VERMONT

CLEAN ENERGY DEVELOPMENT FUND

PUBLIC SERVICE DEPARTMENT

Clean Energy Development Fund Annual Report to the Vermont Legislature

Fiscal Year 2014
July 2013 – June 2014

Submitted 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 of the Vermont General Assembly

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Purpose and Scope of this Report

The purpose of this annual report is to detail the activities undertaken, the revenues collected, and the expenditures made for Fiscal Year 2014 (July 1, 2013 to June 30, 2014) by the Vermont Clean Energy Development Fund (CEDF). The report also provides information on progress the CEDF made toward its advancing its goals and fulfilling its purpose as directed by the Legislature. The report is intended to provide information to the Legislature, clean energy stakeholders, and the citizens of Vermont.

Fiscal Year 2014 Summary

Fiscal year 2014 (FY14) was the first full fiscal year in the implementation of the CEDF's 5-year Strategic Plan, adopted in January 2013. At that time, and in preparation for FY14, the CEDF was deploying what was assumed to be the last payment from Entergy Vermont Yankee (EVY).

The new Strategic Plan presented opportunities for the CEDF to help shape the next phase – post EVY – of clean energy investment in the state. The Strategic Plan forms the foundation for the CEDF's Annual Program Plans, including the FY14 plan.

The FY14 plan, for the first time, did not assume any funding from EVY. During the 2013 legislative session, the Legislature appropriated $1.3 million to the CEDF for FY14. Of that, $1,074,000 came from proceeds of a legal settlement agreement between the Vermont Attorney General and the American Electric Power company.

At the end of FY14, a new agreement between the State and EVY resulted in the CEDF receiving an additional and final payment of $5.3 million, which was received in April 2014. Those funds will be used in fiscal year 2015 (FY15) and likely into fiscal year 2016.

Part of the agreement for the $5.3 million from EVY was that at least 50 percent of the funds would be spent for the benefit of Windham County. At the end of FY14, as the CEDF was developing its FY15 plan, it held a public hearing in Windham County and took public comments specifically on how those targeted funds could best be spent for the benefit of the County.

CEDF's primary program activity in FY14 was continued support of investments in renewable energy through the Small Scale Renewable Energy Incentive Program (SSREIP). The SSREIP expenditures represented 88 percent of the total funding awarded during the year. The Fund also made two awards for biomass district heating as part of the legislatively mandated Vermont Village Green program commissioned the state's first Clean Energy Industry Survey Report, among other smaller awards.

Overall, FY14 was one of continued rapid growth in the Vermont clean energy economy. It also marked a transition point for the CEDF from broad-based support of all renewable energy technologies, with PV receiving the most funding, to a focus on strategic investments in advanced wood heating. As FY15 commenced, the CEDF began winding down its PV programs and expanding its efforts to evolve the advanced wood heating market in Vermont.

Highlights

Highlights for FY14 include:

1. Restructuring of the Small Scale Renewable Energy Incentive Program (SSREIP).
   The CEDF brought the administrative functions of processing the SSREIP incentive payments into the Public Service Department (PSD) instead of using the contracted program administrator for these tasks. While this transition came with its administrative difficulties, it resulted in a substantial savings to the CEDF. The CEDF also eliminated incentives for wind and commercial PV systems and lowered the incentive for residential PV projects from $0.45/watt (W) to $0.25/W. Nevertheless, the SSREIP continued to see increased installations of residential PV projects.

2. Focus on Advanced Wood Heating.
   The 2013 Strategic Plan found that, in order to maximize its effectiveness, the CEDF needed to focus its efforts on one sector or technology of the broader clean energy market. As part of its FY15 Plan, the CEDF selected Advanced Wood Heating as that focus. The CEDF also supported the installation of an advanced wood pellet district heating project in Brattleboro with a $40,000 grant.

3. First Vermont Clean Energy Industry Report.
   The CEDF commissioned the state's first report designed to characterize the status of Vermont's clean energy sectors. This report showed that clean energy businesses employ 15,286 workers at 2,684 employment locations throughout the state, which represents approximately 4.3% of the state's workforce – the highest percentage in the country[1].

4. Stafford Hill Solar Storage Demonstration Project.
   The CEDF incentivized its first electrical energy storage project, a 2 megawatt (MW) battery storage system paired with 2 MW of solar, located in Rutland, VT, on a capped landfill. The system is designed to facilitate renewable energy integration with the electric distribution grid and explore secondary applications, including a renewables-powered microgrid. The $50,000 CEDF grant leverages $285,000 from the U.S. Department of Energy and $5.3 million in total project costs.

Authority, Funding, & Resources

The Vermont General Assembly established the CEDF through Act 74 of 2005 (30 V.S.A. §8015). The purpose of the CEDF is *"to promote the development and deployment of cost-effective and environmentally sustainable electric power and thermal energy or geothermal resources for the long-term benefit of Vermont consumers, primarily with respect to renewable energy resources, and the use of combined heat and power technologies."*

The CEDF is administered by the PSD, which employs a CEDF Manager and dedicates additional PSD staff time to CEDF tasks as needed. During the fiscal year, the CEDF spent $81,385 on administration. This equals just 1.7% of total CEDF monies actually expended in FY14 ($4,732,719).

[1] Of those states known to have calculated and published this metric. This includes Massachusetts, California, and other states with significant clean energy industry sectors.

➢ **Clean Energy Development Board**

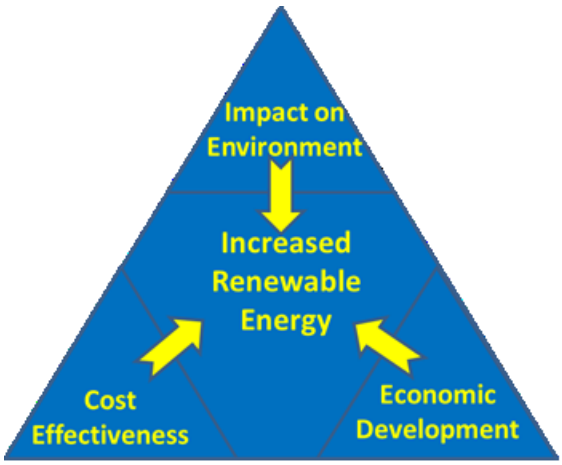
The CEDF is overseen by a seven-person board appointed by legislators and the Commissioner of the Public Service Department. During FY14, the Board consisted of the following members: Gaye Symington (Chair), Sam Swanson (Vice Chair), Jo Bradley, Jennifer Hollar, Linda McGinnis, Johanna Miller, and Mark Whitworth. The CEDF Board guides CEDF activities in reference to its legislative purpose and the Strategic Plan approved by the Board in January of 2013. The Strategic Plan sets out a vision, goals, objectives, and strategies to promote the development and deployment of renewable energy resources in Vermont. The Board works with the PSD in the creation of the CEDF's plans and programs.

