Energy Council Quarterly

FALL 2021

Beck Elected Chairman of the Energy Council for 2021-2022

Arkansas Representative Richard "Rick" Beck was unanimously elected Chairman of The Energy Council for 2021-2022 on September 19 at the Council's 2021 Annual Meeting in Billings, Montana.

Representative Beck is serving his third term in the Arkansas House. For the 93rd General Assembly, Representative Beck serves as Chairperson of the Joint Committee on Energy. He also serves on the Arkansas Legislative Council, the House Education Committee, and the House State Agencies and Governmental Affairs Committee.

He is a graduate of the University of Central Arkansas and currently works as an electrical engineer at Kimberly-Clark in Maumelle. Representative Beck and his wife Sheila have one son and one daughter and currently reside in Center Ridge.



Rick Beck Arkansas Representative

The Energy Council Welcomed to Big Sky Country for the 2021 Annual Meeting



Montana Governor Greg Gianforte (center, right), who delivered the Opening Address of The Energy Council's 2021 Annual Meeting, is welcomed by the Council's Montana delegation, led by Representative Jim Keane (second, left) and Senator Duane Ankney (center, left); Arkansas Representative Rick Beck, Incoming Chairman of The Energy Council (left), Alabama Senator Gerald Allen, Immediate Past Chairman of the Council (second, right), and Colorado Senator Chris Hansen (right), Immediate Past Chairman of CLEER.



The Energy Council Quarterly is the official publication of the Energy Council, a legislative organization comprised of 14 states and two international affiliates, drawn from the major energy producing regions of the United States and Canada. The Energy Council provides a forum for discussing government policies regarding energy and the environment

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Senator Joel Carter Mississippi Vice-Chairman

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Tell us what you think!

We welcome your suggestions and feedback. Please email erichards@theenergycouncil.org



The Energy Council Returns to the Big Easy

The Energy Council's 2021 Global Energy and Environmental Issues Conference will be held in New Orleans, Louisiana on December 9-12. Presiding over the conference is Chairman of The Energy Council, Arkansas Representative Rick Beck; Alaska Senator Click Bishop, Chairman of the Center for Legislative Energy and Environmental Research (CLEER); and Louisiana Representative Francis Thompson, Vice President for Global Issues.

The meeting will begin on Thursday evening, December 9, with a Welcome Reception. On Friday, December 10, The Honorable John Bel Edwards, Governor of Louisiana, will deliver an Opening Address to attendees.

Among the topics expected to be covered at the 2021 Global Energy and Environmental Issues Conference are:

- Emerging Energies
- CO2 Storage Risks and Solutions
- Nuclear Power
- LNG Markets
- Resiliency
- Offshore Wind Projects
- Supply and Demand in the Energy Market
- Utilizing Carbon Emissions
- Energy Exports
- Federal Energy Policy Q&A
- UAB Seminar: Industrial CCUS and Hydrogen Opportunities

More information is available at www.theenergycouncil.org.

Bishop to Chair CLEER in 2021-2022

Alaska Senator Clark "Click" Bishop was unanimously elected as 2021-2022 Chairman of the Center for Legislative Energy and Environmental Research (CLEER) during the CLEER Business Meeting on September 19, at the 2021 Annual Meeting in Billings, Montana.

Chairman Bishop will oversee the work of CLEER's two advisory boards, the private sector Program Advisory Board (PAB) and the technical advisory arm, the University Advisory Board (UAB). He will also lead CLEER's legislative Board of Directors.

Senator Bishop has served in the Alaska State Senate since 2014. He serves as Chair of the Senate Natural Resources (Fin Sub) Committee and Chair of the Senate Labor & Workforce Development (Fin Sub) Subcommittee. He also serves as Co-Chair of the Senate Finance Committee. He serves as a member on the following committees: Senate Committee on Committees; Senate Transportation & Public Facilities (Fin Sub); Senate Governor (Fin Sub); Senate Conference Committee On Hb69 and Hb71; Senate Legislative Council; Senate Legislature (Fin Sub); Senate Resources; Senate Transportation; Senate University of Alaska (Fin Sub); and Senate Special Committee on World Trade.



Click Bishop Alaska Senator

Chairman Bishop and his wife, Darlene, have two daughters and four grandchildren.

