

Energy Resources Council (ERC)

Minutes

August 18, 2017

Energy Innovation Center 8:00

AM – 2:00 PM

CALL TO ORDER:

The meeting was called to order at 8:00 AM by Chairwoman Hull.

ATTENDANCE:

ERC Members Present

Sen. James Anderson (Natrona), Carl Bauer, Wy House Representative Mike Greear, Tom Lockhart, Vello Kuuskraa, Dave True, Cindy Crane, Dave Emery, President Laurie Nichols and Jeane Hull.

ERC Members Absent

Tom Botts, Mindy Benson and Rob Wallace

SER Staff in Attendance

Mark Northam, Diana Hulme, Rob Hurless, Trish Steger, Richard Horner, Pam Henderson, Steve Carpenter, Kipp Coddington, Rachel Ferrell, Carrie Ver Burg, Samantha Velez and Kimmie Takaki.

Others in Attendance

Brett Befus, Jack Tennant, Steve Farkas, Provost Kate Miller, Karen Cloud, Mohammad Piri and Alan Buss

MEETING ITEMS BY DETAIL:

Approval of Agenda

Action: A motion was made by Senator Anderson. It was seconded by Mr. Lockhart. Motion passed without objection.

Approval of May 2017 Minutes

Action: A motion was made by Mr. Bauer and seconded by Mr. Lockhart to accept the minutes with two changes: correction of name spelling for Dr. Northam and add Dave Emery present in attendance. Motion passed without objection.

Introduction of New Board Member, Mindy Benson

Summary: Mindy Benson was not in attendance today. This item will be postponed until the next ERC meeting.

UW President's Update

Summary: President Nichols discussed university updates, including the university five-year (2017-2022) strategic plan titled *Breaking Through* that was launched in July, 2017, and the approval at the Board of Trustees meeting in July of a new formula for indirect cost recovery. Before developing the strategic plan, 10 statewide listening stations were formed. Goals in the plan include pushing enrollment and growing the university's research portfolio. The president is considering how to spin innovation at the university into the economy. The plan resulted in 30 metrics for performance and each unit at the university is tasked with creating individual strategic plans that align with the university strategic plan. These individual unit strategic plans are due by January 1, 2018. Dr. Northam added that he will have had access to a final draft of the strategic plan prior to the November meeting and will discuss it with ERC members.

Comments/Tasks: Chairwoman Hull asked for insights into how SER fits into the university strategic plan. President Nichols replied that they see energy and engineering as being areas of distinction for the University of Wyoming. SER will plan how UW will become nationally and internationally known in these areas as the university grows and endorses a national and international reputation as a leader in energy. Chairwoman Hull inquired about a timeframe for approval for the unit strategic plan, and President Nichols replied that they will be turned around with a month from the January 1st deadline.

Senator Anderson asked about plans for enrollment at UW, and President Nichols described the goals regarding enrollment. Ideally, enrollment will grow to approximately 13,500 students over the next five years (a metric that was calculated by taking into account the enrollment numbers at both peer and stretch peer institutions). Currently, some peer schools are losing enrollment. Compared to other schools, 1.5-2% in growth is an aggressive goal. Representative Greear noted that student housing is a limitation at UW, and President Nichols shared that the university has contracted a consultant to create a 10-year housing plan consisting of two to three phases. The first phase will hopefully involve the construction of new residence halls. Residence halls and residence life play a role in recruitment and retention. In regards to enrollment, President Nichols expects to see the census report by September 15, 2017.

Mr. Bauer suggested that the unit strategic plans address how departments will conduct interdisciplinary work. SER collaborates with different parts of the university; Dr. Northam added that the presence of education, science, and MBA energy programs at today's meeting represent three interdisciplinary efforts. President Nichols believes that UW has the potential to be a true leader in interdisciplinary work, and she hopes that the formation of the new Honors College will encourage the enrollment of strong students and the development of interdisciplinary teaching.

Currently, President Nichols is asking for funds and hopes to continue moving the science initiative forward and would like to see the construction of a new science building. She asked Dr. Northam to elaborate on the million dollar request to continue carbon research work. Dr. Northam explained that Mr. Horner is leveraging a two-million dollar, one-time appropriation and that SER matched the appropriation. Another one-and-a-half million dollars from SER's budget last year will be used to renovate the carbon engineering lab. The work in the lab will result in patents and partnerships with those who want to work with **SER** to develop ground manufacturing (or at least conversion facilities) in Wyoming. An additional one-million dollars is needed to keep that research going and to create the appropriate footprint to attract people to Wyoming as a nexus of carbon engineering and coal.

