



Vermont Clean Energy Development Fund

2009
Annual Report



February 2010



February 2010

Dear Members of the Vermont General Assembly:

The Vermont Clean Energy Development Fund (the Fund) is pleased to submit this third Annual Report to the legislature. This report includes information on the Fund's activities from January through December 2009. Last year, the Fund went through a set of structural changes required by statutory amendments coupled with a management transition at the same time. In spite of these changes, the Fund successfully moved forward with plans to disburse more than \$31 million in funding from the American Recovery and Reinvestment Act (ARRA) that the State is required to spend by 2012, as well as provided a wide range of grants and loans to advance the state's clean energy economy.

The Fund approved funding for renewable energy projects including combined heat and power, solar, wind, hydro, farm methane, geothermal, district energy and emerging energy efficiency technologies. In policy terms, we think it is important to match the right form of capital to each project for the greatest public benefit of the Fund over its life, and to have the funds working as quickly and efficiently as possible.

In 2009, the CEDF awarded a total of \$7.5 million in grants and incentives. We received 90 grant proposals seeking over \$13.6 million in response to two solicitations. We funded 39 projects for a total of \$5.4 million. The grantees included municipalities, non-profits, schools, farmers and small businesses from around the state. The Fund also provided \$2.1 million for the Small-Scale Renewable Energy Incentive Program plus \$38,900 for the Municipal Technical Assistance Program. In addition, the Fund provided \$3.1 million in loans to six renewable energy projects/businesses, and \$2 million to the Vermont Housing Conservation Board as directed by the legislature. In total, the Fund awarded \$12.6 million to promote clean energy in 2009.

Investments in the CEDF stimulate the economy by leveraging private and other investment funds. The \$18 million the fund has invested since its inception at the end of 2007 has leveraged over \$60 million in total project investment in areas from construction to manufacturing, project management, and business development. The 2009 grants and loans leveraged over \$39.5 million dollars in total project costs and will result in more than 6,900 kW of new renewable energy generation and an estimated 137 jobs created and/or retained. These projects are also expected to yield more than 17,000 tons of avoided CO₂ emissions.

The Clean Energy Development Fund has fully budgeted its fund balance and all the ARRA funds, meaning that all existing funds are committed. Businesses in the emerging renewable energy sector in Vermont depend upon predictable funding coming from CEDF to grow their businesses, and reductions or shifts in fund availability would be detrimental to this promising sector—one that has grown steadily under the incubation of the CEDF.

We believe the Clean Energy Development Fund has accomplished great things in 2009. It was a year of learning, and we are always working to achieve the highest public benefit for each invested dollar, fully cognizant of the scarcity of resources today.

Respectfully Submitted,

Andrew Perchlik
Director

Robert Dostis
Co-Chair

Sam Swanson
Co-Chair

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■ Purpose of this Report

The purpose of this annual report is to provide an account of the 2009 activities of the Vermont Clean Energy Development Fund (CEDF), including how the funds were managed and distributed to meet the goals of the Fund.

■ CEDF 2009 Highlights

Since its inception, the CEDF has awarded over \$18 million in grants to businesses, community groups, institutions, farms and individuals working to create the clean energy economy in Vermont. This public investment leveraged a total investment of more than \$60 million in renewable energy.

The CEDF was successful in meeting its funding goals for 2009 by awarding a total of \$5.4 million from two grant rounds, \$38,900 from the Municipal Technical Assistance Program, and \$2.1 million from the Small-Scale Renewable Energy Incentive Program totaling \$7.5 million. With the loans of \$3.1 million to six renewable energy projects/businesses, the Fund disbursed \$10.6 million to promote clean energy. In addition, the Fund executed a legislatively directed grant for \$2 million to the Vermont Housing Conservation Board (VHCB) at the end of the year bringing the total to \$12.6 million.

In total, the 2009 CEDF grants and loans leveraged over \$39.5 million dollars in total project costs. These projects will result in the creation of more than 6,900 kW of new renewable energy generation. Using US Department of Energy job formulas, the projects will yield an estimated 137 jobs created and/or retained. These projects are also expected to yield more than 17,000 tons of avoided CO₂ emissions.

2009 proved to be a busy year for the Fund. In addition to the numerous grant and loan applications received and awards issued, the Fund went through a structural change due to legislation passed in the 2009 Legislative Session. During the time that the new CEDF structure was being put in place the CEDF's Fund Manager, Anne Margolis, announced her departure after serving for the past fifteen months. The new Fund Manager, Andrew Perchlik, started at the beginning of November.

In addition to the structural changes, statutory changes directed all the clean energy related American Recovery and Reinvestment Act (ARRA) funds to the CEDF. This totaled over \$31 million in funding that the State is required to spend by 2012.

A considerable amount of extra time was needed for hiring the new Manager while establishing the legislated structural changes. Furthermore, there was significant delay in receiving the ARRA award and requirements from the US Department of Energy. The ARRA award was not finalized until September, 2009. And throughout the rest of the year there was a continuous stream of communications regarding the many restrictions and requirements connected to the ARRA funds. Due to these activities the CEDF experienced delays in getting the ARRA-funded programs started as quickly as originally planned during the 2009 Legislative Session.

