

DEVELOPING WORKING
PARTNERSHIPS



EERC

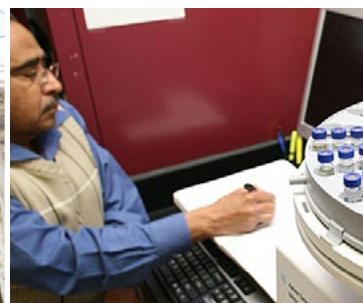
Energy & Environmental Research Center®
Putting Research into Practice

CENTERS OF EXCELLENCE

EFFICIENT ENERGY TECHNOLOGIES

LEVERAGES AND ENHANCES
CLIENT RESEARCH DOLLARS

Energy & Environmental Research Center



ENVIRONMENTAL TECHNOLOGIES
TO PROTECT AND CLEAN OUR
AIR, WATER, AND SOIL

INDUSTRY, GOVERNMENT, AND THE
RESEARCH COMMUNITY

UND THE UNIVERSITY OF
NORTH DAKOTA

www.undeerc.org



THE ENERGY & ENVIRONMENTAL RESEARCH CENTER (EERC)

is a research, development, demonstration, and commercialization facility located in Grand Forks, North Dakota, recognized as one of the world's leading developers of cleaner, more efficient energy technologies as well as environmental technologies to protect and clean our air, water, and soil.

The EERC, a high-tech, nonprofit division of the University of North Dakota (UND), operates like a business and pursues an entrepreneurial, client-driven approach to research and development in order to successfully develop innovative solutions to pressing client challenges.

DEVELOPING
WORKING
PARTNERSHIPS

WORLD-CLASS

Our Vision

To lead the world in developing solutions to energy and environmental challenges.

Our Mission

The EERC is a unique organization dedicated to providing practical, pioneering solutions to the world's energy and environmental challenges. We accomplish this mission through:

- **Our people**—an extraordinary team of scientists, engineers, and support staff who work together across disciplines and, with our state-of-the-art facilities and capabilities, are the foundation of our organization and sought after worldwide.
- **Our partnerships**—a rich history of trusted, dynamic working relationships with industry, government, and research entities throughout the world, the clients we serve.
- **Our priorities**—unparalleled responsiveness to critical global issues and the organizations with which we partner and recognition as a progressive global leader working to make the world a better place in which to live.

A Valued Asset: ***Our People***

The EERC employs an exceptionally talented and diverse group of people whose expertise helps meet the needs of our clients worldwide. Currently, the EERC employs 220 in-house scientists, engineers, and support personnel, representing 140 disciplines.



“

The EERC is a first-class organization, with highly motivated and experienced professionals and technicians.... One of the best—or the best—R&D facilities in the United States and World...”

—U.S. Department of Energy evaluation report

Global Partnerships

The EERC is international in scope. It has established working relationships with clients from all corners of the globe. Since 1983, the EERC has had over 1300 clients in 52 countries involving individual contracts and multiclient consortia with private industry, federal and state agencies, and academic institutions. Over the years, several companies have had corporate offices at the EERC.

EERC QUICK FACTS: FY14

Total research portfolio:

\$202.5
million

Contract funding:

\$24.5
million

EERC research
represents
over



of the total
externally
funded
research at
UND based
on dollar
value.

Total
active
contracts: **216**



of
contracts
were with
nonfederal
entities



of
contracts
were with
private
industry

Total employees:

220

Total clients: more than

1300

Total Web site traffic:

295,577
page views

Visitors a year:

1220

Specialized Expertise

Strategic Solutions

We are addressing the most critical energy and environmental challenges facing our clients through innovative science, engineering, and technologies. Our research portfolio consists of a wide array of expertise, including oil and gas, clean coal technologies, carbon capture and sequestration, energy and water sustainability, hydrogen technologies, air toxics and fine particulate control, mercury measurement and control, alternative fuels, biomass technologies, water management strategies, global climate change, waste utilization, energy-efficient technologies, and contaminant cleanup.

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Centers of Excellence

Center for Oil and Gas

The Center for Oil and Gas is focused on the design and implementation of new approaches to the exploration and development of oil and gas plays, such as the Bakken system. Working closely with industry and government agencies, the Center for Oil and Gas has developed tools and approaches specifically focused on resource assessment and optimization of exploration and production performance.