2021 Annual Meeting in Montana

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Arkansas Representative Rick Beck (left), Incoming Chair of The Energy Council, stands with Alabama Senator Gerald Allen (right), Immediate Past Chair of the Council, as they exchanged congratulations and best regards on the new term at the 2021 Annual Meeting.

The Energy Council 2021 Annual Meeting attendees were warmly welcomed to Billings, Montana for the first-ever Council meeting in the state. From the Welcoming Reception to the Closing Business Session, attendees and their guests were treated to great, western hospitality.

The meeting was held September

16-19, with Alabama Senator Gerald Allen, Chairman of The Energy Council, presiding. He was assisted in his leadership duties by Colorado Senator Chris Hansen, Chairman of the Center for Legislative Energy and Environmental Research (CLEER) and the Vice President for the Annual Meeting, Montana Senator Duane Ankney. The agenda covered topics ranging from clean energy technology initiatives to coal, and from natural gas and wind to species protection and resource development.

Elected in 2020, the Honorable Greg Gianforte addressed The Energy Council attendees and guests at Friday morning's opening breakfast. "My hope for each one of you is that you fall in love while you're here. We like to share the Big Sky state, the last best place, and I welcome you on behalf of all Montanans," the Governor said.

Montana hopes to advance the shared goal of North American energy independence and dominance, Gianforte said. Energy independence is a national security issue that we need to push hard, he added, explaining that Montana is taking an "all of the above" approach to energy. The state is not trying to pick winners and losers because he believes when you do this, you could cause more harm than good. Rather, Montana wants to create a predictable environment where innovators can risk their capital, create jobs and transform the energy sector. Montana has its fingertips on diverse energy resources policies from renewables, such as wind, solar, and hydropower, to coal and other fossil fuels.

The governor told attendees that Montana's goals continue responsibly developing the abundant resources state's and simultaneously protecting the environment. We can do both, the governor said, and Montana is doing a good job at it. In 2021, more than 60 percent of the energy generation in Montana was from renewables, and earlier this year, the Montana

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Arkansas Representative Ken Bragg (left), former Chairman of the Center for Legislative Energy and Environmental Research (CLEER), and Colorado Senator Chris Hansen, Immediate Past Chairman of CLEER, exchanged best wishes as Hansen's term ends at the 2021 Annual Meeting.

legislature removed the arbitrary renewable energy standard in the state. That was done because the state far exceeds the standards and did not need it anymore, Governor Gianforte noted.

As Montana works to diversify the energy portfolio in the state, the Governor said he trusts and believes in the innovation that we have in the United States and across the region to develop new energy solutions. The Governor also recognized the role of our traditional energy sources, like coal and fossil fuels, in our energy future. Like any other energy source, he said, coal must be able to compete and survive on its own. He said states cannot unfairly tilt the playing field against any one particular energy source.

The Annual Meeting general sessions opened with an address entitled "Clean Energy Technology Initiatives" by Mr. Jay Gunderson, a Geologist at the Montana Bureau of Mines and Geology. "Our nation's growing dependence on critical

mineral imports threatens clean energy objectives, economic competitiveness, and security," Mr. Gunderson stated. He explained that the U.S. must develop a domestic supply for critical minerals, and that requires renewed mineral exploration, mining, and processing. Federal agencies have partnered with state geologic surveys in a search for new, domestic sources of critical minerals, he explained, to develop that supply. In closing, Mr. Gunderson noted that until new mines can be developed, capturing by-product minerals or processing waste streams at active mines offer economic and environmental advantages.

"Transmission Line Risks" covered by Mr. Michael Cashell. Vice President of Transmission at Northwestern Energy. According to Mr. Cashell, Montana faces an energy crisis. He feels that relying on meeting customer needs through "market" purchases and planning wisely for flexible in-state replacement generation presents an unacceptable risk to NorthWestern's Montana customers. The electric generation and transmission systems were planned together, and one needs the other for support, Mr. Cashell emphazed. He added that NorthWestern's electric transmission system is constrained and Montana is part of a larger regional electric system that also is increasingly challenged. Similarly, the gas transmission system has limitations that require careful planning, according to Mr. Cashell. The severe cold of February 2021 and the severe heat of Summer 2021 provide important reminders of the risk of not properly planning for the future, Mr. Cashell said.

