

New Hampshire Public Utilities Commission



NEW HAMPSHIRE RENEWABLE ENERGY FUND

ANNUAL REPORT

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Submitted to:

**THE LEGISLATIVE OVERSIGHT COMMITTEE
ON ELECTRIC UTILITY RESTRUCTURING**

Representative Herbert Richardson, Chair

THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE

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THE HOUSE SCIENCE, TECHNOLOGY AND ENERGY COMMITTEE

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Executive Summary

The Annual Renewable Energy Fund Report provides an overview of the Renewable Energy Fund (REF) established pursuant to RSA 362-F, New Hampshire’s Renewable Portfolio Standard (RPS) law, and managed by the Public Utilities Commission (Commission). It also addresses renewable energy facilities whose electricity production is net metered or group net metered. The report is filed annually no later than October 1st.

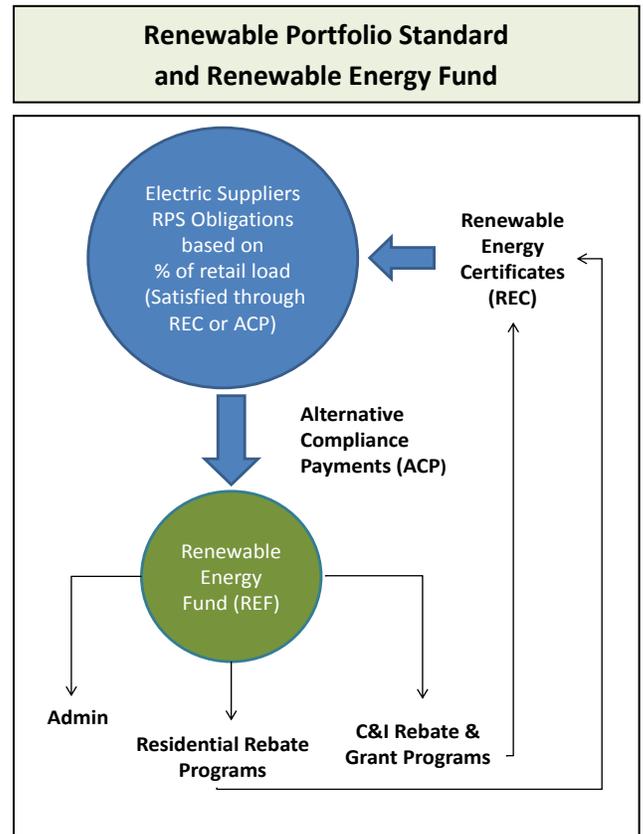
Renewable Portfolio Standard and Energy Policy in New Hampshire

New Hampshire’s RPS statute establishes the renewable energy policy for the state. Renewable energy comes from an energy source that is rapidly replaced or renewed through a natural process. The five common renewable energy sources are sunlight, wind, hydropower, biomass, and geothermal. When harnessed, these energy sources provide a clean, sustainable, affordable, and relatively unlimited power supply. Renewable energy enables New Hampshire municipalities, businesses, and residents to realize economic and energy security benefits. The industries associated with designing, building and installing these systems increase economic activity in the state.

Pursuant to the RPS statute, renewable energy generation technologies can provide fuel diversity to the state and the New England generation supply through the use of renewable fuels sourced locally. Local fuels allow more energy dollars to be retained in state rather than spent on imported fuels, and thereby lower regional dependence on fossil fuels. This has the potential to lower and stabilize future energy costs by reducing exposure to rising and volatile fossil fuel prices. In addition, employing low emission forms of such technologies can reduce the amount of greenhouse gases, nitrogen oxides, and particulate matter emissions transported into New Hampshire and also generated in the state, thereby improving air quality and public health, and mitigating against the risks of climate change.

The REF is a dedicated, non-lapsing fund, the purpose of which is to support electrical and thermal renewable energy initiatives. Electricity suppliers must obtain renewable energy certificates (RECs) for set percentages of their retail electric load, as required by the RPS statute. One REC represents one megawatt-hour (MWh) of electricity or an equivalent amount of thermal energy (3,412,000 Btu), generated from a renewable source.

The RPS statute established four classes of renewable energy resources. Electricity suppliers must obtain RECs for each of the four classes. In 2012, the RPS law was



amended to add a subclass to Class I for renewable thermal energy. If electricity suppliers cannot, or choose not to, purchase or obtain sufficient RECs to comply with the RPS law, they must make alternative compliance payments (ACPs) to the REF. ACPs are the sole source of funding for the REF and fluctuate from year to year, depending on the price and availability of RECs in the regional market (comprising CT, RI, MA, ME, VT and NH). RECs generated in one state may be sold in another provided they are certified in that state.

New Hampshire’s net metering policy provides a compensation mechanism for the electricity generated “behind the meter” by solar (PV) and other electric renewable systems. Under net metering, when a system produces more electricity than the facility is using, the excess electricity flows back onto the grid. This effectively reverses the direction of the meter, “netting out” that production so the customer-generator’s overall bill is lower at the end of the billing cycle. If the usage in the cycle is negative, the customer gets a bill credit that can be carried forward to future billing cycles. New Hampshire recently expanded this policy to allow group net metering, with final rules becoming effective in fiscal year 2015. Under this structure, the owner of a renewable electricity generating system can share the output with other customers (e.g. municipal buildings, campuses) without the requirement that they share a meter, as long as they are customers of the same distribution utility.