In addition to the strategic investments in clean energy totaled above, the CEDF notes the following accomplishments from January through December 2009:

- Established a two year budget for \$12.4 million of CEDF-Entergy funding and \$31.6 million of AARA funds totaling \$44 million;
- Established a one year budget and plan for FY2010;
- Held two public comment hearings where dozens of comments were received and considered by the Board. Some of these comments resulted in changes to the CEDF programs and provided public guidance on the best use of ARRA funds.
- Commenced with a strategic planning process to strengthen the approach used by the Fund to grow the renewable energy sector;
- Developed and accepted a set of Policies and Procedures and Code of Ethics for the new Board;
- Completed a review of the Small-Scale Renewable Energy Incentive Program and established changes to the program that will expand it considerably in 2010;
- Made a decision that the CEDF would not make grants to Standard Offer projects, but will consider loans under extraordinary circumstances;
- Created new grant agreement and contract templates for the use of ARRA funds; and
- Released a Request for Proposals (RFP) for \$5.8 million of ARRA Energy Efficiency and Conservation Block Grant (EECBG) funds for energy efficiency and renewable energy projects by towns and schools. In response the CEDF received 324 applications requesting over \$13 million in funding. About half of these applications were selected to submit proposals in a second, comprehensive round. Awards for this program will be made in March of 2010.

■ Establishment of the Fund

In 2005, the Vermont General Assembly established the Vermont Clean Energy Development Fund (CEDF) through Act 74 (10 V.S.A. § 6523). The Act specifies that the Vermont Clean Energy Development Fund will be established and funded through proceeds due to the state under the terms of two Memoranda of Understanding between the Vermont Department of Public Service (DPS) and Entergy Nuclear VT and Entergy Nuclear Operations, Inc., and by any other monies that may be appropriated to or deposited into the Fund. The CEDF will receive payments from Entergy through 2012 with a final payment received in March of 2013.

The CEDF received \$21,999,000 from the State Energy Program through the American Recovery and Reinvestment Act (ARRA) and \$9,593,500 under ARRA through the Energy Efficiency and Conservation Block Grant (EECBG) program starting in fiscal year 2010.

RATIONALE

The CEDF offers a portfolio of funding opportunities to accelerate the development, commercialization, and production of clean energy in Vermont, including: grants, loans, equity investments, and contracts. The rationale that supports the Fund includes recognition that:

- The further development of clean energy generation in Vermont will provide environmental benefits, increased energy diversity, price stability, and a thriving clean energy market to enable clean energy businesses to develop and expand.

- The promotion of clean energy businesses and industry in the state will create additional employment opportunities. Creation and retention of quality jobs is important for current and future generations of Vermonters.
- Fulfillment of the Fund goals will also support Vermont’s greenhouse gas emission reduction targets as well as supporting the goal of receiving 25% of the State’s total energy use from renewable energy primarily from in-state farms and forests by 2025. In addition the CEDF goals support the objectives set forth in 30 V.S.A. § 8004 to meet all incremental energy growth in Vermont between 2005 and 2012 through renewable energy generation.

■ Purpose of the Fund

PURPOSE

The purposes of the fund shall be to promote the development and deployment of cost-effective and environmentally sustainable electric power and thermal energy or geothermal resources, and emerging energy-efficient technologies, for the long-term benefit of Vermont consumers, primarily with respect to renewable energy resources, and the use of combined heat and power technologies. (10 V.S.A. § 6523 (c))

GOALS

To the extent possible given funding availability, the Fund is managed to promote:

- The increased use of renewably produced electrical, thermal, geothermal energy, combined heat and power, and emerging energy-efficient technologies in the state;
- The growth of the renewable energy-provider and combined heat and power industries in the state;
- The creation of additional employment opportunities and other economic development benefits in the state through the increased use of renewable energy and combined heat and power technologies; and
- The stimulation of increased public and private sector investment in renewable energy and combined heat and power related enterprises, institutions, and projects in the state.

OBJECTIVES

- Increase the installation of renewable energy systems for homes, businesses, farms, and public buildings.
- Increase the amount of combined heat and power (CHP) in the state.
- Facilitate clean energy distributed generation that enhances grid stability.
- Facilitate and support efforts by Vermont communities to develop small-scale renewable energy projects.
- Help developers secure project financing for construction of eligible renewable energy generating facilities and support pre-development activity.

- Continue to grow clean energy related businesses and industry in Vermont.
- Provide financial and technical assistance for the design, development, and commercialization of clean energy and emerging energy efficiency technologies and products.

