

ENERGY ENTERPRISE

SUMMER 2012



School of Energy Resources

EVENTS

Coming up

Aug. 23

Clean Coal Technology Research Fund Symposium
UW Conference Center at the Hilton Garden Inn, Laramie, Wyoming

Aug. 24

Energy Resources Council meeting
Advanced Conversion Technologies Task Force meeting
UW Conference Center at the Hilton Garden Inn, Laramie, Wyoming

Oct. 1-2

Power Generation and the Environment: Choices and Economic Tradeoffs
Teton Village, Wyoming

Recent Events

June 3-7

2012 International Advanced Coal Technologies Conference
Xi'an, Shaanxi Province, China

June 18

Special meeting Clean Coal Task Force teleconference

June 20-21

Secondary Biogenic Coal Bed Natural Gas International Conference
UW Conference Center at the Hilton Garden Inn

May 8-10

Third Workshop on Porous Media Flows: Experimentation, Multi Scale Modeling and Simulation
Center for Fundamentals of Subsurface Flow

May 18

Energy Resources Council meeting
Clean Coal Task Force meeting
UW Conference Center at the Hilton Garden Inn, Laramie, Wyoming

March 7

Sustainable Management: Strategies and Tools for Energy and Extractive Industries
UW Conference Center at the Hilton Garden Inn, Laramie, Wyoming

MESSAGE FROM THE DIRECTOR

Even though the academic year has come to a close, our work at the School of Energy Resources continues.

In a few short months, we'll be moving into the Energy Innovation Center, and as you can imagine, we're looking forward to it.

We have two important conferences coming up that we want you to know about.

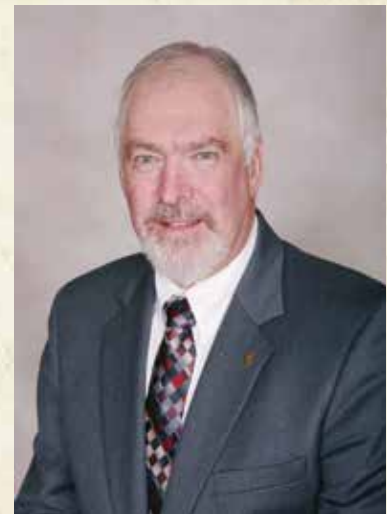
A number of UW researchers, students and SER staff and I traveled to interior China in early June for the 2012 International Advanced Coal Technologies Conference in Xi'an, in the Shaanxi Province. You can read more about that in this newsletter.

We hosted another conference that is drawing international attention here at the University of Wyoming. The Secondary Biogenic Coal Bed Natural Gas International Conference was presented June 20-21 by the Biogenic Natural Gas Research Center of Excellence, the School of Energy Resources and the College of Engineering and Applied Science here in Laramie. Interest has been growing in this area a great deal in recent years, as researchers have sought ways to extend the operational life of depleted hydrocarbon reserves using technologies that enhance the activity of microbial communities that inhabit these areas and produce natural gas. The proceedings are available on the SER website, www.uwyo.edu/ser.

I am pleased to say we've received funding to put our strategic plan in place from the Wyoming State Legislature. Other changes to our programs are recapped inside this issue, too.

Mark Northam

Mark A. Northam
Director, School of Energy Resources



SER'S LEGISLATIVE UPDATE

The School of Energy Resources has been fortunate to enjoy the support of Gov. Mead and the Wyoming State Legislature and it continues to do so.

