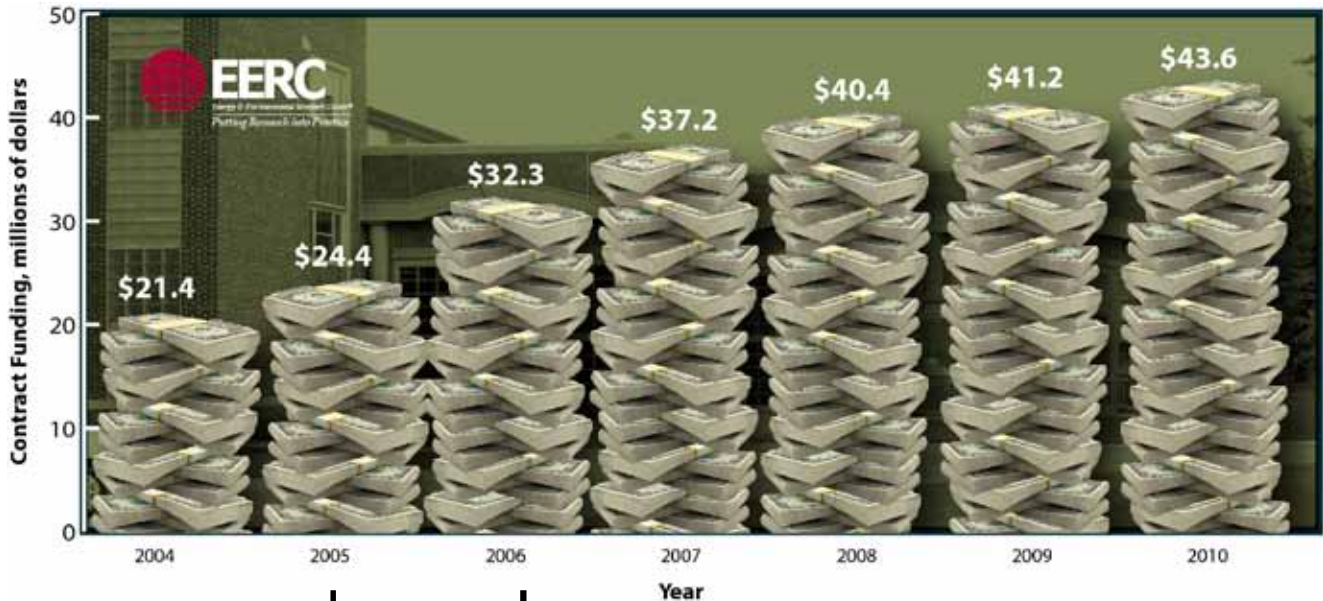


EERC EDGE

Our Edge
Is Our People



July/August 2010



Seven record years!

From 2004 to 2010, Energy & Environmental Research Center (EERC) contracts with private industry, government, academia, and international clients grew steadily from \$21.4 million to \$43.6 million, representing seven consecutive years of record growth. This continued growth is even more remarkable given the recession that began in 2007 and continues to hold on in 2010.

The dramatic increase in contract funding demonstrates the effectiveness of the EERC’s staff, who pursue an entrepreneurial, practical, market-driven approach to demonstrating and commercializing technologies.

During the past 7 years, the EERC’s contract funding represented, on average, 55% of all externally funded research at the University of North Dakota (UND). During the same time period, the EERC’s regional economic impact went from \$69.3 million in 2004 to more than \$130 million in 2010.

This impact is evinced in the EERC’s aggressive hiring practices. Last year, the EERC hired 26 employees for positions as varied as storekeeper/ clerk; intellectual property specialist/ contracts officer; environment, health, and safety specialist; communications specialist and event coordinator; programmer analyst; Web developer/ administrator; research scientist; and research engineer. The hires came from North Dakota, Minnesota, Illinois, West Virginia, New Jersey, Oklahoma, and Colorado in the United States and from Manitoba in Canada. Many were established professionals from industry or academia; some were recent graduates from UND.

