

January 26, 2020

Members of the Vermont General Assembly
115 State Street
Montpelier, VT 05633-5301

Dear Senators and Representatives,

I am pleased to submit the Fiscal Year 2020 Annual Report of the Clean Energy Development Fund (CEDF), which includes information on the Fund's activities and finances from July 1, 2019 through June 30, 2020.

Members of the Clean Energy Development Board, as well as CEDF and other Public Service Department staff, have all worked diligently throughout the year to fulfill the promise and purpose of the CEDF as created by the legislature.

If you have any questions or concerns upon reading the report, please do not hesitate to contact me.

I look forward to working with you this year in continuing the work of the Clean Energy Development Fund.

Sincerely,

June E. Tierney
Commissioner



ANNUAL REPORT TO THE LEGISLATURE FISCAL YEAR 2020

[July 1, 2019 – June 30, 2020]

Published: January 2021

Submitted to the following Committees of the Vermont
General Assembly: **Senate Committee on Natural
Resources and Energy, Senate Committee on Finance,
House Committee on Energy and Technology, and House
Committee on Commerce and Economic Development**

Summary of Fiscal Year 2020

The Clean Energy Development Fund (CEDF) succeeded in growing Vermont's advanced wood heating market despite scaling back activities in-line with available funding and the COVID-19 pandemic disruptions. The Fund's continued focus on local wood heating yielded substantive economic benefits to Vermont and to program participants. Low fossil fuel heating prices continued to hinder the growth of Vermont's advanced wood chip and pellet markets, lowering participation in CEDF's pellet heating incentive programs from what was expected.

In addition to its program incentives and competitive grants the CEDF maintained its involvement across State government and the private sector to develop the advanced wood heating, and renewable energy in general, in Vermont. Work sponsored by the CEDF showed that it was possible to promote wood heating while also boosting economic development, improving air quality, maintaining forest health, saving Vermonters money on heating, and targeting support to low-income Vermonters.

The CEDF completed its seventh annual clean energy employment survey, which revealed a pre-COVID total employment in the sector of over 18,900 workers. While the growth of clean energy jobs only grew by 0.1% over the prior year's report, the clean energy sector is a significant part of the Vermont economy, representing about 6% of all workers.

For wood heating incentives, the CEDF continued to require that wood heating systems meet high efficiency standards and achieve low particulate air emission levels. With support from the Agency of Natural Resources Air Quality Division, specific emission and efficiency levels were developed for each wood heating technology that the CEDF incentivized (pellet boilers, chip boilers, pellet stoves, and cord wood stoves).

During FY20 the CEDF incentive and grant payments totaled \$849,524 and \$141,476 was expended on administrative and program delivery costs. Two program accomplishments to highlight for FY20 are:

1. Completed a Successful Statewide Wood Stove Change-out Program

Continuing from the prior year the program replaced 151 old non-certified stoves with new advanced cord wood and wood pellet stoves. These new stoves saved the homeowners money on fuel, decreased their emissions, and made it easier to heat with wood.

The CEDF suspended its state-wide wood stove change-out program at the end of December 2019. CEDF determined its incentive was not needed when Efficiency Vermont increased their wood stove program incentives and several utilities also started offering pellet stove incentives. The CEDF decided it was better to focus on its targeted low-income stove change-out grants.

2. Grew the Local Advanced Wood Heating Market

Coordinating with Efficiency Vermont, the CEDF supported the installation of seventy-one new automated wood pellet heating systems, fifty-nine of which were residential. These systems will prevent over 161,700 gallons of fossil fuel from being burned annually.

Separate from its work providing financial support to projects, the CEDF continued to collaborate with service providers, manufacturers, grantees, and other market participants to better understand the evolution of Vermont's maturing clean energy industries.

In FY20 the only funding appropriated to the CEDF was monies returned from CEDF borrowers repaying loans and from interest earned on CEDF's cash balances. In total, revenue into the CEDF was just under \$149 thousand for the year.

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Purpose and Scope of This Report

The purpose of this annual report is to provide information to the Vermont Legislature, clean energy stakeholders, and the citizens of Vermont detailing the CEDF activities, revenues, expenditures, and progress made toward its goals and mission during fiscal year 2020 (FY20).

Strategic Planning for the Clean Energy Economy

The mission of the Clean Energy Development Fund (CEDF) is to serve the citizens of Vermont by increasing the local supply and utilization of distributed, small-scale, community-supported electrical and thermal renewable energy, while targeting related economic development advantages.¹

During FY20 the CEDF and the Clean Energy Development Board (CEDB) worked on priority strategies from the CEDF’s Strategic Plan. In 2018 the CEDF created a multi-year strategic plan that recognizes that there would not likely be a sustainable funding source for the CEDF, but that it should sustain its program framework until new funding is secured or the CEDF is closed.

In support of CEDF’s mission of increasing distributed, small-scale, community-supported thermal and electrical renewable energy generation, the CEDF has been guided by four goals:

1. Create economic development via the clean energy economy
2. Increase the cost effectiveness of clean energy
3. Support vulnerable Vermonters
4. Reduce negative impacts of Vermont’s energy use and generation on the environment.

Figure 1 visually shows the interaction between CEDF’s Vision and its four supporting goals.