Here's a roundup of the funding actions affecting the School of Energy Resources that state elected officials took during the budget session of the Wyoming Legislature that ended in early March:

- \$10 million in AML funds to UW to put the SER strategic plan in place. This money is available through June 30, 2012 for the first part of the SER strategic plan
- \$15 million in AML funds has been appropriated to SER to be matched by non-state funds under the Energy Partnership Matching Funds program
- \$1 million has been appropriated to UW for SER for the Continued Carbon Storage and Enhanced Oil Recovery Research Fund. This money can be spent only if they are matched by other funds
- \$10 million in AML funds to SER for Clean Coal Research Grants. Along with \$5.25 million in deappropriated funds, this is \$4.75 million in new funds for the program
- \$9 million in AML funds to the Office of the Governor for Advanced Conversion Technology Awards; the award decision




rests with Gov. Mead, on the recommendation of the Energy Resources Council, sitting at the Advanced Conversion Technologies Task Force, formerly the Clean Coal Task Force

- \$500,000 in AML funds appropriated to the SER for a feasibility study for minerals to value added products; these grants and studies are to be completed by Sept. 1.
- \$100,000 in AML funds appropriated to SER for grants to be administered by the Advanced Conversion Technologies Task Force
- \$2 million in AML funds for a carbon dioxide pipeline study by the Wyoming Pipeline Authority in coordination with SER

Several bills have put in place these changes:

- The deadline for the use of funds for the Uranium Research Center has been extended to June 30, 2015

- The Nuclear Energy Task Force, created to explore nuclear production in the state, has been extended through the end of 2012
- Up to \$50,000 of \$250,000 appropriated to the Wyoming Business Council to explore the feasibility of locating a next generation nuclear plant and hybrid energy facilities in Wyoming, will be available to UW's College of Business, College of Engineering and Applied Science or SER to help with this research
- As noted above, the Clean Coal Task Force has been renamed the Advanced Conversion Technologies Task Force. The task force will continue to award competitive grants to explore coal technologies, its mission will also include advanced conversion technologies. The task force's life has been extended to June 30, 2017. 

ADVANCING KNOWLEDGE, COLLABORATION ACROSS BORDERS

In early June, a contingent of University of Wyoming researchers, students and staff traveled to Xi'an, in the Shaanxi Province of China for the 2012 International Advanced Coal Technologies Conference to address critical issues of advanced coal use.

This conference, which the UW School of Energy Resources co-sponsored and hosted in Laramie in 2010, drew U.S. and China policymakers, coal industry representatives from both countries and researchers with a wide range of expertise in advanced coal technology, carbon capture and sequestration and carbon dioxide use.

“We consider building relationships through international conferences like these important because the issues we face in Wyoming are really global issues. Coal is an energy resource that is critical to our economy,” SER Director Mark Northam said. “Our goal is to find ways to add value to Wyoming coal through new technology and to find new markets for its use.”


Conferences like these strengthen U.S. – China technology exchanges and cooperation in advanced coal technologies, Northam said. That can lead to a more comprehensive use of coal resources to promote sustainable energy development and chemical engineering in both Shaanxi Province

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Mark Northam

and Wyoming. This conference also provided an opportunity for policymakers to see the latest developments in the industry. The trip included a tour of a large-scale coal to liquids plant that has been operating for several years.

UW students also had a chance to attend the conference; 12 accompanied UW researchers and SER staff to China, where they had an opportunity to see firsthand what's happening internationally in the coal industry. Students took part in the conference and developed portfolios describing their activities, outcomes and experiences including perspectives of global energy issues and cultural impacts they have experienced.

This conference started in 2008, hosted by the University of Queensland, and this year's conference was hosted by the Shaanxi Provincial Government. 



MARATHON PLEDGE TO BUILD ON UW'S ENERGY PROGRAMS VISION

A new partnership with Marathon Oil will support research into unconventional energy resource extraction in Wyoming, maintaining economic opportunity in a state whose wealth comes from natural resource development.

Marathon has pledged \$ 1 million, to be matched by funds allocated by Gov. Matt Mead and the Wyoming State Legislature during the legislative session that just concluded.

“This contribution to the University of Wyoming is consistent with Marathon Oil’s focus on supporting key educational initiatives in communities where we operate,” Jim Bowzer, Marathon Oil vice president of North American Production, at an event held at the UW College of Business in March.

“In this case, the community is Wyoming, where our company has had the privilege of operating for more than 100 years,” says Bowzer,



Jim Bowzer

who is also a member of the UW Energy Resources Council. “We understand and fully support UW’s efforts to advance key energy research activities in support of the state’s and our industry’s efforts to meet growing energy needs while creating jobs, economic growth and securing our nation’s energy future.”


