

# Xcel Energy's Renewable Development Fund (Minnesota)



Merrick Inc., a nonprofit organization located in Vadnais Heights, Minnesota, utilized a \$735,000 RDF grant to install a 100 kW solar PV project at their 52,000-square-foot office building/training facility. This solar geothermal project, completed during the summer of 2008, is a model of how to use renewable energy for a geothermal heating and cooling system to provide 100 percent of the heating and cooling needs of a facility. The solar array will reduce Merrick's use of non-renewable energy by at least 33 percent.

**T**he Xcel Energy Renewable Development Fund (RDF) was created by Minnesota legislation and is financed by Xcel Energy ratepayers in Minnesota and Wisconsin to promote the start-up, expansion and attraction of renewable energy projects and companies in its service area. The RDF also stimulates research and development into renewable energy technologies. Both efforts are designed to increase the market penetration of renewable energy resources at reasonable costs.

The RDF program has provided about \$149 million in grants and production incentives since 2001 for renewable energy production projects, renewable energy research and development projects, and renewable energy production incentive payments (up to 1.5 cents per kWh for small-scale wind, biogas and hydro projects). In addition, RDF dollars

*"We greatly appreciate the timely information from CESA regarding federal energy legislation and U.S. Department of Energy programs. Also, the monthly conference calls are a great way to hear from national experts without having to incur the cost of travel."*

**Tim Edman**

**RDF Mission:** To increase renewable energy market penetration, assist renewable energy projects and companies, and support emerging renewable energy technology through research and development.

are used for special Minnesota legislative initiatives that include renewable

energy education efforts, solar rebates and Next Generation renewable energy technology development.

## **Knowledge Base**

RDF projects have provided a public venue to discuss cutting-edge research and the demonstration of new technologies. Scientific publications and pilot projects have expanded the theoretical knowledge base of renewable energy technologies within the scientific community and improved the practical knowledge base of renewable energy technologies within the commercial community.

## **Environmental Benefits**

One of the RDF's important environmental contributions is the avoidance of both air pollutant and greenhouse gas emissions when compared with alternative methods of generation.



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**2009 EMISSION REDUCTIONS**

Emission	Total (pounds)
CO <sub>2</sub>	223,125
SO <sub>2</sub>	1,403
NO <sub>x</sub>	796
VOCs	5.34
Hg	1.14
Pb	1.28

At the end of 2009, RDF energy production projects have resulted in several emission reductions.

**Economic Benefits**

RDF grants for renewable energy research and energy production initiatives generate significant economic benefits. RDF expenditures

promote and expand economic activity on both a local and regional scale through the purchase of goods and services, expansion of employment opportunities, and in some cases, the fostering of new or expanded business opportunities. In some cases, RDF investment can also expand the property tax base for a community because of added value to real estate.

RDF funds effectively leverage other funds to expand and/or enhance project activity. Since the RDF program’s inception, RDF grant awards have stimulated the investment of more than \$131 million in construction activity, goods, and services as a result of the start-up, expansion, and attraction of renewable energy projects and companies in Minnesota.

Job creation is another economic benefits supported through the RDF. Money invested into an area’s economy for the material delivery of good and services result in the need to hire additional or retain existing employees. Job calculators estimate that the RDF has created or helped retain nearly 400 to 450 jobs during the past biennium.

**Award Winning Projects**

A National Renewable Energy Laboratory (NREL) project, supported by a \$2 million RDF grant focused on the development of an atmospheric and direct write ink based approach to thin film solar cells. This involved developing precursor inks for the various components of the cell and then integrating them via inkjet printing and rapid thermal processing into actual photovoltaic devices. Work focused on developing ink chemistries that are manufacturable, low cost and constantly produce quality films. This project has led to a novel, low cost, scalable production technique for thin film solar cells.

The project received national recognition and was a recipient of the *2008 R&D Magazine* 100 Award for one of the most technologically significant new products of the year.

Since its inception, the RDF program has awarded more than **\$67 MILLION TO ABOUT 70 RENEWABLE ENERGY PRODUCTION AND RESEARCH PROJECTS** via three funding cycles, including \$29.5 million for renewable energy production projects, \$38.3 million for renewable energy research and development project, \$50.6 million for renewable energy production incentive payments, and \$30.1 million for special renewable energy legislative initiatives.

One of the RDF’s important environmental contributions is the avoidance of both air pollutant and greenhouse gas emissions when compared with alternative methods of generating electricity. Since the inception of the RDF and through the end of 2009, energy production projects have generated a total of **104,754 MWH OF ELECTRICITY** produced from a renewable energy resource.

The RDF investment in research continues to show dividends as demonstrated by publishing **23 JOURNAL ARTICLES AND 45 PRESENTATIONS** of scientific papers in conjunction with RDF research projects.

RDF funds effectively leverage other funds to expand and/or enhance project activity. Since the RDF program inception in 2002, RDF grant awards have stimulated the investment of over \$131 million in construction activity, goods, and services as a result of the start-up, expansion, and attraction of renewable energy projects and companies in Minnesota. Energy production projects **LEVERAGE \$3.37 FOR EVERY RDF DOLLAR** obligated. An additional \$12 million has been leveraged for research and development in Minnesota.

Job creation is another economic benefit supported through the RDF program. Money invested into an area’s economy for the material delivery of good and services result in the need to hire additional or retain existing employees. **BASED ON WELL-ESTABLISHED JOB CALCULATORS, THE RDF PROGRAM HAS CREATED OR HELPED RETAIN NEARLY 400 TO 450 JOBS DURING THE LAST TWO YEAR REPORTING PERIOD.**



Saint John’s University Photovoltaic Installation—Collegetown, Minn.