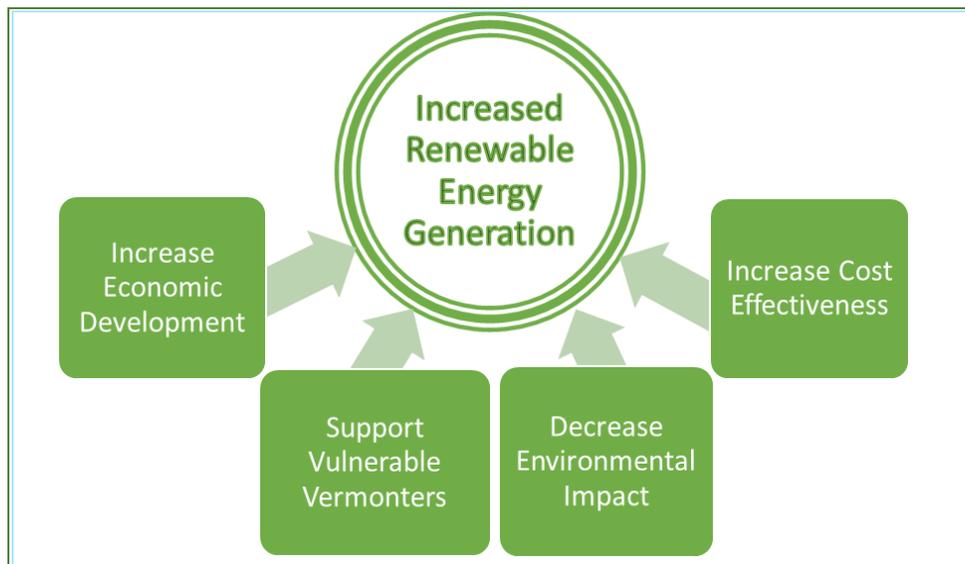


Figure 1. CEDF Goal and Objectives

¹ [CEDF 2018 Multi-year Strategic Plan](#)

Strategies

In pursuit of the primary goal and four objectives the CEDF has implemented the following seven strategies:

- 1) Concentrate on unregulated energy markets
- 2) Focus on transforming a select emerging market/technology
- 3) Coordinate and collaborate across State government and local businesses
- 4) Leverage other projects, programs, and private capital
- 5) Focus on projects that have community support
- 6) Provide low-income Vermonters access to renewable energy and its direct benefits
- 7) Learn and adapt from past activities

CEDF's 2018 strategic plan and the subsequent annual plans call for a strategic focusing on developing Vermont's advanced wood heating sector. The CEDF has worked to build consumer demand for advanced wood heating together with strengthening businesses in the local supply chain capable of delivering affordable, dependable wood fuel and installing cost-effective advanced wood heating systems.

The CEDF defines "advanced wood heating" as wood heating that: 1) utilizes highly efficient combustion technology; 2) produces low levels of emissions; 3) supports healthy forest ecosystems; and 4) consumes local wood. What is considered "highly efficient," and a "low level of emissions," will evolve with technology improvements and "local wood" could fluctuate with changes in the local wood markets. Accordingly, the CEDF's program requirements will be adaptive to ensure its programs are always leading the wood energy market to be supportive of CEDF and State goals.

■ Authority, Funding & Resources

The Vermont General Assembly established the CEDF in 2005 through Act 74 (30 V.S.A. § 8015). The CEDF is administered by the Department of Public Service (PSD), which employs a CEDF Manager and dedicates additional PSD staff to CEDF tasks as needed (See Appendix I for more details on CEDF governance.)

Figure 2 below shows the revenue, expenses, and end-of-year balance of the Fund for the last six fiscal years. Figure 2 does not include any of the \$22 million in American Recovery and Reconstruction Act (ARRA) funds that were managed by the CEDF. Almost all the funding the CEDF has received has come from agreements the State of Vermont had with Entergy Vermont Yankee that required Entergy to send payments of \$4-7 million per year directly to the CEDF. The last payment received directly from Entergy VT Yankee was for \$5.2 million in FY14.