The EERC continues to heavily recruit new employees from all over North America and the world. In fact, the EERC already employs people representing ten different countries and is actively hiring, with 12 positions currently open.

With over 345 staff and the numbers growing, the EERC is on target with its Master Plan, which also includes the construction of the necessary buildings to house staff and the projects they bring in.

“Personally, this is tremendously rewarding for me,” said Groenewold. “It has been a dream come true to see that what I envisioned and laid the groundwork for more than three decades ago has become an international energy and environmental center of excellence that will continue to make a significant impact on our region, state, and nation.”

–Trish McGuire

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Research Engineer Kyle Palmiscno works with the new pressure swing adsorption equipment used in the hydrogen on-demand process.

On-demand hydrogen fueling system in scale-up

The EERC is scaling up its on-demand hydrogen fueling system for fuel cell vehicles and industrial applications. The system, designed and built with a variety of private sector partners, will be capable of full integration with existing gas station infrastructure, making refueling a fuel cell automobile as easy as refueling a combustion engine-powered car.

The system can produce high-purity, high-pressure hydrogen from a variety of hydrocarbon feedstocks, including alcohols and petroleum-based fuels such as military jet fuel. The technology operates at high pressure

and mixes water into the hydrocarbon feedstock to increase hydrogen yield. The process occurs in two steps. First, in the reformation step, a high-pressure, H₂-rich gas is produced from the pressurized liquid feedstock. Next, in the purification step, the high-pressure gas is stripped of impurities, in particular CO₂, to yield greater than 99.9% pure H₂ at high pressure.

This EERC hydrogen on-demand technology overcomes the infrastructure challenges associated with competing technologies by minimizing or eliminating hydrogen compression, storage, and transport. With the EERC technology, the

hydrogen can be produced on-site at the gas station or on the battlefield, as needed, rather than being compressed and then shipped from a separate location. This EERC Foundation-patented technology is moving toward commercial deployment.

“This state-of-the-art process has the potential to significantly reduce the cost of a new nationwide H₂ production and distribution infrastructure, so that H₂ refueling will be accessible and affordable,” said Ted Aulich, EERC Senior Research Manager.

—Sandy Van Eck

Upcoming events highlight hydrogen

Two collocated events focused on hydrogen will be held at the EERC September 13–15, 2010: Advancing the Hydrogen Economy Action Summit III: A Global Leadership Role for the Red River Valley Research Corridor and the Sixth Annual Mountain States Hydrogen Business Council (MSHBC) Hydrogen Implementation Conference. The two events are being organized and hosted by UND EERC’s National Center for Hydrogen Technology (NCHT), in partnership with U.S. Senator Byron Dorgan’s Red River Valley Research Corridor and the MSHBC.

Topics to be discussed include hydrogen readiness, enabling technology, hydrogen from fossil fuels and renewable sources, transportation, and hydrogen infrastructure and utilization. Tours of the NCHT will be available.

For more information or to register, go to www.undeerc.org/H2Summit.

EERC launches social media marketing

The EERC has entered into a new and somewhat uncharted territory of marketing: social media. There are literally hundreds of social media, social bookmarking, and blog sites available today. You can follow the EERC on the most common: Facebook, Twitter, Flickr, and YouTube. Social media are catching on like wildfire worldwide and have become standard modes of communication for Generation Ys and Zs and Gen Xers, who may not be reached through traditional marketing forums such as newspapers, industry journals, and television. Social media are quickly spanning many older generations as well. In fact, Facebook alone has more than 500 million active members (70% are outside the United States). Many multinational corporations have begun using social media as part of their integrated marketing and communications plans. With social media, the EERC will increase its visibility and be able to reach even more potential clients, partners, and employees in other states and around the world.

