NEW HAMPSHIRE RENEWABLE ENERGY FUND

Annual Report

October 1, 2012

New Hampshire Public Utilities Commission

Submitted to:

The Legislative Oversight Committee on Electric Utility Restructuring

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Senator Jeb Bradley
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Overview

This 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), as well as information about renewable energy facilities whose electricity production is "net metered" pursuant to RSA 362- A:9. The report is filed annually as required by RSA 362-F:10, IV.

The REF is a dedicated, non-lapsing fund whose purpose is to support electrical and thermal renewable energy initiatives, pursuant to RSA 362-F:10, I. Electricity suppliers must obtain renewable energy certificates (RECs) for set percentages of their electric load, as required by the RPS statute. A REC represents a megawatt-hour (MWh) of electricity generated from a renewable generation source. The REC can be traded separately from the electricity itself in the New England wholesale market.

There are four classes of renewable energy resources as defined by RSA 362-F:4, and electric suppliers must obtain RECs for each of the four classes. If electricity suppliers cannot or choose not to purchase or obtain sufficient RECs to comply with the RPS law, they make alternative compliance payments (ACPs) to the REF. ACPs are the sole source of funding for the REF. Total ACPs fluctuate from year to year, depending on the price and availability of RECs in the regional market (made up of CT, RI, MA, ME and NH). The revenue received for 2011, by class and by company, is found below in Table 1.

Pursuant to RSA 362-F:10, the Commission uses the REF to fund rebate and grant programs covering a range of thermal and electrical renewable technologies, including solar technologies funded with Class II solar ACPs. Programs serve both the residential and non-residential sectors.

The statute mandates one-time incentive payments or rebates for small residential renewable generators (RSA 362-F:10,V). It also authorizes further rebate and grant programs for renewable thermal and electric energy projects (RSA 362-F:10, VIII). For all rebates and grants the project funded must be located in New Hampshire. A summary of these rebate programs is found below in Table 2.

The Commission has also administered certain federal American Recovery and Reinvestment Act (ARRA) funds[1] provided by the Office of Energy and Planning to provide a stand-alone residential renewable energy rebate program for wood pellet central boilers and furnaces, and to provide an additional rebate for the solar thermal REF residential rebate program. These programs are similar to the REF-funded rebate programs, and we report on them here to provide a complete picture of the programs offered through the REF, regardless of the source of funding. A summary of the ARRA funded rebate programs is found below in Table 3. Results of all rebate programs are found below in Tables 4 and 5.

[1] These ARRA funds were provided on a one-time basis.

The statute also mandates an annual RFP for competitive grant awards to renewable projects in the non-residential sector (RSA 362-F:10, XI). A summary of the grants made in 2012 is found below in Table 6.

This report documents REF revenues for calendar year 2011 compliance and expenditures, and program activities during state fiscal year 2012.

REF program budgets and program expenditures in FY12 are presented in Table 7. Similarly, Table 8 provides data on ARRA-funded rebate program budgets and expenditures in FY12. Looking forward, Table 9 shows how ACP funds are allocated between the residential and non-residential sectors in FY13. Lastly, data on net metered renewable energy systems in New Hampshire can be found in Table 10.

REF Revenues and Administrative Costs

ACPs from electric service providers are made annually on or about July 1, in concert with annual RPS compliance reports filed with the Commission, for the prior calendar year. Thus, ACPs for 2011 should be remitted by June 30, 2012. Entities paying ACPs include New Hampshire's electrical utilities as well as competitive electric suppliers. Table 1, below, lists the utilities and energy suppliers who filed compliance reports for calendar year 2011 and documents each company's total ACP 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.

ACP REF revenues, by due date, have been:

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	$19,149,575
Total:	$27,607,285

In 2012 ACPs for class III totaled more than $15.5 million, as compared to $1.54 million in 2011. This development is the result of at least two factors. First, electricity suppliers reported that supplies of Class III RECs in New Hampshire were limited in calendar year 2011. Secondly, some electricity providers in New Hampshire chose to sell Class III RECs in other states such as Connecticut, where REC prices exceeded the ACP for Class III in New Hampshire. This further contributed to the tight supplies of Class III RECs and may have forced other providers to make ACPs due to a shortage of Class III RECs.

