to two beautiful daughters when she enrolled at the University of Wyoming (UW). After taking a smattering of courses over the years at the community college level, she was finally able to commit to school full-time and realize her dream of a degree.

White Eagle-SoundingSides is a member of the Northern Arapaho tribe and hails from the Wind River Reservation in Wyoming. She was inspired to pursue a degree by her grandfather, **Crawford White Eagle, Sr.** A tribal elder, White Eagle was be conferred an honorary degree posthumously this year, making the occasion all the more meaningful.

READ MORE >

Student Profile: Meet Molly Murnane

The Energy Resources Management and Development degree (ERDM) at the School of Energy Resources (SER) boasts the versatility to incorporate all areas of interest in the energy sector. While some students come with the humanities-based background in the hopes of pursuing a career in energy law, real estate, or business, others are drawn to the degree with a robust scientific background.

Sophomore Molly Murnane of Annapolis, Md., transferred into the ERMD program from the College of Engineering and Applied Sciences after her first semester at the University of Wyoming. Now a student in the Energy and Environmental Systems (fka Energy, Land and Water) concentration, Murnane continues to cultivate her interest in math and science while exploring other related disciplines within the energy sector that make up the bulk of her coursework.

READ MORE >



Alyson White Eagle-SoundingSides



Molly Murnane

Academics Highlights

- SER graduated nine students in the Energy Resource Management and Development (ERMD) program in May!
- The Wyoming Oil and Gas Conservation Commission (WOGCC) hosted Professional Landman students virtually in the spring.



Read Here >

- Students in Professor **Bruce Parkinson's** Solar Energy Conversion class took advantage of a sunny spring day this semester to conduct a solar energy challenge as part of their course work.
- SER will be at the NAPE Summit Meeting in Houston this August (18-20)! We invite all to visit our booth!

Read Here >

NAPE
Where Deals Happen

RESEARCH

UW's Quillinan and McLaughlin take on New Leadership Roles in the School of Energy Resources

The School of Energy Resources (SER) is pleased to announce the promotion of two senior research professionals within the organization, Mr. Scott Quillinan and Dr. Fred McLaughlin.

Quillinan, who has previously served as the Director of Operations and Communications and the Director of the Center for Economic Geology Research (CEGR), has stepped into the newly created position, Senior Director of Research for SER and will oversee the entire research division.

With Quillinan stepping away from his leadership role in CEGR, McLaughlin has taken the reins as Interim Director. Having served CEGR for nearly a decade as a Senior Research Scientist, McLaughlin has been an instrumental leader on multiple high-profile, grant-funded projects, including the nearly \$20 million Phase III Wyoming CarbonSAFE project.

READ MORE >

UW School of Energy Resources Staff Members Part of UW's Grand Challenges Initiative Planning Grants

Spearheaded by UW's Office of Research and Economic Development, the Research Planning Council (RPC) of the Grand Challenges Initiative engaged the campus and the state to identify major themes for research investment at the University of Wyoming.

Five collaborative projects have been selected as part of the program and address issues ranging from rural health to developing next-generation, secure, digital platforms that promote sustainable energy production, transport and consumption.

The School of Energy Resources' (SER) Emma-Jane Alexander and J. Fred McLaughlin are part of collaborative teams that were among the selected projects.

READ MORE >



» Scott Quillinan



» Fred McLaughlin



» Emma-Jane Alexander

Research Highlights

- CERPA Director **Kipp Coddington** and Senior Director of Research **Scott Quillinan** were featured panelists at the 21st Century Energy Transition Symposium.
- **Scott Quillinan** was featured on WyomingPBS' Wyoming Chronicle Segment that aired on April 9th. Quillinan discusses rare earth elements (REE) in Wyoming with WyomingPBS Senior Public Affairs Producer, **Craig Blumenshine**. **Watch Interview >**
- The **Enhanced Oil Recovery Institute (EORI)**, along with UW researchers completed a study of methane emissions from abandoned wells. **Read Study >>>**
- **Emma-Jane Alexander** of the The 3D Visualization Center (3D Viz) continues to support the UW strategic planning process by contributing to the Digital Pillar initiative, and proposing comment on how UW can be more 'Digital' and positively impact students, faculty and the state.
- The **Enhanced Oil Recovery Institute (EORI)** hosted the first webinar of the Wyoming Oil & Gas Fair series featuring Governor Mark Gordon and Wyoming Energy Authority Executive Director, Glen Murrell.