Because Wyoming’s economy is largely based on natural resource extraction, this research will affect Wyoming and its residents. Significant new oil and gas reserves are projected to be discovered in tight rock formations and incremental improvements to production represent significant new revenue streams to Wyoming.

This is Marathon’s second major gift to UW; in 2008, the company

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*Jim Bowzer
Vice President, North American
Production, Marathon Oil*

also gave \$1 million, which was also matched by the State of Wyoming, to support the Energy Innovation Center, a state-of-the-art research and collaboration facility that will house the School of Energy Resources and help its centers of excellence reach their potential. That gift also supports the UW College of Engineering and Applied Science Student Services Center and the Department of Geology and Geophysics Rocky Mountain Field Camp.

This announcement is the first of several public-private partnerships totaling \$30 million that are being pursued. 





WIND ENERGY RESEARCH CENTER CELEBRATES FOUR YEARS OF PROGRESS

With support from BP America, Inc. in late 2007, the University of Wyoming's Wind Energy Research Center (WERC) launched with an ambitious vision. That vision, to establish an internationally recognized program for conducting wind energy related research and education, has taken shape through a program that four years later, supports nine different research thrusts, six Department of Energy-funded graduate students, and 17 funded faculty members.

Under the direction of Jonathan Naughton, associate professor of Mechanical Engineering, WERC has established itself as one of the top five most well-respected programs in the nation for wind energy research and as a leader in computational modeling of wind resources. The group has built strong relationships with national and international institutions such as Texas Tech, Sandia National Laboratory, Los Alamos National Labora-

tory, Lawrence Livermore National Laboratory, the National Renewable Energy Laboratory and the Energy Research Center of the Netherlands. Naughton sees these collaborative relationships as key to advancing wind energy research globally while helping put UW on the map.


Naughton says he's excited about completing a new field site on UW land west of Laramie this spring. The site will house a variety of turbines and mechanical components to support research and academic goals. In addition to the field site, Naughton says he's delighted about the recent legislative decision to allocate AML



Wind Energy
Research Center



Jonathan Naughton

funds toward a new state-of-the-art addition to the College of Engineering and Applied Science. Naughton says these facility improvements will help WERC secure additional outside funding, recruit high-caliber students, and facilitate the group's progressive research goals. 



SUSTAINABLE MANAGEMENT: Strategies and Tools for Energy & Extractive Industries

SER, COLLEGE OF BUSINESS LAUNCH FIRST SUSTAINABLE MANAGEMENT CONFERENCE FOR ENERGY, EXTRACTIVE INDUSTRY

When a group of experts, professors and students convened at the UW Conference Center at the Hilton Garden Inn in Laramie in early March, they started a conversation about sustainable business practices that's expected to continue.

Focusing on the interests of conference co-sponsors, the UW College of Business and the UW School of Energy Resources, and those of

"This conference was a great first step in strengthening and extending the collaborative partnership between SER and the College of Business"

Jose Rosa

energy and extractive industries, the seminars presented covered such topics as when it pays to be green, sustainable management dilemmas and real-world decision making and business leadership for society. They were geared to build the knowledge and skills of stakeholders in the energy and extractive minerals industry that support sustainable business practices, which includes business planning and execution to preserve commercial, social, economic and ecological well-being of companies and their constituents.

"This was our first Sustainable Management: Strategies and Tools Conference, and it will not be our last," Jose Rosa says. Rosa, professor of Marketing and Sustainable Business Practices at the College of Business, said about 70 people attended the conference, which was geared to

companies in the extractive and energy sectors.

"We assembled a well-received group of speakers, and we've had participants offer ideas for future topics," Rosa says.

The speakers were William Ward, professor of Economics and Policy Studies, Clemson University; Renato Orsato, professor, São Paulo School of Management; Leslie Serkerka, professor of Management, Menlo College; Rich Walje, president of Rocky Mountain Power, a division of PacifiCorp; and Mark Peterson, association professor of marketing, UW College of Business.

