EERC
Energy & Environmental Research Center®

UND University of North Dakota
Grand Forks

EERC ECONOMIC IMPACT

EERC Technology – Putting Research into Practice

The EERC has an estimated regional impact of more than $90 million.

Creating Opportunities

The Energy & Environmental Research Center (EERC) at the University of North Dakota (UND) is recognized internationally for its expertise in the development, demonstration, and commercialization of advanced energy systems and pollution prevention and cleanup technologies for air, water, and soil.

Established as a federal research and development facility in 1951, the EERC has been part of UND since 1983 when it was defederalized by the U.S. Department of Energy (DOE). Today, the EERC is recognized as one of the world's leading developers of energy and environmental technologies.

Director Gerald Groenewold

Through its development of innovative, practical solutions to today's pressing energy and environmental problems, Director Gerald Groenewold says the EERC is helping the area economy grow. "The Center is one of the best examples in this region of new wealth creation."

Because of the entrepreneurial, market-driven culture of the EERC, its impact on the regional economy is substantial. The EERC has fostered the creation of several new businesses in the Grand Forks region that are based on technology and expertise developed at the EERC. It also commercializes innovative technologies and processes through partnerships with private industry; local, state, and federal government; and the research community.

Poised for Further Growth

Opportunities in the energy and environmental arenas are dynamic, and the EERC expects rapid growth in the very near future. As a result of the EERC's National Center for Hydrogen Technology (NCHT), numerous private industry partners have committed to developing new business and manufacturing opportunities in the state as technologies are developed, which will lead to hundreds of new, high-quality technical jobs. Because of highly strategic Centers of Excellence programs that address critical worldwide energy and environmental issues, the EERC expects to grow to more than 550 employees within the next 5 to 7 years.

Global Partnerships

The EERC is international in scope. It has established working relationships with numerous organizations from all corners of the globe and attracted them to the Grand Forks area. Since 1987, the EERC has had over 1000 clients in 50 countries and all 50 states, involving individual contracts and multiclient consortia with private industry, federal and state agencies, and academic institutions. In FY07, over 84% of the EERC's contracts were with private sector clients. The EERC averages over 2000 visitors a year, which include many international and student groups.

The EERC's new 15,000-square-foot facility for the National Center for Hydrogen Technology is expected to augment hydrogen-related programmatic growth, resulting in 50 to 100 new high-paying technical jobs at the EERC and facilitating at least 50 to 100 new private sector jobs in the Grand Forks region.

A Resource for Jobs

While pursuing its mission to address critical technical issues, solve problems, and help society, the EERC provides environmentally friendly, high-tech jobs that pay well. "It's a shame that we provide our children with quality educations, only to have them leave the state," Groenewold says. "The economic future of this region depends on the types of jobs the EERC is providing."

The EERC employs an exceptionally talented and diverse group of people whose work attracts business from around the world. While people from all corners of the globe can be found at the EERC, nearly 80% of its employees come from North Dakota and Minnesota, and 60% of degreed employees are graduates of the North Dakota University System.

One of the biggest employers in the Grand Forks region, the EERC gives the region's young professionals a good reason to live and work in a place they call home.

Within the next 2 years, the EERC will be providing direct and indirect employment for approximately 1200 people in the greater Grand Forks area (using the U.S. Department of Commerce's Regional Input–Output Modeling System II formula). According to DOE, the 16 coal and power projects currently under way at the EERC are worth a total of $120 million and provide approximately 3423 direct and indirect jobs regionwide.

Student Employment

At any point in time, the EERC employs more than 30 students from UND and other academic institutions, ranging from undergraduates to postdoctorates. Students have come from across the nation and many countries throughout the world, including the Czech Republic, Poland, India, Ukraine, China, Germany, France, South Africa, and Russia, to take advantage of the opportunity to gain firsthand experience with the Center's team of scientists and engineers.

EERC Facts

History

1951 – Established as U.S. Bureau of Mines Robertson Lignite Research Laboratory.

1977 – Designated as one of five Energy Technology Centers with DOE.

1983 – Defederalized.

– Facilities given to University of North Dakota.

– Renamed UND Energy Research Center.

1989 – Renamed UND Energy & Environmental Research Center.

1994 – $7.6 million expansion of labs and pilot plant facilities completed.

1997 – April flooding of the Red River forces the EERC to close for 20 days.

– EERC flood damages estimated to $40 to $45 million in lost equipment and business.

1998 – EERC laboratories damaged in flood become fully operational.