Renewable Energy Programs

Fiscal year 2015 was a year of expansion and increased demand across the incentive and grant programs. The Commission, with stakeholder input, expanded the Commercial and Industrial (C&I) Solar Rebate program to include solar electric (PV) systems up to and including 500 kW (AC) in size. In anticipation of high demand, the program opened in April with a lottery for project applicants to secure funding queue positions. Several installers attended the public lottery where projects were assigned queue positions for the limited funding. Overall demand for residential and commercial-scale PV projects continued to remain strong and increased again this year. As the charts and tables in the body of the report illustrate, available fiscal year funding was almost fully reserved for qualified projects in all rebate programs. However, because the construction cycle for larger C&I projects is long (on average, approximately one year), the REF is carrying forward a larger balance of reserved/encumbered funds than in previous years. The expectation is these projects will be built and become operational in fiscal year 2016.



Pellet Boilers

Demand for the biomass pellet boiler/furnace programs remained constant with small growth year over year. Through these programs, the pellet industry in New Hampshire continues to grow and build its distribution networks. With Class I Thermal rules finalized, Commission staff is now working with new thermal system owners to certify their systems as eligible to produce RECs. These RECs may be sold to meet Class I Thermal RPS compliance obligations.

The Commission issued a Request for Proposals for non-residential renewable energy projects located in New Hampshire which do not qualify for any of the other REF incentive programs. Twenty-seven grant proposals were received. Proposed projects included a variety of technologies: biomass for schools, geothermal for a library, commercial scale solar development on landfills, and

hydro-electric facility expansions. These proposals represented over \$60 million of total investment and requested over \$18 million in grant funds. With a budget of approximately \$2.6 million, seven project proposals were selected and grant contracts were presented to Governor and Executive Council.

Finally, the Commission entered into an agreement with the Department of Administrative Services (DAS) to fund the installation, commissioning and operation of a photovoltaic (PV) solar energy system associated with the Morton Building Contingent Project, which was approved at the February 11, 2015 Governor and Executive Council meeting (Item #56). The PV system to be located at the Hazen Drive Complex in Concord will generate renewable electricity for facilities connected to the Hazen Drive master meter. The renewable attributes of the project will be used by the State to meet its goals under Executive Order 2011-1 of reducing fossil-fuel use in state facilities by 25 percent over 2005 levels by 2025.

Outlook for Fiscal Year 2016

Challenges exist for fiscal year 2016. With a significant reduction in funding and continued strong demand for programs, the Commission is considering changes to the existing incentive and grant programs. Through a public process, the Residential Electric Renewable Energy rebate will be reduced in October, 2015. Likewise, revisions to the C&I Solar rebate program will be considered through a stakeholder process beginning in October. With limited funding, the grant offering will focus solely on thermal and hydro projects that create Class I, Class I-Thermal, or Class IV RECs to spur growth in classes in which RECs are expected to be in shorter supply.

With strong demand in the solar market and hydro-electric electric facilities participating in net metering, the utilities' queues for net metering lengthened and, in some cases, project installations and applications have caused individual utilities to reach the utility's capacity allocations as defined in the statute (RSA 362-A). In fiscal year 2015, the New Hampshire Electric Cooperative reached its net metering capacity as prescribed by statute and implemented an "Above the Cap" Net Metering Export Rate. In early fiscal year 2016, Liberty Utilities saw its net metering interconnection application queue reach its net metered capacity allocation. Liberty Utilities has decided to continue to interconnect renewable systems but has established a waitlist for net metering. Eversource Energy and Unitil Energy Systems, Inc. net metering interconnection application queues also continue to grow and each utility is approaching its respective net metering capacity allocation.

For renewable energy markets and businesses to continue to grow and prosper in New Hampshire, net metering should be addressed from several perspectives. A proceeding is currently underway at the Commission to develop consistent processes for utilities to manage the net metering interconnection queues. The Sustainable Energy Division will continue to manage its program applications and deadlines to ensure projects move from approval to completion as efficiently and quickly as possible to help ensure applicants install systems within the program and utility interconnection timeframes. Together these processes may begin to more effectively manage the net metering queues and interconnections. In the House and the Senate, legislation is being considered to address the capacity allocation caps.



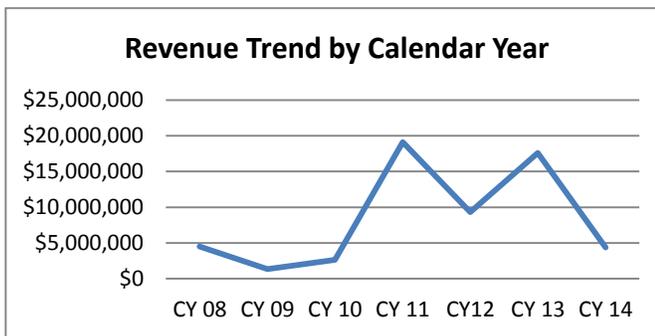
I. Revenues and Administrative Costs

Revenues

Alternative Compliance Payments (ACPs) from electricity suppliers are made annually by July 1, for the prior calendar year. Thus, ACPs for calendar year 2014 were to be paid by July 1, 2015. Entities paying ACPs include New Hampshire’s electric utilities, as well as competitive electric power suppliers. ACPs are paid to the Renewable Energy Fund (REF) and are the fund’s sole source of revenue.