There will be multiple factors at play in the next few years with respect to the market for Class III RECs. Beginning in 2014, New Hampshire Class III requirements will increase from 6.5% of retail load to 7.0%, and then 8.0% in 2015 through 2025. This change will increase demand and put upward pressure on Class III REC prices. Conversely, Massachusetts recently adopted new RPS rules that impose a high efficiency requirement for biomass plants. This will likely result in a number of biomass power plants losing their eligibility for Massachusetts RECs. These plants may then opt to sell their RECs into New Hampshire's Class III market. All else being equal, this development would tend to drive Class III REC prices lower. Finally, some of the biomass plants in New Hampshire have rate agreements that begin expiring in May of 2013. After that time, these plants may find it hard to operate profitably and consequently one or more of these plants could go offline, thereby reducing supplies of Class III RECs.

Table 1 - ACP REVENUE FOR COMPLIANCE (CALENDAR) YEAR 2011

Company	Total	Class I	Class II	Class III	Class IV
Utilities					
National Grid	$892,138	$259,393	$6,853	$615,292	$10,600
Unitil	$1,729,306	$-	$-	$1,612,339	$116,966
NHEC	$-	$-	$-	$-	$-
PSNH	$9,382,582	$1,877,817	$-	$7,217,192	$287,573
Competitive Suppliers					
Competitive Energy/Hannaford	$256,649	$87,191	$9,159	$138,926	$21,373
ConEdison Solutions	$480,354	$-	$-	$414,865	$65,489
Constellation Energy	$1,858,648	$9,879	$-	$1,668,264	$180,506
Devonshire (FMR)	$86,293	$-	$-	$86,293	$-
Glacial Energy	$499,585	$-	$163	$432,837	$66,586
Hess	$1,108,622	$-	$-	$954,647	$153,975
Integrys Energy	$581,329	$-	$-	$580,781	$548
NextEra*	$641,514	$52,127	$33,564	$471,856	$83,966
Noble Americas	$675	$249	$-	$366	$61
PNE Energy	$944	$-	$-	$944	$-
South Jersey Energy	$156,412	$-	$-	$156,412	$-
TransCanada**	$1,446,803	$-	$41,606	$1,177,874	$227,323
Total	$19,121,853	$2,286,655	$91,345	$15,528,887	$1,214,967

Note that the ACP revenue total has been revised downward from $19,149,575 to $19,121,853 based on an audit of the compliance reports and anticipated adjustments to certain ACP payments.

*NextEra includes ACPs for 2010 and 2011 because both were paid in 2012.

**TransCanada overpaid Class III ACP in 2010; this amount reflects the credit ($250,639) from 2010.

REF administrative costs to date have been consistently below state budget appropriations:

FY10	budgeted	$376,735	actual	$217,581
FY11	budgeted	$360,326	actual	$226,042
FY12	budgeted	$237,594	actual	$224,754

REF Rebate and Grant Programs

Pursuant to RSA 362-F:10, the Commission administers three residential renewable energy rebate programs, a commercial and industrial renewable energy rebate program, and a competitive grant program for commercial-scale renewable energy projects.

Renewable Energy Rebate Programs

Rebate programs funded by the REF are described below in Table 2.

TABLE 2 – SUMMARY OF RENEWABLE ENERGY REBATE PROGRAMS

REF REBATE PROGRAMS	Eligible Technologies and capacity limits	Incentive Levels	Authority, date of inception
Residential electrical renewable energy rebate	Solar electric panels (PV systems), wind turbines, and other renewable electric generation under 5 kilowatts in capacity	$.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 hot water	Solar water heating systems w/ capacity of 5.5 MMBtu's or greater	$1,500, $1,700, or $1,900 depending on system capacity	RSA 362-F:10, VIII April 2010
Commercial & Industrial Solar Technologies rebate	PV systems and solar water heating systems up to 100 kW or thermal equivalent	$.80 per watt (A/C) for solar electric systems and $0.07/rated or modeled kBtu/year ($0.12 per thousand-Btu/year for systems of fifteen collectors or fewer in size) for solar thermal systems capped at $50,000 or 25% of the total cost of the facility, whichever is less	RSA 362-F:10, VIII October 2010