Center for Economic Geology Research

UW Receives DOE Funding for Carbon Ore, Rare Earth and Critical Minerals Initiatives in Wyoming

The University of Wyoming will receive nearly \$3 million from the U.S. Department of Energy (DOE) 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).

Two separate projects submitted by UW's School of Energy Resources (SER) Center for Economic Geology Research (CEGR) were selected by the DOE's Office of Fossil Energy and announced this week. 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.

The selected UW projects are among 13 nationwide announced totaling \$19 million. Some of the other regions selected for study include the Appalachian Basin, the San Juan River-Raton-Black Mesa Basin, the Illinois Basin, the Williston Basin, the Uinta River Basin, the Gulf Coast Basin, and in Alaska and Kansas.

READ MORE >

SER Researcher Charles Nye Conducts Collaborative Soil Gas Sampling to Advance Wyoming CarbonSAFE Project

Charles Nye, a Research Scientist at the School of Energy Resources' (SER) Center of Economic Geology Research (CEGR) spent time in the field during March to install soil gas monitoring systems in an effort to advance the \$33.1 million Wyoming CarbonSAFE project. The project, which is in its third phase of development, seeks to determine the feasibility of subsurface carbon storage in the Powder River Basin.

Soil gas analysis is one of the many pieces that make up the large-scale undertaking to fully characterize and monitor the area. As part of the environmental field operations, soil sample composition is intended to establish a baseline of the test site prior to any CO₂ injection.



The soil gas monitoring system is scheduled to remain in place for two years, with an extension to a third year if funding permits. If CO₂ is stored in the area at some future date, then it is possible the existing network will be expanded to become part of the long-term monitoring plan.

Charles Nye

READ MORE >



CEGR Highlights

- CEGR scientist **Selena Gerace** worked with other CEGR and CERPA researchers on Wyoming's contribution to the upcoming PCOR Atlas, as part of the Plains CO₂ Regional Partnership.
- Scott Quillinan** and **Fred McLaughlin** were recently featured by KX News in North Dakota. The interview discusses the Wyoming CarbonSAFE project in partnership with Basin Electric Power Cooperative. **Watch Segment >**
- CEGR research scientists **Erin Phillips**, **Davin Bagdonas**, **Charles Nye**, and other CEGR scientists contributed to a pre-proposal submitted to DOE Basic Energy Sciences entitled "Migration and Enrichment of Rare Earth and Platinum Group Elements in Coal-Fire Clunker."
- CEGR submit its final report on Phase II of the Wyoming CarbonSAFE project to the Department of Energy (DOE).

Center for Energy Regulation and Policy Analysis

CERPA Hosts Panel Discussion on Advanced Energy Technologies

The UW School of Energy Resources (SER) Center for Energy Regulation & Policy Analysis (CERPA) hosted a panel on nuclear energy, along with its partners – Boise State University's Energy Policy Institute (EPI), the University of Michigan's Fastest Path to Zero Initiative, Idaho National Laboratories (INL) Emerging Energy Market Analysis (EMA) Initiative and the UW Haub School for Environment and Natural Resources.

The webinar gathered leading experts in technology, regulation, and energy siting to discuss the legal and regulatory considerations relative to developing advanced nuclear technologies.

The forum took place during the same time that **Governor Mark Gordon** announced the partnership with TerraPower and PacifiCorp to advance a Natrium™ reactor demonstration project at a retiring coal plant in Wyoming.

Moderated by SER Professor of Law, **Tara Righetti**, the panel featured nuclear engineer **Dr. Todd Allen** from the University of Michigan, **Aaron Weston** from the Idaho National Laboratory, **John Kotek** from the Nuclear Energy Institute, Professor **Temple Stoellinger** from the UW Haub School of Environment and Natural Resources, and CERPA Research Scientist, **Jada Garofalo**.