■ Guiding Principles

1. Support diversified portfolio of clean energy technologies that will benefit ratepayers and municipalities; leverage private and public investment; and have positive impacts in terms of economic development, additional employment opportunities, and environmental attributes.
2. Allow for sufficient risk taking in fund use to stimulate development of clean energy products, businesses, and market initiatives by investing the funds through grants, loans, and equity investments in the most appropriate fashion for each project to maximize the mission-related public benefit return over the life of the Fund.
3. Seek to remove market barriers related to the development and deployment of renewable energy and combined heat and power technologies in Vermont through the support of transformational technology, market and cultural developments.
4. Ensure maximum value from the CEDF by supporting initiatives and activities that are reliable, cost effective (or reasonably likely to become cost effective), and utilize commercialized or nearly commercialized technologies.
5. Pursue geographic distribution of projects throughout the state consistent with system needs, while providing citizens the maximum exposure to alternative generation opportunities.
6. Pursue organizational development that results in the least administrative cost to maximize funds for direct investment.
7. Participate in projects in which the funds will make a meaningful difference.

■ Management & Governance

ADMINISTRATION

In accordance with 10 V.S.A. § 6523, the Department of Public Service (DPS) provides the Clean Energy Development Board and its Fund Manager with administrative services. The DPS has extensive experience with issuing proposal solicitations and administering contracts and grants. The DPS also works with Vermont's ratepayers, power suppliers, and other stakeholders and interested parties on a regular basis. DPS staff managed the Fund until a permanent Fund Manager was hired in 2008 who currently manages the day-to-day operation of the Fund.

Prior to August 2009, the Fund was administered by the DPS with an Advisory Committee made up of legislators and the commissioner of the DPS. The Advisory Committee appointed an Investment Committee of nine whose members reviewed and approved the CEDF plans, budgets and program designs, and assisted the DPS in the review of grants and investments; determining the viability of a project, company, product or service; and evaluating marketing and business plans. This structure was changed in August of 2009 when a separate Board was set up to administer the CEDF per the legislative changes set forth below.

CLEAN ENERGY DEVELOPMENT FUND BOARD

As stipulated by changes made by the legislature in 2009, a Board was created consisting of nine directors [10 V.S.A. § 6523(e)]:

- Three at-large directors appointed by the Speaker of the House
- Three at-large directors appointed by the President Pro-tempore of the Senate
- Two at-large directors appointed by the Governor
- The State Treasurer, ex officio

The Board is required to develop a five-year strategic plan and annual program plan with input from a public stakeholder process, consistent with state energy planning principles, as well as an annual operating budget and proposed program designs to facilitate clean energy market and project development (including the use of financial assistance, investments, competitive solicitations, technical assistance, and other incentive programs and strategies). The Board is also responsible for holding quarterly public meetings, commissioning an audit every three years, and providing annual reports to the house and senate committees on natural resources and energy, the senate committee on finance, and the house committee on commerce and economic development. Finally, the Board retains and supervises the Fund Manager, who is housed within and assigned for administrative purposes to the Department of Public Service. The department also provides the Board and Fund Manager with administrative services.

The CEDF Board reviews and approves the plans, budget and program designs. The Board also assists the Fund Manager in the review of grants and investments; determining the viability of a project, company, product or service; and evaluating marketing and business plans.

In August of 2009, eight citizens were appointed to the Board. The term for the two members noted with an asterisk (*) is two years; all other Board members have four year terms.

- ❖ **Robert Dostis** – Green Mountain Power, Co-chair
- ❖ **Sam Swanson** – Pace Energy and Climate Center, Co-chair
- ❖ **David Blittersdorf** – Earth Turbines
- ❖ **Jo Bradley** – Vermont Economic Development Authority
- ❖ **Tom Evslin** – Chief Technology Officer, State of Vermont
- ❖ **Ellen Kahler*** – Vermont Sustainable Jobs Fund
- ❖ **Rich Sedano*** – Regulatory Assistance Project
- ❖ **Mark Sinclair** – Clean Energy Group

Jeb Spaulding, as the Vermont Treasurer, is an ex officio Director of the Board.

In 2009, the Board developed a set of policies and procedures to guide its activities, and passed a code of ethics. Subsequently, the Board embarked on a strategic planning process to be completed in 2010.

MANAGEMENT OF THE FUNDS

The Fund Manager and the Board work together to determine the amount of funds to be used for grants, loans, equity and/or subordinated debt investments. Since these types of financial support differ from one another, the CEDF manages each type as described below.

When a request for a grant is approved by the Board, funds will be dispersed by DPS based on specific requisitions by the grantee, which is subject to approval by the Fund Manager.

If a loan is requested and approved by the Fund Manager the Board then reviews the application and receives a recommendation from the Fund Manager. The Board decides if the loan application should be sent to the Vermont Economic Development Authority (VEDA) for underwriting analysis. If the application is sent on to VEDA, VEDA returns the application with an analysis and recommendation to the Board on the loan. If the Board gives final approval VEDA then prepares the loan documents, closes the loan, and manages the relationship with the borrower. VEDA handles the accounting for the loan, applies payments as they are received, and manages any loan collection activity as necessary. VEDA charges a modest fee for its services that was negotiated between VEDA and the CEDF.

The Board decides on a case-by-case basis whether to allocate funds for equity/subordinated debt investments and will identify resources to participate in due diligence and negotiate on the Fund's behalf. The preference is to co-invest with other established investment firms.