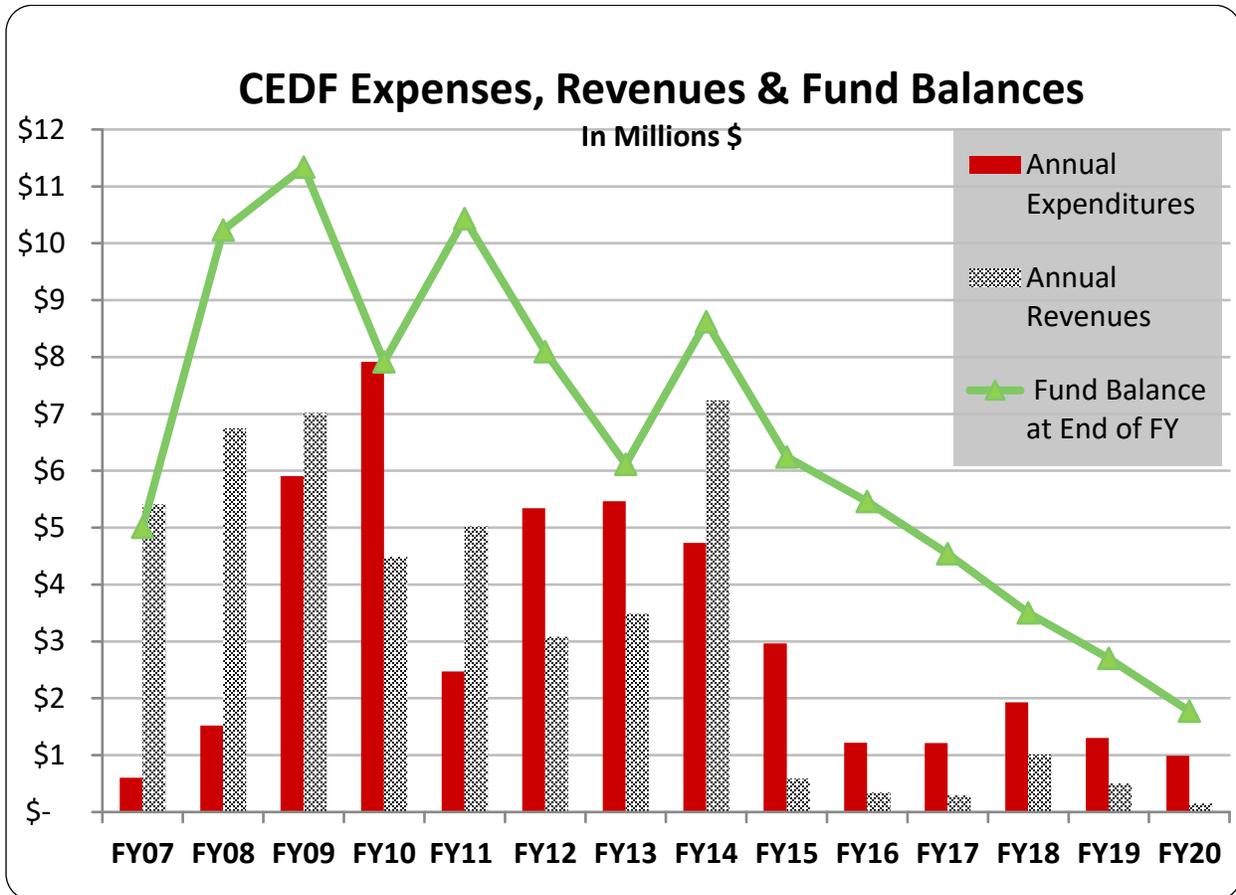


Figure 2. CEDF Annual Revenue, Expenses, and Year-end Fund Balance

At the end of FY20 the Fund had \$1.65 million in fiscal obligations (i.e., signed grant agreements, contracts, and program awards). The CEDF will continue to receive loan repayments from the four loans of approximately \$540,000 in outstanding balances from CEDF borrowers as well as the \$1 million outstanding from the three remaining American Recovery and Reinvestment Act (ARRA) loans². One of the ARRA loans for \$750,000 has an interest only term of only 1%, which goes to VEDA to service the loan. Loan repayments to the CEDF for FY20 equaled just over \$113,000 from CEDF loans and \$94,217 from ARRA loans. See Appendix II for a financial report of FY20 revenue and expenses.

The CEDF via the PSD’s State Energy Office maintained its obligations to report and administer the CEDF-ARRA funds (which retain all their original ARRA restrictions and obligations) that were paid back to the CEDF from borrowers.

² In FY20 \$236,385 of a \$759K loan to Green Mountain College was written-off. The loan default was included in CEDF’s FY19 report, but it was in FY20 that the loan was finally written-off when the bankruptcy proceedings closed without CEDF receiving any of the funds owed to it.

■ Administration & Program Delivery

During FY20 the Fund spent \$147,466³ on staff and administration expenses. This represents a higher percentage of revenue than the CEDF has historically spent. With staffing costs running constant but its revenue decreasing the CEDF has been operating with a higher total program management and administrative expenses as a percentage of its revenue.

The CEDF statute allows that “*up to five percent of amounts appropriated to the Department of Public Service from the Fund may be used for administrative costs related to the Clean Energy Development Fund.*”⁴ The CEDF statute does not define “administrative costs.” The PSD considers the following to be the administrative costs for the CEDF:

- Wages and benefits of the CEDF Fund Manager and any other PSD non-administrative staff to develop, manage, and deliver CEDF programs, grants, and contracts (*on a pro-rated basis based on hours worked on CEDF programs*).
- Costs such as travel, conferences, and trainings for the CEDF and PSD staff working on CEDF programs.

For administrative simplicity, the PSD has not used any CEDF funds to cover the costs incurred by PSD’s Administrative Services Division staff in providing services to the CEDF (such as processing invoices, financial reports and accounting, State budgeting, etc.), nor has the PSD used any CEDF funds to cover overhead expenses (i.e., rent, office equipment, internet, etc.).

As the CEDF budget allocations continue to shrink it will be more difficult for the PSD to keep program and administrative costs low, as a percentage of revenue or its appropriation. The CED Board and PSD have been discussing potential changes to CEDF budgeting and may need to seek General Assembly review of the CEDF statutory limitations on administrative costs.

Clean Energy Development Board

While the Fund is administered by the PSD, a seven-person Clean Energy Development Board (Board) oversees CEDF programs, planning, and spending. The Board members are appointed by the Chairs of the legislature’s two energy committees and the Commissioner of the PSD.

For FY20, the Board consisted of the following members and their appointing authority:

- Kate Desrochers – House Energy Committee Chair
- Jared Duval – Co-Chair, PSD Commissioner
- David Farnsworth – PSD Commissioner
- Ken Jones – Senate Energy Committee Chair
- Johanna Miller – House Energy Committee Chair
- Sam Swanson – Co-Chair, PSD Commissioner

³ \$5,951 of which were federal ARRA funds.