The Board met nine times during the fiscal year. Much of the Board's activity was focused on revisions to the Small Scale Renewable Energy Incentive Program, as well as preparations for the CEDF's first evaluation. Minutes of the CEDF Board's meetings are posted on the PSD's CEDF web page (http://publicservice.vermont.gov/topics/renewable_energy/cedf/board). For more details on the CEDF Board, see ***Appendix One***.

Five Year Strategic Plan

A new five-year Strategic Plan was approved by the CEDF Board in January 2013. The Strategic Plan included the following vision for the CEDF:

> *The vision for the CEDF is to serve the citizens of Vermont by increasing local small-scale renewable energy generation while maximizing associated economic development. The Fund coordinates with other state programs and private entities to integrate and advance renewable energy across all sectors of the State's energy economy.*



The CEDF's primary goal is increased renewable energy generation in Vermont. Supporting the primary goal are three objectives:

- Advance development of the clean energy sector of the Vermont economy
- Increase cost effectiveness of clean energy
- Decrease environmental impacts of Vermont's energy use

In pursuit of the primary goal and three objectives, the CEDF has focused on the following strategies:

1. Identify deployment barriers to renewable energy development and coordinate with industry, state agencies, and private organizations to develop solutions that overcome those barriers
2. Strengthen and build the markets for select distributed renewable energy technologies
3. Build connections between the deployment of renewable energy and energy efficiency
4. Increase jobs and revenue in the Vermont Clean Energy (CE) industry sector

5. Educate and support CE developers and businesses in obtaining other incentives and financing
6. Support and strengthen CE finance and investment-related activities
7. Increase the leverage of CEDF monies while helping to drive the costs of CE projects down
8. Focus support on those CE technologies and CEDF programs that maximize the reduction of Vermont's energy related carbon emissions
9. Continually evaluate programs, activities, and outcomes in order to adjust programs as necessary to meet goals

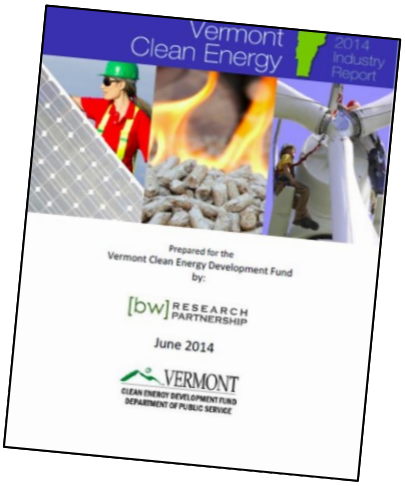
Awards & Activities

The awards (grants, incentives, and contracts) made by the CEDF in FY14 are described below. In addition, the CEDF continued to administer awards made in prior fiscal years.

➢ *Vermont Clean Energy Industry Report*

[BW Research, Inc.; $149,957 for 3-Year Contract]

On July 2, 2014, Governor Shumlin released the first *Vermont Clean Energy Industry Report (VCEIR)*, commissioned by the CEDF to establish a baseline for jobs in the state's CE industry.[2] The report is based on the first of three studies to be conducted by BW Research Partnership, Inc. under a three-year, competitively bid contract with the PSD. This initiative is designed to replicate similar reports in other states that rely on direct employer feedback through a representative survey. The methodology employed in Vermont reflects a very similar approach taken in Massachusetts, Illinois, and elsewhere. By implementing such an approach, the report will allow Vermont to characterize the CE industry effectively and allow comparisons with other states and regions.



Highlights

Select findings from the first report include:

- The Vermont CE cluster employs 15,286 workers at 2,684 employment locations throughout the state, which represents approximately 4.3% of the state's workforce. Of these workers, 73.8% spend a majority of their time and 52.2% spend all of their time conducting CE work.
- The CE cluster's employment expansion outpaced overall state job growth over the preceding 12 months (3.4% vs. 0.2%). Of the workers who were added to the CE sector, 81% were new employees, while 19% represented existing employees who were given new CE responsibilities. The CE sector is projected to add 1,832 workers over the next 12 months, representing an overall growth rate of 12%.
- The majority of CE establishments are small, with 61.9% having five or fewer employees.
- Vermont firms currently employ 1,551 solar workers, 1,384 biomass workers, 304 wind workers, and 1,307 other renewable energy workers.

[2] Download the VCEIR at http://publicservice.vermont.gov/topics/renewable_energy/cedf

- Beyond the greater New England region, the Vermont clean energy industry has a very small foothold, with only 9.8% of customers coming from other parts of the U.S., and 1.8% from international sources.

The CEDF plans to issue the second edition of the VCEIR in 2015, and the third in 2016. The results from the VCEIR helped inform the Total Energy Study, released by the PSD in December 2014.

➢ *Solar Model Contract Project*

[Vermont League of Cities & Towns – $14,875, contract; School Energy Management Program, Vermont Superintendent's Association – $5,000 separate grant]

The CEDF added this new activity to its portfolio, with the goal of further reducing the costs of public solar PV projects. Recent cost decreases for solar PV can largely be attributed to the rapid international expansion of PV. However, even as hardware has become more affordable, the price of installation still reflects costly legal fees and other so-called "soft costs." Typically, a town or school needs to spend scarce resources evaluating and negotiating complex legal agreements associated with solar leases or power purchase agreements.