President Nichols spoke about the Leadership Council that is chaired by Provost Miller and that includes a campus representative, UW alumni, and trustees. Dr. Northam inquired about community engagement with the university and Laramie and how the university plans to improve interaction with those in Laramie who do not feel connected to UW. President Nichols explained that as a land grant, engagement is extremely important to UW. They had a Laramie listening session and the tone was negative. She named a task force on Engagement that is about to meet next week and plan for statewide engagement and engagement in Laramie. She envisions the formation of an Office of Engagement, and a second listening session is being planned as they strive for a strong relationship with Laramie.

DIVISION UPDATES

Full copies of all SER division reports are available in the **May 2017 ERC Notebook** or upon request.

Research

Summary: Ms. Hulme updated the board on Kim Shannon's work with student, Sam Mallory to produce overarching videos of the Centers of Excellence that Center Directors will be able to use as marketing tools to promote what the Centers are and what they have to offer. For example, they will be able to show them around the state, on display boards on

campus, at football games, and at Energy Day. Ms. Hulme also described the emergence of a new conference, the Wind Energy Conference that will be hosted by the Center of Excellence of Energy Economics and Public Policy and co-hosted with the Haub School of Environment and Natural Resources (ENR), of which Mindy Benson is the new Dean. This two-day conference will take place October 2-3, 2017 at the Gateway Center. The conference will focus on economic and environmental costs and benefits of emerging wind development in the state to Wyoming and local communities. Additionally, the Air Quality Center (AQC) is continuing its work monitoring the future of oil and gas fields. The work is funded by an \$8,000 BLM Grant and external dollars brought in by the Center.

Comments/Tasks: None

Outreach

Summary: Ms. Hulme reported on the group's presence at the 6th International Advanced Conversion Technology Conference that took place June 4-6, 2017. Dr. John Jiao of CMI presented his work with the U.S.-China Clean Energy Research Center. Governor Mead presented a keynote and has offered to host the 7th Annual International Advanced Conversion Technology Conference in Laramie in Fall 2018. A Chinese delegation is expected to attend and the involvement of other countries, such as Japan and Australia, is hopeful. Ms. Hulme described plans to host a delegation from J-Coal, a conglomeration of technology and energy companies in Japan. The venue for the event has been changed to Campflex. Governor Mead, others from the Department of Energy, UW, and from around the state are also expected to attend.

Comments/Tasks: Chairwoman Hull asked if there are still plans for taking the J-Coal delegation to a mine tour. Ms. Hulme explained that the event involves one-and-a-half days of meetings, keynotes, panels, and workshops to discuss opportunities moving forward and a half-day is planned for a mine tour. The Dry Ford Station with the Integrated Test Center, the Dry Fork Mine, the Alpha, or the Eagle View are potential venues. Chairwoman Hull offered assistance with getting a mine tour coordinated.

Mr. Horner commented that Japan is interested in US PRB coal imports. An internally funded study will be commissioned (and include Millennium Terminal people) on the feasibility, coal specification requirements and the economic value proposition based upon logistics about how coal would get to Japan, identification of premium opportunities and understanding of their user customer needs. Expectation is that the study will define a possible business model(s) for supplying Wyoming coal into the Japanese market as needed and which is growing.

Senator Anderson asked if some of the legislators will be present for the J-Coal Meeting, and Ms. Hulme asked for suggestions for local legislators to invite.

Mr. Bauer added that testers who wish to use the Integrated Test Center, ITC, at the Dry Fork Station will have to pay their own way. The first test articles on schedule will be from the X-Prize Competition. Hopefully, other industries will want to use this larger facility and there has been discussion of possible funding for it.

Mr. Hurless spoke about the Oil and Gas Fair plans for September 13-14, 2017 that will feature a leadership panel with Senator Bebout, 13 round tables, and 80 booths that have been committed.

EE&P/CMI

Comments/Tasks: Representative Greear asked how they can respond to comments on an article published in Casper that stated Wyoming was too late in the game for carbon capture and storage. Mr. Coddington answered that the article is factually incorrect. The U.S. is ahead on this technology. There are an impressive number of ongoing projects, and Wyoming is the ideal jurisdiction in which to do this work. He explained there is a mandate going forward to be publish proactive, policy relevant papers where they can provide commentary. Mr. Coddington is currently writing a paper on carbon capture and storage. Dr. Northam commented that the technology is ready but the question remains of where the funding is going to come from to employ it. The government has not created incentives yet and the economy and policy is not yet in place. Mr. Kuuskraa asked if a business model can be built for the technology. Mr. Coddington replied that infrastructure is needed and integration with renewables are intermittent.