Case Study: Pleasant Street Apartments

The Pleasant Street Apartments comprise 24 units of affordable family housing in Enosburg Falls and include six identical four-unit buildings constructed in the 1980s. Housing Vermont proposed a deep energy retrofit coupled with fuel switching to provide a new model for redevelopment of aging townhouse construction in the state.

The project begins with energy efficiency improvements followed by installation of wood pellet boilers designed to meet the hot water needs of the apartment complex. In October, the CEDF awarded Housing Vermont with a \$48,000 grant to purchase the boilers for this neighborhood-level renewable energy project that supports affordable housing, stimulates the local economy and reduces carbon emissions.



Photo supplied by Housing Vermont

■ Programs & Funding

GRANT PROGRAM

The Fund held two regular grant rounds that netted ninety proposals seeking over \$13.6 million in funding. Applicants submitted thirty nine proposals under a January grant round requesting a total of \$5.4 million. From those proposals the CEDF made twenty one awards totaling \$2.4 million in April 2009. Under the July solicitation, fifty one applicants sought \$8.3 million in funding. Eighteen projects received awards totaling \$3 million in August 2009.

As part of the Grant program totals listed above the CEDF issued Pre-Project Financial Assistance Grants totaling \$552,264 with an average award of \$42,482. Construction project proposals (small, large, community, and special demonstration) yielded twenty-six awards totaling \$4,850,850 with an average grant of approximately \$186,500.

GRANT FUNDING CATEGORIES

Competitive requests for proposals were issued in 2009 in the following categories.

Small-Scale Systems

This category includes renewable energy systems totaling no more than 15 kW of capacity per installation of CHP systems, micro-turbines or fuel cells at residential or small commercial buildings that generate electricity and are grid tied.

The maximum grant award for this category was \$60,000 and required a 50% match, no more than 25% of which could be in-kind match. Projects were to be completed within two years of award.

Solar electric, solar hot water and small-scale wind were excluded under this category as incentives were available under the VT Small-Scale Renewable Energy Incentive Program.

Case Study: Large-Scale “PV Colony”

Bill and Karen Root of GWR Engineering, PC in Charlotte planned to move their engineer office and personal residence to “NET-ZERO & Beyond” by 2012 by transferring existing building energy loads to a solar supported infrastructure. Unlike smaller projects, the intent was to demonstrate the ability of larger buildings to transition to net-zero energy given their increased power demand and higher costs.

In September 2009, with a grant of \$28,700 from the CEDF, GWR installed four PV tracker racks with a 15.2 kW capacity estimated to yield 26,000 kWh of power. The project has the potential to serve as a group net metering site in the future for neighbors upon successful implementation. The applicant acknowledged that the project would not have gone forward without the support of the Clean Energy Development Fund.



Photo supplied by GWR Engineering, PC

Large-Scale Systems

This category includes renewable energy and combined heat and power projects greater than 15 kW in capacity located at commercial, industrial, institutional, and public facilities. Renewable energy projects may include, but are not limited to: solar electric; hydroelectric; farm, landfill, and sewer methane recovery; biomass power; and wind. This may include utility-scale installations. All projects must generate electricity and be grid-connected. The installation of micro-turbines and fuel cells at large commercial or industrial buildings is also eligible.

The maximum grant award for this category in 2009 was \$250,000 and required a 50% match, no more than 25% of which could be in-kind match. Projects were required to be completed within two years of award.

Special Demonstration Projects

This category includes projects that demonstrate and facilitate the development and commercialization of innovative renewable energy products, technologies, technology applications, and processes. All electric generation projects must be grid-connected. These projects must be designed to focus on market building and technology deployment strategies as opposed to traditional research and development activities. Projects are expected to include a technical and economic analysis of the technology application or demonstration; expected project impact on the near-term commercialization of this technology; and dissemination of project information to potential users of the technology.

The maximum grant award for this category in 2009 was \$250,000 and required a 50% match, no more than 25% of which could be in-kind match. Projects were to be completed within two years of award.

Community- Scale Systems

In July, the CEDF added a new category for community-scale projects including renewable energy and CHP projects greater than 250 kW in AC rated capacity and/or greater than 8 million Btu/hour (thermal) or 250 tons of capacity (geothermal). Renewable energy projects may include, but are not limited to: solar; hydroelectric; farm, landfill and sewer methane recovery; biomass power; district heating; and wind. This may include utility-scale installations. The installation of micro-turbines, fuel cells, geothermal systems, and CHP systems at commercial, industrial, and institutional buildings are also eligible. All projects that generate electricity must be grid-connected.

The maximum grant award for this category is \$500,000 and requires a 50% match, no more than 25% of which can be in-kind match. Projects should be completed within two years of award.

The table below lists the projects selected for grant awards along with the estimated kWh generated per year and kW rated capacity for electric production, Btus for thermal production, and tons for geothermal projects.