To address this challenge, the CEDF initiated an effort to develop and disseminate a "model contract" for third-party ownership of solar PV projects to benefit Vermont schools and towns. By facilitating the development, stakeholder review, and dissemination of an annotated model contract document and associated lease agreement, schools and municipalities will have access to a tool designed to save time and effort in developing comprehensive and fair legal agreements for solar PV projects.

➢ *Small Scale Renewable Energy Incentive Program & Targeted Project Support*

In addition to the Clean Energy Industry Report and Model Contract Project, the Fund's primary activity in FY14 again was the Small Scale Renewable Energy Incentive Program (SSREIP). In addition to the 1,038 incentives payments made through the SSREIP, three grant awards were made in FY14. Two grants were made as part of the legislatively created Village Green Program's effort to support biomass district heating: one for the installation of a new wood pellet district heating system for the BG Enterprises' Estey Buildings in Brattleboro, and the second to the City of Montpelier. The third grant was to Green Mountain Power for an electrical energy storage pilot project. The grants, contracts, and incentives made during FY14 are listed in **Table 1**, described below in greater detail, and displayed on the FY14 award map (see page 12).

In total, the CEDF awarded $3.09 million to projects resulting in a reported $30 million in total project costs; this is a substantial investment in Vermont's CE infrastructure. These investments demonstrate that the CEDF was able to leverage about $8.70 of additional investment for each CEDF dollar awarded.

Competitive Grant: *Biomass District Energy Project* – CEDF issued a competitive grant under the legislatively created Village Green Program to B.G. Enterprises for a 340,000 BTU/hour wood pellet biomass district energy project at the Estey Building in Brattleboro. Through a $40,000 grant, CEDF leveraged an additional $95,000 for the construction of a pellet heating system for two buildings using an underground interconnect. The investment is expected to save more than $9,265 in annual heating expenses and replace about 6,900 gallons per year of fuel oil.

City of Montpelier District Heating Project – The City of Montpelier received an award to assist downtown customers with the costs to interconnect their buildings' heating systems with the City's wood-chip district heating project. The CEDF provided a grant of $100,000 for these incentives. This award, as well as the grant to B.G. Enterprises described above, was made in fulfillment of Sec. 22, 30 V.S.A. § 8102 (Act 155 of 2012).

Competitive Grant: *Stafford Hill Solar Energy Storage Project* – Current challenges with the intermittency of solar and wind resources are prompting exploration of solutions to help manage power needs on the grid. An innovative project developed by three Vermont companies – Green Mountain Power, Dynapower, and Vermont Energy Investment Corporation – integrates 2 megawatts (MW) of PV with 3.4 megawatt-hours (MWh) of electrical energy storage on a landfill in Rutland. The battery storage is designed to facilitate and maximize renewable energy integration with the electric distribution grid. Secondary applications, including regulation services and backup power for critical facilities, will also be explored, as will the potential for creation of a broader microgrid pilot in the City of Rutland. The Clean Energy Development Fund provided $50,000 in grant funds that were instrumental in the project receiving a $285,000 grant from the U.S. Department of Energy and technical support from Sandia National Laboratories. The $5.3 million project will provide the PSD, utilities, and state and national stakeholders with insight into the benefits and challenges of integrating storage and PV systems.

CEDF provided grant funds to support the Stafford Hill Solar Energy Storage Project in Rutland.

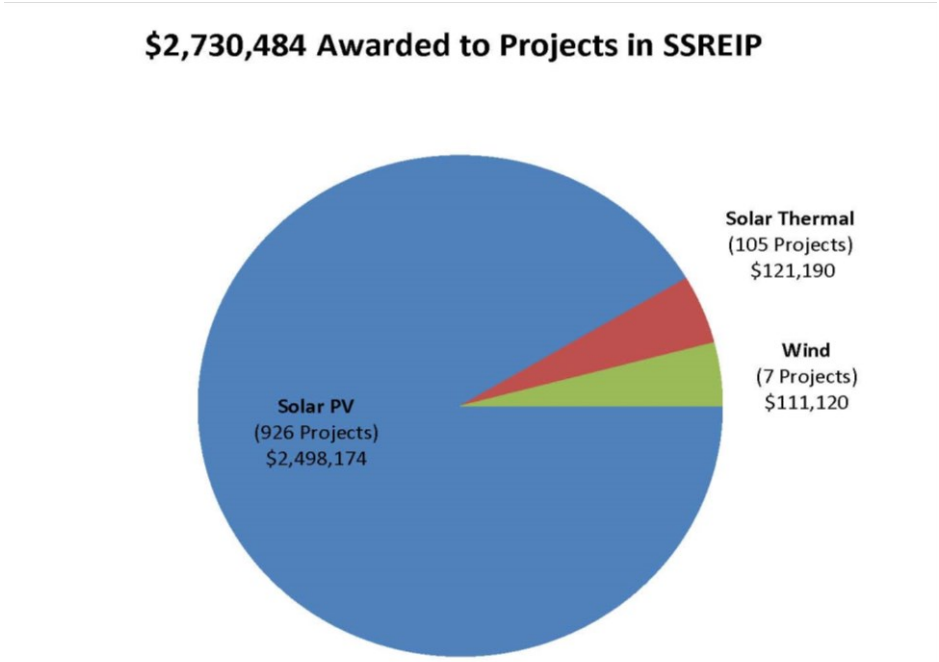
-Photo credit: GMP

Small Scale Renewable Energy Incentive Program – The Vermont Small Scale Renewable Energy Incentive Program (SSREIP), created in 2004, continued to play an important role in the development and production of renewable energy in the state. As in prior years, the CEDF contracted the administration of the program by competitive bid to the Renewable Energy Resource Center (a unit within the Vermont Energy Investment Corporation, or VEIC). FY14 was the last full fiscal year during which incentives for solar PV were offered to residential customers.[3]

This market-based program provides rebates to individuals, businesses, municipalities, and multi-family low-income housing projects for grid-connected solar electric and small wind systems, as well as solar hot water systems (see **Figure 1** below and the map on page 13). This year, as with last, all of the funding for the SSREIP came from the CEDF. The total cost of all the systems installed was $29,228,786, resulting in a leverage of nearly 10 to 1. This investment yielded 6,040 kilowatts (kW) in new renewable energy capacity from small-scale, distributed systems.