Carbon Engineering

Comments/Tasks: Dr. Northam noted that there needs to be a way to protect the work that students are writing about in their theses and dissertations and that it may be something to discuss with the new Vice President of Research and Economic Development. Chairwoman Hull explained that there is a strong interest among existing Wyoming miners to work with SER on diversification opportunities given the intellectual property associated with the carbon engineering project. She asked if that agreement contemplated a non-compete and if they would be exclusive to that technology? Mr. Horner replied that it has to be decided if they will be non-exclusive or exclusive agreements. Chairwoman Hull asked how competition is leveraged, and Dr. Northam replied that considerations of revenue have to be balanced with the university's revenue to the state from the use of these technologies. There is time to let the technology develop through ENDOW and there are projects happening in the state.

3D Visualization Lab

Comments/Tasks: Senator Anderson shared that he has spoken with manufacturers about using 3D and hopes that they will be interested. Ms. Hulme said they can come in at any time if they schedule a demonstration. The demonstration can be scheduled by appointment and does not have to be during the open house.

Academic

Comment/Tasks: Senator Anderson asked about internships in the industry. Ms. Henderson replied that it has been difficult for students to find internships in the industry. Recently, academics have switched to the Handshake platform (used by various universities and employers) where jobs and internships are posted. She is currently going through employers in Handshake and approving them and reaching out. Dr. Northam added that interns should not be misled into thinking employers can hire them after their internships. Ms. Henderson explained that when students have summer jobs or internships that are not directly related to their degree that they work on focusing on transferable skills that all employers want (including communication, leadership, and teamwork skills).

EORI

Comment/Tasks: None

SER Budgets

Summary: The new system is up and running. SER has different needs than most units. It needs to be set up in a different manner. The WyoCloud team is currently working on that. Most colleges have a team of accounting staff and money goes through their offices already. A lot of SER's funding goes to other colleges throughout campus. There is 6.3-million dollars in FY17, and instead of going through other college's offices, all of the money has to go through Ms. Ferrell's office. Therefore, the work levels have increased significantly. SER looks forward to getting parameters on each account implemented in the new system. Additionally, HR is not integrated yet into the cloud, so all of the hiring being done around campus, which is significant SER dollars, cannot be seen. Ms. Ferrell does not approve those. It currently goes through other colleges. Right now, it is a bit challenging to monitor those funds. HR will not be integrated for another year. 1.5-million dollars is going to lab renovations and has not been loaded into the new system. The FY17 summary shows that a little over 9-million dollars was spent in total. 1.5- million dollars was banked, reaching the total for the FY. 10.6-million dollars includes 1.5- million dollars from special appropriation. Different colleges add up to the total spending. The energy scholarship is zeroed out.

Comments/Tasks: Board members asked how the new financial system is working out, and Mrs. Ferrell replied that it has been a bit challenging, since SER's funding goes to different colleges throughout the campus. Representative Greear asked if the full amount for

the business college goes into the MBA program. Dr. Northam replied no and explained that SER pays a portion of Ben Cook's salary. Additionally, Tim Considine is an SER faculty member in Energy Economics. Four hundred thousand dollars is going to the MBA program, which is an agreed contribution to the program as seed money that they used to hire two faculty members. One of those faculty members has left, and they are wanting to use the dollars to hire his replacement. Dr. Northam told the program that he cannot commit long-term to using those dollars to pay for faculty members unless the program has the funds to pay them after SER's agreed contribution is done. Dr. Northam wants to work on a different model after carrying out the agreed contribution, especially now that the business college has a new Dean. Dr. Northam would like to see SER dollars going to improving the program through scholarships for top students or to bringing in other aspects that the program needs. Ms. Hulme added that another fifty thousand dollars of the funds goes towards running the Center of Energy Public Policy.

Energy Education Initiative Update

Summary: Alan Buss and Karen Cloud gave a guest presentation on the Wyoming Energy Education Initiative (WEEI). WEEI was formed to develop energy curriculum that incorporates a range of disciplines beyond science of energy in K-12. They shared their experience working with fourth and eighth grade teaching units on a mapping activity that teaches students about boom and bust cycles and the growth of both the energy industry and of the population in the state of Wyoming. Their Power Point presentation is available upon request.