1999 – Annual contract awards exceed $11 million.

2000 – Annual contract awards exceed $15 million.

2001 – Celebrated 50 years of innovative energy and environmental research.

2002 – Broke ground on $8 million addition/renovation.

2003 – 47,000-square-foot expansion and renovation project opens. Annual contract awards exceed $17.5 million.

2004 – Annual contract awards exceed $26.5 million.

2005 – Annual contract awards exceed $29 million.

2006 – Contract awards exceeded $45 million in fourth consecutive record year.

Broke ground for new 15,000-square-foot hydrogen facility.

2007 – Proposal number exceeds 300, valued at over $138 million.

EERC Professionals

Chemistry
Analytical Chemistry
Applied Chemistry
Biochemistry
Electrochemistry
Environmental Chemistry
Fuel Chemistry
Geochemistry
Hydrochemistry
Inorganic Chemistry
Organic Chemistry
Physical Chemistry
Process Chemistry

Engineering
Aerospace Engineering
Agricultural Engineering
Biochemical Engineering
Chemical Engineering
Civil Engineering
Electrical Engineering
Electrochemical Engineering
Energy Engineering
Engineering Management
Environmental Engineering
Geological Engineering
Industrial and Management Engineering
Mechanical Engineering
Petroleum Engineering
Sanitary Engineering
Thermal Engineering

Sciences
Anthropology
Applied Physics
Archeology
Bacteriology
Biology
Biomedical Research
Computer Science
Earth Science
Environmental Biology
Environmental Microbiology
Environmental Geology
Environmental and Natural Resources
Environmental Science
Fuel Science
Geography
Geohydrology
Geological Sciences
Geology
Geophysics
Hydrogeology
Material Science
Mathematics
Microchemistry
Microbiology
Mineralogy
Natural Sciences
Paleontology
Petroleum Geology
Physical Science
Physics
Theoretical Physics
Water Resource Management

Other Disciplines
Accounting
Architectural Drafting
Business
Business Administration
Communications
Community Counseling
Computer Information Systems
Economics
Education
Electric Construction
Electronics Technology
Energy Resources
English
English Literature
Environmental Technology
Fine Arts
French
General Agriculture
German
History
Humanities
Industrial/Organizational Psychology
Industrial Technology
Information Systems
Information Technology
Law
Legal Assistance
Library Science
Management
Management Information Systems
Marketing
Microcomputers/Networking
Nursing
Office Administration
Photography
Political Science
Psychology
Reading Education
Refrigeration/Air Conditioning
Research Methodologies
Secretarial
Speech
Technology Assessment and Management
Television
Travel and Tourism
Visual Arts

Technical Expertise and Capabilities
Administrative Assistants
Certified Welders
Computer Programmers
Database Analysts
Database Managers
Electrician
Electronic Technicians
Financial Analysts
Graphic Designers
Instrumentation Technicians
Machinists
Machine Tool and Die
Metallurgists
Technical Editors
Technology Demonstration Unit Operators

Economic Impact

Contracts

- In FY07, the EERC had 442 active contracts, of which 84% were with private sector clients.

Employment

- Total employment of over 300 scientists, engineers, and support personnel, including 20 full-time-equivalent employees supported elsewhere on UND campus.
- 57% of employees are from North Dakota.
- 21% of employees are from Minnesota.
- 53% of degreed employees are graduates of UND.
- 60% of degreed employees are graduates of the North Dakota University System.

Travel

- $1 million a year spent on travel. The EERC fosters personal relationships with its clients.

Visitors

- An average of three groups a week.
- The EERC averages more than 2000 visitors a year, which include many international visitors and students (preschool through university).
- Total expenditures in FY07 were at more than $27 million, with an estimated regional impact of more than $94.5 million.

EERC Summary

Philosophy and Mission

To improve global quality of life by providing leadership in visionary multidisciplinary research and development leading to the demonstration and commercialization of innovative, clean, and efficient energy and environmental technologies addressing the protection of air, water, and soil worldwide.

The EERC emphasizes true working partnerships between private industry, government agencies, academic institutions, and the research community. By fostering private sector partnerships from the initiation of a research and development program, the opportunities for technology commercialization are dramatically enhanced.

