

New Employees



Juan Pedraza joined the EERC as a Technical Editor. Pedraza, who holds a B.A. in International Studies from the University of North Dakota, edits proposals, technical reports, conference papers, journal submissions, and other documents. Impressed with the EERC's research reputation and facilities, the former journalist was eager to join the EERC staff. "I'd heard great things about the EERC," he said, while working at the UND Facilities Department and pursuing his master's degree in geography the past few years. Pedraza's interest in geography reflects his life experience. Born in Madrid, Spain, he spent his early youth in Portugal before immigrating to Miami with his family when he was 10 years old. His father's careers as a diplomat and journalist took Pedraza to the Caribbean, Central and South America, North Africa, and

Europe. Pedraza volunteered for the draft in 1969 and attended the Defense Language Institute in Anacostia, Maryland. He spent 10 years as a Russian linguist, first with the U.S. Army, then with the U.S. Naval Reserve. After a couple of years in juvenile law enforcement in Alameda, California, Pedraza moved to North Dakota. He worked for 13 years at the Grand Forks Herald, including several years as editor of *Agweek* magazine, and has also been employed as a stockbroker, auto mechanic, translator, tour guide, sheet rocker, roofer, broadcast journalist, grain exporter, and milkman, a diverse background he takes pride in. "In many European countries, vocational direction is often set at an early age; in America, I can do anything, because it's possible," he said. Pedraza and his wife, Debra, a St. Hilaire, Minnesota, native and cardiovascular technician who now works at Red River Family Chiropractic, operated their own consulting business as well, helping small grain companies to become registered suppliers to federal and international food aid programs, primarily in Russia, Haiti, and Senegal. Pedraza, who is fluent in seven languages, is an avid reader who enjoys music and traveling.

Senator's Summit (continued)

move the energy where it's needed." He said transmission gridlock is a particularly vexing problem.

Dennis Hill, Director of the North Dakota Rural Electric Cooperative Association, agreed and said any increase in energy production depends on the in-state and intrastate high-voltage transmission network. "If North Dakota is to increase its electricity production, there's a critical need to pay attention to high-voltage transmission development," he said.

Despite its immense wind resources, North Dakota ranks 13th in the nation in number of wind farms currently operating, said Jay Haley, founding chairman of the Wind Energy Council. "The challenge is that we need a road to the marketplace," he said, as well as a "stabilized production tax credit that we can count on as we plan financially and hit our full stride."

Wind energy, Haley said, "is a tremendous form of economic development. The community of Edgely has been revitalized because of a 60-MW wind farm."

Conrad cited one company that alone would like to invest \$1.3 billion in "wind production in North Dakota if we can get a permanent wind production tax credit and if transmission issues are resolved."

North Dakota, the sixth largest energy producer in the country, also offers seven other key energy resources: oil, coal, biomass, hydro, hydrogen, coal gasification, and ethanol, said EERC Director Gerald Groenewold. "North Dakota plays a great role and could play an even greater role in securing our energy independence," he said. "And the EERC can be a significant part of that."

The EERC conducts wide-ranging research involving nearly all of those resources. For instance, the EERC is currently engaged with the state's oil industry and the Dakota Gasification Company in enhanced oil recovery efforts, said Ron Ness, Director of the North Dakota Petroleum Council. The goal is to sequester carbon dioxide emissions from the gasification plant for use in oil production. The project currently involves 22 fields, he said, "with the potential to recover 216 million barrels of oil and add 10 to 20 years of life to those fields." North Dakota produces 85,000 barrels of oil a year from 3400 wells.

North Dakota's lignite industry, which accounts for about 20,300 direct and indirect jobs in North Dakota and has a \$1.6 billion economic impact, is also poised to meet expanding energy needs, said David Loer, CEO of Minnkota Power Cooperative, Inc. Lignite is the source of 90% of the electricity used in North Dakota and 10% of the electricity used in the Midwest region. "There are an estimated 30 billion tons of lignite resources in North Dakota. That's a 1000-year supply at present usage," he said.

North Dakota crops offer another part of the energy solution, said Robert Carlson, president of the North Dakota Farmers Union. North Dakotans annually consume 890 million gallons of gasoline, one-third of which is blended with ethanol. Currently, 116 million bushels of corn, 4 million bushels of soybeans, and 1 million bushels of canola are used in energy production. "It's good for farmers, it's good for North Dakota, and it's good for the environment," Carlson said.

Conrad said that a major biodiesel facility currently being negotiated in North Dakota would benefit farmers, consumers, and the economy, potentially creating thousands of jobs. The Summit, he added, "will advance such solutions for the people of North Dakota, the people of the United States, and the world. We have an opportunity here to make a meaningful contribution."