Mr. Claudio Arato, Chief Technology Officer at SonoAsh, LLC, briefed participants on "Coal Ash Recycling." Mr. Arato explained that coal power was built on taking a natural resource and generating value opportunities, but had not accounted for the waste generated and the opportunities lost in doing so. The reality, according to Mr. Arato, is any future for coal requires the waste to be aggressively turned into low carbon value beyond merely collecting greenhouse gases and storing them. In summary, Mr. Arato said, this requires a long-term, bi-partisan approach to repair problems that took more than a century to create.

"Rural Energy Opportunities" was a panel discussion covered by Mr. Tyler Hamman, Senior Legislative Representative at Basin Electric Power Cooperative and Mr. Jim Reese, Director of Government and Regulatory Affairs at the Oklahoma Association of Electric Cooperatives.

First to speak was Mr. Hamman, who covered the issues and potential solutions that electric utilities and electric cooperatives specifically face, as well as the numerous pressures to diversify their electric mix. Mr. Hamman stated that in 2020, renewable and green generation (wind and recovered energy generation) equaled 18.6 percent of Basin Electric's total energy portfolio mix; coal-based generation equaled 52.2 percent of Basin Electric's total energy portfolio mix; and renewable and green generation and recovered generation) equaled 21.5 percent of member and retail sales. According to Hamman, the company has a history of continuously improving their bold choices, which has led to Basin being at the top in generation and transmission in the nation. "We are proud to say we started adding renewables to our portfolio 20 years ago" Hamman said. "We have added 1,700 megawatts of wind energy

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since, and will soon add diversity to our renewable portfolio with solar, which is now advanced enough to fit our members' needs."

In closing, he noted that reliable power means his members can count on their generation and transmission cooperative to supply the power members need. For Basin Electric and its growing membership, that also means a commitment to traditional baseload sources to supply power when the wind isn't blowing or the sun isn't shining. To be responsible with our continued baseload generation, Mr. Hamman said, the cooperative invests in research and technology to find ways to better protect the environment.

Mr. Reese then explained that energy drives every economic, political, and social aspect of our interconnected communities. New technology provides continuous opportunity for growth and innovation locally, nationally and globally, he said. At the same time, realistic hurdles do exist and ignoring them won't make them go away, he added. Electric utilities have a charge to embrace innovation and respond to industry challenges in order to deliver energy in a safe, affordable, and reliable manner, Mr. Reese noted.

As the final presenter for Friday's General Session, Dr. Jason Carter, Vice President of Research at Montana State University (MSU), spoke on the topic of "Innovations in Research." Dr. Carter began his presentation by stating that MSU's \$193 million research enterprise represents the largest university research effort in the bordering five-state region, with both basic and applied energy research being a key component of the portfolio. The use of novel biomaterials and biomineralization technologies is an emerging strength in the energy research sector, Dr. Carter said, where bacteria is used to seal leaks in seeping wells, and biocement liners and caps are used to assist with coal ash pond challenges.

According to Dr. Carter, energy MSU research at has been commericialized bv Montana companies, and industry plays a key role in identifying concerns and partnering on solutions. These key partnerships have helped shift university research to more applied research, mitigating risk for venture capital and other commercialization resources - narrowing the "valley of death" for technology development and readiness, Dr. Carter concluded.

Ms. Anne Bradbury began Saturday morning's Breakfast Address by discussing "Federal Energy Policy." Bradbury, Chief Executive Officer for the American Exploration and Production Council, stated that Washington was moving full speed ahead on a reconciliation bill that could contain up to \$3.5 trillion in spending and a number of policies that are targeted at the oil and natural gas industry. She pointed out that there are a significant number of changes to federal tax policies, federal lands policies and royalty rates, a fee on methane emissions, and a clean electricity standard that are being considered. Additionally, Ms. Bradbury stated that a number of federal agencies such as the Environmental Protection Agency, the Department of Interior and the Securites and Exchange Commission are also working on regulatory policy that will affect the energy industry.

The topic of "Species Protection and Resource Development," was covered by Ms. Chanda Pettie, LPC Program Manager at the Western Association of Fish and Wildlife Agencies (WAFWA). WAFWA is a non-profit organization representing the wildlife agencies of 24 states and Canadian provinces across western North America, an area covering nearly 3.7 million square miles of

country that is inhabited by over 1,500 wildlife species.