Table 1 – ACP Revenues and Trend Graph

ACP Paid by July 1 st for Calendar Year	Amount
July 2009 for CY 2008	\$ 4,483,917
July 2010 for CY 2009	\$ 1,348,294
July 2011 for CY 2010	\$ 2,625,499
July 2012 for CY 2011	\$19,121,853
July 2013 for CY 2012	\$9,323,198
July 2014 for CY 2013	\$17,458,196
July 2015 for CY 2014	\$4,406,804



Revenues by RPS Class

As designed, the ACP funding to the REF is expected to, and does, fluctuate over time. Calendar year 2014 saw a significant reduction in ACPs due in part to a combination of market and policy factors. For example, the Class III obligation was reduced from 3.0% to 0.5% for compliance year 2014 through a public hearing and subsequent Commission Order. Also, Burgess Bio Power Plant came online and generated a high volume of RECs. The regional market also saw a significant increase in the availability of Class I RECs.

ACP revenues in 2015 (for compliance year 2014) were \$4,406,804, as compared to the prior year’s revenue of \$17,458,196. This decrease in revenue can mainly be attributed to a significant increase in the availability of Class I RECs due to Burgess Bio Power Plant’s generation. ACPs for Class I decreased from

New Hampshire RPS Classes Resource Definitions*

Class I resources include generation facilities that began operation after January 1, 2006 and produce electricity from: wind energy; geothermal energy; hydrogen derived from biomass fuel or methane gas; ocean thermal, wave, current, or tidal energy; methane gas; or biomass.

Class I Thermal includes a subcategory for useful thermal energy, pursuant RSA 362-F:3.

Class II sources include generation facilities that produce electricity from solar technologies and began operation after January 1, 2006.

Class III sources include generation facilities that began operation on or before January 1, 2006 and produce electricity from eligible biomass technologies having a gross nameplate capacity of 25 megawatts or less, or methane gas facilities.

Class IV sources include hydroelectric generation facilities that began operation on or before January 1, 2006 and meet specified requirements.

*refer to RSA 362-F for details

\$13.95 million in 2014 to \$67,994 in 2015 excluding the addition of the thermal carve-out for Class I. As illustrated in Table 2, the majority of Class I ACPs were for Class I Thermal (\$822,480).

Solar installations and Class II REC certified facilities increased in 2014; however, ACP revenues for Class II also increased, from \$291,656 (CY13) to \$743,674 (CY14). This is most likely because the REC market is regional and sellers can secure higher REC prices in other New England states; these states have higher ACPs for Class II RECs, which allows REC prices to exceed those in New Hampshire.

Class III revenues remained relatively unchanged from \$1,731,400 (CY13) to \$1,703,816 (CY14) due to a reduction in the 2014 Class III REC requirement. In [Order No. 25,768](#) dated March 13, 2015 in [Docket No. DE 15-035](#), the Commission changed the Class III obligations in 2014 and 2015. Specifically, the Commission reduced the Class III requirements for 2014 from 3.0% to 0.5% of an electricity supplier's retail sales, and for 2015 from 8.0% to 0.5% of an electricity supplier's retail sales. The Commission determined that, absent its intervention, pursuant to RSA 362-F:4, VI, there would be a substantial shortfall of Class III RECs for 2014 and 2015, which in turn would result in high levels of ACPs, the costs of which would ultimately be borne by New Hampshire ratepayers. In recent years Class III RECs have been difficult to procure because sellers can receive higher REC prices in other New England states; these states have higher ACPs for Class III RECs, which allows REC prices to exceed those in New Hampshire.

Class IV revenues declined from \$1,568,618 (CY13) to \$1,068,840 (CY14).

Table 2 lists the utilities and other electricity suppliers that filed compliance reports for calendar year 2014, documents each company's total alternative compliance payments, and further breaks down these payments by renewable energy class. Where no revenue appears for a class, it is because the company obtained RECs to satisfy its obligation for that class.

Table 2 - ACP Revenue by Supplier and RPS Class for Compliance (Calendar) Year 2014

Adjusted ACP Revenue for Compliance Year 2014						
Company	Total	Class I	Class I Thermal	Class II	Class III	Class IV
Distribution Utilities						
Liberty Utilities (Granite State)	\$ 138,251	\$ -	\$ 3,574	\$ 48,338	\$ 86,339	\$ -
NHEC	\$ 109,328	\$ -	\$ -	\$ -	\$ 109,328	\$ -
PSNH	\$ 1,281,022	\$ -	\$ 347,623	\$ 330,337	\$ 603,062	\$ -
Unitil	\$ 201,201	\$ -	\$ -	\$ -	\$ 126,315	\$ 74,886
Competitive Suppliers						
ConEdison Solutions	\$ 150,321	\$ -	\$ 26,529	\$ 1,993	\$ 42,052	\$ 79,747
Constellation Energy Services (Integrus Energy)	\$ 574,952	\$ -	\$ 107,904	\$ 81,006	\$ 171,081	\$ 214,961
Constellation New Energy	\$ 325,590	\$ -	\$ 95,747	\$ 78,016	\$ 151,827	\$ -
Devonshire (Fidelity)	\$ 41,340	\$ -	\$ 5,739	\$ 5,094	\$ 9,100	\$ 21,407
Direct Energy (Hess Energy Marketing)	\$ 278,063	\$ 4,042	\$ 53,461	\$ 25,692	\$ 84,742	\$ 110,126
Ethical Electric	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
ENH Power	\$ 374,215	\$ -	\$ 51,901	\$ 46,123	\$ 82,316	\$ 193,875
Fairpoint Energy	\$ 26,394	\$ -	\$ 7,601	\$ 6,755	\$ 12,038	\$ -
First Point Power, LLC	\$ 26,329	\$ -	\$ 5,487	\$ 4,873	\$ 8,717	\$ 7,252
Gulf Oil Limited Partnership	\$ 6,252	\$ 221	\$ 831	\$ 775	\$ 1,309	\$ 3,116
Hannaford/Competitive Energy	\$ 4,234	\$ 3,322	\$ 126	\$ 111	\$ 192	\$ 483
Mega Energy of New Hampshire*	\$ 33,986	\$ 26,965	\$ 1,057	\$ 941	\$ 1,692	\$ 3,331
Mint Energy	\$ 1,828	\$ 554	\$ 176	\$ 166	\$ 287	\$ 645
NextEra Energy Services New Hampshire, LLC	\$ 232,569	\$ -	\$ 32,671	\$ 26,024	\$ 51,822	\$ 122,052
Noble Americas	\$ 25,098	\$ -	\$ 3,473	\$ 3,101	\$ 5,524	\$ 13,000
North American Power	\$ 154,531	\$ 31,672	\$ 33,954	\$ 30,177	\$ 53,866	\$ 4,862
PNE Energy	\$ 3,956	\$ -	\$ 755	\$ -	\$ 1,213	\$ 1,988
REP Energy, LLC	\$ 1,520	\$ 1,218	\$ 50	\$ -	\$ 64	\$ 188
South Jersey Energy	\$ 34,199	\$ -	\$ 5,084	\$ 1,993	\$ 8,078	\$ 19,044
Texas Retail Energy (Walmart)	\$ 66,242	\$ -	\$ 9,187	\$ 8,195	\$ 14,560	\$ 34,300
Town Square Energy, LLC (Twin Cities Power)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TransCanada	\$ 312,670	\$ -	\$ 29,147	\$ 43,632	\$ 77,845	\$ 162,046
Xoom Energy New Hampshire LLC	\$ 2,713	\$ -	\$ 403	\$ 332	\$ 447	\$ 1,531
Total	\$ 4,406,804	\$ 67,994	\$ 822,480	\$ 743,674	\$ 1,703,816	\$ 1,068,840