⁴ 30 V.S.A. § 8015 (e)

- Paul Zabriskie – Senate Energy Committee Chair

The Board reviews and approves the CEDF Annual Plan, Annual Budget, and programs developed by the PSD to carry out the CEDF mission.

The Board met five times during FY20. The Board provided guidance and input on a variety of topics, including: carbon accounting for wood heating, considerations regarding the future of the Fund, the FY20 Annual Program Plan and Budget, program design, and administration. For more details on the Board, see Appendix I.

■ New FY20 Awards & Activities

Grants:

The CEDF issued one competitive grant solicitation during the year. In the fall of 2019, CEDF issued a Request for Letters of Intent for Bulk Wood Pellet & Dried-Chip Supply Infrastructure Grants. Eligible projects included new wood pellet mills, new dried chip fabrication and/or chip drying facilities, bulk pellet or chip delivery trucks, bulk delivery depots/silos, or other projects that will expand and/or support the bulk pellet and chip heating market in Vermont. Total amount of funding made available was \$350,000 with a maximum grant of \$250,000. The grants required a 60 percent cost share by the grantee.

A selection of those that submitted letters of intent were asked to submit full grant proposals seeking funds to build out discreet elements of the advanced wood heating market.

With support from the Department of Forests, Parks, and Recreation in reviewing the grant proposals three of the projects were selected for grant awards. After some delay due to the COVID-19 pandemic grant agreements were negotiated and the projects moved forward to be completed in FY21.

The three grants awarded for a total of \$301,479 were:

- Bourne’s Energy was awarded a \$51,479 grant for improvements to their bulk pellet handling and storage operations in Hyde Park with an estimated total project cost of \$169,966.
- Maine Energy Systems, (DBA Vermont Energy Systems) was awarded a \$150,000 grant to build a 100-ton bulk pellet silo in St. Johnsbury with an estimated total projected cost of \$375,000.
- Lyme Green Heat was awarded a \$130,000 grant to purchase four 30-ton auger boom trailers and a tractor trailer truck. The two pairs of auger boom trailers will be used to provide a local loading spot for Lyme Green Heat’s 12-ton pellet delivery truck. The loading trailers will be stationed at in the two strategic delivery areas of Barre and Brattleboro. The estimated total projected cost for the truck and trailers is \$325,000.

■ Continuing Awards & Programs from Prior Fiscal Years

➤ Small Scale Renewable Energy Incentive Program (SSREIP)

The SSREIP is a market-based, first-come, first-served incentive program. The SSREIP has been CEDF’s longest running (since 2007) program. It has proven to be the most effective program in getting renewable energy systems installed and building the local clean energy market. In FY20 the program provided incentives for wood stove change-outs and for pellet boilers. The program provided \$355,600 in incentives for 222 advanced wood heating systems and stove change-outs for homes, business, and institutions across Vermont.

The wood stove change-out incentive component of the SSREIP operated for the first half of the 2020 fiscal year. The program stopped accepting applications on December 31st and completed payments in the beginning of 2020. The program completed 151 change-outs during that time. The change-out program removed old, highly polluting wood heating appliances currently being used in Vermont, replacing them with new, cleaner EPA-certified cord wood or wood pellet stoves. The program helped reduce air pollution emissions associated with wood heating. Old stoves removed under the program are to be destroyed or scrapped for recycling.

During FY20 the CEDF decided to end the stove change-out component of the state-wide SSREIP to focus its funds and efforts on stove change-outs for low-income Vermonters in targeted geographical areas. In addition, CEDF’s stove change-out incentive was not as needed or effective as it had been once Efficiency Vermont and several utilities started providing rebates for wood and pellet stoves.

The SSREIP provided incentives for the installation of seventy-one pellet boilers. Fifty-nine of the boilers were residential installations. Despite the slowdown caused by the pandemic FY20 had the most installations since CEDF started to promote pellet heating in 2015, as is demonstrated in Figure 3.