Comments/Tasks: Chairwoman Hull explained that using historic photographs that showed old time miners with dirty faces and antiquated equipment does not represent today's highly modern, technical industry and creates a stigma that needs to be corrected. She asked if contemporary narratives of coal miners are integrated in the initiative. Mr. Buss replied that the mapping activity is designed to teach students how the technology has developed over time and the impact of the industry's history in terms of product, environment, and safety. They are looking at current practices, and some people are creating virtual field trips to modern mines. The goal is to create curriculum that is focused on energy, people, and places. Senator Anderson asked how they are measuring success, and Mr. Buss replied that eventually he would like to see one-hundred percent of teachers using their curriculum, but the Wyoming Department of Education and the school boards ultimately make these decisions. Mr. Buss would like to see energy education become fundamental to what teachers do in schools in K-16 and for energy to have a place in all reading, writing, math, science, and social studies. Mr. Horner shared that in his experience energy companies have had success sending sponsors into schools. Senator Anderson shared a different experience in which it did not work as well to have the industry sponsors in schools. Mr. Buss replied that they often encounter resistance at the schools and that the school boards change slowly. He expressed that they want to involve communities and school boards to recognize that energy needs to have a place in education. Ms. Cloud explained that the education initiative is place based and that they are hoping that the emphasis on place is how they will get teachers to buy in. Lessons will need to be modified and changed for each location. Ms. Crane shared that during her work as Chairwoman of the Education Committee of a mining association, they launched educational programs in Utah in partnership with the

mining industry. They targeted fourth and eighth graders using an Ambassador Program in which industry people went into the classroom. For example, Geologists take rocks and picks and bring boxes of samples of copper plugs or pencils that they would leave behind in the classrooms. In Utah, they partnered with a school district that was more progressive for a pilot and they saw success. Additionally, teachers had a positive response, because they didn't have to teach the program. Mr. Befus added that he has seen the ambassador model work for events like Constitution Day in which they had ambassadors go into 170 classrooms in one week. In his opinion, it works best when someone from the local community is involved.

MBA Energy Update

Summary: Steve Farkas, the Assistant Dean for the University of Wyoming, College of Business and the director of the MBA Programs, gave a guest presentation on the status of the MBA program and the track in Energy Management, including academics, enrollment, and a description of the online and in-person offerings. The program focuses on experiential learning through summer consulting projects, industry-designed case studies, and mini-projects with businesses. Some students have been hired on to these companies after graduation. His Power Point presentation is available upon request.

Comments/Tasks: Mr. Kuuskraa asked if the program focuses on entrepreneurship. Mr. Farkas answered that the MBA Program includes entrepreneurship as a core, required class. Additionally, the mini-projects focus on entrepreneurial management. Mr. Emery shared that Black Hills has hired one student directly out of each project they have been involved in. These students have been quickly promoted, given responsibility, and have been very well prepared for the workplace. He explained that the projects allow the corporation to work with students in a manner similar to an internship, and several of the students they have hired are leading key initiatives right now at Black Hills. Chairwoman Hull asked if the program has a backlog of projects waiting for the next class and how projects come to fruition. Mr. Farkas answered that the program has received enough attention that he is now receiving messages from people asking to be involved. They do make it a priority to work with repeat clients like Black Hills.

Science Initiative Overview

Summary: Until recently SER has had relatively little to no involvement in the Science Initiative; however going forward SER will provide undergraduate funding support and fundraising support with direct involvement by Dr. Northam. A full report will be available at the November ERC meeting.

Comments/Tasks: None

UW SER Strategic Plan

Summary: Provost Miller shared various updates, including the reorganization of Academic Affairs, the internal search for a new Associate Vice President of Graduate Education to improve support for both graduate students and faculty mentors, and the appointment of Jeff Edgens as UW Casper Director and Associate Dean of UW Outreach School. A retreat is planned to take place after Labor Day to discuss the future of UW Casper, which has not been thriving like it has in the past. UW Casper is essential as a hub for higher education in the center of the state and essential to the education of place bound students. Mr. True will be in attendance. Dialogue will continue through the Fall. Provost Miller explained the consolidation of international functions at UW under the Provost's Office as well as the ongoing search for an Associate Vice President for Global Engagement. The university wants to support international involvement and efforts at units like SER. An endowment from the Cheney family supports study abroad, and there are ideas for student internships abroad being discussed. Provost Miller hopes to announce the interim structure and interim director next week or the week after. She spoke about the new Enterprise Management System that went live in July and announced that a new higher level budget director will come on the week after next. The financial system will function as more of a service center. Enrollment functions (including registrar administrators, scholarships, and financial aid) have been moved from Student Affairs to the Provost's Office and a new Associate Vice Provost has been hired. This new position will oversee enrollment and report directly to the Vice President of Student Affairs. The Strategic Enrollment Management Plan is underway; this year is a record freshman class and a record number of students graduated last spring.