Totals may not add due to rounding.

* Mega Energy of New Hampshire still owes \$1,358 of the \$33,986.

Administrative Expenses

REF administrative expenditures cover the cost of managing the various rebate and grant programs, and overseeing the resulting projects funded by the REF. Administrative costs since REF inception are provided in Table 3.

Table 3 – Administrative Expenses by Fiscal Year

Fiscal Year	Appropriation	Actual
2010	\$376,735	\$217,581*
2011	\$360,326	\$226,042*
2012	\$237,594	\$224,754*
2013	\$391,670	\$369,260
2014	\$528,499	\$522,656**
2015	\$657,913	\$596,940

* Administrative costs were partially offset during these fiscal years with ARRA funds made available by the New Hampshire Office of Energy and Planning, and the federal Department of Energy.

** Administrative costs increased in FY14, reflecting an increase in the number of rebate programs administered, and a substantial increase in the amount of rebate and grant funds disbursed.

II. Rebate and Grant Program Summaries and Results

Pursuant to RSA 362-F:10, the Commission administers three residential renewable energy rebate programs, two commercial and industrial renewable energy rebate programs, and a competitive grant program for non-residential renewable energy projects. For all rebate programs and grants, projects funded must be located in New Hampshire.

Renewable Energy Fund Rebate Programs

Rebate programs funded by the REF are described below.

Table 4 – Summary of Renewable Energy Fund Rebate Programs

REF Rebate Program	Eligible Technologies and Capacity Limits	Incentive Levels (Rebate)	Authority, Date of Inception
Residential Electrical Renewable Energy Rebate (PV and Wind)	Solar electric (PV) and wind turbines systems up to and including 10 kilowatts (kW) DC in capacity	\$0.75 per watt up to a maximum of \$3,750, or 50% of the total cost of the facility, whichever is less *	RSA 362-F:10, V July 2009
Residential Solar Water Heating Rebate	Solar water heating systems with annual production capacity of 5.5 MMBtus or greater	\$1,500, \$1,700, or \$1,900 depending on system capacity	RSA 362-F:10, VIII April 2010
Residential Wood Pellet Boiler/Furnace Rebate	High efficiency, bulk-fed wood pellet central furnaces/boilers	30% of the system cost and installation, or \$6,000, whichever is less	RSA 362-F:10, VIII April 2010
**Commercial & Industrial (C&I) Solar Technologies Rebate	PV systems and solar water heating systems up to and including 100 kW DC or thermal equivalent	\$0.80 per watt (DC) for solar electric systems and \$0.07/rated or modeled kBtu/year for greater than 15 collectors (\$0.12 per thousand-Btu/year for systems of 15 collectors or fewer) for solar thermal systems, and capped at \$50,000 or 25% of the total cost of the facility, whichever is less. The incentive level for expanded solar energy facilities is \$0.50 per watt (DC) for expanded electric facilities, and \$0.04 per kBtu/year for expanded thermal.	RSA 362-F:10, VIII October 2010 <i>Program closed on March 7, 2015 through Commission Order 25,764.</i>