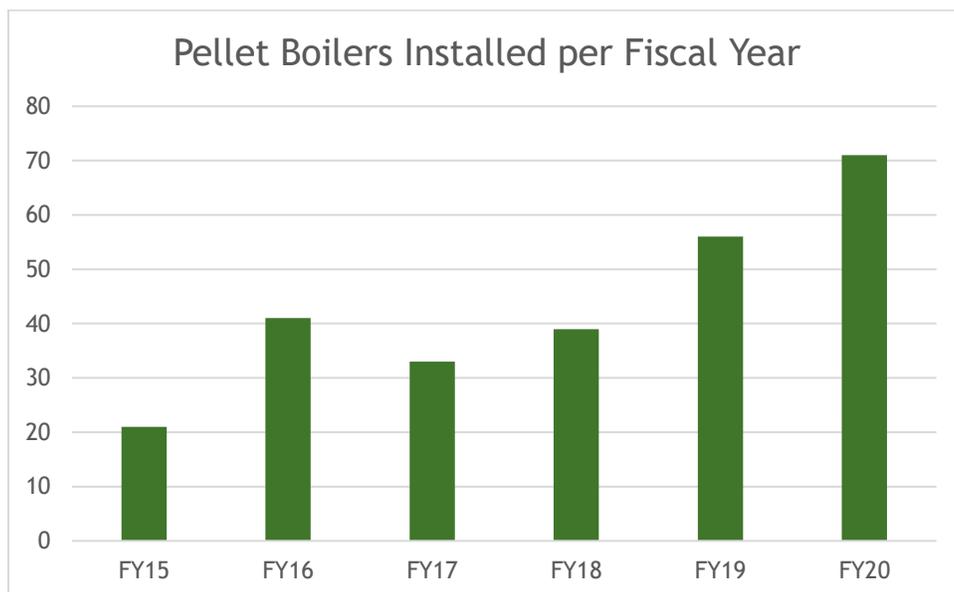


Figure 3 - SSREIP Pellet Boiler Installations

The total installed cost of the stoves and boilers supported through the SSREIP was over \$2.4 million, meaning the SSREIP leveraged \$5.9 private dollars for every CEDF dollar paid out as an incentive.

As in prior years, the CEDF continued to contract the administration of the program to the Renewable Energy Resource Center (RERC—a unit within the Vermont Energy Investment Corporation, or VEIC).

➤ **CLEAN ENERGY INDUSTRY REPORT: BW RESEARCH PARTNERSHIP, INC.**

The seventh annual report describing the status and characteristics of Vermont’s clean energy industry was released near the end of FY20. The survey that collects the data for the report was conducted pre-COVID and therefore did not include the impacts of the COVID work restrictions.

Clean energy jobs are more highly concentrated in Vermont compared to neighboring states and the national average. For every 10,000 workers, there are 608 clean energy jobs in Vermont.

With a pre-COVID total employment of over 18,900 workers, the clean energy sector is a significant part of the Vermont economy, representing about 6% of all workers. The report shows that the number of clean energy jobs grew by 0.1% between the 2019 and 2020 reporting periods.

The PSD’s Clean Energy Development Fund (CEDF) commissioned BW Research Partners Inc. to conduct the study of Vermont’s clean energy cluster and issue the report.

As of the fall of 2019, Vermont was home to a total of 18,910 clean energy workers. Since 2013, clean energy jobs grew by 27.9 percent, or 4,122 workers. Over the last three years, clean energy employment has remained relatively steady, mirroring the overall statewide labor market. Between the 2019 and 2020 reporting periods, Vermont’s clean energy labor market grew by 24 jobs, a growth rate of 0.1 percent—slightly below the overall statewide employment growth of 0.2 percent.

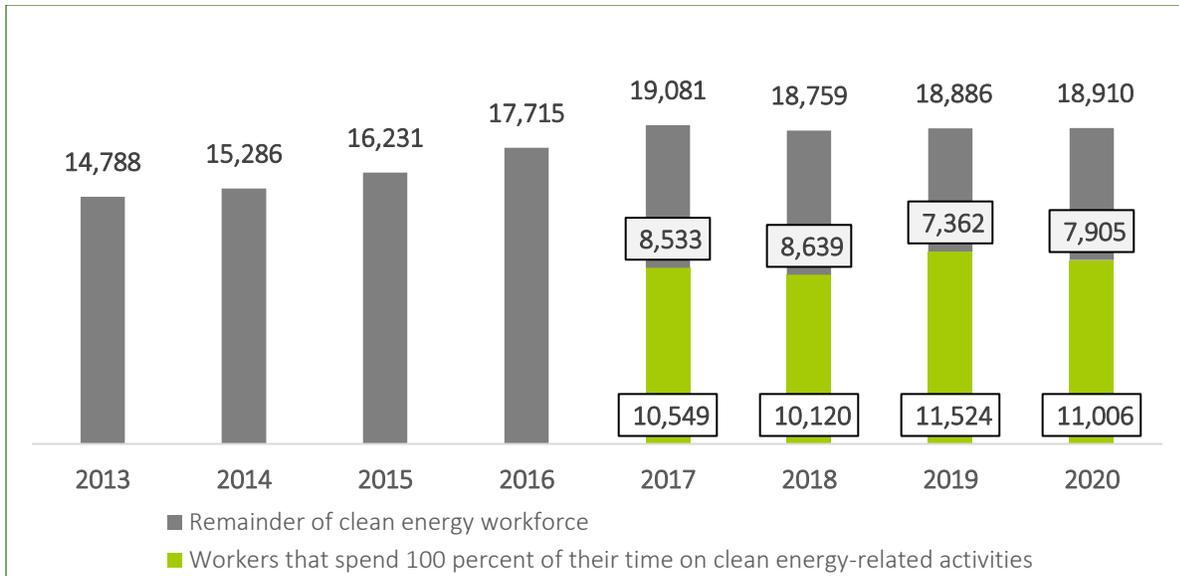


Figure 4. Number of VT Clean Energy Workers from the 2020 VCEI Report.

In total, there were 1,794 wood fuel workers across the state of Vermont in 2020. Overall, the wood fuels sector contributes just over \$64.3 million to Vermont’s Gross Regional Product (GRP), accounting for about 0.2 percent of statewide GRP.⁵

Wood Fuel Workers	2016 Employment	2018 Employment	2020 Employment
Logging	517	461	452
Wood fuel processing and preparation, including chips, pellets, or firewood	982	790	768
Combustion systems, such as stoves, furnaces, boilers, inserts, etc. ⁶	629	554	536
Other	42	36	37
Total ⁷	2,171	1,841	1,794

Figure 5. Wood Fuel Employment by Industry, 2020

See the report for a complete description of the findings and other details about the state’s clean energy workforce.

