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Xcel Energy®

414 Nicollet Mall
Minneapolis, MN 55401

February 13, 2015

—Via U.S. Mail—

Minnesota Senate
75 & 100 Rev. Dr. Martin Luther King Jr. Blvd.
St. Paul, MN 55155

Minnesota House of Representatives
100 Rev. Dr. Martin Luther King Jr. Blvd.
St. Paul, MN 55155

(See attached service list for members served.)

RE: ANNUAL REPORT TO MINNESOTA STATE LEGISLATURE
RENEWABLE DEVELOPMENT FUND

Dear Senators and Representatives:

Pursuant to the Minn. Stat. § 116C.779, enclosed is our Renewable Development Fund Annual Report. This report itemizes actual and projected financial benefit to Xcel Energy's electric ratepayers for each project that has received an RDF project grant administered by Xcel Energy.

If you have any questions regarding this filing please contact me at (612) 330-7529 or paul.lehman@xcelenergy.com.

Sincerely,

/s/

PAUL J LEHMAN
MANAGER, REGULATORY COMPLIANCE AND FILINGS

Enclosures

Rep. Melissa Hortman
237 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, MN 55155

Rep. Pat Garofalo
485 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, MN 55155

Sen. John Marty
323 Capitol
75 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, MN 55155

Sen. David Osmek
109 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, MN 55155

Sen. David J. Tomassoni
G-9 Capitol
75 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, MN 55155

Sen. Bill Ingebrigtsen
143 State Office Building
100 Rev. Dr. Martin Luther King Jr. Blvd
St. Paul, MN 55155

Reed Polakowski
Legislative Reference Library
645 State Office Bldg.
100 Rev. Dr. MLK Jr. Blvd.
St. Paul, MN 55155

Molly Pederson
Office of Governor Mark Dayton
20 West 12th Street
116 Veterans Service Building
St Paul, MN 55155

Xcel Energy

Renewable Development Fund (RDF)

Annual Report to the Minnesota State Legislature

February 13, 2015

Background

The Renewable Development Fund (RDF) is a program administered by Xcel Energy with oversight by the Minnesota Public Utilities Commission. The RDF's mission was established in an October 5, 2006 Commission Order and was revised to incorporate statutory requirements from the 2012 legislature. The current RDF mission statement directs that the overall purpose of the fund is to:

- *Increase the market penetration of renewable electric energy resources at reasonable costs in the state;*
- *Promote the start-up, expansion and attraction of renewable electric energy projects and companies in the state;*
- *Stimulate renewable electric energy research and development in the state;*
- *Develop demonstration scale renewable electric energy projects of near-commercial renewable electric generation or near-commercial electric infrastructure delivery technology that enhance the delivery of renewable electric energy within the state; and*
- *Provide benefits to Minnesota citizens, businesses and Xcel Energy's electric ratepayers.*

The RDF program was authorized by the Minnesota Legislature in 1994 in conjunction with legislation regarding the Prairie Island nuclear generating plant in Red Wing, Minnesota. As a condition of storing spent nuclear fuel in dry casks at Prairie Island, the RDF statute initially required Xcel Energy to transfer $500,000 for each dry cask containing spent fuel to a renewable energy fund which amounted to $9 million annually. In 2003, this statute was amended to extend the life of the nuclear-waste storage at our Prairie Island plant and increased the amount to be transferred into the RDF to $16 million annually. In 2007, the statute was further amended to add an additional assessment for dry casks stored at our Monticello nuclear generating plant in Monticello, Minnesota. From 2008 to 2012 $19.5 million was set aside annually for the RDF program. In 2013 the annual set-aside increased to $22.75 million and in 2014 the annual set-aside increased to $24.6 million. A cumulative total of $250.85 million has been set-aside in the RDF since inception.

According to the RDF statute (Minn. Stat. §116C.779), Xcel Energy must submit an annual report to the chair and ranking minority member of the legislative committees with jurisdiction over energy policy about projects funded by the RDF account. This 2014 annual report is organized into the following sections:

- RDF Program Summary;
- Current Cycle Overview;
- RDF Projects' Benefits; and
- Conclusion.

Attachment A includes a complete list of projects for all years that have received RDF grant awards.

The costs of RDF program expenses allocated to Minnesota are recovered through an adjustable surcharge on our customer bill statements as part of their monthly charges for electricity. In 2015 the RDF charge is $0.000563 per kWh. For a typical residential customer using 750 kWh per month, the RDF cost per month is $0.42.