The informative presentation is a valuable resource to understand what the future will look like for nuclear energy in Wyoming.

The presentation along with the slides can be viewed or downloaded from the **CERPA website** >

ADVANCED ENERGY TECHNOLOGIES

Legal and Environmental Considerations for Small Modular Reactors



Tara Righetti



Todd Allen



John Kotek



Aaron Weston



Temple Stoellinger



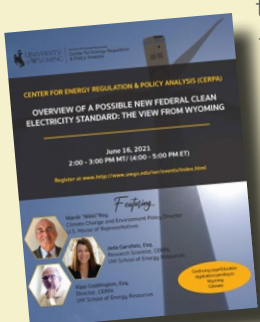
Jada Garofalo



CERPA Highlights

- CERPA Director **Kipp Coddington** and **Jada Garofalo** presented a webinar with **Mr. Manik Roy**, the Climate Change and Policy Director for **Rep. Diana DeGette** of Colorado about a possible new federal clean electricity standard and what it would mean for Wyoming.

WATCH WEBINAR >



- CERPA is engaged in an ongoing interdisciplinary collaborative assessment of Wyoming House Bill 200.
- CERPA is collaborating with the Wyoming Energy Authority (WEA) to conduct social science research on the values and perceptions of energy industries and energy development in the state.
- CERPA is conducting ongoing research about Class VI well permitting with the end goal of creating a roadmap resource.

Center for Carbon Capture and Conversion

Solvent Extraction Pilot Plant Moves Off-Campus as Project Continues to Advance

The Carbon Capture and Conversion Center of Excellence (CCCC) at the School of Energy Resources (SER) recently migrated the coal solvent extraction pilot plant from the Energy Innovation Center (EIC) laboratory site where it was commissioned, to a new dedicated off-campus location. This pilot plant is demonstrating one of the core process technologies for SER's carbon engineering program focused on using Wyoming coal to produce valuable, non-energy and fuel intermediate products.

Relocating the solvent extraction pilot plant will permit continued operations to produce high volumes of coal extract which will be used as a feedstock to make large quantities of coatings, resin systems, 100% coal composite materials and road asphalt products.

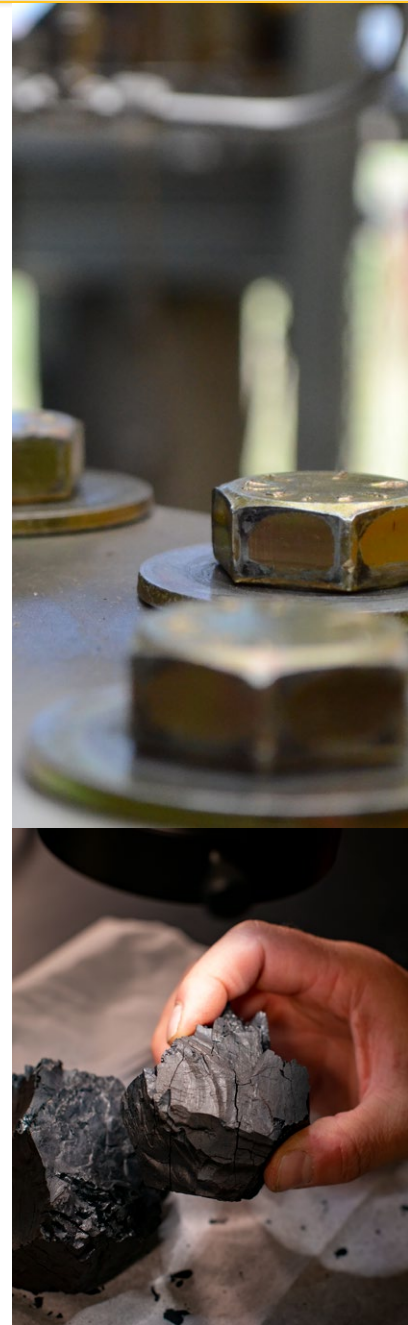
The relocation of the pilot plant is a critical step in the effort to scale-up the process and develop needed parametric information for engineering a follow-up field demonstration – all necessary steps as the technology is driven toward the ultimate goal of commercialization.