Social media marketing, by using a platform that is easily accessible to anyone with Internet access or a smart phone, has completely changed the way organizations communicate with their target market of customers. It opens huge doors for organizations to increase their brand exposure and deliver a direct customer-focused message in an informal way. By utilizing social media, companies can now become part of the everyday, real-time conversations people are having with their friends, family members, coworkers, etc. By utilizing a social media marketing platform, companies can center their efforts to create specified content that attracts attention, generates online



conversations, and encourages readers (who, by the way, have made a conscious choice to follow that organization) to share information with other friends throughout the social media networks—at a cost of next to nothing.

At the EERC, the integrated social media approach circles around promoting events, jobs, and news. The overall goal is to stimulate conversations about the upcoming events, recent news releases, and announcements in order to generate more interest in the EERC and drive more traffic to the EERC Web site. The other goal is to reach potential job applicants with new job openings. Content in the form of tweets, Facebook posts, or videos is posted in an informal way that ultimately builds new relationships and empowers clients with the opportunity to openly communicate with the EERC.

For example, specific elements of the technical program for the upcoming Hydrogen Summit/MSHBC Hydrogen Implementation Conference, September 13–15, 2010, will be featured on a daily basis on Facebook and Twitter. A post that says “Hey, check out the second annual hydrogen

debate at the upcoming Hydrogen Summit!” may spark interest among followers, which would then start a further open dialogue by clients or potential event attendees. Any comments or feedback (positive or negative) are welcomed, which fosters an open dialogue. This would also spark interest in the existing content on the hydrogen programs on the EERC Web site and allow further integration with the variety of EERC programs featured online.

Eventually, the EERC will be hosting a “New Job Fridays” forum on its social media networks, which will feature newly posted EERC positions and provide links back to those open jobs. This way, interested applicants can look forward to seeing any new jobs posted on Fridays. A new recruitment commercial is also in development for the EERC, which will not only be aired on regional television but also featured on YouTube.

This is just the beginning. In the 6 months since the launch of the social media platform, the EERC has already built a following of about 250 organizations and individuals on Twitter and more than 100 on Facebook. Those numbers are growing each day. Much of what has already been posted on the Twitter-feed has been retweeted to other people, which is exactly what it takes to continually grow a fan base. After a 3- to 6-month trial period of our social media campaign, a Web site analysis will be conducted to determine if an increase in traffic has occurred, and adjustments will be made accordingly. The bottom line is that the EERC needs to be a part of social media conversations regarding energy and the environment in order to provide information based on sound science to future generations.

–Derek Walters



Governor of North Dakota John Hoeven delivers the keynote address at the Biomass '10 Workshop.

Biomass '10 draws enthusiastic crowd

Over 300 participants attended the EERC-sponsored Biomass '10: Renewable Power, Fuels, and Chemicals Workshop, a 2-day event at the Alerus Center in Grand Forks, North Dakota. The workshop attracted registrants from 25 states, the District of Columbia, and four Canadian provinces, even drawing a group of over 30 from the Life Sciences Association of Manitoba. Participants came from as far away as Austria, Brazil, China, Italy, New Zealand, and the United Kingdom. Over 60% of this year's attendees represented private industry.

"Biomass '10 is a tremendous event," said North Dakota Governor John Hoeven, who gave the keynote address. "To see so many people in attendance says a lot about what's going on right now at the EERC, which is doing great things, not only for North Dakota, but the United States and the world."

This is the eighth annual biomass workshop of its kind focused on the production of renewable energy, fuels, and chemicals from biomass

feedstocks. Over 40 speakers addressed all aspects of the biomass industry in the four main workshop sessions, which highlighted critical areas of biomass research, technology, and application: Trends and Opportunities in Biomass; Biomass Feedstocks; Biofuels; and Biomass for Chemicals, Heat, and Power.

Workshop Technical Director and Deputy Associate Director for Research Chris Zygarlicke thinks the workshop has the perfect stage here in Grand Forks.

"The cutting-edge quality of information brought forward by the presenters, plus the business activity taking place between all attendees during networking breaks and events, was just excellent," said Zygarlicke.