[3] During FY15, the CEDF discontinued offering residential incentives for solar PV. PV incentives will continue for municipalities until funds allocated for the program are expended, projected to be in the first or second quarter of 2015.

Figure 1 – SSREIP Funded Projects by Dollars Awarded



As part of the FY14 plan, the CEDF had a stakeholder and public input process on all of its programs. The most comments were in regard to the SSREIP. Based on the public comments, funds available, and CEDF's assessment of the clean energy market, the CEDF made several changes to the program. The changes, which took effect on October 1, 2013, were as follows:

1. Elimination of the incentive for small wind turbines. Instead, wind turbines were supported through a competitive selection process as part of the Community Wind Grant Program. An RFP was issued for community wind projects, but none of the proposals received met the minimum requirements to receive a grant and the funds were reallocated to the community solar grant program.
2. Eliminated the incentive for commercial installations of PV systems. Given the CEDF funds available and the rate of return possible on these systems, the CEDF determined that a SSREIP incentive was no longer warranted.
3. Lowered the maximum incentive available to PV systems as follows:
    a. Residential customers from $4,500 down to $2,500.
    b. Special Customers[4] from $15,000 down to $12,500.
4. Lowered the PV system size eligible for an incentive from 30 kW to 25 kW.
5. Lowered the PV $/watt incentive as follows:
    a. Residential systems from $0.45/W down to $0.25/W.

[4] Special Customers are: municipalities, public schools, and nonprofit low-income housing.

b. Special Customers from $1.50/W down to $1.25/W.

6. Eliminated incentives for solar thermal space heating systems.
7. Established a funding allocation within the SSREIP for solar hot water projects of $250,000.

In August 2013, the CEDF issued a Request for Proposals (RFP) for the administration of the SSREIP. Since its inception, the SSREIP has been administered by the Renewable Energy Resource Center (RERC) which is part of VEIC in Burlington. VEIC was once again selected as the administrator of the program. However, during contract negotiations, VEIC notified the CEDF that it would be necessary to charge its indirect rate to the entire contract amount and not just to the administration charges. This would result in VEIC's indirect rate being charged against the value of the CEDF incentives being passed through the RERC. For the additional $1.4 million allocated for SSREIP, this would have resulted in approximately $100,000 of additional administrative costs for the program.

Because of this change, the CEDF negotiated a contract with VEIC to provide just program delivery services and moved the issuance of incentive checks in house. The decision resulted in additional administrative work for PSD staff, and caused some administrative challenges, but it yielded a better program delivery value for the CEDF.

The following two Figures (Figures 2 & 3) present PV data from the SSREIP for the 2014 calendar year. Thus, the data is different than the FY14 data shown in Table 1. Showing the calendar year data provides the best graphic demonstration of the impact the SSREIP has had over time. These graphs show the dramatic growth in small-scale PV over the past few years, which has continued even as the CEDF has reduced the level of incentives provided.

Figure 2 shows the amount of new capacity (kW DC) of PV installed by projects that received an incentive through the SSREIP, the total cost of those systems, and the portion of those dollars that came from the SSREIP - the incentives paid out - in calendar year 2014.

While there was a slight annual decrease in the kW installed through the SSREIP in 2014 (6,672 kW in 2014 vs. 6,818 kW in 2013) there was an increased in the amount of private funding the SSREIP was able to leverage. The total dollar amount the CEDF has invested in PV projects has decreased (to the lowest level in the last 5 years), yet the amount of private funding invested in PV increased over the previous year ($27.08 million in 2014 vs. $26.25 million in 2013).

Figure 3 shows the number of PV systems that received an incentive from the SSREIP in the 2014 calendar year. Almost all of these systems were small residential systems under 10 kW. As with the trend of increased private investment shown in Figure 2, the CEDF has seen a very rapid increase in the number of PV systems going through the program, even while it has greatly reduced the incentives (total dollars in the program and per watt) and the size of eligible systems. The total number of PV systems installed through the SSREIP in calendar year 2014 was 1,023, a 23% increase over 2013. This is even more remarkable considering that at the beginning of the year, net metering (the regulatory mechanism through which small PV projects are interconnected) had been suspended in some utility service territories where the previous 4% net metering cap had been met (it was since increased to 15% by the Legislature through Act 99 of the 2013-2014 session).

At the end of calendar year 2014, the residential incentive for PV was eliminated altogether. The CEDF will keep a close watch on the local PV industry to see how the market progresses without the SSREIP rebate, which has been helping build the PV industry in the state for the past 10 years.