— Janie Solarski



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"Ya Gotta Wanna"

Janie Solarski, Editor



EERC Director Gerald Groenewold and U.S. Senator Byron Dorgan.

Groenewold Honored for Energy Innovation

Gerry Groenewold, Director of the Energy & Environmental Research Center, was honored with the Excellence in Innovation Award by the Alliance to Save Energy (ASE). Alliance Chair and U.S. Senator Byron Dorgan presented the award during an awards dinner in Washington, D.C., December 9, 2004.

The award, the first of its kind, recognizes Groenewold's work in helping to shape the national energy debate and uphold a continuing legacy of strong leadership in the field of energy efficiency. In its 27-year history, ASE has proven to be one of the foremost leaders in the world on efforts to improve energy efficiency through technology, research, and public policy.

Dorgan, a member of the Senate Energy Committee, has chaired ASE's board since November 2001 and has helped to direct millions in research funding to the EERC as a member of the Senate Appropriations Committee. Recently, he was influential in helping the Center get \$3 million for hydrogen technology development. Dorgan said Groenewold is a driving force behind that effort.

"From Grand Forks, North Dakota, Dr. Gerry Groenewold is laying the bricks and mortar for our nation's future energy policy with his innovation and relentless drive to look to what comes next," Dorgan said. "Lessening our country's dependence on foreign oil is now a matter of national security. Thanks to the top-notch research being done at the EERC

Summit to Tackle Energy Issues

While the United States may be the strongest and most powerful nation on Earth, its energy dependence on the rest of the world makes it increasingly vulnerable to geopolitical instability, according to U.S. Senator Kent Conrad.

Instability, particularly in the Middle East, could be extremely costly, said Conrad, who announced plans in December to convene an Energy Security Summit at the Energy & Environmental Research Center (EERC) March 21–22. Citing Congress's failure to enact an energy bill last fall, Conrad said the summit would bring together energy strategists from across the country and North Dakota to discuss how North Dakota can play a greater role to make the country more energy independent.



U.S. Senator Kent Conrad announces plan to address energy security issues.

"Gas is 57 cents a gallon more now than it was a year ago, our energy transmission grid has too many bottlenecks, and natural gas prices are climbing. These are national problems—but part of the solution lies right here in North Dakota," Conrad said. "We need secure, domestic sources of energy like what we have to offer in North Dakota."

North Dakota possesses the nation's number one wind resource, "and it's blowing right through here," Conrad said. "To harness it, we have to have the transmission capacity to

Family Spurs Tsunami Victim Relief Effort

When Madhavi Marasinghe saw the television images resulting from the powerful December 26 undersea earthquake and Indian Ocean tsunami that inundated 12 countries, she was shocked at the devastation, particularly in her native land of Sri Lanka, where at least 30,000 lives were lost, 40% of whom were children.

"It was unbelievable," said Madhavi, an EERC Programmer/Analyst. "We knew so many people there." Madhavi and her husband, Kanishka, an Associate Professor of Physics at UND, left their island nation homeland in 1986.



Dhilhan Marasinghe boxing clothes for tsunami victims.

Kanishka, an only child, has no immediate relatives in Sri Lanka. Madhavi's immediate family moved to Australia 7 years ago, but she has some extended relatives in Sri Lanka. "They live inland, so they were not affected, but we did lose some of our friends," she said.

Madhavi said she was in disbelief as she watched the aftermath and amateur video of the massive waves up to 50 feet high that left an estimated 200,000 or more dead or missing and a million or more displaced. "We were glued to the TV. For two weeks, nonstop, we watched," she said. "It was really affecting our lives."

The Marasinghes quickly reached out to the people of Sri Lanka, which is about one-third the size of North Dakota and has a population of nearly 20 million.

"As soon as it happened, my husband called a Sri Lankan Buddhist temple in New York to see what we could do," she said. "They said that they planned to send shipments to Sri Lanka every 2 weeks and they needed clothing."

The Marasinghes began collecting summer clothing, linens, towels, and dried food items. Madhavi e-mailed EERC employees of their plans, and Sue Bartley, EERC Human Resources Manager, and Joyce Sundby, EERC Personnel Assistant, began coordinating the collection. Kanishka began talking to others on campus.

"I was amazed at how fast word got out," Madhavi said. "Quite a few departments collected on campus, and we got calls from as far away as Jamestown." Teachers at an area day care collected boxes of children's clothing, others brought items to the couple's home, and Kanishka drove around picking up loads on campus. As materials started piling up in their home, the Marasinghes and their daughter, Lalangi, 10, and son, Dhilhan, 14, began sorting and packing.

"The children were so helpful. We did a little at a time every night at first," she said, but the bulk of the packing was completed over a long weekend. Altogether, the family shipped out 45 large boxes of goods, including a dozen boxes of children's clothing.