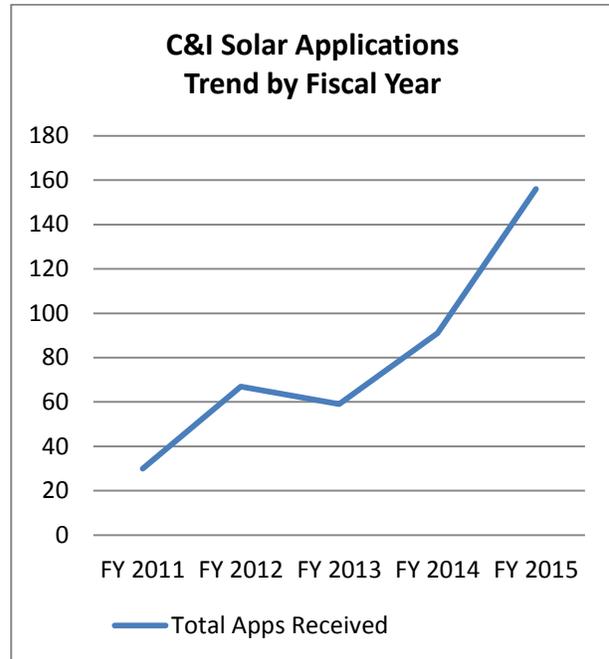
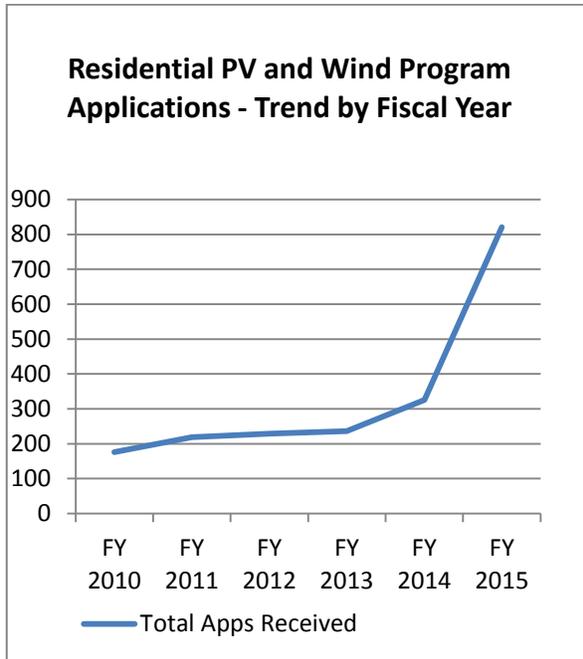
Program results for the REF rebate programs in FY15 are summarized in Table 5.

Table 5 – REF Rebate Program Results for Fiscal Year 15

REF Rebate Program	Number of Applications Received	Number Rebates Awarded*	Rebate Funds Disbursed	Average Rebate Award
Residential Electrical Renewable Energy (PV and Wind)	821	565	\$2,012,373	\$3,562
Residential Solar Water Heating	26	32	\$49,800	\$1,556
Residential Wood Pellet Furnace/Boiler	61	57	\$325,872	\$5,717
C&I Solar Technologies (Electric and Thermal)	156	44	\$639,232	\$14,528
C&I Wood Pellet Furnace/Boiler	29	17	\$349,667	\$20,569
Totals	1,093	715	\$3,376,944	

*The number of rebates awarded may exceed the number of rebate applications in instances where payments are made on applications received during the prior fiscal year.

New Hampshire’s solar electric (PV) market continues to grow. The RPS and REF are both drivers for participants in this market, setting policy and providing incentives. As a result of market conditions, including the continuing decline in solar hardware and soft costs, available incentives and increased consumer awareness, the REF electrical renewable energy rebate programs experienced a significant increase in demand as illustrated below.



Cumulative results for the rebate programs, since their inception through June 30, 2015, are shown below.

Table 6 – Cumulative Rebate Program Results through June 30, 2015

REF Rebate Program	Number of Applications Received	Number of Rebates Awarded	Rebate funds disbursed	Rebate Funds Reserved or In-Process	Average Rebate Award	Aggregate Applicant Investment
Residential Electrical Renewable Energy (PV and Wind)	2,166	1,772	\$7,227,013	\$1,864,882	\$4,155	\$48,036,063
Residential Solar Water Heating	497	462	\$984,800	\$9,200	\$2,145	\$3,711,743
Residential Wood Pellet Boiler/Furnace*	292	269	\$1,480,377	\$93,549	\$5,744	\$4,566,335
C & I Solar Technologies (Electric and Thermal)	398	188	\$2,661,062	\$5,525,272	\$14,155	\$12,149,411
C&I Wood Pellet Boiler/Furnace	49	23	\$476,735	\$ 632,013	\$20,245	\$3,258,980
Totals	3,402	2,664	\$12,829,987	\$7,492,903	n/a	\$71,722,532

*Includes ARRA funded projects.

Please note, in previous annual reports data in this table were presented “to-date” not the end of the fiscal year.

Commercial and Industrial Competitive Grant Program

RSA 362-F:10 requires the Commission to issue an annual request for proposal (RFP) for non-residential (commercial and industrial) renewable energy projects that are not eligible to participate in incentive and rebate programs developed under RSA 362-F:10, V and RSA 362-F:10, VIII.

The Commission issued its annual RFP for renewable energy projects on August 21, 2014 stating that the RFP program had between \$2 million and \$3 million in available grant funds. Twenty-seven grant proposals were received by the Commission. These proposals represented over \$60 million of total investment and requested over \$18 million in grant funds. The Commission recommended seven grant awards totaling \$2.26 million.