RDF Grant Program Summary

Since its inception, the RDF program has provided over $250 million for renewable energy initiatives including $83 million for Renewable Energy Production Incentive (REPI) payments, $67.8 million for legislatively-mandated projects and programs, and $2.2 million for general program support. These mandated programs included the appropriation of $25 million to the University of Minnesota for the Initiative for Renewable Energy and Environment (IREE). The balance of $100.2 million has been awarded over four grant cycles to 90 projects (see Attachment B - Financial Statement). As Table 1 below shows, 57 projects have been completed and eight are active, including four new Cycle 4 projects. Twenty-two Cycle 4 projects and three Cycle 4 programs that have been awarded RDF grants have not executed grant contracts and therefore project activity has not begun.

Table 1: Summary of Project Status

Type	Completed	Active as of 12/31/2014	Total
Energy Production	17	5	22
Research	40	3	43
Total	57	8	65

Xcel Energy has responsibility for the day-to-day administration of the RDF. A seven-member advisory group, representing the interests of various stakeholder groups, assists Xcel Energy in evaluating and selecting grant project proposals for recommendation to Xcel Energy and the Commission. Further details on the members of the advisory group can be found in Attachment C.

Legislative RDF Program Summary

Legislation in 2003 created the Renewable Energy Production Incentive (REPI) program to provide production incentives for electricity generated by wind, biogas, and hydro. In 2014 $5.5 million in RDF funds were disbursed for REPI payments.

The Solar*Rewards program was created in 2010 legislation to provide rebates to an owner of a qualified property for installing solar photovoltaic modules. Three million dollars in RDF funds were disbursed in 2014 for Solar*Rewards rebates.

In 2013 legislation created two new programs to receive funds from the RDF. The first program is a "Made in Minnesota" solar energy production incentive account to provide production incentives for residential and commercial installations that were manufactured in the state. In 2014, $12.0 million in RDF funds were disbursed to fund this account. The second program is a solar energy incentive program to replace the existing Solar*Rewards program, which focuses on small facilities of up to 20 kW. In 2014, $0.05 million in RDF funds were disbursed to fund the new Solar*Rewards program.

RDF Projects' Benefits

Energy Production: RDF projects that construct electric generation facilities provide a combination of environmental and economic benefits. These benefits can be seen at both the local and regional level through the purchase of goods and services as well as the expansion of employment opportunities. As shown in Table 2, the 17 completed electric production projects that received RDF grants have resulted in the installation of nearly 24.1 MW of renewable energy nameplate capacity and have overall generated a total of 323,971 MWh of energy over the life of the facilities.

Table 2: Electric Production Projects

Type	Investment	Facilities	Installed Capacity (MW)	Energy Production (MWh)
Biomass	$26,623,141	1	0.3	589
Hydro	$43,817,717	1	9.176	101,707
Solar	$18,537,334	11	4.645	22,588
Wind	$10,990,338	4	9.950	199,088
Total	$110,334,151	17	24.071	323,971

For every dollar spent from the RDF there has been an additional $1.59 spent from outside investors. Therefore, the $30.7 million investment of RDF funds for energy production has leveraged an additional $81.5 million. This total investment has resulted in the creation of 1,216 construction jobs to design and build facilities in Minnesota.

As shown in Table 3 below, the environmental benefits from these investments are recognized in marketable Renewable Energy Credits (RECs) from qualifying facilities, emission reductions, avoided costs to build conventional facilities, and avoided costs to replace the electricity generated.

Table 3: Environmental Benefits

Value of REC's	Value of Emissions Reductions	Avoided Capacity Value	Avoided Energy Value	Total Value
$231,733	$901	$1,903,269	$10,250,545	$12,154,715

In addition, there are indirect benefits associated with the RDF. These benefits include fostering new or expanded business opportunities to maintain and support the new facilities. In cases where permanent energy production facilities are constructed, RDF investments can also expand the property tax base for a community. Organizations such as the National Renewable Energy Laboratory, the U.S. Department of Energy, and the American Council for an Energy Efficient Economy have developed job calculator models to evaluate the impact of dollars spent on renewable energy and energy efficiency projects. On average, these tools indicate that 10 to 11 jobs are created and/or retained (permanent and temporary) for each $1 million invested.