Figure 2 – Annual SSREIP Incentives and Total Expenditures for Solar PV

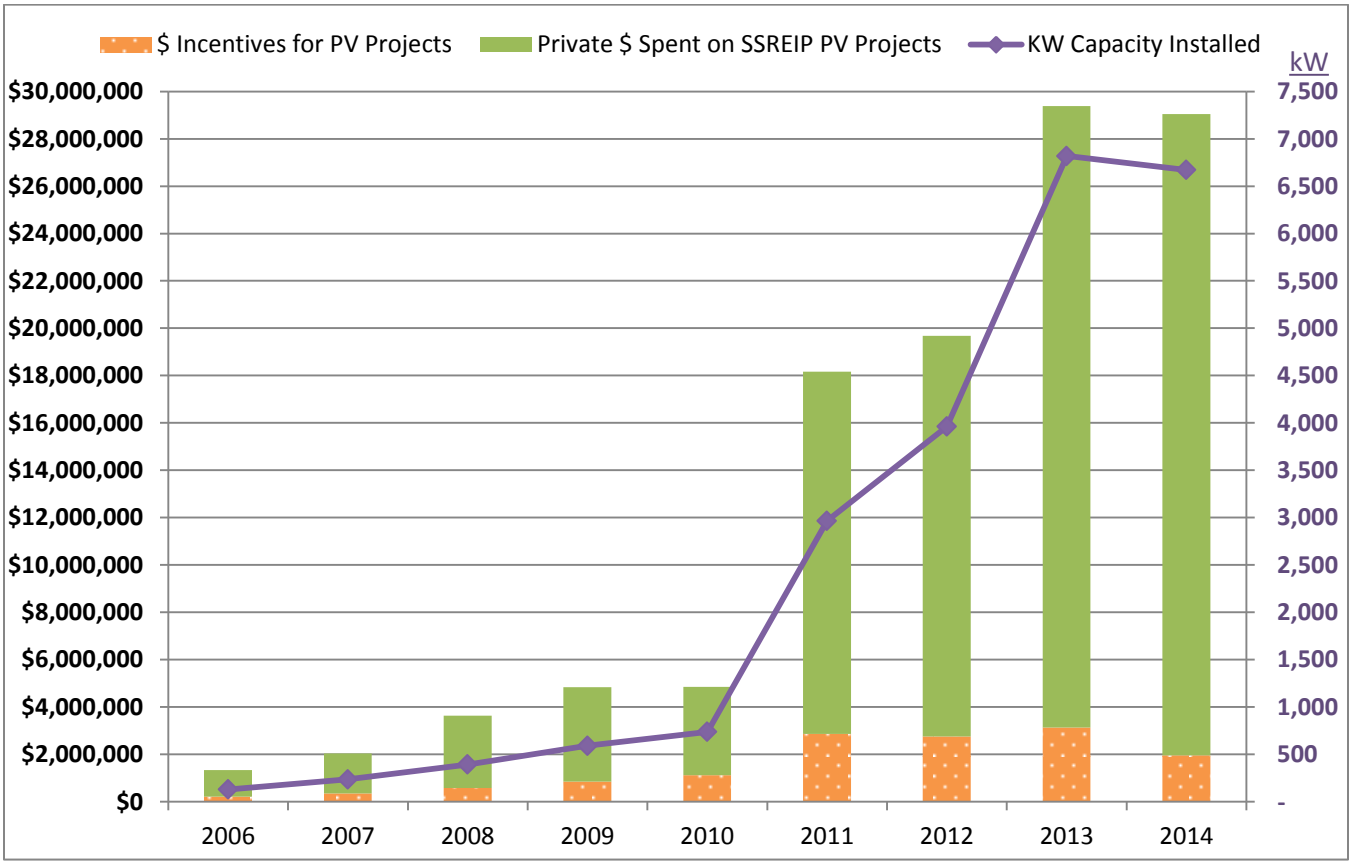
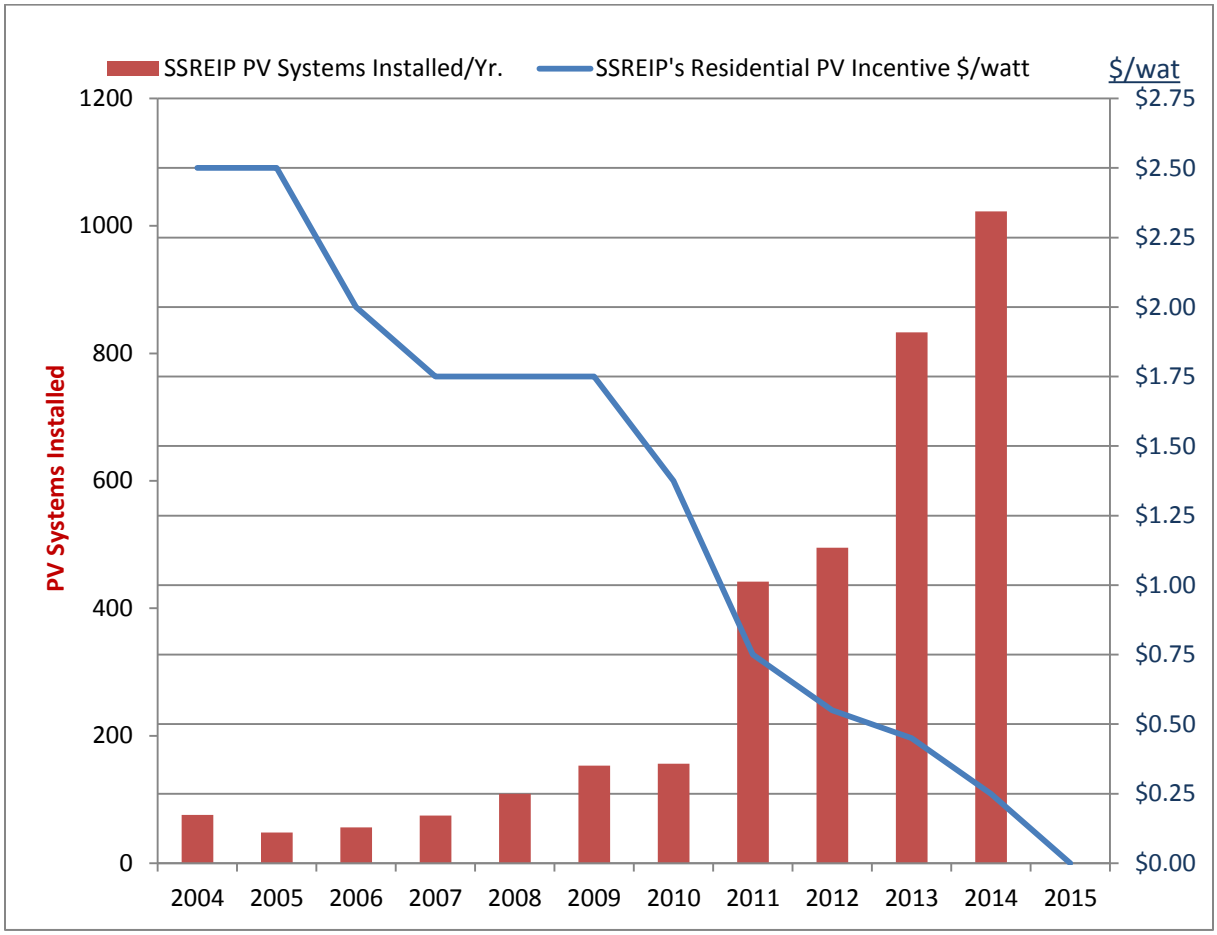


Figure 3 – Installed PV Systems and Incentive levels of the SSREIP



Fiscal Year Funding Map

The Fiscal Year Funding map on the next page shows the towns in which CEDF-funded projects were installed during FY14, as well as what type of renewable energy each project used. In addition, the map shows how many projects were installed in each town. The map demonstrates the distribution of CEDF funding throughout the state, approximately in proportion to population.