2009 GRANT AWARDS

PROJECT	LOCATION	AMOUNT (\$)	ESTIMATED kWh/year*	RATED CAPACITY
SMALL-SCALE SYSTEMS				
<i>Pleasant Street Biomass Project</i> Housing Vermont	Enosburg Falls	\$48,000	567,000,000 (Btus)	250,000 Btu/hr
LARGE-SCALE SYSTEMS				
<i>Housing Vermont PV Projects</i> Housing Vermont	Seven Locations	\$500,000	1,430,633	966 kW
<i>Barre Rock of Ages Wind Turbine</i> Northern Power Systems	Barre	\$130,000	120,000	100 kW
<i>Gates Solar Hot Water Project</i> Housing Vermont	Barre, Brattleboro, Bennington & Burlington	\$193,320	1,699,250 (Btus)	716,000 Btu/hr
<i>Bethel Mills Hydro Upgrade</i> Bethel Mills, Inc.	Bethel	\$250,000	600,000	405 kW
<i>Brattleboro Wastewater Facility Biomass Co-generation</i> Town of Brattleboro	Brattleboro	\$250,000	488,600	65 kW
<i>Iroquois Acres Farm Methane Digester</i> Steve Ouellette	Bridport	\$250,000	262,800	40 kW
<i>Champlain College Geothermal Project</i> Champlain College	Burlington	\$125,000	568,260,000 (Btus)	34.75 tons
<i>City Market Onion River Co-op PV (ARRA)**</i> City Market Onion River Co-op	Burlington	\$53,900	32,748	30 kW
<i>GWR PV Colony</i> GWR Engineering, PC	Charlotte	\$28,700	26,000	15.2 kW
<i>Williams Hill PV</i> Peter Schneider & Jessica Donovan	Charlotte	\$33,250	23,868	14 kW
<i>Joneslan Farms Methane Digester</i> Brian & Steve Jones	Hyde Park	\$250,000	223,380	30 kW
<i>Barrett Green Building PV</i> Barrett Enterprises	Montpelier	\$33,760	21,644	15.4 kW
<i>Shore Acres Farm Solar PV</i> Shore Acres Farm	North Hero	\$20,000	29,410	19 kW
<i>Norwich Community PV (ARRA)**</i> Town of Norwich	Norwich	\$220,000	256,694	237 kW
<i>Putney School Solar PV Net Zero Project</i> Putney School	Putney	\$221,000	52,311	36.8 kW

* Output estimated in Btus/yr for thermal plants and geothermal projects.

** When "ARRA" is shown, funding was provided via the American Recovery and Reinvestment Act of 2009; otherwise funds derive from other CEDF sources.

PROJECT	LOCATION	AMOUNT (\$)	ESTIMATED kWh/year	RATED CAPACITY
LARGE-SCALE SYSTEMS, CONT'D				
<i>Camel's Hump Middle School Solar PV Project</i> Chittenden East Supervisory School District	Richmond	\$250,000	82,551	72 kW
<i>Heritage Aviation Solar PV Project</i> Heritage Aviation	South Burlington	\$20,000	29,594	19.2 kW
<i>Shelburne Farms PV</i> Shelburne Farms	Shelburne	\$250,000	94,727	68.1 kW
<i>Monument Farms Methane Digester</i> Monument Farms	Weybridge	\$250,000	741,359	91 kW
<i>St. Francis Xavier School PV</i> St. Francis Xavier School	Winooski	\$250,000	86,931	62 kW
SPECIAL DEMONSTRATION PROJECTS				
<i>Riverside Industrial Biomass Co-generation Project</i> Economic Development Group	Brattleboro	\$250,000	2,788,100	375 kW
<i>Coventry Village School Biomass Project</i> Coventry Village School Board	Coventry	\$190,000	N/A	1,500,000 Btu/hr
<i>Keewaydin Farm Methane Digester</i> Leslie & Claire Pike	Stowe	\$250,000	131,400	20 kW
COMMUNITY-SCALE PROJECTS				
<i>Green Mountain Biomass Energy Park CHP</i> Green Mountain Biomass	Lyndonville	\$500,000	17,040,000	2,175 kW
EMERGING EFFICIENCY TECHNOLOGIES				
<i>Nathaniel Group LED PV Concentrator</i> Nathaniel Group, Inc.	Montpelier	\$33,920	N/A	N/A
Total Grants		\$4,850,850	24,562,750 kWh/yr	4,856 kW

■ Focus on Farms

Over the course of its existence, the Clean Energy Development Fund has been a key partner in the development of farm methane projects in Vermont. Since 2006, the CEDF has provided more than \$3.7 million in grants and nearly \$1.5 million in loans to farm-based projects (e.g., anaerobic digesters) around the state. This emphasis on farms has helped Vermont become a national leader in the development of farm methane.