Research and Development: The RDF has provided a boost in the development of new renewable electric energy concepts and designs through investment in renewable energy research and development. Research and development projects typically do not have the extensive leverage capacity that the energy production projects do because the funding is predominately applied to personnel rather than construction and material costs. Nevertheless, this total investment has resulted in the need for over 495 research-related jobs. Although some of these jobs were within the non-profit and commercial industry that received funding for demonstration-style research, many of these jobs went to students within the academic world which is an investment in the next generation that will design new renewable electric energy facilities. As shown in Table 4, research and development projects contributed to the development of

articles, workshops, and even patent applications. In addition, research and development RDF grant dollars leveraged $0.50 for each grant dollar invested.

Table 4: Research and Development Projects

Technology	Total Investment	Published Articles	Presentations/ Workshops	Patent Applications
Biomass	$29,525,478	24	59	3
Solar	$7,782,111	8	21	0
Wind	$81,01,356	12	49	2
Total	$45,408,945	44	129	5

It should be noted that an out-of-state project used a Minnesota project host located in the NSP-Minnesota service area and are not included in the previous numbers. As shown in Table 5, this project association keeps the research relevant to Minnesota and directs additional RDF funds to businesses and organizations in the state.

Table 5: Minnesota Hosts Activities

Grantee	Minnesota Host	Host Location	Host Activity
Coaltec Energy USA	P & K Farms	Northfield, Minnesota	Pilot demonstration of gasifier

Conclusion

Xcel Energy appreciates this opportunity to provide this report summarizing the projects funded by the RDF account through 2014.