Coal Utilization Technologies Center

The EERC (and its predecessor organization) has been developing and enhancing coal technologies for over 65 years and is the client's choice for research, development, demonstration, and commercialization of coal, with special emphasis on low-rank coal. EERC research and development programs are designed to embrace all aspects of energy-from-coal technologies from cradle to grave, beginning with fundamental resource characterization and ending with waste utilization or disposal.



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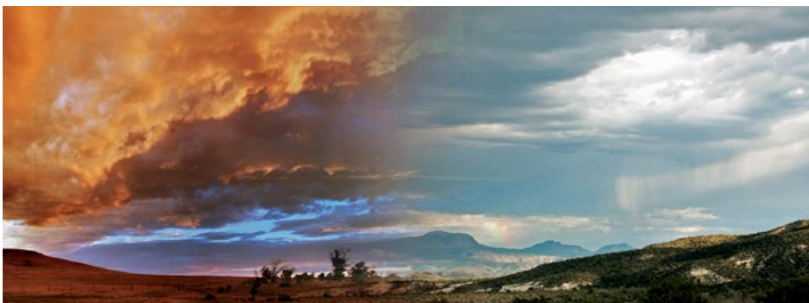
Emission Control Technologies Center

Clients recognize EERC for our groundbreaking work in the development of control technologies to reduce emissions from mobile and stationary sources worldwide, including SO_3 , NO_x , SO_2 , CO_2 , mercury, and fine particulate matter. Our Emission Control Technologies Center has conducted hundreds of client-driven projects ranging from fundamental studies of system interactions to pilot- and full-scale slipstream testing of advanced technologies that offer solutions to meet clean air requirements well into the future.



Water Management Center

Water is the world's most precious resource. The EERC's Water Management Center has experience providing water management solutions in the areas of agriculture and agricultural processing, municipal and industrial water and wastewater treatment, oil and gas extraction and processing, energy generation, groundwater remediation, and carbon capture and storage. We provide cost-effective, practical water management solutions for our clients while recognizing the importance of resource conservation and environmental stewardship.



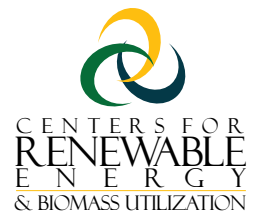
Center for Climate Change & Carbon Capture and Storage

One of the leading organizations selected by the U.S. Department of Energy (DOE) to determine the best ways to reduce and/or manage CO_2 emissions, the EERC's Plains CO_2 Reduction (PCOR) Partnership incorporates the participation of more than 100 public and private sector stakeholders to identify significant sources of CO_2 in the central interior of North America and evaluate the technical and economic feasibility of capturing and storing CO_2 in the region. The EERC's Partnership for CO_2 Capture (PCO₂C) is conducting a pilot-scale demonstration to test selected CO_2 separation and capture technologies for fossil fuel- and biomass-fired systems.



Centers for Renewable Energy and Biomass Utilization

We believe energy from renewable and indigenous resources is a necessary component to attain longer-term energy security in the United States. The Centers for Renewable Energy and Biomass Utilization provide expertise in biomass feedstocks, biopower, bioproducts, biofuels for transportation, wind energy, renewable hydrogen, and building efficiency for industry, stakeholders, state agencies and institutes, and entrepreneurs.



“... the road to energy independence runs right through Grand Forks and up to the front doors of the EERC.”

—U.S. Senator Byron Dorgan

Centers of Excellence

National Alternative Fuels Center® (NAFC®)

Established in 1988 as the National Alternative Fuels Laboratory® with support from the U.S. Department of Agriculture, NAFC is committed to the commercial utilization of alternative fuels. Through NAFC, the EERC is developing ethanol- and biodiesel-blended gasoline and diesel fuels, creating a full suite of new fuel formulations for aviation and transportation, and advancing new technologies to provide liquid fuels for battlefield and domestic military operations from renewable indigenous sources.