Programs

Advanced Power and Energy Systems
Energy Conversion System Optimization
Environmental Chemistry
Environmental Control Technologies (particulates, air toxic metals, SO_x, NO_x, and CO_2)
Fossil Energy Resources (oil, gas, and coal)
Hydrogen Production, Distribution, and Fuel Cell Technology
Renewable Energy
Waste Utilization, Management, and Site Remediation
Water Management (availability, contaminant remediation, and flood and drought protection)

Centers of Excellence

Coal Utilization Technologies Center
Emission Control Technologies Center
The National Center for Hydrogen Technology (NCHT)
Center for Climate Change and CO_2 Sequestration
Center for Air Toxic Metals® (CATM®)
Centers for Renewable Energy and Biomass Utilization
Water Management Center
National Alternative Fuels Laboratory® (NAFL®)
Supercritical and Subcritical Extraction Technologies Center
Coal Ash Research Center

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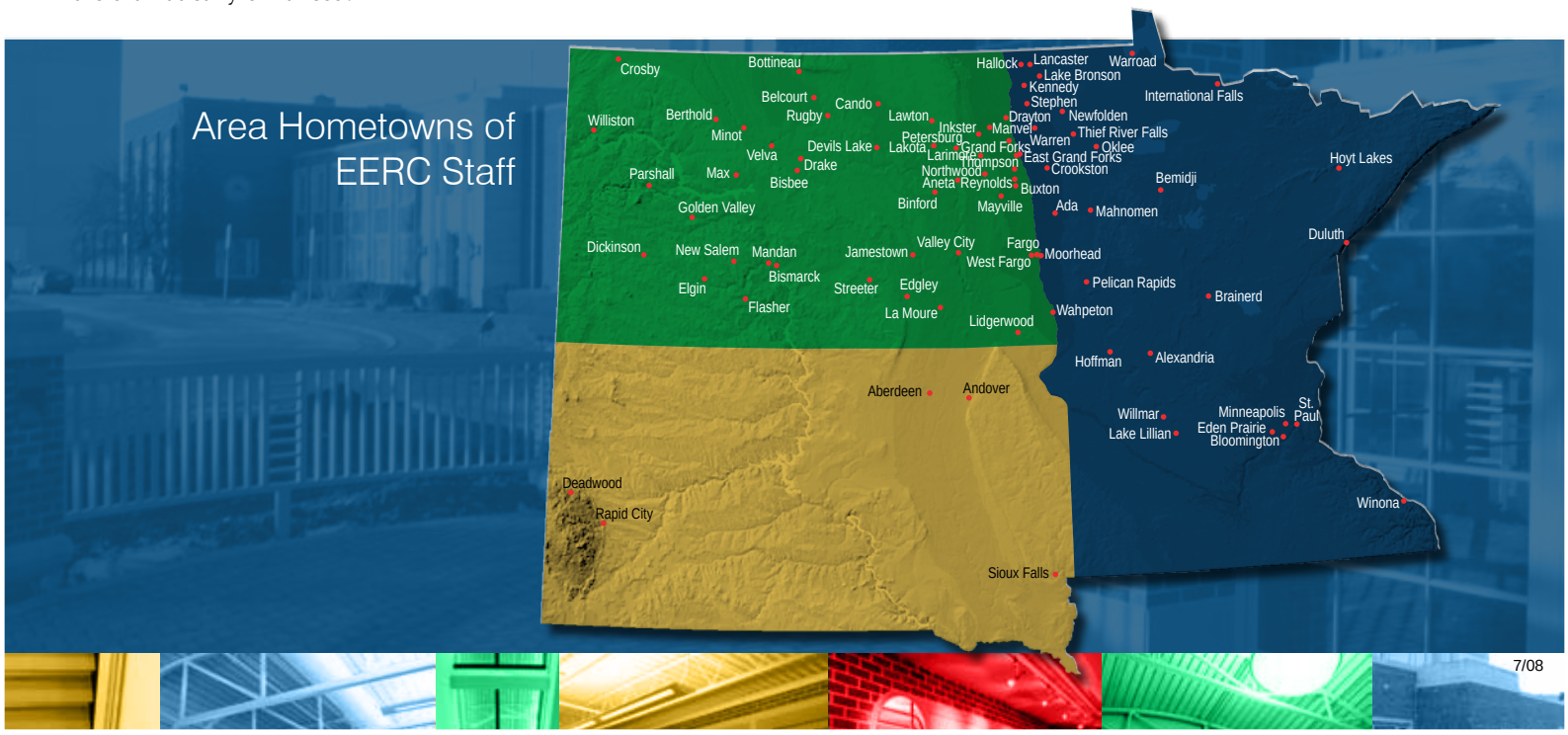
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