Project Name	Contract	Project Site City	Zone	Project End Date	Status	Type	Cycle	Resource	Project Description	RDF Award	Grant Funds Disbursed	Funding Leverage Funds	Total Costs	Deobligated Funds	Jobs	Power Development Capacity (kW)	Power Development Generation (MWh)	REC's	Externalities Enviro	Externalities Avoided Capacity	Externalities Avoided Energy	Intelectual Property Articles	Intelectual Property Presentations	Intelectual Property Patent Apps
NORTHEAST REGION																								
University of North Dakota	RD3 - 66	Duluth	Northeast	4/2012	complete	RD	3	Biomass	Designed and demonstrated a mobile biomass liquefaction system that can utilize high moisture wood waste.	$999,065	$998,697	$995,800	$1,994,497	$368	22								1	
CMEC	EP-44	Little Falls	Northeast	3/2011	complete	EP	2	Biomass	Designed 959-kW gasification plant to utilized distillers grains and local biomass. Refractory issues prevented completion of the facility.	$2,000,000	$400,000	$16,462,472	$16,862,472	$1,600,000	183	0	0	$0	$0	$0	$0			
Mesaba/Excelsior Energy	EP-43	Taconite	Northeast	6/2010	complete	EP	2	Innovative	To design the basis of a base load Integrated Gasification Combined-Cycle (IGCC) power generation facility.	$10,000,000	$10,000,000	$365,621	$10,365,621	$0	113	0	0	$0	$0	$0	$0			
West Central Telephone Assoc.	RD3 - 58	Menahaga	Northeast	5/2010	complete	RD	3	Wind/Solar	Designed and tested configurations and specifications of a hybrid wind/solar power system for distributed generation in remote locations.	$137,000	$137,000	$0	$137,000	$0	3									
University of Florida	RD-34	Moorhead	Northeast	5/2009	complete	RD	2	Biomass	Demonstrated two-stage anaerobic digester at American Crystal Sugar in Moorhead, MN to generate methane for conversion to electricity.	$999,995	$996,875	$0	$996,875	$3,120	9								3	1	1
Gas Technology Institute	RD-38	Coleraine	Northeast	10/2007	complete	RD	2	Biomass	Developed a method to extract hydrogen from biomass gasification using membrane separation technologies.	$861,860	$861,860	$3,121	$864,981	$0	9									1	
									Economic Benefits for Northeast Region	**$14,997,920**	**$13,394,432**	**$17,827,014**	**$31,221,446**	**$1,603,488**	**339**	**0**	**0**	**$0**	**$0**	**$0**	**$0**	**3**	**3**	**1**
STATEWIDE																								
MN DNR	EP3 - 13	Afton, Ft. Snellling, Lake Shetek, Lac qui	Statewide	3/2013	complete	EP	3	Solar	Installed 114 kW of solar photovoltaic generation at various state parks and developed a renewable energy strategy for future DNR facilities.	$894,000	$878,966	$39,312	$918,278	$15,034	10	114	424	$386	$1	$12,037	$12,384			
									Economic Benefits for Statewide Projects	**$894,000**	**$878,966**	**$39,312**	**$918,278**	**$15,034**	**10**	**114**	**424**	**$386**	**$1**	**$12,037**	**$12,384**	**0**	**0**	**0**
SOUTHEAST REGION																								
Coaltec Energy USA	RD3 - 77	Northfield	Southeast	4/2014*	current	RD	3	Biomass	Demonstrated the feasibility of biomass gasification on a commercial turkey farm to generate electricity and heat.	$1,000,000	$850,000	$274,511	$1,124,511	$0	12									
Diamond K	EP-51	Altura, MN	Southeast	5/2014	complete	EP	2	Biomass	Installation of 261 kW of biomass generation capacity at the Diamond K Dairy in Winona County, Minnesota.	$936,530	$936,530	$2,688,974	$3,625,504	$0	29	300	589	$0	$2	$6,650	$15,090			
AnAerobics, Inc	AB-07	Montgomery	Southeast	6/2003	complete	EP	1	Biomass	Was to install a 1.7 MW genset and study removal of hydrogen sulfide created during anaerobic digestion but had site control issues.	$1,300,000	$1,100,000	$6,300,000	$7,400,000	$200,000	80	0	0	$0	$0	$0	$0			
									Economic Benefits for Southeast Region	**$3,236,530**	**$2,886,530**	**$9,263,485**	**$12,150,015**	**$200,000**	**122**	**300**	**589**	**$0**	**$2**	**$6,650**	**$15,090**	**0**	**0**	**0**
SOUTHWEST REGION																								