The Commission augmented these programs with federal ARRA funds provided by the Office of Energy and Planning (OEP). These funds were allocated to the Commission through two Memoranda of Agreement (MOAs), providing the Commission with $600,000 to develop and administer a rebate program for residential wood pellet boilers/furnaces, and $516,000 to provide a supplemental rebate for participants in the REF residential solar

water heating program. The MOAs, which were approved by the Governor and Executive Council, limit the use of the ARRA funds to these rebate programs. During FY12, both programs ceased accepting new rebate applications, as the one-time only ARRA funds were fully obligated.

Programs supported with ARRA funding are described below in Table 3.

TABLE 3 – ARRA FUNDED REBATE PROGRAMS

ARRA FUNDED REBATE PROGRAMS	Eligible Technologies	Incentive Levels	Authority, date of inception
Residential wood pellet rebate Program	Bulk-fed wood pellet central furnaces/boilers	30% of the system cost and installation, or $6,000, whichever is less	MOA with Office of Energy and Planning, approved by Governor and Council April 2010
Residential solar hot water – Supplemental Rebate	Solar water heating systems w/ capacity of 5.5 MMBtu's or greater	$2,000 per system	MOA with Office of Energy and Planning, approved by Governor and Council May 2010

While the ARRA funds for both of these rebate programs have effectively been exhausted, the Commission continues to offer both programs, now utilizing REF funds (see Table 2 for rebate levels).

Program results for the REF rebate programs in FY 12 are summarized below in Table 4.

TABLE 4 – REF REBATE PROGRAM RESULTS FOR FY12

REF Rebate Program	# of applications	# rebates awarded	Rebate funds disbursed	Average rebate award
Residential PV/Wind	219	189	$795,339.00	$4,208.14
Residential Solar Water Heating	161	157	$156,400.00	$996.17
C&I solar electric and solar thermal rebates	67	50	$635,884.00	$12,718.00
Totals	447	396	$1,587,623	$4009.15

Program results for the ARRA-funded programs in FY12 are summarized in

Table 5.

TABLE 5 – ARRA REBATE PROGRAM RESULTS FOR FY12

ARRA Rebate Program	# of applications	# of rebates awarded	Rebates funds Disbursed	Average Rebate Award
Residential wood pellet	88	67	$369,176	$5,510
Residential solar water heating – supplemental rebate	118	116	$232,000	$2000
Totals	206	183	$601,176	$3,285

* To avoid double-counting, this budget figure appears only in Table 4.

Commercial and Industrial Competitive Grant Program

In 2010, the Legislature amended RSA 362-F:10 to require the Commission to issue a Request for Proposals (RFP) no later than March 1, 2011 and annually thereafter for non-residential 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 an RFP for renewable energy projects on February 25, 2011, with total available funding of up to $1 million. The results of that RFP were described in last year's report to this committee.

The Commission issued its second annual RFP for renewable energy projects on February 1, 2012. Twenty six grant proposals requesting a total of $6.93 million were submitted to the Commission. An initial review team consisting of Commission staff and representatives of the Department of Environmental Services and the Office of Energy and Planning reviewed and screened each proposal and interviewed ten applicants. The review team then scored all proposals and furnished the PUC Commissioners with recommendations as to which projects to fund. Scoring was based on fourteen criteria enumerated in the RFP, which were based on criteria in Puc 2507.03. See Attachment A for a sample of the scoring sheet.

The PUC Commissioners conducted their own independent review and selected eight applicants with the highest overall scores. Seven of these were submitted to the Governor and Executive Council for approval. The eighth project was put on hold due to financial problems with the potential recipient. Funding for these proposals totaled $997,750. The seven submitted grant awards were approved by the Executive Council on August 22, 2012.