Table 7 – REF Competitive Grants in Fiscal Year 2015

Grantee	Technology (Capacity)	Project Description	Total Project Costs	Leveraged Funds	Grant Amount	Estimated Annual RECs
Steels Pond Hydro	Hydro (600 kW)	New owner to rebuild small hydro in Antrim	\$243,600	\$56,600	\$187,000	2,066 Class IV
Durham Solar LLC	Solar PV (640 kW)	Renewable energy will be used by Town	\$2,100,000	\$1,598,400	\$501,600	809 Class II
Milton Town Solar LLC	Solar PV (853 kW)	Solar Garden on landfill using Group Net Metering to share renewable energy benefits	\$2,709,566	\$2,128,809	\$580,757	1,259 Class II
Bedford Town Library Geothermal	Geothermal (65 tons; .78 MBtu/hr or 228 kW)	New geothermal heating and cooling system at Town library	\$888,842	\$501,000	\$387,842	686 Class I Thermal
Strafford School SAU 44	Biomass Thermal (65 tons; 1 MMBtu/hr or 300 kW)	Biomass boilers to heat Strafford Elementary	\$437,800	\$287,800	\$150,000	773 Class I Thermal
Medium Solar PV Project <i>(not yet approved by G&C)</i>	Solar PV (440 kW)	Renewable energy will be used by Town	\$1,816,000	\$1,366,000	\$450,000	619 Class II
Totals			\$8,195,808	\$5,938,609	\$2,257,199	

Several projects which were awarded grants during previous fiscal years became operational in fiscal year 2015. In December, Plymouth Village Wastewater Treatment Plant’s (PVWSD) 121 KW solar PV array went online. The array is expected to generate roughly 145,000 kWh, on average, annually over 30 years, and is therefore expected to produce 145 Class II RECs annually. The array is estimated to save PVWSD \$20,300 annually, and the RECs will generate additional annual income. On a sunny day, the array is capable of producing over 500



Plymouth Wastewater Treatment Plant’s Solar

kWh, enough electricity to power a typical home for one month. The system will create savings for PVWSD rate payers, reductions in greenhouse gas emissions, employment for local workers and business for local suppliers.

Other projects that became operational in fiscal year 2015 include the installation of two wood pellet boilers at Charlestown and Walpole Middle Schools, installation of three wood pellet boilers and storage tank at Historic Harrisville, installation of a biomass

district heating system for 24 buildings at Holderness School, and installation of a central biomass heating system at High Mowing School in Wilton.

In September 2015, the Commission issued the annual RFP for fiscal year 2016 for non-residential renewable energy projects that are not eligible to participate in incentive and rebate programs. The RFP is currently open and is posted on the Commission's website (<http://puc.nh.gov/Home/requestforproposal.htm>).

III. Budgets, Expenditures, and Statutory Funding Requirements

The Commission’s state appropriation for the REF for FY15 (July 1, 2014 – June 30, 2015) was \$7,840,634. Funds for rebate and grant programs, net of administrative expenses, totaled \$7,322,061 and were allocated between the residential and non-residential (commercial and industrial) sectors as follows:

- Residential sector: \$2,862,704
- Non-residential: \$4,459,357

The Commission received authority to expend an additional appropriation of \$5,000,000 of the REF in FY15. These additional funds for rebate and grant programs, net of administrative expenses, totaled \$4,860,660 and were allocated between the residential and non-residential (commercial and industrial) sectors as follows:

- Residential sector: \$1,540,660
- Non-residential: \$3,320,000

Budgets and expenditures for the rebate and grant programs are shown below.

Table 8 – FY 15 REF Rebate and Grant Program Budgets and Expenditures

REF Program	FY 15 Program Budget *	FY 15 Program Expenditures	Program Funds Committed for FY16
Residential Electrical Renewable Energy (PV and Wind)	\$3,340,680	\$2,012,373	\$1,315,474
Residential Solar Water Heating	\$125,000	\$49,800	\$6,200
Residential Wood Pellet Boiler/Furnace	\$650,000	\$325,872	\$53,063
New Residential Rebate Program	\$886,738	-	-
C&I Solar Technologies (PV and Solar Thermal)	\$6,493,762	\$639,232	\$5,525,272
C&I Wood Pellet Boiler/Furnace	\$1,220,000	\$349,667	\$661,789
C&I Grant Program	\$6,015,300	\$3,604,474	\$2,410,826
State Buildings	\$500,000	\$500,000	-
Totals	\$19,231,480	\$7,481,418	\$9,972,624

*The FY15 budget includes:

- Appropriated FY15 Program Budget
- Additional Appropriation
- FY14 Carry Forward Funds (funds reserved and encumbered in FY14)

The development of a new residential rebate program for the low income sector was under consideration during fiscal year 2015. Stakeholder meetings were held with Commission staff and ideas were considered. However, given budget and staff limitations, a program was not implemented. Staff continues to research programs and depending on staffing and funding may allocate funds to this program again in fiscal year 2016.

Table 9 below summarizes the available funds for grant and rebate programs in fiscal year 2016, net of transfers, administrative costs, and funds previously encumbered or committed.

Table 9 – Analysis and Apportionment of Funds for FY16

Fund Balance Analysis

\$17,998,506	Renewable Energy Fund (REF) Balance as of June 30, 2015
3,416,626	CY14 ACP Payments received in FY15
992,843	CY14 ACP Payments received in FY16
(500,000)	Site Evaluation Committee - HB614
(500,000)	Admin Services MOU Hazen Drive - G&C 02/11/2015 #56
\$21,407,975	FY 16 Beginning Fund Balance

Budget Analysis

\$12,936,620	FY15 Program Balance Forward
3,661,030	FY16 Continuing Resolution Program
3,279,169	FY16 Budget & Expend Program
259,287	FY16 Continuing Resolution Administrative
530,849	FY16 Budget & Expend Administrative
\$20,666,954	FY 16 Total Appropriation*
19,876,819	FY 16 Program Appropriation (Adjusted for Administrative)
(179,929)	ACP Adjustments (Prior Year and Current)
(153,627)	FY 14 Grants Encumbered
(1,807,199)	FY 15 Grants Encumbered
(7,561,797)	FY 15 Rebates Committed
(450,000)	FY 15 Grants Anticipated
\$ 9,724,267	FY16 Rebate and Grant Funds Available