"It's amazing how much we got from everyone. We want to thank people for their generosity," she said. "It is so good to help others. And we will continue to help in any way we can."



Lalangi Marasinghe amid mountains of donated clothing.

Madhavi is now working to encourage involvement among area schools, perhaps having children put on goodwill concerts in the malls. "It's a good opportunity for children to learn about other people and other cultures and a good opportunity for them to help others," she said.

— Janie Solarski

EERC Plans Courses on Ash and Mercury Issues

The Energy & Environmental Research Center will be taking its expertise on the road in 2005, offering the "Ash Behavior" and "Mercury Control" short courses in five locations throughout the country beginning in March.

"The courses are designed to help utilities, coal companies, and equipment vendors better understand the impact of ash behavior on overall power plant performance and learn the latest information about the most effective mercury measurement and control technologies that exist," said Steve Benson, EERC Senior Research Manager.



The courses will include a 1-day presentation on ash transformation and deposition and a 1-day presentation on mercury transformation and emission control. The EERC has more than 50 years of experience in coal combustion research involving all ranks of coal, including lignite, which is found in North Dakota, subbituminous coal, and eastern bituminous coal.

The ash transformation presentation is designed to follow the processes influencing ash formation and deposition from initial combustion to final deposition. Participants will learn how ash forms and moves through the boiler, how it adheres to boiler walls, and how its deposits grow, decreasing plant efficiency.

The impact of ash deposition on power generation costs will be discussed, as well as a step-by-step methodology to solve and prevent ash deposition problems, said Mike Jones, EERC Senior Research Advisor. "It's the single biggest issue for many utilities burning coal. Ash problems can cost utilities millions of dollars per power plant," he said.

Jones said the second-day presentation on mercury is particularly timely in light of proposed regulations to curtail power plant mercury emissions, scheduled to be announced in March 2005. Power plants in the United States burn nearly 1 billion tons of coal annually, resulting in about 48 tons of mercury emissions a year, 40% of the total human-produced mercury emissions in the United States.

"Mercury control is currently one of the highest-priority items for utilities, so we expect interest in this course to be high," Jones said.

The course will provide participants an update on the new regulations; a discussion of the distribution of mercury in coal and how mercury transforms to various forms during coal combustion; and a review of current research efforts, including those under way at the EERC, a leading research center on mercury and other toxic metal emissions. The status of various mercury

measurement techniques, their level of precision and accuracy, and their costs will be reviewed, and various control technologies will be assessed.

In addition to Benson and Jones, the following EERC personnel will serve as course presenters: Mike Holmes, Senior Research Advisor; Don McCollor, Technical Manager; John Pavlish, Senior Research Advisor; Jason Laumb, Research Manager; and Li Yan, Research Engineer.

Funding for the short courses comes from participant registration, the U.S. Department of Energy, and the EERC. Texas may be the site of the first presentations in March. Others are tentatively scheduled in Arizona, Hawaii, Kentucky or Tennessee, and Grand Forks.

Groenewold Honored (continued)

under Gerry's guidance, the nation can look forward to a future of hydrogen fuel cells, biomass, and wind energy."

ASE attributes its choice of Groenewold to his leadership of the EERC, saying that since he took the reins in 1987, "this Center has become world-renowned for pursuing practical, market-driven approaches with its national and international clientele to saving energy and protecting the environment." The group also cites his efforts to reduce dependence on foreign oil with technologies for advanced coal utilization systems, emission capture, fuel cells, renewable energy, CO₂ emission reduction, and water use minimization.

Upcoming Events

February 23–24, 2005

Renewable Energy in the Upper Midwest (formerly the Wind Energy and Rural Development in North Dakota Conference and combined with the former Biomass Energy Workshop), Alerus Center, Grand Forks, North Dakota

March 21–22, 2005

Senator Conrad's Energy Security Summit, EERC, Grand Forks, North Dakota

April 18, 2005

Senator Dorgan's Red River Valley Research Corridor Hydrogen Event, EERC, Grand Forks, North Dakota

September 19–21, 2005

Air Quality V: Mercury, Trace Elements, and Particulate Matter Conference, Arlington, Virginia

In the News

International Symposium on Environmental Concerns of Rights-of-Way Management, Saratoga Springs, New York, September 13–16, 2004: James Evans (EERC) coauthored a paper with C. Tammi, A.M. Desilets (ENSR International), and V. Servastava (Parsons) entitled "A Horizontal Directional Drilling Best Management Practices Manual." Evans also coauthored a paper with S. Reid (Watershed Science Center, Trent University) and S.M. Metikosh (Golder Associates, Ltd.) entitled "Overview of River and Stream Crossing Study."