The full report can be found on the PSD’s web site at:

https://publicservice.vermont.gov/renewable_energy/cedf/reports

⁵ GRP calculations are based on survey data and secondary data from Emsi (Economic Modeling Specialists Intl.) and the US Bureau of Economic Analysis.

⁶ This includes workers involved in the manufacture, research and development, sales, installation, and other support, such as legal, consulting, or financial services, for wood fuel combustion systems.

⁷ This employment total is a combined subset from the “woody biomass” and “renewable heating and cooling” industry sectors within renewable energy generation.

➤ **CLEAN ENERGY FINANCE REPORT: ENERGY FUTURES GROUP, INC.
(THIRD REPORT UNDER THREE-YEAR CONTRACT)**

In response to the COVID-19 pandemic, the CEDF has directed the focus of the *2020 Clean Energy Finance Report* to financing programs and products that could have high impact and be relatively quick to execute.

While there are numerous helpful financing options, the products in this report were highlighted by lenders and implementers as tools and programs that could be brought to scale swiftly. This document is intended as a high-level review (not an exhaustive research project) of these opportunities, with recommendations for future consideration.

This report focuses on four key opportunities: interest rate buy-downs (IRB), loan loss reserves “payment coverage” offerings, and the expansion of the State Energy Management Program through Revolving Loan Funds.

Investment in clean energy projects does not need to come to a halt because of COVID-19. As safety guidelines foster re-opening of the economy, clean energy projects may be good candidates to help property owners save money, while simultaneously stimulating the economy. There may be additional funding via the federal government that allows for an expansion of current program resources. To capitalize on this opportunity, it is essential to focus on programs and tools that can be brought to scale quickly that leverage private resources.

To access the FY20 report go to:

https://publicservice.vermont.gov/sites/dps/files/documents/Renewable_Energy/CEDF/Reports/2020CleanEnergyFinanceRpt_CEDF.pdf

➤ **RESIDENTIAL WOOD STOVE CHANGE-OUT PROGRAM WITH THE OFFICE OF ECONOMIC OPPORTUNITY**

In FY19 the CEDF and the Office of Economic Opportunities (OEO) at the Department of Children and Families agreed on a Memorandum of Understanding (MOU) to develop and administer a wood stove change out program for families eligible to participate in the Vermont Home Weatherization Assistance Program (WAP). The program pays 100% of the cost to swap-out old, dangerous, inefficient, and polluting wood and other solid fuel heating appliances with newer, safer, and cleaner EPA-certified cord wood or pellet stoves, or to install new pellet stoves to displace fossil fuels. The program was funded with \$500,000 of ARRA funds repurposed for this program.

During the year, WAP agencies had installed 21 new pellet stoves and 23 cord wood stoves for low-income Vermonters around the state. These 44 installations, which require no cost share from the participants, accounted for just over \$192 thousand of incentive payments, equal to roughly \$4,350 per stove installation. All stoves are rated at or below the standard of 2.0 grams per hour of particulate matter (PM 2.5) at efficiencies of no less than 70 percent. These new units will reduce ambient air pollution and save homeowners on their fuel bills.

➤ **RUTLAND WEST NEIGHBORHOOD HOUSING SERVICES INC. DBA
NEIGHBORWORKS OF SOUTHWESTERN VERMONT**

NeighborWorks of Western Vermont continued its existing CEDF grant helping low- and moderate-income families lower their heating costs. The program focused on residents of Rutland and Bennington County to install cord wood/pellet stoves (or change-out old ones) coordinated with thermal energy efficiency audits and retrofits to reduce energy consumption and save money.

Due to a lower level of participation and COVID restrictions the program installed just twelve stoves during the fiscal year (compared to 108 in FY19). The program also completed 3 energy audits this year.

As with CEDF's other wood heating grants new heating systems must be EPA certified with particulate emissions of not more than 2.0 grams per hour and at least a 70 percent efficiency rating. Of the twelve property owners who received support for a new wood/pellet stove, 11 had incomes of below 80% of the area median income (AMI) for the Rutland region. Older stoves typically have efficiencies in the range of 30-40 percent, while new stoves fall between 78 and 83 percent, and emissions of fine particulates (at 2.5 microns in size) known to cause lung ailments decreased from the range of 4 to 6 grams per hour down to 1.0 to 1.9 grams per hour.

When coupled with health and safety upgrades to accommodate new stoves in the homes, the investment in new wood stoves provides substantial opportunity for improvement to human health and the local environment, while also stimulating the local advanced wood heating market.

Windham County Dedicated Funds

The funds allocated for use in Windham County continue to help area residents achieve energy savings and environmental improvements. In 2015 the General Assembly appropriated over \$7.5 million to the CEDF, including a one-time payment of \$5.2 million from Entergy Vermont Yankee (EVY). The Legislature allocated half of that EVY payment (\$2.6 million) for projects in, and for the benefit of, Windham County.

The CEDF continued administration of three active awards using the dedicated Windham County funds:

➤ **WINDHAM WOOD HEAT INITIATIVE**

The Windham Wood Heat Initiative (WWHI), administered by the Windham Regional Commission (WRC), is designed for the development of advanced wood heating systems for schools, municipalities, and public-serving non-profits located in Windham County. In FY20 the program completed grant payments for new wood heating systems at the Bellows Falls Middle School and the Putney Central School. They also signed one new \$200,000 grant with the Town of Brattleboro to help fund a wood fueled district heating project downtown to provide heat to two municipal buildings. If completed, this would be the final grant of the WWHI.