Biomass '10 was sponsored and organized by the EERC and the EERC's Centers for Renewable Energy and Biomass Utilization through the U.S. Department of Energy, in partnership with the workshop's Signature Sponsor, the North Dakota Department of Commerce Division of Community Services State Energy Program. Other sponsors included *Biomass Magazine*, Barr Engineering Company, Cook Engineering, Fredrikson & Byron, Jamestown Stutsman County Economic Development Corporation, Otter Tail Power Company, Xcel Energy, Fagen Inc., North Dakota Farmers Union, Wells Fargo, and the EERC Foundation.

The Biomass '11 Conference is scheduled for July 26–27, 2011, at the Alerus Center in Grand Forks.

–Sandy Van Eck



A panel discussion on the use of algae as a feedstock included several well-known experts in the field.

photo by Derek Walters

New employees



Rebecca Faulhaber, Project Resource Analyst in the Resource Management Systems Group, works to support researchers, project managers,

and upper management in the areas of cost management, personnel planning, cost projections, developing detail cost proposals, managing and overseeing multiple project budgets, and maintaining the Resource Management Systems databases.

“I like the different projects I get to work on and the variety of my job duties. I also love to work with numbers!” Faulhaber said. “What I like about the EERC so far are the people and the work environment. Everyone has been so nice and helpful, which makes starting a new job a lot more comfortable. The work environment is very positive, and it offers many wonderful opportunities and challenges. It is very satisfying to be a part of a world-class research organization.”

Faulhaber holds a Bachelor of Accountancy degree from UND. Prior to her position at the EERC, she served as a Finance and Operations Intern/Student Account Services Assistant at UND and an Audit Intern with Eide Bailly LLP in Fargo, North Dakota.

Faulhaber’s parents and three sisters still live in Dickinson, North Dakota, where she was born and raised, while another sister lives in Grand Forks. Faulhaber and Brad Lucke, a commodities broker for RML Trading in Grand Forks, welcomed their first child this summer. They enjoy going to the lake, fishing, hunting,

rooting for Sioux hockey, and spending time with family and friends. She reports that they are a very competitive pinocle team. Faulhaber enjoys reading, cooking, and playing golf and softball and would love to do more traveling someday.



Kevin Landsverk was recently hired as a Network Administrator/Computer Specialist in the Computer Systems Group at the EERC, where

he provides technical computer support and assistance with operating system, hardware, software, and network issues. Landsverk worked as a Computer Systems Assistant with the Computer Systems Group at the EERC since 2008, both as a student and a temporary employee. In addition to regular EERC computer support, Landsverk will be setting up and maintaining a supercomputer cluster and building a large network-attached storage server from component parts for the EERC Oil and Gas Group.

“Something that I find most interesting at the EERC is the diversity of challenges I face on a daily basis,” said Landsverk. “Just when I think I’ve seen every error possible, someone manages to find a new one. I can say that I truly enjoy what I do for a living, and it’s a real gift to be able to look forward to going to work each day.”

Landsverk received a B.S. in Mechanical Engineering from UND in May 2010. During his internship for OakRiver

Technology in Oakdale, Minnesota, Landsverk designed customized electromechanical manufacturing equipment and process automation technology that served a specific function in the production of medical devices, such as pacemaker batteries and catheters.

“What led me to engineering was my interest in farming machinery. The complexity of a combine amazed me, and I wanted to be able to understand what everything does,” said Landsverk, a native of Fosston, Minnesota, who still helps his dad on the grain farm on weekends.

Landsverk enjoys playing golf and basketball, riding his motorcycle, watching movies, and going on annual Colorado ski trips to get away from the cold North Dakota winters for a week.

“I know that sounds like a joke,” Landsverk said, “but last year, it was 50° warmer there than in North Dakota.”



Bobbie Rakoczy has joined the Workflow area as a Research Information Associate where she assists in the development of contract-funded research

programs (proposals) and provides administrative support in the successful production and completion of research projects, including preparing proposals, reports, technical papers, presentation materials, and other documents.