WAFWA Initiatives support multijurisdictional and landscape-scale fish and wildlife conservation and research. WAFWA promotes and supports 29 working groups and committees. All are multijurisdictional and lead by member states and provinces. Each effort has been created to address a challenge or opportunity affecting the environment or species conservation.

Ms. Pettie highlighted the following two case studies that cross two of WAFWA's initiatives.

The Western Grassland Initiative recognized the need for a conservation focus on grassland ecosystems because of past habitat loss and habitat impacts, and the under-representation of this ecosystem in conservation areas. This effort became known as the Western Grassland Initiative. This multi-state cooperative approach seeks investment of partners in a comprehensive conservation strategy with actions designed to work toward stabilizing and expanding grasslands while halting and reversing declines in wildlife species dependent on them. The Crucial Habitat Assessment Tool (CHAT) helps ensure both wildlife and local economies remain viable, key wildlife corridors and crucial wildlife habitats are conserved in the West and by making that information publicly available.

A Natural Gas Update" was given by Mr. Kyle Rogers, Vice President of External Affairs for Spire, Inc. Every day Spire serves more than 1.7 million customers, making the company the fifth largest publicly traded natural

NEW MEMBERS JOIN THE CLEER BOARD OF DIRECTORS

ALABAMA Senator Garlan Gudger, Jr.

Senator Garlan Gudger was elected to the Alabama Senate in 2018. He is Vice-Chair of the Fiscal Responsibility and Economic Development Committee. He serves as a member on the Finance and Taxation; Education; Government Affairs; Agricultural, Conservation and Forestry; Tourism; Health; and Confirmations Committees.

Senator Gudger, and his family, reside in Montgomery.



Garlan Gudger, Jr. Alabama Senator



Steve Bashore Oklahoma Representative

OKLAHOMARepresentative Steve Bashore

Representative Steve Bashore was elected to the Oklahoma House of Representatives in 2020.

He currently serves as Vice-Chair for A&B Finance – Revenue and Taxation. He is a member on the following Committees: Business and Commerce; Conference Committee on Business and Commerce; Conference Committee on Judiciary – Civil; Conference Committee on Transportation; Judiciary – Civil; A&B Northeast Oklahoma Subcommittee; and Transportation.

TEXASRepresentative Craig Goldman

Representative Craig Goldman has served in the Texas House of Representatives since 2012. He serves as Chairman of the Energy Resources Committee. He is a member of the Licensing & Administrative Procedures and Redistricting Committees.

Representative Goldman, and his wife Auryn, reside in Fort Worth.



Craig Goldman Texas Representative



Tom Walters
Wyoming Representative

WYOMING Representative Tom Walters

Representative Tom Walters began serving in the Wyoming House of Representatives in 2012. He currently serves as the Chair of the Air Transportation Committee. He is a member of the House Appropriations; Select Committee on School Facilities; and State Building Commission Liaison Committees.

Representative Walters, and his wife Kade, make their home in Casper.

CLEER WELCOMES NEW UNIVERSITY ADVISORY BOARD (UAB) MEMBERS

DICKINSON STATE UNIVERSITY Stephen D. (Steve) Easton

Dickinson State University (DSU) is a relatively small regional state university with a relatively comprehensive traditional liberal arts program. It has recently adopted a "dual mission" focus that will make workforce education crucial. DSU's largest departments are the Schools of Business and Entrepreneurship and Education and the Departments of Nursing and Health and Physical Education. DSU has recently grown its online offerings.



Stephen D. (Steve)
Easton
President

After graduating from DSU with an Accounting, Business Administration, and Political Science degree in 1980, Steve attended Stanford Law School. After law school graduation, he clerked for a federal judge, practiced law, and served as a U.S. Attorney. After almost two decades of law practice, he pursued an academic career at the University of Missouri and University of Wyoming law schools.

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MONTANA TECHNOLOGICAL UNIVERSITY Jay A. Gunderson

Montana Technological University specializes in the areas of science, technology, engineering, and math (STEM) disciplines, offering four-year degrees, graduate degrees, and doctoral degrees in Materials Science and Earth Science & Engineering.