The WRC continued to implement program activities and provide technical assistance to businesses and organizations in Windham County.

➤ **WINDHAM RENEWABLE ENERGY GRANT PROGRAM**

During FY20, the Windham Regional Commission (WRC) continued to manage funding provided in previous years for a Renewable Energy Grant Program. In FY20, the program's final grant for a community solar project in Grafton was canceled. Due to staffing changes and the COVID-19 pandemic the \$100,000 was not re-granted out during the fiscal year. The WRC will be issuing one or more new grants in fiscal year 2021.

➤ **WINDHAM & WINDSOR HOUSING TRUST**

Windham and Windsor Housing Trust located in Brattleboro continued their grant program to support low- and moderate-income residents in Windham county to change-out old polluting stoves to new EPA certified pellet stoves.

In FY20, the program completed nine stove change-outs to new pellet stoves and five new pellet stove installations without a change-out. The program stopped taking in new applications during the second half of the fiscal year and focused on completing the projects they had lined up, which due to COVID-19 related restrictions delayed the final installations into fiscal year 2021. The program ended on December 31, 2020.

➤ **LOW-INCOME SOLAR:**

The CEDF and Green Mountain Power (GMP) continued work on a previous grant to support the development and implementation of a pilot program to help GMP's low-income customers reduce and stabilize their home energy costs with solar energy installations.

In FY20 the pilot program installed the first half of a 52 kW solar array at the non-profit Housing Foundation's apartments in Berlin. Due to COVID-19 restrictions the completion of the second part of the solar array (on a separate building) was postponed into the first half of fiscal year 2021. The power generated from the project is directly benefiting GMP's customers living in the apartments as participants in GMP's new Solar Electric Assistance (SEA) program.

CEDF staff is worked with GMP, PSD, and others on expanding options for low-income solar programs .

Other Projects and Activities

➤ **SALES TAX EXPENDITURE FOR ADVANCED WOOD HEATING**

As required by Act 194 of 2018 (sec. 26a) The CEDF transferred \$59,930.61 to the Department of Tax to cover the sales tax not collected in FY20 by the State due to the sales tax exemption for advanced wood heating systems. Fiscal year 2020 will be the last year that the CEDF makes such a transfer, as Act 194 limited the CEDF's obligation to cover this tax expenditure for three years.

➤ **STATE WOOD ENERGY TEAM (SWET)**

The CEDF continued to be active throughout the year in this inter-agency effort that works to facilitate collaboration and participation of several key stakeholder groups in the promotion of advanced wood heating in Vermont. The SWET is led by the Department of Forest, Parks and Recreation’s Wood Energy Coordinator.

➤ **ADVANCED WOOD HEATING & CARBON EMISSIONS – BULLETIN.**

The CEDF, working with the CED Board and the Vermont Energy Investment Corp., issued a two-page bulletin on carbon emissions from advanced wood energy.

In summary, the bulleting concludes that when wood fuels are sourced locally from well-managed forests and used to directly replace fossil fuels in high-efficiency applications like space heating, they can be an excellent long-term carbon emission reduction strategy for Vermont.

Today, the continued use of fossil fuels is the greatest cause of rising atmospheric CO₂ levels and reducing or eliminating fossil fuel use is the number one strategy for combating global climate change.

The Bulletin may be downloaded here:

https://publicservice.vermont.gov/sites/dps/files/documents/Renewable_Energy/CEDF/Reports/CEDF%20AWH%20Carbon%20Summary%20Bulletin%20-%20FINAL.pdf

Fiscal Year 2021 - First Half Preview

CEDF presented a budget and program plan for FY21 to the Clean Energy Development Board at the end of FY20. The Board approved the plan and budget in July of 2020. During the first half of FY20, the CEDF continued to administer programs started in earlier fiscal years and created a new component to its Small-Scale Renewable Energy Incentive Program. Activities in the first half of FY21 included:

- **Vermont Clean Energy Industry Report 2021** – The CEDF commenced on the eighth clean energy industry survey and report. The survey data was collected by BW Research at the end of 2020 and the Report will be issued in the spring of 2021. The report will describe the impact COVID-19 has had on jobs in Vermont’s clean energy sector and will provide useful insights that Vermont can use to support growth in its clean energy industries.
- **Catamount Bolton Wind Loan** – A \$206,200 loan that CEDF provided to the Bolton Valley ski area in 2009 to install a Vermont made NorthWind 100kW wind turbine on the top of the mountain was paid off in October, resulting in a payment of \$70,500 to the CEDF. The turbine is still running and continues to provide data on wind power performance with heavy icing conditions.
- **Kingdom View Compost Heat Recovery Project** – Tamerlane Farms was able to complete the heat recovery project funded in part with a \$53,000 CEDF grant, as part of an expansion

of their compost operation. Financing and COVID-19 delays extend the project into FY21 at which point the final grant reimbursement amount was paid.

- **Created a Coal Change-out Incentive** – The CEDF expanded the SSREI Program to include an additional incentive for pellet heating systems (or a pellet stove) for Vermonters that get rid of a coal heating system. The CEDF provided \$300,000 of repurposed ARRA funds for the adder. The Coal Change-Out Adder, combine with pre-existing CEDF incentives, provides an additional incentive for a home or business owner to replace their coal heating system with an advanced pellet heating system. The adder, with the existing SSREI Program incentive, provides a rebate up to 50% of the cost of a new heating system with a cap of \$10,000 for a home and \$30,000 for a business whichever is less. Interest in the program has been strong but limited due to the small number of coal systems still in use.