Continued on page 6

New employees (continued)

“I like being a part of a bigger picture, in a small way helping to make the environment a better place for everyone. That’s important to me,” said Rakoczy. “I like the people and the atmosphere at the EERC, and I’m excited about learning everything I can about this new occupation. I have always wanted to help people improve or maintain their health, so my education and experience have been in health care in one way or another. I see working at the EERC as another way to help people stay healthy.”

Rakoczy has an Associate’s Degree in Surgical Technology from Northwest Technical College in East Grand Forks, Minnesota. Before coming to the EERC, she worked as an Occupations Coordinator for Noridian Administrative Services for 4 years, where she performed quality assurance reviews and developed and implemented staff training. Previously, she worked as a Claims Administrator for Valley Health & WIC in Grand Forks for 5 years and as an administrative assistant, surgical technologist, and therapy assistant before that.

A native of the Grand Forks/East Grand Forks area, Rakoczy now lives in Reynolds, North Dakota. She and her husband, a heavy equipment operator, have two children, a daughter in college pursuing a nursing degree and a son who is a Marine stationed in California.

“When we all get together, we eat . . . and we take vacations to amusement parks. My family is a bunch of thrill ride junkies!” Rakoczy said, laughing. She loves to read and take winter vacations to warm climates.

Transitions



Jason Braunberger was recently hired as a Research Scientist at the EERC, where he was previously employed as a Research Specialist.

Braunberger’s work focuses on deep sedimentary geology and geographic information system (GIS) applications. Specifically, his work includes developing geophysical models of the subsurface, performing regional geological characterizations for clients, and performing petrophysical analyses of geophysical well log data. Braunberger’s principal areas of interest and expertise include GIS, global positioning systems (GPS), cartography, geodatabase management, geology, mineralogy, and entrepreneurship.

“I couldn’t ask for a more opportune moment to advance my career as a

geologist. The Oil and Gas Group presents a new challenge every day, testing my skills and determination. It’s gratifying to get a chance to work and learn with such an elite research group here at the EERC,” Braunberger said.

Before he came to the EERC, Braunberger was a GIS Technician for the Fargo Park District in Fargo, North Dakota. He holds a B.S. degree in Geological Sciences from North Dakota State University.



Dr. Ramesh Sharma has been promoted to the position of Research Manager at the EERC, where he manages projects and personnel

focused on developing new technologies and processes for alternative fuels and specialty

chemicals from renewable and fossil-based feedstocks.

“I feel very fortunate to be working at the EERC,” said Sharma. “I look forward to the setting up of a pilot-scale liquefaction facility at the EERC to produce fuels from coal and biomass. It is both an exciting and a challenging task for me. I really enjoy working to address the challenges of producing sustainable and environmentally responsible energy alternatives.”

Sharma has been a Research Scientist with the EERC since 1988. Prior to the EERC, Sharma was a Visiting Scholar at the University of Toledo and then an Assistant Professor at the University of Massachusetts. Sharma received his M.S. (Honors) and Ph.D. degrees in Chemistry from Panjab University in India.

–Sandy Van Eck



Kujawa, Ford, and Richter await their turn to give blood.

Gift of life

Tim Kujawa, Research Specialist; Jim Ford, Technology Development Technician; and John Richter, Research Associate, are donating a pint of whole blood every 8 weeks depending on their work schedules. While others at the EERC have donated blood, including Technology Development Operators Kelly Fox and Ray Johnson, the trio has been doing it for over 20 years.

To date, Ford has donated over 7 gallons, Richter over 10 gallons, and Kujawa over 13 gallons.

“I have quite a track record,” Kujawa said pointing to his arm.

The three donate at the Dak-Minn Blood Bank located in Altru Hospital. According to the Dak-Minn Web site, each donation of blood (a pint) can be divided into three components (red blood cells, plasma, and platelets) and given to three different people. With each gallon (8 pints), 24 people could potentially receive lifesaving transfusions.

The establishment of the International Red Cross (1863 – Sweden) and the American Red Cross (1881 – United States) brought stability in the form of blood drives that would take the vital need worldwide. During catastrophic circumstances, such as natural disasters, war, or terrorism, more people tend to donate blood.