FARM METHANE PROJECT	Grant Awards	TOWN	RATED CAPACITY
Brian & Steve Jones (Joneslan Farms)	\$250,000	Hyde park	30 kW
Fillmore Farms, LLC	\$250,000	Bennington	154 kW
Iroquois Acres	\$250,000	Bridport	40kW
Gebbies' Maplehurst Farm	\$250,000	Greensboro	90 kW
Dubois Farm, Inc.	\$250,000	Vergennes	335 kW
Green Mountain Dairy LLC	\$182,800	Highgate	225 kW
Berkshire Cow Power LLC	\$127,000	Richford	600 kW
David and Cathy Montagne	\$140,000	St Albans	240 kW
Gervais Family Farm, Inc	\$250,000	Bakersfield	200 kW
Boucher BioPower LLC	\$250,000	Highgate Ctr	633 kW
Westminster Farms	\$250,000	Westminster	200 kW
Neighborhood Energy, LLC	\$250,000	Coventry	200 kW
AgNorth BioPower LLC	\$250,000	Alburgh	1,900 kW
Avatar Energy, LLC	\$24,626	Charlotte	17 kW
Chaput Family Farms	\$250,000	North Troy	300 kW
Neighborly Farms	\$250,000	Randolph Ctr	200 kW
Monument Farms	\$250,000	Weybridge	91 kW
Total Grants		\$3,724,426	5,455 kW

APPROVED FARM METHANE PROJECT LOANS			
Chaput Farm	\$516,293	North Troy	(as noted above)
Gervais Family Farm	\$700,000	Bakersfield	“
Boucher BioPower LLC	\$250,000	Highgate Center	“
Total Loans		\$1,466,293	

Case Study: Westminster Farms

Beginning in the fall of 2006, Clayton Goodell and his family began exploring the potential for installing a methane digester at their family-owned Westminster Farm. Drawing from the combined resources of the farm and experiences with previous digester projects in Vermont, the Goodells developed a vision for a 200 kW system constructed by GHD, Inc. from Chilton, Wisconsin – the same firm that designed and installed digesters at three prior farms in the state.



Photo supplied by Westminster Farms

The system was designed to produce biogas from the 750 cow dairy herd, and to generate renewable electrical energy on a continuous basis yielding an estimated 1.4 MW of power. In addition, the farm would benefit from digester effluent used as crop fertilizer and for bedding material. The generators commenced operation in July 2009 with electricity flowing to Green Mountain Power. The farm estimates that it will reduce its greenhouse gas emissions by more than 2,000 metric tons annually.

Westminster Farms received a \$250,000 grant from the CEDF in 2007 as part of an overall project budget reaching nearly \$1.5 million. Given the size and complexity of a digester project, the resources provided by the CEDF allowed the project to become economically feasible. The Goodells reported that “the grant monies that were available from the CEDF to fund the project played a huge part in the decision to build because without this grant, the enormous cost would make the project not feasible.”

Pre-Project Financial Assistance

This category includes feasibility studies and pre-development activities to develop new renewable energy generation facilities and combined heat and power systems, which may require high-risk, early-stage activities and for those projects which do not have the resources to finance pre-project activities. Projects under this category may include: renewable energy resource assessments; site assessments; environmental impact and regulatory analysis; permitting activities; technical and engineering feasibility studies; engineering designs; and economic and financial feasibility studies. Other similar projects not specifically listed above will also be considered.

In 2009, the maximum grant award for this category was \$100,000 and required up to a 50% cash match, no more than 25% of which could be in-kind. Projects were to be completed within one year of award.

The following applicants received Pre-Project Financial Assistance grants to assist them in scoping their potential activities. Pre-project funding is often difficult to obtain for project developers. CEDF provides these grants to help spur future investment.

PRE-PROJECT FINANCIAL ASSISTANCE AWARDS

PROJECT	LOCATION	AMOUNT (\$)
<i>Bolton Wind Power Project</i> Green Mountain Clean Energy, LLC	Bolton	\$82,700
<i>Brattleboro Biomass CHP District Energy Study</i> Town of Brattleboro	Brattleboro	\$20,000
<i>Brattleboro-Allard Biomass Co-generation Study</i> Allard Lumber Company	Brattleboro	\$15,000
<i>Burlington Biomass District Energy Study</i> City of Burlington	Burlington	\$70,000
<i>Sunrise Village Northwind 100 Wind Turbine Feasibility Study</i> Sunrise Condominium Association	Killington	\$24,767
<i>Green Mountain Biomass Co-generation Feasibility</i> Green Mountain Biomass	Lyndonville	\$25,000
<i>Middlebury Renewable Energy Study (ARRA)</i> Town of Middlebury	Middlebury	\$24,999
<i>Georgia Mountain Community Wind Project</i> Georgia Mountain Community Wind, LLC	Milton, Georgia	\$75,123
<i>Montpelier Community Biomass Energy System</i> City of Montpelier	Montpelier	\$75,000
<i>Randolph Village Biomass District Energy Study</i> Randolph Area Community Development Corporation	Randolph	\$41,300
<i>Rutland Digester Co-generation Study</i> Rutland Redevelopment Authority	Rutland	\$25,000
<i>Townsend Dam Hydro Study (ARRA)</i> Blue Heron Hydro, LLC	Townsend	\$25,000
<i>Falling Waters/Troy Hydro Feasibility Study</i> Falling Waters Hydro Power, Inc.	Troy	\$48,375
Total		\$552,264

Technical Assistance Program

The CEDF offers technical assistance grants to Municipalities, Public Schools, and Vermont State Colleges. \$50,000 was allocated for grants under this program in 2009. The maximum grant award for this category was \$5,000 with a 10% cash match. The grants under this technical assistance program are limited to one grant per applicant per year.