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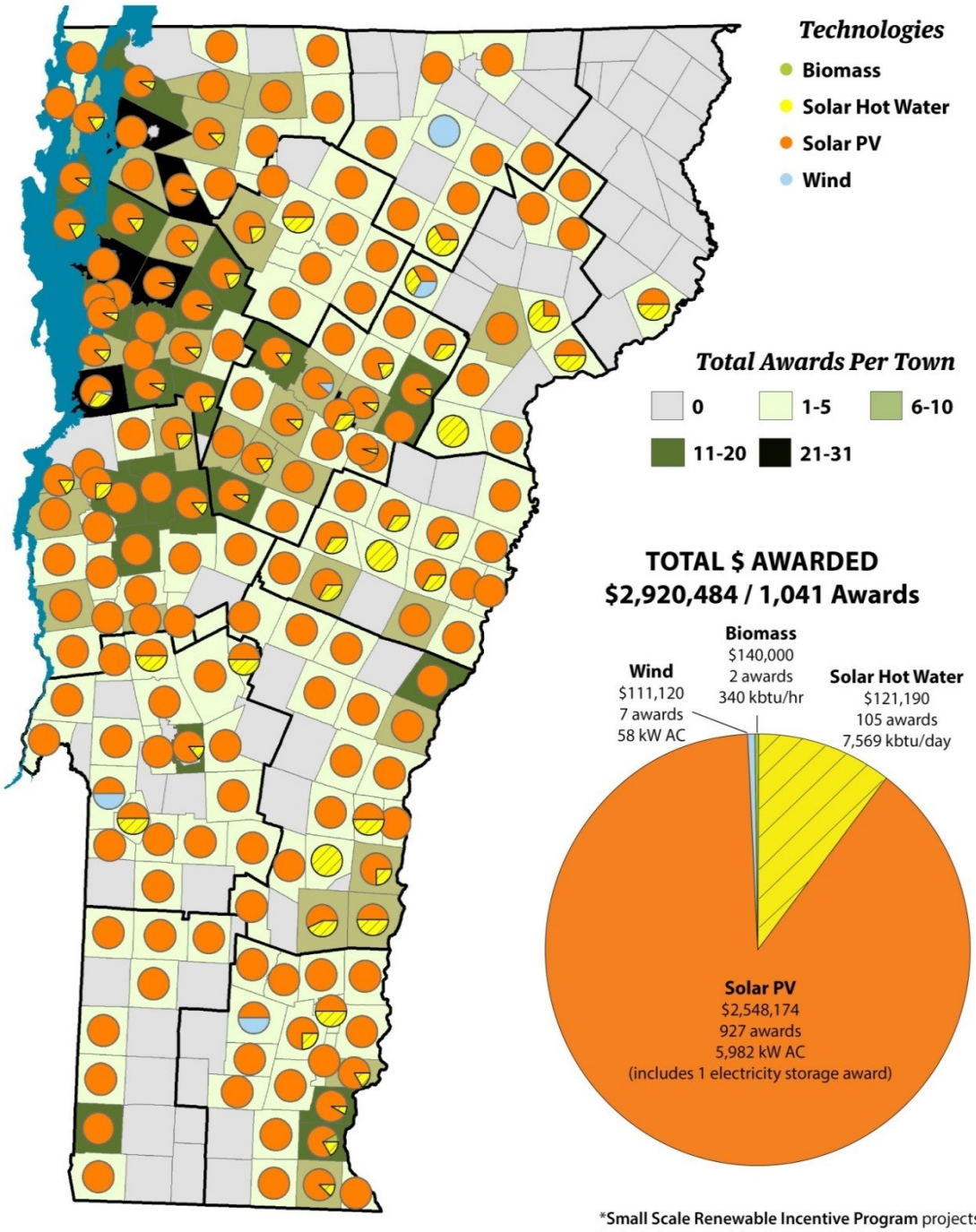
CEDF Fiscal Year 2014 Projects*



Town and statewide pies show number of awards by Technology.

*Small Scale Renewable Incentive Program projects included represent funds expended in CEDF Fiscal Year 2014 for installations, not total funds awarded to the Program.

Table 1. CEDF Awards for FY14

Funding Type	Award Recipient, (# of Awards)	Technology, Capacity or Type of Activity	Funds Awarded	Total Project Cost Estimated Upon Award	Estimated Annual Energy Production
CED CONTRACTS					
CONTRACTS & GRANTS	-BW Research, Inc.	Vt. Clean Energy Industry Report	$149,957 (For a 3-yr Contract) Yr-1: $51,421	$149,957	NA
	-Vt. League of Cities & Towns & the School Energy Mgmt. Program	Model Solar Contract Project	$14,875 $5,000	$14,875 $5,000	NA
SUBTOTAL: Contracts	**2**		**$169,832**	**$169,832**	
CEDF AWARDS					
GRANTS	Village Green: -BG Enterprises (Brattleboro)	Wood Pellet Heating 340 kBTU/hr (8,160 kBTU/day)	$40,000	$135,000	770 MMBTU/yr 225 MWh/yr)
	-City of Montpelier District Heating	Biomass District Heat Inter-Connection Project	$100,000	$150,000 (for the interconnect project)	NA
	-Green Mountain Power (Rutland)	Stafford Hill Solar Energy Storage Project (2 MW Solar PV)	$50,000	$335,000 on storage ($5.345 million PV & Storage)	2,505 MWh/yr with 3.4 MWh of energy storage capacity
SUBTOTAL: Grants	**3**		**$190,000**	**$620,000**	
INCENTIVES	**SSREIP Installations**				
	7	**Wind** 58 kW (AC)	$111,120	$393,154	79.5 MWh/yr
	926	**PV** 5,982 kW (AC)	$2,498,174	$27,714,542	7,402 MWh/yr
	105	**Solar Thermal** 7,569 kBTU/day	$121,190	$1,121,090	1,291 MMBTU/yr (378 MWh/yr)
SUBTOTAL: Incentives	**1,038**		**$2,730,484**	**$29,228,786**	
TOTAL	**1,043**	Electric **6,040 kW (AC)** Thermal **15,729 kBTU/day**	**$3,090,316**	**$30,018,618**	Electric **9,986 MWh/yr** Thermal **2,061 MMBTU/yr** Combined **10,589 MWh/yr**

Carbon Reduction Metrics

The State of Vermont greenhouse gas reduction goals stipulate that the state shall reduce greenhouse gas emissions from the 1990 baseline by 25% by 2012 and 50% by 2028 (10 V.S.A. §578). While the state's greenhouse gas emissions have decreased by approximately 1.5 million metric tons CO_2e since 2004, further steep reductions are still required to meet the 2028 goal of 50% reduction.[5] The renewable energy activities funded during the CEDF FY14 contribute toward the 2028 goal.

