EERC
Energy & Environmental Research Center

University of North Dakota
Grand Forks, North Dakota

*"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


*"Not only is the EERC working to develop and commercialize a range of new, innovative energy and environmental technologies, it understands how to work with industry."—Robert A. Bell, Vice President of Research and Development, Consolidated Edison Company of New York, Inc.*

The EERC is a research, development, demonstration, and commercialization facility recognized internationally for its expertise in:

- Cleaner, more efficient energy technologies.
- Air and water pollution prevention.
- Water management.
- Contamination cleanup and site remediation.
- Waste management and utilization.
- Advanced analytical methods.
- Education and training.

## EERC Keys to Success

- A willingness to assume risk
- A commitment to commercialize innovative technologies
- A working environment that provides the freedom to pursue promising opportunities
- A dedication to building partnerships with the private sector, government, and the research community
- A practical problem-solving approach that consistently meets client needs

## EERC Quick Facts

- Clients in 47 countries and 49 states served during the last decade
- 62% of clients are repeat customers, and 70% of contracts are with the private sector
- Multidisciplinary team of 210 highly skilled scientists, engineers, and support personnel
- Sends out an average of one funding proposal a day
- More than 150 active contracts

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# EERC Program Areas

*During a successful demonstration of the advanced hybrid particulate collector (AHPC) at Otter Tail's Big Stone power plant, EERC Senior Research Manager Stan Miller, left, visited with Bill Swanson, an engineer at the plant.*

**Alternative and Renewable Fuels**

- The Center for Biomass Utilization is developing technologies to cofire biomass with coal. Additional work focuses on technologies that use agricultural or food-processing wastes to produce transportation fuels and chemical feedstocks.
- The Plains Organization for Wind Energy Resources (POWER) provides a comprehensive program for the region, including technical and logistical analysis and assistance in developing and demonstrating wind energy technologies.
- The National Alternative Fuels Laboratory (NAFL) conducts research on alternative transportation fuels which include reformulated gasoline, ethanol-based aviation fuel, and biodiesel fuel.
- The Red River Valley Clean Cities Program is an international partnership that facilitates a regional infrastructure to encourage the use of cleaner, more efficient alternative transportation fuels.

**Pollution Prevention**

- The Center for Air Toxic Metals (CATM) focuses on research and development to minimize the environmental impacts of mercury and other air toxic metal pollutants.
- The EERC is recognized worldwide for expertise in understanding mercury in air, soil, and water and for research to develop valid techniques for measuring mercury emissions from power plants.
- The EERC is a world leader in technologies to remove $SO_2$, $NO_x$, and particulate matter from coal-fired power plants and other industrial sources. For example, the EERC's innovative advanced hybrid particulate collector (AHPC) has been successfully field-tested and licensed to W.L. Gore and Associates, Inc., for worldwide sales.

**Environmental Cleanup**

- A Cooperative Agreement with DOE assists in the cleanup of nuclear weapons sites by working with small businesses to develop, field-test, and deploy innovative decontamination technologies.
- Soil cleanup technologies remove a variety of contaminants, including wastes from oil and gas production and processing, PCBs, pesticides, and explosives.
- Water cleanup technologies remove contaminants from a wide variety of wastewater streams.

**Water Management**

- The Red River Water Management Consortium, a model program consisting of federal, state, municipal, and industrial partners, provides solutions to water supply, flood protection, and water quality issues using a basinwide approach.
- The freeze–thaw/evaporation (FTE®) desalinization process economically cleans large quantities of contaminated water for industrial and municipal purposes.
- Odor control technologies are being applied to agricultural processing facilities and livestock operations.

**Waste Utilization**

- The Coal Ash Resources Research Consortium, established in 1985, develops environmentally friendly, commercially viable uses for coal ash from power plants.
- Innovative treatment strategies for wastewater from industrial processes are reducing adverse environmental effects while simultaneously developing valuable by-products.

**Power Systems**

- The EERC is recognized worldwide in the development and demonstration of cleaner, more efficient power plant technologies, expertise in small-scale power systems in remote locations (distributed generation), and in integrating power and industrial systems.
- The EERC assists industry in improving the operation and efficiency of conventional power plants by matching fuel characteristics to power systems.
- The EERC is an international leader in hot-gas cleanup technologies for advanced power systems.

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