The solvent extraction pilot plant is an integral component of the UW proprietary thermo-chemical process configuration which converts Powder River Basin (PRB) coal into non-energy and fuel products with a minimal carbon footprint.

READ MORE >

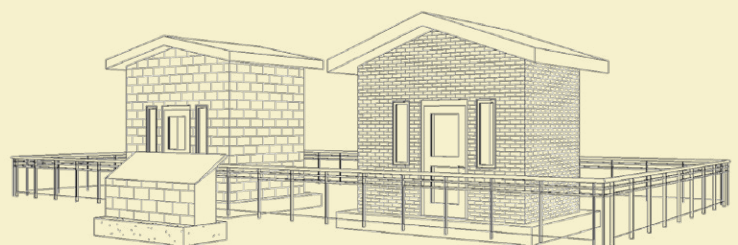
Center for Carbon Capture and Conversion Expands Internally

The Carbon Capture and Conversion Center of Excellence (CCCC) recently completed interviews for two new positions that will be housed within the School of Energy Resources. Projects in the center have traditionally consisted of collaborations with other departments across campus and external to UW. While those partnerships will remain in place, the new internal positions will provide much needed research staff support. The CCCC is anticipating completing the hiring process during the summer.



CCCC Highlights

- **CCCC** continues to monitor the effects of coal derived soil amendments applied to field trials in March of 2021. Crops under evaluation include sweet corn and silage at the UW Sustainable Agriculture Research and Extension Center at Lingle WY, (SAREC) and silage and sugar beet at the UW Powell Research and Extension Center (PREC).
- **CCCC** is continuing efforts to secure all necessary approvals and permits to locate demonstration building consisting of coal-derived construction products on campus.



OUTREACH

SER Part of the Wyoming Innovation Center Groundbreaking Ceremony

Representatives from the School of Energy Resources were in attendance for the Energy Capital Economic Development Wyoming Innovation Center groundbreaking ceremony in Gillette, Wyoming.

SER Executive Director **Holly Krutka**, Senior Director of Research **Scott Quillinan**, and Interim Director of the Center for Economic Geology Research (CEGR) **Fred McLaughlin** made the trip for the occasion. Dr. Krutka offered remarks in the dedication ceremony on behalf of the School of Energy Resources.

SER's Executive Director Holly Krutka Selected for Leadership Wyoming Class of 2022

SER Executive Director **Holly Krutka** is one of 42 Wyoming citizens selected for the Leadership Wyoming Class of 2022.

Created in 2000 through a partnership between Wyoming Heritage Foundation founder Bill Schilling, the University of Wyoming, and former Speaker of the House and President of the **Wyoming Senate Eli Bebout**, the program was designed to serve as an educational forum for community leaders around Wyoming to mature their leadership abilities, broaden their perspectives and perceptions, and to work collaboratively in order to cultivate a deeper understanding of the diverse sectors within the state.

Krutka, who has already proven herself as a highly-skilled and knowledgeable leader in the energy industry, will take part in the 22nd class of the executive leadership program with programming spanning over a nine month period.

READ MORE >

SER to Host Public Outreach Day for Wyoming CarbonSAFE

SER's Center for Economic Geology Research (CEGR) along with Basin Electric Power Cooperative will be hosting a Public Outreach Meeting at the Integrated Test Center at Dry Fork Station in Gillette, WY on August 3, 2021. The meeting will offer an opportunity for members of the public to learn about carbon capture, utilization and storage, and provide updates on the Wyoming CarbonSAFE project! Check our website for more details!



Upcoming Events

- SER is so excited to be traveling and hosting events again! Stay up to date with all of our activities and events by subscribing to our social media platforms or checking our events calendar.

Events >

- SER is a proud sponsor of **2021 Energy Day** and Cowboy Football! Get your tickets now for the Energy Day game against Ball State on September 18th!



- SER is presenting a webinar featuring a panel of distinguished experts as they examine the use of Hydrogen in Wyoming and what it mean for the future. July 20, 2021 at 1:00 PM **Register Now >**