Best Power Int'l	EP4-5	Mankato	Southwest	10/2016	current	EP	4	Solar	Install a 907 kW solar facility at the Mankato campus of the Central Pacific Province of the School Sisters of Notre Dame which will utilize a 1,000 V_{DC} platform.	$900,000	$0	$241,821	$241,821	$0	0	0	0	$0	$0	$0	$0			
Outland Renewable Energy	EP3 - 10	Slayton	Southwest	4/2013	complete	EP	3	Solar	Installed 2 MW photovoltaic facility near Slayton, MN to demonstrate the benefits of utility scale use of photovoltaics in Minnesota	$2,000,000	$2,000,000	$4,972,605	$6,972,605	$0	76	2,000	4,627	$4,600	$13	$89,712	$135,270			
Xcel Energy	RD3 - 12	Beaver Creek	Southwest	12/2011	complete	RD	3	Wind	Installed a 1.0 MW sodium sulfur battery adjacent a wind farm to validate the value of energy storage for greater wind energy penetration.	$1,000,000	$1,000,000	$3,247,181	$4,247,181	$0	46									31	
Rural Advantage	RD-27	Luverne	Southwest	4/2009	complete	RD	2	Biomass	Demonstrated the commercial production of Miscanthus as a biomass fuel for electric generation.	$318,800	$318,800	$348,887	$667,687	$0	3										1
Hilltop	EP-26	Edgerton	Southwest	3/2009	complete	EP	2	Wind	Installed a 1.5 MW General Electric wind turbine in Lyon County with 100 percent of the electricity sold to Xcel Energy.	$1,200,000	$1,200,000	$2,670,126	$3,870,126	$0	42	2,000	25,646	$17,016	$70	$93,163	$702,903			
Ag. Utilization Research Institute	RD-69	Beaver Creek	Southwest	9/2008	complete	RD	2	Biomass	Conducted a feasibility study to couple bio-diesel and wind generation systems to "firm" wind power.	$760,000	$760,000	$8,829	$768,829	$0	8										
St. Olaf	EP-39	Northfield	Southeast	4/2007	complete	EP	2	Wind	Installed a 1.65 MW Micon wind turbine on campus.	$1,500,000	$1,500,000	$1,063,377	$2,563,377	$0	28	1,650	20,913	$15,284	$57	$108,957	$685,919			
Project Resource Corp	AW-03	Chandler	Southwest	5/2006	complete	EP	1	Wind	Installed 5.4 MW of wind energy with a new landowner investment model that limits development risk of community shareholders.	$900,000	$900,000	$2,700,000	$3,600,000	$0	39	5,400	131,882	$99,480	$363	$536,084	$4,732,785			
Pipestone Jasper School	AW-10	Pipestone	Southwest	12/2004	complete	EP	1	Wind	Installed a 900 kW wind turbine adjacent to the Pipestone-Jasper Public High School.	$752,835	$752,835	$204,000	$956,835	$0	10	900	20,647	$0	$57	$149,179	$731,841			
									Economic Benefits for Southwest Region	**$9,331,635**	**$8,431,635**	**$15,456,826**	**$23,888,461**	**$0**	**253**	**11,950**	**203,715**	**$136,380**	**$560**	**$977,096**	**$6,988,718**	**0**	**31**	**1**
METRO REGION																								
Minneapolis Park & Rec. Board	EP4-22	Minneapolis	Twin Cities	4/2016	current	EP	4	Solar	Install 200 kW of PV capacity at seven locations within the Minneapolis park system to demonstrate the effectiveness of alternative solar designs.	$969,741	$0	$0	$0	$0	0	0	0	$0	$0	$0	$0			
Crown Hydro	AH-01	Minneapolis	Twin Cities	1/2015*	current	EP	1	Hydro	Will install 3.2 MW of hydroelectric capacity on the Mississippi River in downtown Minneapolis.	$5,100,000	$1,538,591	$2,612,647	$4,151,238	$0	67	0	0	$0	$0	$0	$0			
University of Minnesota	RD3 - 1	Shakopee	Twin Cities	1/2015	current	RD	3	Biomass	Development of a production, pre-processing and delivery system for biomass feedstocks from prairie and grasslands.	$992,989	$813,626	$1,391,643	$2,205,269	$0	26								1	4	
University of Minnesota	RD3 - 42	Minneapolis	Twin Cities	8/2013	complete	RD	3	Wind	Developed and tested a Virtual Wind Simulator to provide accurate wind turbulence predictions.	$999,999	$999,598	$286,199	$1,285,797	$401	14								11	13	
University of Minnesota	RD3 - 28	St. Paul	Twin Cities	9/2013	complete	RD	3	Biomass	Developed guidelines for accurate management of biomass removal and maintenance of soil quality.	$979,082	$979,048	$0	$979,048	$34	11								4	7	
Lower St. Anthony Falls	EP-34	Minneapolis	Twin Cities	1/2012	complete	EP	2	Hydro	Restored 9.176 MW hydroelectric generating capacity at the Lower St. Anthony Falls by using run-of-river technogy.	$2,000,000	$2,000,000	$37,993,881	$39,993,881	$0	434	9,176	101,706	$90,219	$290	$406,820	$2,605,734			