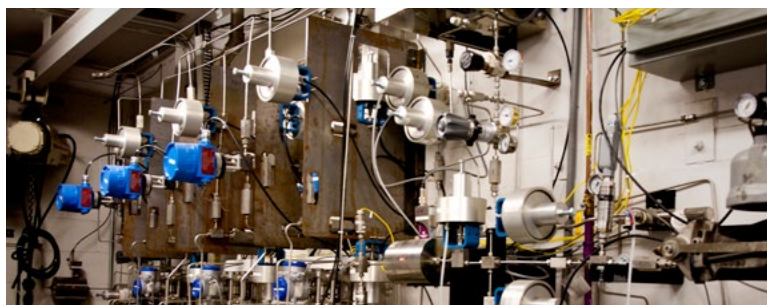


Center for Environmental Chemistry and Reclamation

The EERC has significant experience removing toxic contaminants from soil and water, mitigating environmental challenges, and reclaiming environmentally impacted landscapes and other properties for our clients. For more than 25 years, the EERC has also effectively extracted harmful compounds in environmentally friendly ways without the use of hazardous solvents.



CENTER FOR
ENVIRONMENTAL
CHEMISTRY AND
RECLAMATION



ENERGY- EFFICIENT TECHNOLOGIES

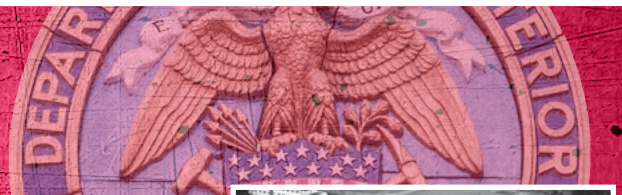
National Center for Hydrogen Technology® (NCHT®)

The EERC was designated in 2004 as the National Center for Hydrogen Technology by DOE. The EERC has more than 65 years of experience with hydrogen production and fuel cell technologies and is leading the way in integrating technologies for the production and use of hydrogen as a practical fuel.



OUR HISTORY

- 1951** – Founded as the U.S. Bureau of Mines Robertson Lignite Research Laboratory.
- 1977** – Becomes a Federal Energy Technology Center under DOE.
- 1983** – Defederalized and becomes the UND Energy Research Center.
- 1987** – All research entities within the UND School of Engineering and Mines are combined into one entity called the Energy & Mineral Research Center.
- 1989** – Renamed the UND Energy & Environmental Research Center (EERC).
- 1992** – EERC Foundation® established.
- 1994** – Completes \$7.6 million expansion of labs and pilot plant facilities.
- 1997** – April flooding of the Red River forces the EERC to close for 20 days, EERC flood damages estimated at \$40 million 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** – Celebrates 50 years of innovative applied energy and environmental research.
- 2002** – Breaks ground on \$8 million expansion and renovation.
- 2003** – Opens 47,000-square-foot expansion and renovation project.
- 2004** – Contract awards exceed \$26.5 million.
- 2005** – Contract awards total \$29 million.
- 2006** – Contract awards exceed \$45 million (fourth consecutive record-breaking year). Breaks ground for new 15,000-square-foot hydrogen facility.
- 2007** – Proposal number exceeds 300/yr, valued at over \$138 million.
- 2008** – Contract awards exceed \$95 million. Dedicates hydrogen facility.
- 2009** – EERC achieves sixth consecutive record year. Contract portfolio exceeds \$236 million.
- 2010** – EERC achieves seventh record year in contract funding.
- 2011** – EERC breaks ground on new Fuels of the Future facility.
- 2012** – EERC and Pratt & Whitney Rocketdyne, Inc., commission dry-solids pump.
- 2013** – EERC Bakken regional drilling activity map distributed to more than ten thousand worldwide.
- 2014** – UND names Tom Erickson Director.



1951



*Energy &
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Center*

1989



2008



2012



2013



2014

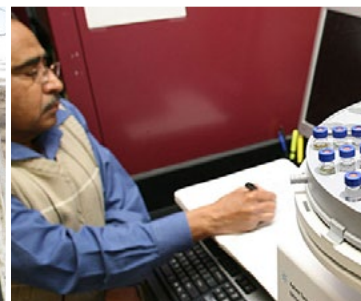


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