Comments/Tasks: Mr. Lockhart asked about the feelings at the community colleges towards UW Casper. President Nichols replied that she plans to meet with the community college presidents three times a year to improve relationships and communication. Many ideas are being discussed, including a stronger transfer process, a common application (so students can be admitted to both the community college and UW at the same time), and placing a few four-year degrees at community colleges for place bound students. Mr. Bauer asked about the plans for bringing revenue back with the intellectual property being generated. President Nichols explained that a new Vice President of Research and Economic Development has been hired and staffing a technology transfer office is being discussed. Additionally, she would like to encourage entrepreneurship among the faculty and the students. Provost Miller explained that a metric on intellectual property licenses are included in the university strategic plan and that incentives will be planned, such as rewarding faculty through tenure advising promotion criteria and annual review. Mr. Bauer asked if people responsible for accomplishing this metric will be identified by name, and Provost Miller explained that the Deans will be held accountable for where they are in achieving the strategic plan. Colleges and departments are planning short, intermediate, and long-term goals for this year and the next three years. Senator Anderson asked if having a private enterprise build student housing has been considered to bring taxes into the state. President Nichols shared that the plan being considered is to have a third party build the new residence halls and that the facility will be bought back over time. Representative Greear asked if the new financial system is working well, and President Nichols and Provost Miller replied that since it had gone live on July 17, 2017 it has done a great job. Mr. True added that minimal glitches have occurred.

Geo Mechanics

Summary: Dr. Piri's presentation described the goal to fundraise a multi-face experimental flue system that will involve three components: advanced imaging, flow, and geo-mechanics systems. He envisions this system as being the world's most advanced. It will provide the opportunity to develop better understanding of how the deformation of rocks impacts the formation of gas and allows them to study all the processes associated with hydrologic fracture. Dr. Piri's slide presentation is available upon request.

Comments/Tasks: Mr. Coddington asked if the system would be applicable for CO₂ as well, and Dr. Piri answered that it definitely would be. Dr. Northam shared that one donor the previous day agreed to create a part of the gift needed to build the advanced system. Representative Greear and Mr. Kuuskraa asked about refracking. Representative Greear asked if the system may stimulate investment if there were tax incentives. Dr. Piri explained that the advanced system would provide them with the capability to take images of fluid in a fracture system in three dimensions and to observe interactions.

Fall Joint Mineral Committee Meeting

Summary: Dr. Northam explained that SER will be attending and speaking October 24-25th 2017 and that their mandate is to deliver the Annual Report. Dr. Northam will also provide some support for the pending ask for one-million and why it is important. He asked if it would be welcome to have him at the meeting as a representative of ERC to give a high level set of remarks about the mission and where it is going. He also asked if Chairwoman Hull or others from the group would want to attend. Chairwoman Hull agreed.

Comments/Tasks: Representative Greear responded that it would be very helpful to have a fifteen-minute overview of SER for the six new legislators.

SER Annual Report Discussion

Comments/Tasks: Chairwoman Hull asked when the comments on the SER Annual Report are due back by. Dr. Northam replied that they need to be received by the first week of September by the latest. Chairwoman Hull made a note that comments are needed by September 8, 2017.

2017/2018 ERC Meeting Dates

Summary: The council agreed upon the following meeting dates:

March 22-23, 2018

May 31st and June 1st, 2018

August 23-24, 2018

November 14/15/16, 2018 (tentative)

It was further agreed that all meetings would be held in Laramie. In the event of inclement weather which would prevent attendance, a ZOOM meeting or a conference call would be convened.

Adjournment

Mr. Bauer proposed adjournment and it was seconded by Senator Anderson. No objections. The meeting was formally adjourned at 2:27 PM.

Respectfully submitted:

Jeane Hull
Chairwoman

James Anderson
Vice-Chairman