University of Minnesota	RD3 - 25	Minneapolis	Twin Cities	12/2011	complete	RD	3	Solar	Developed techniques for controlling microstructures of hydrogenated silicon and improving the grain size of microcrystalline silicon PV films.	$732,032	$732,032	$0	$732,032	$0	8								3	8	
SarTec Corporation	RD3 - 2	Anoka	Twin Cities	7/2011	complete	RD	3	Biofuel	Researched the growth of algae fed on CO2 from flue gas and extracted the algae oils for conversion into a marketable biodiesel product.	$350,000	$350,000	$0	$350,000	$0	4										
Bepex International	RD3 - 4	Minneapolis	Twin Cities	7/2011	complete	RD	3	Biomass	Demonstrated torrefaction and densification as processes to reduce transportation and storage costs associated with biomass feedstocks.	$924,671	$924,671	$0	$924,671	$0	10										
City of Minneapolis	EP3 - 11	Minneapolis	Twin Cities	5/2011	complete	EP	3	Solar	Installed a 600 kW photovoltaic facility on the Minneapolis Convention Center.	$2,000,000	$2,000,000	$1,096,756	$3,096,756	$0	34	600	2,991	$1,664	$9	$82,221	$87,482			
freEner-g	EP3 - 12	Metro Area	Twin Cities	2/2011	complete	EP	3	Solar	Installed 280 kW photovoltaic capacity thorugh a leasing and service package for residential and small businesses.	$1,488,922	$1,488,922	$777,170	$2,266,092	$0	25	280	750	$729	$2	$40,004	$22,137	1		
Merrick	EP3 - 2	Vadnais Heights	Twin Cities	12/2008	complete	EP	3	Solar	Installed a roof-mounted 100 kW solar photovoltaic facility on a non-profit adult day training and habilitation center.	$735,000	$735,000	$52,000	$787,000	$0	9	100	471	$279	$1	$22,909	$14,538			
Windlogics	RD-57	St. Paul	Twin Cities	11/2008	complete	RD	2	Wind	Defined, designed, built and demonstrated a complete wind power forecasting system.	$997,000	$997,000	$141,437	$1,138,437	$0	12									1	
MN Dept. of Commerce	AS-05	St. Paul	Twin Cities	9/2008	complete	EP	1	Solar	Provided rebates of up to $8,000 for small photovoltaic installations that are wired into the electrical grid.	$1,150,000	$1,150,000	$0	$1,150,000	$0	12	960	10,283	$0	$28	$273,307	$413,222			
University of Minnesota	RD-29	Minneapolis	Twin Cities	9/2008	complete	RD	2	Biomass	Researched operation of turbo-generators using biomass-derived oils.	$299,284	$299,284	$0	$299,284	$0	11										
Center for Energy Environment	RD-94	Minneapolis	Twin Cities	10/2007	complete	RD	2	Biomass	Developed two web-based programs for planning and development of biomass resources in Minnesota.	$397,500	$397,500	$42,115	$439,615	$0	5										
University of Minnesota	CW-06	Minneapolis	Twin Cities	12/2006	complete	RD	1	Wind	Designed a flywheel battery system to enhance the ability to dispatch wind energy with inertial storage.	$654,309	$654,309	$0	$654,309	$0	7										1
University of Minnesota	RD-56	St. Paul	Twin Cities	4/2008	complete	RD	2	Biomass	Developed model to evaluate options to optimize combustion and electricity generation in ethanol plants.	$858,363	$803,246	$0	$803,246	$55,117	9								7	7	
Science Museum	AS-06	St. Paul	Twin Cities	12/2003	complete	EP	1	Solar	Installed a 9 kW solar roof to demonstrate a Zero Energy Building for the Minnesota Science Museum.	$100,000	$100,000	$0	$100,000	$0	2	9	124	$0	$0	$2,333	$5,430			
Sebesta Blomberg	BB-03	Roseville	Twin Cities	9/2003	complete	RD	1	Biomass	Examined the feasibility of a gasification system using the byproducts of an ethanol facility to provide heat and power.	$738,654	$738,645	$184,663	$923,308	$9	10										
Energy Performance Systems	BB-06	Rogers	Twin Cities	12/2002	complete	RD	1	Biomass	Conversion design of the NSP Granite Falls coal-fired facility to a biomass system capable of utilizing whole trees.	$266,508	$257,247	$85,056	$342,303	$9,261	4										
									Economic Benefits for Metro Region	**$22,734,054**	**$17,958,719**	**$44,663,567**	**$62,622,286**	**$64,822**	**713**	**11,125**	**116,325**	**$92,891**	**$330**	**$827,594**	**$3,148,543**	**27**	**40**	**1**