"This conference was a great first step in strengthening and extending the collaborative partnership between SER and the College of Business," Rosa says. ■

UW DEBUTS ENERGY MBA PROGRAMS

Beginning in August 2012, two new master's degree programs in the UW College of Business will help address the needs of energy business in Wyoming and elsewhere.


Those programs, an MBA with an Energy Concentration and an MBA in Energy Management, will equip graduates with the skills they need to work in the energy sector and become industry leaders.

"We believe developing and executing energy-focused MBA courses, concentrations and degrees is both strategic and timely from a variety of perspectives," UW School of Energy

Resources Director Mark Northam says. It's widely accepted that the long-term growth outlook for global energy production and consumption will be robust into the 21st century. Additionally, most sectors of the energy industry are facing well-documented shortages of young managerial talent and are forecasting a significant shortfall in the management ranks over the coming years."

The programs address extraction and production, processing and conversion and marketing and delivery across energy industry segments. The legal and regulatory framework surrounding these processes will also be covered.

"We have leveraged UW's well-recognized strengths in energy research, environmental economics, environmental management, energy-related science, engineering and law," UW College of Business Dean Brent Hathaway says. "We believe energy management graduates will be highly sought after by energy producing and consuming corporations."

The first MBA with an energy concentration could be granted as early as December and the first MBA in energy management could be awarded in May 2014. 

NEWS AND NOTES

APPOINTMENT AND REAPPOINTMENTS

In the legislative session that just ended, the Wyoming Senate confirmed Gov. Matt Mead's reappointments to the UW Energy Resources Committee. They are:

- Ron Harper, retired CEO and general manager of Basin Electric and Basin Cooperative Services, three years
- Paul Lang, executive vice president, operations, Arch Coal Inc., three years
- Rob Wallace, retired manager of U.S. Government Relations, GE Energy, managing partner, Rob Wallace Group, three years

The Senate also confirmed Gov. Mead's appointment of James Bowzer, vice president of North America

for Marathon Oil Corporation, for one year.


Gov. Mead is expected to name replacements for Paul Matheny, vice president, Rockies Region, QEP Resources, and James Kleckner, vice president of operations, northern region, U.S., for Anadarko Petroleum Corporation, who have stepped down from the ERC.

GOOD NEWS TRAVELS FAR

Mohammad Piri, has been designated the new director of the Center for Fundamentals of Subsurface Flow. He's been receiving congratulations from colleagues around the globe for the installation. In January of a custom-designed high resolution 3-D X-ray microscope in the College of Engineering and Applied Science's EnCana

Research laboratory. The microscope will allow UW researchers to see into porous media and increase their understanding of underground reservoirs of oil and natural gas. UW is the first university in the world to install such an instrument for this purpose.

A NEW DUTY FOR THE ERC

The Wyoming State Legislature has delegated a unique duty to the Energy Resources Council. In the \$15 million appropriation to UW for renovating the Half Acre Gym, is a provision for artwork that "displays the historical, cultural and current significance of transportation, agriculture and minerals in Wyoming's history." Proposals for the artwork will be submitted for review by both the ERC and the governor for approval. 



At an opening news conference, Governor Mead and Shaanxi Provincial Governor Zhao Zhengyong discussed advancing the collaborative relationship between Wyoming and Shaanxi Province, which share a reliance on natural resources, tourism and agriculture as economic drivers. Both governors agreed that continuing the relationship between Wyoming and Shaanxi Province offers many benefits now and in the future.



The Energy Innovation Center will use cutting-edge technologies and age-old design to create an environment for innovation and learning. Plans call for using evaporative cooling, advanced heat recovery of expunged air, radiant floor heating, low-flow water fixtures and natural daylight throughout the building. The building is primed for photovoltaic installation and it has roof access to provide space for small-scale wind turbine installation and research. UW will seek LEED Silver certification and is looking for opportunities to seek Gold certification.