The PUC selected projects are summarized below in Table 6:

Grantee	Amount of Grant	Purpose	Total project cost
Cartographic Associates, Inc.	$43,000	install high efficiency wood pellet boiler in Littleton	$65,762
Claremont Fire Dept.	$52,000	install high efficiency wood pellet boiler in Claremont	$65,000
Colby Solar, LLC	$100,000	install 125 kW solar photovoltaic system at Colby Sawyer College, New London	$474,662
Northeast Bioenergy Systems	$93,000	install wood chip boiler at Russell Elementary School in Rumney	$372,000
Sullivan County	$300,000	install wood boiler for heat and electricity for Sullivan County complex	$3,181,000
UNH	$59,750	install solar hot air heating system on Kingsbury Hall in Durham	$119,500
Walker Wellington, LLC	$100,000	install inline direct drive hydrokinetic turbine generator in the effluent outfall of the Dover Wastewater Treatment facility.	$129,500

A grant in the amount of **$250,000** is pending but has not yet been brought before the Governor and Executive Council, due to delays in the grantee obtaining financing. Pursuant to RSA 21-I:13-a, information about this grant award cannot be made public or made available to members of the legislature until the grant is presented to the Governor and Executive Council.

REF Program Budgets, Expenditures and Current Balance

The Commission's REF budget for Fiscal Year 2012 (July 1, 2011 – June 30, 2012) was $4,874,305. That figure, however, included ARRA funding for the solar hot water rebate program. The REF budget exclusive of ARRA funds is $4,650,955. Funds for rebate and grant programs, and for administrative expenses, were budgeted as follows:

TABLE 7 – REF PROGRAM SUMMARY FOR FY12

REF PROGRAM	FY12 Program Budget	FY12 Program Expenditures	Program Balances as of June 30, 2012
Residential PV/wind	$981,616	$795,339	$186,277
Residential solar hot water	$239,550	$156,400	$83,150
C & I Solar (photovoltaic and solar hot water)	$1,421,139	$635,884	$785,255
C & I RFP	$2,000,000	$317,618	$1,682,382
Totals	$4,642,305	$1,905,241	$2,737,064

TABLE 8 – ARRA REBATE PROGRAM SUMMARY FOR FY12

ARRA PROGRAM	FY12 Program Budget	FY12 Program Expenditures	Program Balances as of June 30, 2012
Residential wood pellet	$469,949	$369,176	$100,773
Residential solar hot water – supplemental rebate	$232,000	$232,000	$0
Totals	$701,949	$601,176	$100,773

In FY 2013 (July 1, 2012 – June 30, 2013) the REF received ACP revenue of $19,149,575. These new funds were apportioned between the residential and C&I sectors as follows:

TABLE 9 – APPORTIONMENT OF FUNDS FOR FY13

$2,654,647	Unencumbered REF funds carried forward from FY12
$8,443	Interest paid on fund balance in FY12
$19,149,57	ACP revenue for CY11 received on or about July 1, 2012
($95,059)	Administrative costs (budgeted)
($25,000)	Contingencies/future allocation
($813,790)	FY13 encumbered funds
$18,215,726	FY13 funds available for REF program budgets
$10,747,278	Portion available for C & I programs (59% of $18,215,726)
$7,468,448	Portion available for residential programs (41% of $18,215,726)

Allocation of funding between residential and non-residential sectors

In 2010, the New Hampshire legislature enacted HB1270 (Chapter 254, Laws of 2010) ,

which required the Commission, *inter alia*, 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 SB 218 (Chapter 272, laws of 2012), enacted 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.

For calendar years 2010 and 2011, 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%.

For the two year period ending June 30, 2012, the Commission allocated REF funds in each of its annual budgets in compliance with the requirements of HB 1270. In this, the first year of the two year period beginning June 30, 2012, ACP funds have been budgeted in accordance with these ratios. As shown in Table 8, above, 59% or $10,747,278 of available funds have been allocated to commercial and industrial programs, while 41% or $7,468,448 have been allocated to residential programs.