WEST CENTRAL REGION																												
Best Power Int'l	EP4-6	Collegeville	West Central	4/2016	current	EP	4	Solar	Install a 182 kW photovoltaic fixed-tilt array at St. Johns's soalr farm for a side-by-side comparsion with the existing 400 kW single-axis tracking array.	$172,213	$0	$241,821	$241,821	$0	3	182	6	$0	$0	$0	$0							
Bergey Windpower Company	EP4-24	St. Cloud area	West Central	11/2017	current	EP	4	Solar	Install 500 kW small wind capacity in the jurisdictions of Stearns, Benton, and Meeker counties by constructing 50 distributed 10 kW microturbines.	$1,106,600	$0	$0	$0	$0	0	0	0	$0	$0	$0	$0							
Minnesota Valley Alfalfa Producers	RD3 - 69	Priam	West Central	1/2015	current	RD	3	Biomass	Researching application of kinetic disintegration technology to produce biomass pellets from feedstocks with varying levels of moisture.	$1,000,000	$162,568	$280,665	$443,233	$0	5													
Energy Performance Systems	RD-50	Graceville	West Central	2/2013	complete	RD	2	Biomass	Built and demonstrated equipment for an integrated system to supply farm grown trees as a biomass feestock to a powerplant.	$957,929	$957,929	$1,997,606	$2,955,535	$0	32										1			
University of North Dakota	RD3 - 68	Princeton	West Central	4/2012	complete	RD	3	Biomass	Field demonstration of a hydrogen sulfidereduction process at the anaerobic digester on the 1,000-acre Haubenschild Dairy Farm.	$970,558	$970,479	$0	$970,479	$79	11										1			
University of Minnesota	RD3 - 23	Morris	West Central	8/2011	complete	RD	3	Biomass	Evaluated economic and technical issues related to biomass fuel and integrated gasification combined cycle technology.	$819,159	$729,717	$0	$729,717	$89,442	8									6	28			
Best Power Int'l	EP3 - 3	Collegeville	West Central	5/2010	complete	EP	3	Solar	Installed a 400 kW photovoltaic facility at St. Johns's University to demonstrate commercial viability of solar power in Minnesota.	$1,994,480	$1,994,480	$1,188,823	$3,183,303	$0	35	400	2,912	$1,577	$8	$71,741	$85,811							
Blattner and Sons	BW-06	Avon	West Central	6/2002	complete	RD	1	Wind	Developed a platform that would climb the tower to eliminate that need for crane to construct very tall wind turbines.	$68,470	$62,346	$0	$62,346	$6,124	1													
									Economic Benefits for West Central Region	**$7,089,409**	**$4,877,519**	**$3,708,915**	**$8,586,434**	**$95,645**	**95**	**582**	**2,918**	**$1,577**	**$8**	**$79,892**	**$85,811**	**6**	**30**	**0**		
OUT OF STATE																												
Northern Plains Power Tech.	RD3 - 21	Brookings, SD	Out of State	11/2012	complete	RD	3	Solar	Developed a loss-of-mains detection based on harmonic signature and synchrophasor data.	$493,608	$493,608	$240,665	$734,273	$0	8										4	1		
Interphases Solar	RD3 - 53	Moorpark, CA	Out of State	7/2012	complete	RD	3	Solar	Demonstrated a manufacturing process to produce lightweight, thin-film solar cells.	$1,000,000	$1,000,000	$666,021	$1,666,021	$0	18									1	5			
University of North Dakota	RD3 - 71	Grand Forks, ND	Out of State	3/2012	complete	RD	3	Biomass	Demonstrated a thermally integrated biomass gasification systems with a 30 kW low-Btu gas turbine.	$999,728	$999,438	$0	$999,438	$290	11									1	1			
Production Specialties	RD-72	Oklahoma City, OK	Out of State	11/2009	complete	RD	2	Biomass	Investigated a technology to selectively remove hydrogen sulfide (H2S) from biogas without generating a waste stream.	$228,735	$228,735	$263,767	$492,502	$0	5										1			
Global Energy Concepts	RD-87	Lowell, MA	Out of State	5/2009	complete	RD	2	Wind	Analyzed and developed advanced methods for reducing uncertainty in wind power estimates.	$370,000	$370,000	$28,236	$398,236	$0	4													
NREL-Low Band Gap-Solar	RD-107	Golden, CO	Out of State	12/2008	complete	RD	2	Solar	Overcome limitations in organic-based solar cells by developing low band gap (red light absorbing) materials.	$1,000,000	$944,452	$0	$944,452	$55,548	10									6	2			
Interphases Research	RD-78	Moorpark, CA	Out of State	11/2008	complete	RD	2	Solar	Developed a concept to manufacture flexible photovoltaic modules in a continuous roll-to-roll electro-deposition process.	$1,000,000	$1,000,000	$821,700	$1,821,700		20										6			
NREL - Inkjet Solar Cells	RD-93	Golden, CO	Out of State	11/2008	complete	RD	2	Solar	Designed and developed a thin-film solar cell that will use a direct-write inkjet printing process.	$1,000,000	$949,005	$0	$949,005	$50,995	10													
Colorado School of Mines	CB-07	Golden, CO	Out of State	12/2007	complete	RD	1	Biomass	Developed a fuel cell prototype for use in ambient or high temperatures.	$1,116,742	$1,116,742	$0	$1,116,742		12													
Univ. of ND - SOFC	CB-08	Grand Forks, ND	Out of State	10/2007	complete	RD	1	Biomass	Incorporated solid oxide fuel cells (SOFCs) and gasification into one integrated system to produce electricity.	$1,250,142	$1,250,056	$885,928	$2,135,984	$86	23													1
Energy Conversion Devices	RD-22	Rochester Hills, MI	Out of State	10/2007	complete	RD	2	Biomass	Researched processes to reform bio-ethanol and bio-methanol into hydrogen for use in a fuel cell or gas turbine to generate electricity.	$900,000	$900,000	$1,390,015	$2,290,015		25										6			
NREL	CS-05	Golden, CO	Out of State	7/2007	complete	RD	1	Solar	Design and develop of solutions and techniques to use an inkjet printing process for the manufacturing of thin-film solar cells.	$934,628	$924,757	$0	$924,757	$9,871	10													
Iowa State University	RD-110	Ames, IA	Out of State	7/2007	complete	RD	2	Biomass	Performance testing of a particulate filtration clean-up system for the producer gas from a biomass gasifier.	$405,000	$98,343	$0	$98,343	$306,657	4													
Coaltec	RD-26	Carterville, IL	Out of State	1/2007	complete	RD	2	Biomass	Studied handling, performance and emissions to assess feasibility of poultry waste as a sustainable feedstock for a fixed-bed gasifier.	$450,000	$450,000	$378,500	$828,500		9													
Univ of ND - SCR Performance	BB-12	Grand Forks, ND	Out of State	6/2006	complete	RD	1	Biomass	Examined the rates and mechanisms of catalyst deactivation within the emissions from a biomass co-fired utility boiler.	$60,000	$59,973	$340,000	$399,973	$27	4													
University of ND - Cofiring	BB-09	Grand Forks, ND	Out of State	3/2005	complete	RD	1	Biomass	Measured operational and component impacts of co-firing biomass with coal in an indirect fired combined-cycle pulverized-coal furnace.	$444,478	$444,443	$296,219	$740,662	$35	8													
Community Power Corp.	BB-10	Littleton, CO	Out of State	3/2005	complete	RD	1	Biomass	Designed, developed, and tested a centrifugal filter capable of removing sub micron particles and aerosols from a hot producer bio-gas stream.	$638,635	$548,692	$133,054	$681,746	$89,943	8													
Global Energy Concepts	CW-02	Lowell, MA	Out of State	10/2003	complete	RD	1	Wind	Translated the effects of a turbine's rotating flexible blades into a linear model for use in wind turbine design software.	$75,000	$73,239	$0	$73,239	$1,761	1													
									Economic Benefits for Out of State Area	**$12,366,696**	**$11,851,483**	**$5,444,105**	**$17,295,588**	**$515,213**	**192**	**0**	**0**	**$0**	**$0**	**$0**	**$0**	**8**	**25**	**2**		
									TOTAL ALL PROJECTS	**$70,650,244**	**$60,279,284**	**$96,403,224**	**$156,682,508**	**$2,494,202**	**1,723**	**24,071**	**323,971**	**$231,234**	**$901**	**$1,903,269**	**$10,250,546**	**44**	**129**	**5**		