Eligible categories for the technical assistance grants are:

- Assistance in evaluating site(s) for potential use of clean and/or renewable electric energy technologies
- Assistance in developing and/or permitting clean and/or renewable electric energy generation projects
- Assistance in preparing funding proposals for clean and/or renewable electric energy generation projects
- Assistance in developing bid specifications to prepare RFPs when seeking cost proposals for clean and/or renewable electric energy generation projects

In 2009, CEDF awarded a total of \$38,900 in technical assistance funds to:

• <i>Bellows Falls Water Facility Solar & Micro-hydro Feasibility Study</i> , Village of Bellows Falls.....	\$4,500
• <i>Fair Haven Hydro-Electric Feasibility</i> , Town of Fair Haven	\$4,500
• <i>Greensboro Hydro Study II</i> , Town of Greensboro	\$5,000
• <i>Northfield Hydro Study</i> , Village of Northfield	\$5,000
• <i>Jacksonville Pond Micro-Hydro Study</i> , Village of Jacksonville.....	\$5,000
• <i>Norwich Community Energy Study</i> , Town of Norwich	\$4,950
• <i>Putney Micro-Hydro on Sacketts Brook</i> , Town of Putney	\$4,950
• <i>Windsor Hydro Study</i> , Town of Windsor	\$5,000
Total	\$38,900

LOAN PROGRAM

The CEDF loan program was launched in November 2007 to fund a wide variety of clean and/or renewable electric energy technologies including solar photovoltaic; wind energy; farm, landfill and sewer methane recovery; CHP; thermal and geothermal systems; hydroelectric systems; and emerging energy-efficient technologies. All electric-generation projects must be grid-connected. The CEDF will make loans that meet the Fund's objectives and advance the overall goals of the Fund as more specifically set forth in 10 V.S.A § 6523 and the CEDF Strategic Plan.

Eligible borrowers may include individuals, sole proprietorships, municipalities, partnerships, limited liability companies, Subchapter S-corporations, non-profit corporations, and foreign corporations with Vermont subsidiaries/affiliates. The CEDF's loans may not exceed \$500,000 (for the first half of 2009 the limit was \$1 million) per project with a \$50,000 minimum loan amount. All loan funds must be used for activities or assets directly related to the project and have at least 10% of a project financed with equity.

Funds can be used to purchase fixed assets, including real property, machinery, equipment, and for working capital, including but not limited to the financing of inventory and accounts receivable.

Interest rates for CEDF loans are fixed by the Board at 2%. The normal loan term is 10 years with a 15-year amortization for structure and real estate loans, and a maximum 7-year term and amortization for machinery and equipment loans. Term working capital loans will generally be made for three years, although there may be flexibility depending on the nature of the project and the assets being financed. Borrowers pay an application fee of 1% on the loan amount capped at \$1,500 once the loan is approved.

In 2009, the Board reviewed applications quarterly. The typical review period is 60 days for complete applications. Upon completion of review, the Board either sends the application to VEDA for underwriting or rejects the application. The Board then issues its final approval or denial for requests.

The CEDF received 11 applications for loans. Of those, the Board offered six loans totaling \$3,072,493 with an average loan of approximately \$512,000.

2009 LOAN AWARDS

PROJECT	LOCATION	AMOUNT (\$)	ESTIMATED kWh/year	RATED CAPACITY
<i>Green Mountain College – Biomass Heating</i>	Poultney	\$750,000	427,000	150 kW
<i>Purpose Energy – Brewery Waste Bio-Digester</i>	South Burlington	\$850,000	884,190	132 kW
<i>Chaput Farm – Farm Methane</i>	North Troy	\$516,293	2,496,000	300 kW
<i>Carbon Harvest (ARRA) – Landfill Methane</i>	Brattleboro	\$500,000	4,098,585	468 kW
<i>Catamount/Bolton Wind</i>	Bolton	\$206,200	286,000 – 360,000	100 kW
<i>Pellergy – Wood Pellet Burner Manufacturing</i>	Barre	\$250,000	N/A	N/A
TOTAL LOANS		\$3,072,493	8,191,775 kWh/yr	1,150 kW

VERMONT SMALL-SCALE RENEWABLE ENERGY INCENTIVE PROGRAM

The CEDF has provided funding for the Vermont Small-Scale Renewable Energy Incentive Program since the CEDF's inception. The small-scale renewable energy incentive program has been administered by the Renewable Energy Resource Center, which is a program of the Vermont Energy Investment Corporation, since the beginning of the incentive program. The program provides an incentive to individuals, businesses, and multi-family low-income housing projects for solar electric, solar hot water, small hydropower, and small wind grid-connected systems.

Since its inception in 2003, the program has provided \$4,632,469 in incentives to support the installation of 1,202 renewable energy systems with a total installed cost of \$23.7 million.

The CEDF budgeted \$1.5 million for two years in 2008. After one year all reservations were made for the \$1.5 million. To keep the program funded the Board allocated an extra \$1 million that they anticipated would last until ARRA funds could be used for this program. This funding in turn was reserved by the end of 2009 leading to a decision to provide \$225,000 in ARRA funds as bridge funding until the results of an RFP for the administration of a larger \$5.275 million program could be completed. These additions demonstrate that the program is continually assessed to ensure stable and continued funding and will be responsive to market conditions.