Montana Tech research emphasizes natural resources engineering, materials science and engineering, energy, geosciences and water, restoration ecology and environmental engineering, health and bioscience. The unique research infrastructure includes an on-campus underground mine and the Center for Advanced Mineral, Metallurgical, and Materials Processing.

The Montana Tech campus is also home to the Montana Bureau of Mines and Geology (MBMG) whose state agency mandate is to collect and publish information on Montana's geology to promote orderly and responsible development of Montana's energy, groundwater, and mineral resources.

Jay Gunderson is a Senior Research Professor Montana Bureau of Mines and Geology, where for the past 15 years, he has been engaged in research projects that support the development and utilization of Montana's energy resources. His research is focused on coal and petroleum geology, and includes related topical issues as naturally-occurring proppants, carbon sequestration, energy-groundwater interaction. reservoir characterization, and geothermal energy. He is currently leading Montana's 3D subsurface mapping initiative.



Jay A. Gunderson Senior Research Geologist, MBMG

Mr. Gunderson has served on the Montana Board of Oil and Gas Conservation and as President of the Montana Geological Society. He holds degrees in Geology from the University of Montana (M.S.) and University of Minnesota, Duluth (B.S.).

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CLEER WELCOMES NEW UNIVERSITY ADVISORY BOARD (UAB) MEMBERS

UNIVERSITY OF KANSAS Dr. Rolfe D. Mandel

The University of Kansas (KU) is a public research university with its main campus in Lawrence, Kansas, and several satellite campuses, research and educational centers, medical centers, and classes across the state of Kansas. The university is a member of the Association of American Universities and is classified among "R1: Doctoral Universities – Very high research activity." Enrollment at the Lawrence campus is approximately 26,000 students, and there are about 2,800 faculty members.



Dr. Rolfe D. Mandel Director and State Geologist, Kansas Geological Survey, KU Distinguished Professor

Dr. Rolfe Mandel is Director of the Kansas Geological Survey, where he also serves as State Geologist, Senior Scientist, and Executive Director of the Odyssey Geoarchaeology Research Program. In 2014, the University of Kansas named him University Distinguished Professor.

He received a B.A. in Geography from the University of Texas at Austin, an M.A. in Geography from the University of Kansas, and a Ph.D. in Special Studies Quaternary Research (Geology Department) from the University of Kansas. His research spans a wide range of topics including stratigraphy, pedology, landscape evolution, isotope geochemistry, geoarchaeology, and paleoenvironmental reconstruction.

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gas company in the country. With a footprint in Alabama, Mississippi and Missouri, Spire helps families and business owners fuel their daily lives through gas utilities. Spire is committed to transforming the business and pursuing growth through growing organically, investing in infrastructure, and advancing through innovation.

According to Rogers, Spire provides an uninterrupted supply of natural gas to power generators, utilities, municipalities and schools, while offering producers fair pricing for the energy they provide.

In closing, Mr. Rogers maintained that natural gas plays an important

role in establishing, as well as sustaining, economic vitality and rural development.

Mr. Damon Morgan, Executive Vice President and Chief Operating Officer at PowerSouth Energy Cooperative, discussed "Hazards of the Rush to De-Carbonization." Mr. began the discussion by stating that the new Administration has placed an emphasis on addressing Climate Change. Mr. Morgan feels that the new Administration's goals will put the electric system's reliability and the economy in jeopardy. He also noted that long-term investments made by utilities cannot be shut down overnight without consequence, not to mention the compounding impact on supply chain and ancillary economic industries that support fossil fired resources. In his conclusion, he noted his concern that the cry for immediate de-carbonization refuses to recognize these real limitations.

Mr. Dan Lloyd, Director of Energy at the Montana Department of Environmental Quality, briefed participants on "The Intermountain West Electric Vehicle Corridor." Mr. Lloyd stated that electric vehicle (EV) sales continue to climb across the United States and around the globe. As a result, many states have recently begun to grapple with questions around EV policies including charging infrastructure and standards.

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He explained that the Regional Electric Vehicle West initiative is a non-binding memorandum of understanding entered into by eight western states — Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming, that offers a framework and forum for establishing best practices around EV adoption, coordinating EV charging station locations, creating voluntary minimum standards, and leveraging economies of scale.