RENEWABLE DEVELOPMENT FUND FINANCIAL STATEMENT
As of December 31, 2014

	Prior to 2014 2003-2013	2014	Since RDF Inception 2003-2014
Total RDF Credits	**$226,250,000**	**$24,600,000**	**$250,850,000**
Excelsior	$10,000,000	$0	$10,000,000
Energy Production Grants	$20,082,969	$592,355	$20,675,324
Research Grants	$29,603,967	$88,488	$29,692,455
Total RDF Grant Payments	**$59,686,936**	**$680,844**	**$60,367,780**
Administrative Costs	**$2,216,853**	**$24,768**	**$2,241,621**
University of Minnesota	**$25,000,000**	**$0**	**$25,000,000**
REPI	**$77,449,343**	**$5,696,934**	**$83,146,277**
Solar Rebates	**$4,309,650**	**$3,686,335**	**$7,995,985**
Other Legislative Mandates	**$13,375,011**	**$12,076,798**	**$25,451,809**
Total RDF Costs	**$182,037,793**	**$21,276,660**	**$204,203,473**

SUMMARY OF RDF PROGRAM FUNDS

Total Amount Credited to RDF	(+)	$250,850,000
Total RDF Payments	(-)	$204,203,473
Total Amount of Grant Awards	(-)	$110,168,352
Total Amount of RDF Grants Paid	(+)	$60,367,780
Unencumbered Cumulative Balance	(=)	-$3,154,046

RDF advisory group

- Ben Gerber, manager energy policy
  Minnesota Chamber of Commerce
  Representing commercial and industrial customers

- Tami Gunderzik, senior manager product portfolio
  NSP-Minnesota
  Representing NSP-Minnesota

- Eric Jensen, energy coordinator
  Izaak Walton League
  Representing the environmental community

- Kevin Schwain, manager emerging customer program
  NSP-Minnesota
  Representing NSP-Minnesota

- Linda Taylor,[1] clean energy director
  Fresh Energy
  Representing the environmental community

- Lise Trudeau, engineer
  Minnesota Division of Energy Resources
  Representing residential customers

- Heather Westra
  Representing Prairie Island Indian community

RDF Administration

- Paul Lehman, program manager

- Mark Ritter, grant administrator

[1] Resigned from RDF advisory group as of June 11, 2014. Vacant position on December 31, 2014.