“After 911, all kinds of people donated,” said Kujawa.

Yet the need for blood donations on a regular basis also helps those who have medical or surgical needs (red blood cells), are suffering from accidents or burns (plasma), or need assistance in the clotting process or for transfusions for cancer or open-heart surgery (platelets). Red blood cells can be stored up to 42 days and plasma frozen up to 1 year, but platelets can only be stored for 5 days.

Even as these men minimize their efforts, they are the first to encourage others to donate blood as well.

“It’s something anyone can do,” said Ford. “It doesn’t cost you.”

“And they monitor your blood pressure and cholesterol, check your iron,” said Richter. “It’s a great way to see how you’re doing.”

In the early 1990s, Kujawa, Richter, and Johnson were in a commercial for the blood bank, which was shot in the slurry building (Building P) by WDAZ Television. The commercial was part of the blood bank’s media push that even today includes notices and radio ads that let people know of a certain blood type needed or an upcoming campaign for general donations.

The need for this gift of life can never be underestimated. In emphasizing this, Ford offered a metaphor, saying, “If you don’t have a parachute when you need it, it’s too late.”

–Trish McGuire

Dak-Minn Blood Drive

On September 22, from 9 a.m. to 3 p.m., the EERC will host a Dak-Minn Blood Bank draw. The event will be open to EERC staff as well as their friends

and family. Call LaRae Foerster at 777-5246 for more information.



The next generation watches intently as Jeffrey Salvesson (offscreen) creates magic at the EERC picnic.

Sweet, sweet summertime!

It's not all work and no play at the EERC! The annual EERC picnic provided eats and treats for an ever-growing number of EERC employees and their families. Also, in what has become a summer tradition, EERC employees held a bocce ball tournament and a beanbag toss over the lunch hours on-site at the EERC in June and July and held a golf tournament in August.

The 2010 annual EERC picnic was held Tuesday, August 17, at Lincoln Park in Grand Forks. Over 350 EERC employees and their families enjoyed brats, steak burgers, and all the trimmings catered by Quality Catering of Ada, Minnesota. Back this year by popular demand was a visit from the ice cream truck. A new treat for young and old alike was a magician, who enthralled the kids with balloon tying, magic tricks, and even a real live bunny.

The bocce ball tournament involved eight teams of five players, who competed for "pride and bragging rights," according to Andy Palmiscno, who was on the bocce tournament planning committee. The Accounting team of Uta Thompson, Ginny Sobolik, Jeanie Clement, Laurie Kroke, and Trish

Belker defeated the Administrative Resources team of Janelle Ensrud, Nola Pithey, Bonnie Hillerud, Angie Morgan, and Kari Gagner for the championship spot.

The beanbag toss consisted of 12 two-person teams from groups across the EERC. Teams were paired randomly except for the team of Rhonda Olson and Anne Fiala, who wanted to defend their championship title from last year. Coincidentally, they won this year's event also.

"While we did not go through this year's tournament undefeated as we did last year, we are thrilled to have won the championship round and title again this year," said Fiala.

This year's EERC golf tournament at Valley Golf Course in East Grand Forks was broken up into two flights, competitive (with handicaps) and recreational, and attracted 12 teams of four players. Earl Battle, Phil Bellmore, Dennis Kyle, and Brad Stevens won the competitive flight, while the recreational flight was won by Lenny Belker, Jenna Belker (who played in mom Trish's stead), Bonnie Hillerud, and Lonnie Hillerud.

"This is the first year we've held the tournament on a Friday," said Andy Palmiscno, who was also on the golf tournament planning committee. "It worked out well. It let people wind down from the workweek and ease into the weekend."

—Sandy Van Eck



photo by Sandy Van Eck

Damion Knudsen's daughter shows off her balloon mouse.

GASIFICATION SHORT COURSE

September 29, 2010
The Woodlands Marriott
The Woodlands, Texas

EERC EDGE

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