Mr. Eli Bailey, President of Absaroka Energy, provided a report on "Energy Storage" to participants. Mr. Bailey provided a brief history of pumped storage hydro (PSH). He explained that PSH was invented in Switzerland in the early 1900s. The first PSH project in the United States was built in 1930 in Connecticut. Since the late 1990s and early 2000s, PSH technology has continued to evolve with the increasing adoption of variable energy generation.

Bailey offered a brief overview of PSH versus LI-ION batteries, noting that PSH is a mature, proven technology that is able to provide large amounts of long duration energy storage. PSH has a 50+ year lifetime versus

7 to 10 years for battery technology. In contrast, batteries have a higher cost over a utility-scale lifecycle. Also, LI-ION batteries can be cycled approximately 1000 times before needing replacement, have a negative cradle-to-grave environmental footprint, and cannot provide the level of inertia needed to support the health of the grid.

In closing, Mr. Bailey noted that in recent years, energy storage installations around the world have been dominated by lithium-ion battery technology, but pumped hydro is not giving up just yet.

The CLEER University Advisory Board (UAB) Seminar on "Solar+ Storage and Wind+ Storage" was presented by Dr. Maryam Bahramipanah from the Department of Electrical and Computer Engineering at Montana State University. Dr. Bahramipanah opened the discussion by stating that the electric power grid is one of the greatest and most complex engineering achievements of the 20th century. The U.S. electric grid is made up of over 7,300 power plants, more than 360,000 miles of transmission lines, and millions of miles of low-voltage power lines,

supplying electrical power to about 150 million customers.

Dr. Bahramipanah feels that the recent electric grid outages and wide-spread blackouts have demonstrated the dramatic consequences of disrupted electric supply and the importance of power system reliability. Utilizing battery energy storage systems and renewable energy resources such as wind and solar help us to improve the reliability and resiliency of the power system and ensure the uninterrupted supply of electrical energy to customers, she concluded.

Sunday morning concluded with The Energy Council and CLEER Business meetings, at which leadership elections were held. The CLEER Program Advisory Board Planning Session, which gathered input for the 2021 Global Energy and Environmental Issues Conference, followed the Business Sessions.



The Energy Council's 2021 Annual Meeting

September 16-19, 2021

Billings, Montana

Welcome Remarks and Opening Address

The Honorable Gerald Allen Alabama Senate and Chairman, The Energy Council

The Honorable Chris Hansen Colorado Senate and Chairman, CLEER

The Honorable Duane Ankney Montana Senate and Vice President for Annual Meeting

The Honorable Greg Gianforte Governor State of Montana

Clean Energy Technology Initiatives

Mr. Jay Gunderson Geologist Montana Bureau of Mines and Geology

Transmission Line Risks

Mr. Michael Cashell Vice President of Transmission Northwestern Energy

Coal Ash Recycling

Mr. Claudio Arato Chief Technology Officer SonoAsh, LLC

Rural Energy Opportunities

Mr. Tyler Hamman Senior Legislative Representative Basin Electric Power Cooperative

Mr. Jim Reese Director of Government and Regulatory Affairs Oklahoma Association of Electric Cooperatives

Innovations in Research

Dr. Jason Carter Vice President of Research Montana State University

Field Trip to CHS, Inc. Refinery

Breakfast Address: Federal Energy Policy

Ms. Anne Bradbury CEO American Exploration and Production Council

Species Protection and Resource Development

Ms. Chanda Pettie LPC Program Manager Western Association of Fish and Wildlife Agencies

Natural Gas Update

Mr. Kyle Rogers Vice President, External Affairs Spire Inc.

Hazards of the Rush to De-Carbonization

Mr. Damon Morgan Executive Vice President and Chief Operating Officer PowerSouth Energy Cooperative

The Intermountain West Electric Vehicle Corridor

Mr. Dan Lloyd Director of Energy Montana Department of Environmental Quality

Energy Storage

Mr. Eli Bailey President Absaroka Energy

UAB Seminar: Solar+ Storage and Wind+ Storage

Dr. Maryam Bahramipanah Department of Electrical and Computer Engineering Montana State University

Working Breakfast: Energy Council and CLEER Business Sessions and CLEER Program Advisory Board Planning Meeting