*Appropriation reduced by \$741,021 for transfer to Homeland Security and Emergency Management

Program Analysis

\$ 9,724,267	FY16 Adjusted Preliminary Program Budgets for the REF - 09/01/2015
\$ 4,578,501	Funds Allocated to Residential Sector
\$ 5,145,766	Funds Allocated to C&I (non-residential) Sector

Allocation of Funding Between Residential and Non-residential Sectors

In 2010, the New Hampshire legislature required the Commission to reasonably balance REF expenditures between the residential and non-residential sectors over each two-year period beginning July 1, 2010, in

proportion to each sector’s share of total retail electricity sales. In 2012, the legislature modified this requirement such that the Commission must reasonably balance the amounts expended, allocated or obligated during each two-year period. Refer to RSA 362-F:10, X.

For calendar years 2014 and 2015, retail electricity sales for the residential sector accounted for 41% of total retail sales, while sales for the non-residential (commercial & industrial) sector accounted for 59% of total retail sales.

In fiscal year 2015, which is the first year of the two-year period beginning July 1, 2014, ACP funds were allocated (budgeted) as follows:

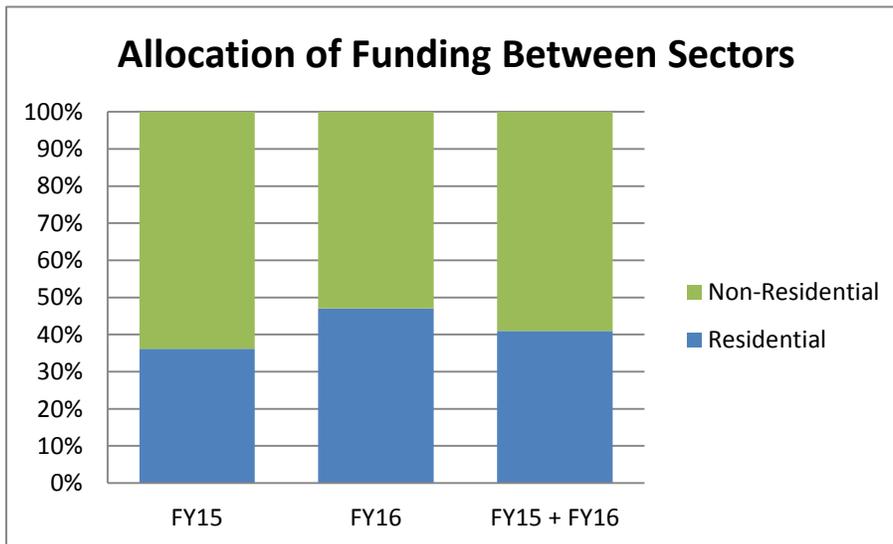
- Residential Programs: \$4,403,364 , or 36% of allocated funds
- Non-residential (C&I) Programs: \$7,779,357, or 64% of allocated funds

In fiscal year 2016, which is the second year of the two-year period beginning July 1, 2015, REF funds have been allocated as follows:

- Residential Programs: \$4,578,501, or 47% of allocated funds
- Non-residential (C&I) Programs: \$5,145,766, or 53% of allocated funds

The allocation of funds over two-years has been budgeted as follows:

- Residential Programs: \$8,981,865, or 41% of allocated funds
- Non-residential (C&I) Programs: \$12,925,123, or 59% of allocated funds



Funding Cap for Residential Renewable Electricity Rebate Program

RSA 362-F:10, VI places a cap on spending for the residential rebate program for solar electric panels and wind turbines up to and including 10 kilowatts in capacity. No more than 40% of the REF can be allocated to this program, measured over two-year periods commencing July 1, 2010.

In fiscal year 2015, which was the first year of a new two-year cycle commencing July 1, 2014, the Commission allocated \$2,840,460 for the above-referenced residential renewable energy rebate program. This amount represents approximately 23% of available REF program funds for fiscal year 2015, well below the applicable biennial cap of 40%. In fiscal year 2016, which is the second year of a new two-year cycle commencing July 1, 2015, the Commission has allocated \$3,953,501 for the above-referenced residential renewable energy rebate program. This amount represents approximately 40% of available REF funds for fiscal year 2016. The resulting two-year allocation to the program is \$6,793,961. This amount represents approximately 31% of available REF program funds for fiscal years 2015 and 2016, below the applicable biennial cap of 40%.

Use of Class II Revenues for Solar Technology Incentives

RSA 362-F:10, I requires that "Class II moneys shall primarily be used to support solar energy technologies in New Hampshire." For calendar year 2014, ACPs for Class II were received in July 2015 in the total amount of \$743,674. In fiscal year 2016, these funds, and more, will be budgeted and expended on various REF rebate and grant programs for solar energy technologies.

IV. Inclusion of Thermal RECs in RPS

When the RPS law was enacted in 2007, it applied exclusively to *electrical* renewable energy resources. RSA 362-F:3 was amended in 2012, however, to create a Class I subcategory for useful thermal energy and to require electricity suppliers to obtain thermal RECs beginning in 2013. Eligible thermal technologies include biomass, solar hot water or air, and geothermal heating and cooling systems, also known as ground source heat pumps. The Commission was charged with developing administrative rules to “adopt procedures for the metering, verification, and reporting of useful thermal output.” RSA 362-F:13, VI-a.