The CEDF FY14 projects show potential reductions in greenhouse gas emissions of approximately 4,412 metric tons (CO_2 equivalents), based on yearly generation of approximately 9,986 MWh in renewable electricity and 2,061 million British Thermal Units (MMBTUs) in renewable heat, as reflected in Table 2 below.[6] All CEDF electricity generation projects are required to be grid-connected. The renewable electricity generation projects represent over 6,040 kW (AC) or about 6 MW in capacity.

Table 2. FY14 CEDF-Funded Projects Annual Greenhouse Gas Metrics

Funding Source	Project	Technology	Fuel Saved/yr	Estimated Electricity or Heat Generated	Greenhouse Gas Reductions (Metric Tons CO2 equivalent/yr)
CEDF	Stafford Hill Solar PV Storage	Battery Storage	NA	2,505,000 Kilowatt-hours (kWh)/yr	**1,058**
CEDF	Multiple SSREIP Projects	PV & Wind	NA	7,481,202 kWh/yr	**3,161**
CEDF	Multiple SSREIP Projects	Solar Thermal	NA	1,291 MMBTU/yr	**123**
CEDF	BG Enterprises District Heating	Biomass	6,900 gallons of fuel oil	770 MMBTU/yr	**69***
				Total GHG Reduction	**~4,411**

* The CO_2 equivalent emissions from this advanced wood heating project assumes the wood used in the project is harvested using sustainable forest management practices to ensure a renewable supply of wood fuel. With sustainable harvest and forest management practices in place the carbon that is emitted from the combustion of the wood fuel is not included in the GHG calculations, but the methane (CH_4) and nitrous oxide (N_20) emitted are included. In cases were the wood fuel is not being harvested renewably, the CO_2 emissions from wood heating should be included in the calculations of any GHG reductions achieved from reduced fossil fuel emissions.

Fiscal Year 2015

During the first half of FY15, several new elements of CEDF's Strategic Plan were put into action. This section provides a brief synopsis of CEDF activities from July to December 2014.

[5] 2011 VT Comprehensive Energy Plan, December 2011. Vermont Public Service Department Volume 2, Pg. 10.
[6] The estimates included assumptions and are based on preliminary analysis and subject to revision.

- **Evaluation** – In August 2014, the CEDF contracted with the NMR Group, Inc. to conduct a comprehensive evaluation of the CEDF and its activities since inception. The evaluation is designed to review the various programs implemented, including the SSREIP, grant and loan activities, tax credits, and technical assistance provided throughout the state. Key to the effort will be gaining insights into program structures, administrative systems, and data management. The contractor is on track to provide a detailed report to the CEDF in February 2015.

Windham County Programs

The CEDF's guiding principle for the Windham funds is similar to that for all CEDF resources: how can we make the most progress toward the CEDF goals while simultaneously catalyzing continued growth of the clean energy economy after the CEDF funds have been fully expended? For Windham County, the CEDF is also focused on what would best serve the unique Windham regional energy economy and on comments received from those living in the County. To this end, the CEDF designed and began to implement the Windham County programs described in the Fund's FY 2015 Annual Program Plan.

- **Windham County Solar Finance Program** – In November 2014, the CEDF released an RFP seeking financial institutions interested in expanding or creating finance products for residential PV in Windham County. As with previous credit enhancement projects at the PSD and CEDF, this initiative is designed to help reduce risk for lenders through the use of loan loss reserves and interest rate buy downs. This approach signifies a shift at CEDF away from providing continued support for PV rebates through the SSREIP and toward affordable finance. The CEDF will offer up to $300,000 for credit enhancements through this competitive solicitation.

- **Modern Wood Heating Initiative** – As part of the $2.6 million in funding allocated to Windham County, the CEDF will implement the $1.6 million Advanced Wood Heating (AWH) Initiative in FY15. The primary goal of the Windham County AWH Initiative is to develop the market for advanced (high efficiency and low emission) wood heating in Windham County through the conversion of fossil fuel heating systems to AWH systems in the schools and other municipal buildings in Windham County. Fossil fuel heating systems can be used as back-up and/or supplemental heating to newly installed AWH systems. There are economic and environmental benefits attainable to the residents of Windham County through a switch from space heating with fossil fuels to wood pellets/chips. The initiative is also intended to support local economic development in the County. The $1.6 million will be available for a contract sourced by the CEDF through a competitive solicitation that was issued in November.

Clean Energy Industry Jobs Report

- **Vermont Clean Energy Industry Report 2015** – The CEDF has commenced the second of the three clean energy industry surveys to yield insight into trends in the clean energy industry. The second report is slated for completion toward the end of FY15. New areas of interest will be explored this year to sharpen the jobs picture in this rapidly evolving space. At the end of 2015, the CEDF had begun collecting input from stakeholders to inform this next iteration.