2009 Incentive Levels for the Small-Scale Incentive Program

Solar Electric

- \$1.75/Watt for individuals and businesses
- \$3.50/Watt incentive for multi-family low-income housing projects

Solar Hot Water

- \$1.75/100 Btu/day for individuals and businesses
- \$3.50/100 Btu/day incentive for multi-family low-income housing projects

Wind

- \$2.50/Watt for individuals and business (\$4.00/Watt for Vermont-made components)
- \$4.50/Watt for schools, farms and local/state governments

Hydroelectric

- \$1.75 per 3 ft-gal/min
- \$3.50 per 3 ft-gal/min for schools, farms, local/state governments, and multifamily low-income housing projects

Between January 1 and December 31, 2009, a total of 363 systems were installed, over four times as many as the previous year with another 165 reserved in that time frame. Installed capacity rose from 276.7 kW in 2008 to 612.1 kW in 2009, a 221 percent increase. The table below summarizes the wind, solar PV, and solar hot water system installations and system capacities for 2008 and 2009. The CEDF's \$2.1 million outlay leveraged total project costs of over \$7.5 million in renewable energy investments in the state.

VERMONT SMALL-SCALE RENEWABLE ENERGY INCENTIVE PROGRAM: 2 YEAR SUMMARY

	WIND	SOLAR PV	SOLAR HOT WATER	TOTAL
Incentives Paid for Installed Systems	\$234,375	\$768,238	\$351,947	\$1,354,560
Current Reservations (Not Installed)	<u>\$128,750</u>	<u>\$397,931</u>	<u>\$248,199</u>	<u>\$774,880</u>
Total	\$363,125	\$1,166,169	\$600,146	\$2,129,440
Total Cost of Installed Systems	\$715,473	\$4,269,427	\$2,572,313	\$7,557,213
Systems Installed				
2008:	5	69	10	84
2009:	17	138	208	363
Installed Capacity				
2008:	21.7 kW	255 kW	8,130 kBtu/d	276.7 kW
2009:	86.6 kW	525.5 kW	18,022 kBtu/d	612.1 kW
Systems w/ Incentive Reservations (as of 12/31/09)	9	64	92	165
Total Proposed Capacity of Systems	52.2 kW	247.7 kW	10,317 kBtu/d	~300 kW

■ ARRA Funding: Federal Stimulus Funds & The Recovery Act

In 2009, the Fund received a substantial infusion of resources from the American Recovery and Reinvestment Act including \$21,999,000 for the ARRA-State Energy Program and \$9,593,500 from the US Department of Energy through the Energy Efficiency and Conservation Block Grant (EECBG) program for distribution in FY 2010. This unprecedented amount of funding presents substantial new opportunities to expand the scope of renewable energy development in Vermont.

The Vermont legislature specified that the ARRA funds are to be used for:

- The Vermont Small-Scale Renewable Energy Incentive Program;
- Grant and loan programs for renewable energy resources;
- Grants and loans to thermal energy efficiency incentive programs, community-scale renewable energy financing programs, certification and training for renewable energy workers, promotion of local biomass and geothermal heating, and anemometer loan program;
- \$2 million for a public-serving institutions efficiency and renewable energy grant and loan program and \$2 million to the Vermont Telecommunications Authority to make grants of no more than \$10,000 per turbine for the installation of small-scale wind turbines and co-located cellular transmission towers. These were subsequently combined into \$4 million for Public Serving Institutions including \$1 million for state buildings; \$2 million for energy efficiency and renewable energy grants and loans to universities, colleges and hospitals; and \$1 million for municipal buildings.
- \$2 million to the Vermont Housing and Conservation Board for non-profit weatherization and renewables grants and loans in various low-income multi-family units across the state; and
- \$880,000 to the 11 regional planning commissions (\$80,000 to each) for energy efficiency and conservation activities eligible under the EECBG program.

The CEDF received 324 pre-applications for over \$13 million in funding from the \$5.8 million available through the EECBG program during the December solicitation. The Board selected 162 to submit full proposals representing over \$6.7 million in funding. In March 2010, the CEDF will determine which cities, towns, villages, schools and school districts will receive EECBG awards.

The Fund plans to issue the remaining ARRA SEP and EECBG funding in 2010 grant rounds. All ARRA funds shall be disbursed, administered, and accounted for in a manner that ensures rapid deployment of the funds and is consistent with all applicable requirements of ARRA, including requirements for administration of funds received and for transparency, timeliness, energy savings, matching, and accountability. Those requirements will be passed through to all recipients of ARRA funding from CEDF.

■ Conclusion

Since its inception, the CEDF has harnessed the funds provided by the State and Federal governments to drive increases in renewable energy production in Vermont. With more than 6,900 kW of renewable power installed and 137 jobs created or retained, the Fund continues to demonstrate its ability to get renewable energy systems installed while continuing to build the State's clean energy economy .