In Order [25,484](#), issued in April 2013, the Commission noted that, due to technical challenges with thermal metering standards, the rulemaking required by the statute could not be completed in time to certify facilities for the production of useful thermal energy RECs in 2013. Pursuant to its authority under RSA 362-F:4, V, the Commission delayed the implementation of the thermal REC requirement from January 1, 2013 to January 1, 2014.

The Commission issued draft administrative rules (Chapter Puc 2500) on April 10, 2014. The Commission held a public hearing on the amendments to Puc 2500 on June 27, 2014 and comments were due by July 9, 2014. The Commission met in a public meeting and voted to adopt the Puc 2500 rules as approved by the Joint Legislative Committee on Administrative Rules on November 20, 2014 and adopted by the Commission on December 5, 2014. The rules can be applied retroactively back to January 1, 2014, in order to enable thermal energy facilities to qualify for production of thermal RECs beginning in the first quarter of 2014.

V. Net Metered Facilities, Allowed Net Metered Capacity and Group Net Metering

Net Metering

Each utility's total installed capacity of net metered facilities is listed in Table 10. With the exception of New Hampshire Electric Cooperative, the amounts of energy net metered by each utility are generally well below the net metered capacity per utility as set forth in RSA 362-A:9, I. The New Hampshire Electric Cooperative reached its net metered capacity early in calendar year 2015. Overall, as of the end of 2014, the total installed net metered capacity was 14.561 MW which is approximately 29% of the of 50 MW net metered capacity in statute. In calendar year 2014, installed capacity equaled 10.153 MW (approximately 20%). In calendar year 2014, New Hampshire saw almost a 45% increase in installed capacity over 2013.

Table 10 – Total Net Metered Facilities as of December 31, 2014

Electric Utility	2014 Number of Installs	Total Installs to Date*	2014 Capacity Added (MW-DC)	Total Capacity to Date	Peak Load (MW)**	Allowed Net Metered Capacity (MW)**
Liberty Utilities	78	141	0.552	0.783	189	4.12
New Hampshire Electric Cooperative	108	468	0.954	2.980	124	3.16
Eversource Energy	314	1226	2.494	9.493	1,588	36.55
Unitil Energy Systems, Inc.	41	150	0.408	1.305	268	6.17
Total Net Metered Facilities	541	1,985	4.408	14.561	2,169	50

*Based on the utility reports to DOE (EIA Form 826) and includes system expansions.

**Based on the share of 2010 peak load pursuant to Puc 900 and RSA 362-A:9

Group Net Metering

In July 2009, the Legislature enacted SB 98, amending RSA 362-A:9 to allow for group net metering. The law permits net-metered renewable energy facilities, known as hosts, to share the proceeds from sales of surplus electricity generation with other electric utility account holders, known as group members. In some cases, the group host and the group members may be the same party. For instance, a town might net meter a solar array and use the proceeds to offset utility expenses associated with other town electric meters. The host and the group members must all be default service customers of the same distribution utility, meaning they may not procure energy from a competitive electric power supplier. Group net metering applications are reviewed and approved by the Commission.

The Commission issued interim administrative rules (Chapter Puc 900) to implement group net metering on January 2, 2014. Draft final rules were issued on June 19, 2014. A public comment hearing was held at the Commission on August 27, 2014. The Commission reviewed written comments submitted after the hearing.

The final rules were submitted to the Joint Legislative Committee on Administrative Rules in November, 2014 and went into effect on January 7, 2015.

Table 11 provides information about group net metering applications approved by the Commission in calendar year 2014.

Table 11 – Group Net Metering Applications Approved in Calendar Year 2014

Electric Distribution Utility	Number of Applications Approved		Capacity of Approved Host Installations (kilowatts)		Net Generation By Host (kWh)**	Total Member Load (excluding Host) (kWh)
	Solar	Hydro	Solar	Hydro		
Eversource Energy *	39	1	2,603.3	50.0	58,360	129,133
Liberty Utilities*	3	--	60.6	--	2,574	7,716
New Hampshire Electric Cooperative	1	--	18.0	--	4,311	5,975
Unitil Energy Systems, Inc.	--	--	--	--	--	--
Total	43	1	2,681.9	50.0	65,245	142,824

*Eversource’s number of applications and installation capacities include 9 systems that have not yet been installed, 3 that withdrew their interconnection requests, and 2 that only net meter. Liberty Utilities’ number of applications and installation capacities include 1 system that has not yet been installed.

**“Net Generation by Host” means the amount of electricity generated and available for the group members, excluding any usage by the Host.

VI. Conclusion

Since its inception in July 2009, the Renewable Energy Fund has established six grant and rebate programs that have experienced substantial demand and growth over time. The Renewable Energy Fund has funded close to 2,500 rebates for renewable energy systems to New Hampshire homeowners, businesses, schools, towns, non-profit organizations, and other eligible entities. In addition, the Commission's competitive grant program has provided more than \$7 million in funding for 25 renewable energy projects for schools, businesses, and municipalities, featuring technologies from biomass heating systems to hydroelectric project upgrades to photovoltaic arrays and solar hot air, among others. In 2015, it is expected that additional funds will be awarded through new grants for renewable energy projects.

Rebate and grant funds have been leveraged with tens of millions in private investment, providing a boost to the state's economy and creating jobs for electricians, plumbers, and alternative energy businesses. In addition, there has been substantial growth in distributed generation renewable energy systems that serve to diversify our energy sources, reduce our reliance on fossil fuels, reduce greenhouse gas emissions, and increase our energy independence.

Demand for rebates and grant awards continue to be strong, as the 2014 and 2015 data set forth in this Report demonstrates.