Support for New Installations

- **Community Solar Projects** – The CEDF is providing grant support to six communities in the state for development of PV projects. Award recipients selected through a competitive solicitation in the summer of 2014 include:
    - Richford Town School District – 50 kW (AC)

- Shrewsbury Mountain School – 25 kW (AC)
- Strafford Energy LLC with Town of Strafford and Newton School – 65 kW (AC)
- Thetford School District – 120 kW (AC)
- Town of Waitsfield – 85 kW (AC)
- Town of Warren – 126 kW (AC)

Integrated Clean Energy Finance Collaborative – In the 2012 CEDF Strategic Plan, the CEDF included a discussion on the need to orchestrate the multiple participants and finance products available to advance CE in the state. In September 2014, the CEDF joined with other state agencies, including the Office of the State Treasurer, Vermont Economic Development Authority, Agency of Commerce and Community Development, and Department of Financial Regulation, along with the Energy Action Network, to participate in a characterization of the financing sector of the CE market. This group will receive a report analyzing the market and opportunities, on a pro bono basis, from the Coalition for Green Capital, a national non-profit that assists states in developing integrated solutions needed to scale up CE markets. The CEDF, along with other state entities, will have the opportunity to review recommendations that may serve the state and help accelerate CE development. This effort builds on the CEDF's initiatives to provide credit enhancements to financial institutions to make low-cost loans available to residential customers for thermal energy efficiency and renewable energy upgrades.

Conclusion

During FY14, the CEDF continued to work diligently to advance the development of renewable energy technologies, increase economic development in the CE sector, and lower the environmental impact of the state's energy portfolio. These efforts are important elements of Vermont's CE and greenhouse gas reduction goals. The release of the *Vermont Clean Energy Industry Report 2014* documented the strength and breadth of CE business activities in the state. The CEDF's support for building an efficient set of relationships among state agencies and private stakeholders has begun to yield fruit, with greater potential for coordination and collaboration as Vermonters strive to reach the State's 90% renewable energy and 75% greenhouse gas reduction goals.

The CEDF and PSD continue to demonstrate the ability to advance the development of renewable technologies throughout Vermont's communities and make improvements in the lives of Vermonters. The CEDF and PSD have worked to help many citizens, towns, schools, developers, installers, planners, regulators, and legislators who express their desire for a clean, renewable energy future gain essential practical experience with CE in Vermont. Such experience will be necessary for the continued growth and advancement of the State's CE economy. There is a still a challenging distance yet to cover to reach the state's energy goals, but the CEDF is prepared to assist in reaching those goals while growing a prosperous and effective CE economy.

Appendix One – CEDF Statutes and Board

In 2005, the Vermont General Assembly established the Vermont Clean Energy Development Fund (CEDF) through Act 74 (30 V.S.A. §8015).

PURPOSE (30 V.S.A. § 8015(c))

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 for the long-term benefit of Vermont consumers, primarily with respect to renewable energy resources, and the use of combined heat and power technologies.

ADMINISTRATION

The Public Service Department (PSD) administers the CEDF to facilitate the development and implementation of CE resources. The PSD hires a Fund Manager to oversee the day-to-day operations of the fund.

Assisting the PSD is a Clean Energy Development Board with decision-making and approval authority with respect to the plans, budget, and program designs of the CEDF. The Board also serves in an advisory function to the Commissioner of the PSD. The Board consists of seven members appointed in the following manner:

- Three members appointed by the Commissioner of the Public Service Department
- Two members appointed by the chair of the Senate Natural Resources and Energy Committee
- Two members appointed by the chair of the House Natural Resources and Energy Committee

CED Board During FY14 (affiliations), Appointing Authority, and Year Term Ends:

1. Gaye Symington, Chair (High Meadows Fund), House Energy Committee Chair, 2015
2. Sam Swanson, Vice Chair (Pace Energy and Climate Center), Senate Energy Committee Chair, 2015
3. Jo Bradley (Vermont Economic Development Authority), PSD Commissioner, 2015
4. Jennifer Hollar (VT Department of Economic, Housing and Community Development),PSD Commissioner, 2015
5. Linda McGinnis (Independent consultant), PSD Commissioner, 2017
6. Johanna Miller (Vermont Natural Resources Council), House Energy Committee Chair, 2017
7. Mark Whitworth (Energize Vermont), Senate Energy Committee Chair, 2017

Public Service Department & CEDF Personnel Working on CEDF Projects in FY14

Christopher Recchia – Commissioner
Asa Hopkins – Director, Energy Policy and Planning
Andrew Perchlik – CEDF Fund Manager
Kelly Launder – Assistant Director, Energy Policy and Planning
Edward Delhagen – Energy Program Specialist
Anne Margolis – Renewable Energy Development Director
Sheri Rockcastle – Administrative Services Manager
Cathy Deyo – Financial Administrator

Appendix Two – FY 2014 CEDF Financial Reports

VERMONT CLEAN ENERGY DEVELOPMENT FUND
STATEMENT OF REVENUES, EXPENDITURES AND CHANGES IN FUND BALANCE
Fiscal Year 2014

REVENUES	**June 30, 2014**
Entergy Payments	5,320,546
Interest Income	9,679
Loan Interest Income	98,224
Loan Repayments	520,565
Loan Application Fees	2,500
Transfers In	1,338,286
Reversal of prior year(s) mis-posted revenue	(54,463)
Total Revenues	**7,235,337**
EXPENDITURES	
Wages & Benefits	79,363
Per Diem	150
Meetings & Conferences	444
Travel	1,428
Contract - SSREIP	3,945,264
Contract - Other	81,555
Grants	624,515
Total Expenditures	**4,732,719**
Net change in fund balance	2,502,618
Fund balance, June 30, 2013	6,117,142
YTD Fund Balance	**8,619,760**

VERMONT CLEAN ENERGY DEVELOPMENT FUND
FY14 FUND BALANCE STATEMENT

FUND BALANCE June 30, 2014:	**8,619,760**
LESS CASH ENCUMBERED	
Grants & Contracts	256,742
Renewable Energy Incentive Program	762,547
VT Village Green Program	21,000
Solar Tax Credits	0
TOTAL CASH ENCUMBERED	**1,040,289**
CASH AVAILABLE	**7,579,470**

LOAN BALANCES	6/30/2014
CEDF Outstanding Principal	2,380,236
ARRA Revolving Loan Fund (RLF) Outstanding Principal	1,766,455
Cash Available - ARRA RLF	
Cash Balance ARRA RLF	1,052,308
Plus: Monies at VEDA Unencumbered	265,655
Available ARRA RLF Cash	**1,317,963**
Footnote: Monies at VEDA Encumbered	350,000