Conclusion

The CEDF finished FY20 continuing to support its statutory mission with activities substantively improving the lives of Vermonters, especially those vulnerable to the effects of air pollution and fluctuating fossil fuel prices. CEDF funded 147 renewable energy installations which will avoid the consumption of over 165,000 gallons of fossil fuel and 1,615 metric tons of CO₂e annually.

The CEDF incentives and other Fund-supported efforts resulted in increasing local renewable energy activities that supported vital economic development in Vermont's renewable energy business sector, with its specific focus on the advanced wood heating sector. The CEDF established strong evidence that its focus on the wood heating supply chain is paying off with increased sales and installation of advanced wood heating systems.

As the CEDF spends down its existing grant funds it will strive to retain its administrative capacities going forward. The CEDF will be winding-down most functions but, at least for the next couple years, has funding to maintain its basic administrative capacities so that it can be available to the PSD, and other State agencies, to meet the State's clean energy goals. The PSD will maintain the CEDF at the PSD given availability of funds to do so. The PSD will be prepared to quickly re-start CEDF's clean energy incentive programs if funding for CEDF's programs is secured.

Appendix I - Statutory Authority & Clean Energy Development Board

In 2005, the Vermont General Assembly established the Vermont Clean Energy Development Fund (CEDF) through Act 74.

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 Department of Public Service (PSD) administers the CEDF to facilitate the development and implementation of clean energy 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 Members During FY19, Appointing Authority, and Fiscal Year Term Ends:

- Kate Desrochers, House Energy Committee Chair, 2023
- Jared Duval, PSD Commissioner, 2023
- David Farnsworth, PSD Commissioner, 2021
- Ken Jones, Senate Energy Committee Chair, 2021
- Johanna Miller, House Energy Committee Chair, 2021
- Sam Swanson, Co-Chair, PSD Commissioner, 2023
- Paul Zabriskie, Senate Energy Committee Chair, 2023

Department of Public Service Personnel Involved in CEDF Management & Administration

June E. Tierney – PSD Commissioner
Riley Allen – PSD Deputy Commissioner
Ed McNamara – Director of Planning
TJ Poor – Director of Efficiency & Energy Resources
Andrew Perchlik – CEDF Fund Manager
Anne Margolis – Renewable Energy Development Director
Edward Delhagen – Clean Energy Finance and Program Manager
Stacy Drinkwine – Financial Manager
Patricia LaRose – Financial Manager
Tod Zeigler – Financial Analyst

Appendix II - FY20 CEDF Financial Reports for CEDF & ARRA Funds

VERMONT CLEAN ENERGY DEVELOPMENT FUND

Fiscal Year 2020 Revenues and Expenditures	
REVENUES	
Small Fund Interest	35,424
Loan Interest	16,616
Loan Repayments	96,819
Total Revenues	\$ 148,858
EXPENDITURES	
Salary & Benefits	124,776
Meetings & Conferences	200
Misc. Administration - all remaining	16,500
Total Administrative Expenses	\$ 141,476
VEDA - Loan Admin.	8,457
VEIC Contract	10,500
SSREI Program Incentives	184,610
Contracts - other	86,899
Grants	559,058
Total Program Expenses	\$ 849,524
Transfer out for Advanced Wood Heating Sales Tax Expenditure	59,931
Total Expenditures	\$ 1,050,930

Fiscal Year 2020 CEDF-ARRA Revenues and Expenditures

REVENUES	
Small Fund Interest	13,500
Loan Repayments	67,533
Loan Interest Income	26,685
Total Revenues	\$ 107,717
EXPENDITURES	
Salary & Benefits	5,040
NeighborWorks Grant	38,267
Other Grants	102,760
VEDA	11,830
Total Expenditures	\$ 157,896

Appendix III - Carbon Reduction Metrics

The renewable energy activities funded during the CEDF FY20 contribute toward the State's greenhouse gas emission requirements.⁸

CEDF's advanced wood programs saved over 165,500 gallons of fuel oil annually. All programs combined to yield net carbon dioxide equivalent reductions of approximately 1,617 metric tons per year.⁹

FY20 Annual Greenhouse Gas and Fossil Fuel Metrics

Technology	Number of Grant Program Installs	Number of SSREI Program Installs	Total Net Metric Tons CO2e Savings	Total Net Fossil Fuel Savings (gallons)
Wood Stoves	35	102	85.2	3,904.5
Pellet Stoves	36	49	28.4	85.5
Pellet Boilers - Residential	0	59	344.0	37,004.8
Pellet Boilers - Non-residential	0	12	1,159.2	124,731.96
Totals	71	222	1,616.9	165,726.8

⁸ Global Warming Solutions Act of 2020 (Act 153, 2020)

⁹ *Vermont Clean Energy Development Fund – Wood Heating Programs Advanced Wood Heat Program Evaluation Final Report*. 2019. Cadmus Group, LLC.

https://publicservice.vermont.gov/sites/dps/files/documents/Renewable_Energy/CEDF/Reports/VT%20CEDF%20Report%20_FINAL_10242019R.pdf