Funding cap for residential renewable electricity program

RSA 362-F:10, VI places a cap on spending for one of the residential rebate programs in particular: the rebate program for solar electric panels and wind turbines under 5 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 FY 2011, the REF budget for this program was $1,173,145. This figure represents 33.8% of the $3,466,694 in REF program funding for FY 2011. The FY12 budget for this program, $927,964, represents 38.3% of the $2,421,863 in REF program funding for FY12. The combined FY11-FY12 budget for this program totaled $2,101,109, or 35.7% of all REF program funds budgeted for FY11 and FY12, within the 40% cap. In FY13, funding for the program will be budgeted below the 40% cap.

Use of Class II revenues for solar technology incentives

RSA 362-F:10, I requires that "Class II moneys shall only be used to support solar energy technologies in New Hampshire." This obligation is mirrored in Puc 2507.03(d). For calendar year 2011 ACPs for Class II were received in the amount of $91,345. These funds are being tracked separately from ACP revenue from other Classes, and will be used solely for solar energy rebate program expenditures.

2012 Legislative Changes to RPS law

In July of 2012 legislation known as SB218 was enacted by the General Court, making numerous changes to the RPS law, among them:

- Beginning in 2013, Class I will include a subcategory for renewable thermal energy (as opposed to electrical energy), for which electricity suppliers will be required to obtain RECs.
- Existing biomass generating facilities that qualify for Class I RECs will now be permitted to elect Class III status.
- Biomass plants seeking Class III REC certification were provided with an alternative means of complying with the Class III emissions standards.
- The REC requirements for Class III were increased from 6.5% to 8% over the course of several years, beginning in 2014.
- Class IV requirements for small-scale hydroelectric plants were amended by loosening fish ladder requirements for facilities of 1 megawatt or less, while the REC requirements for Class IV as a whole were increased from 1% to 1.5% between 2013 and 2025.
- ACP prices were reduced for all four renewable energy classes.

It is expected that these changes to the RPS law will impact REC markets in New Hampshire in multiple ways. Some measures are likely to increase the supply of RECs for a given renewable energy class, while others may reduce supply. REC prices will also likely be impacted by the various components of SB218. With regard to both REC supplies and REC prices in New Hampshire, it is difficult to predict with any certainty the short- and long-term impacts of SB218. Complicating matters, the market for RECs is a regional one, and developments in REC markets in other New England states can have unexpected impacts on New Hampshire'sq market.

Net Metered Facilities and Allowed Net Metered Capacity

Each utility's total capacity of net metered facilities is listed in Table 10. The amounts of energy net-metered by each utility are well below the allowed net metered capacity per utility as set forth in RSA 362-A:9, I, with the total installed net metered capacity less than 10% of the allowed capacity.

Table 10 – Total Net Metered Facilities, as of December 31, 2011

Net Metered Facilities - 2011 and Total to Date

Electric Utility	# of Installs 2011	Total Installs to Date	2011 Capacity (MW)	Total Capacity to Date	Peak Load (MW)*	Allowed Net Metered Capacity (MW)*
Granite State Electric dba National Grid	9	53	0.03180	0.1768	189	4.12
New Hampshire Electric Cooperative	42	221	0.17155	0.9047	124	3.16
Public Service Company of NH	160	526	0.97447	2.8338	1,588	36.55
Unitil Energy Systems, Inc.	58	94	0.51790	0.8247	268	6.17
Total Net Metered Facilities 2011	**269**	**894**	**1.69572**	**4.7400**	**2,169**	**50.00**

* Based on the share of 2011 peak load pursuant to Puc 900 and RSA 362-A:9.

Conclusion

Since its inception in July 2009, the Renewable Energy Fund has established five grant and rebate programs that have seen substantial demand and growth over time. The REF has awarded 1,103 rebates for renewable energy systems, and provided New Hampshire homeowners, businesses, schools, towns, non-profit organizations and other eligible entities with $4,710,034 in funding towards these systems. In addition the Commission's competitive grant program has provided close to $2 million in funding for renewable projects featuring technologies from biomass heating systems to hydroelectricity upgrades to photovoltaic, solar hot air, and landfill gas to energy, among others.

These funds have been leveraged with $21,411,633 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, and increase our energy independence.

One challenge the REF has faced is the volatility and unpredictability of its revenue stream from alternative compliance payments (ACPs). ACP revenues from calendar year 2009 were $1.34 million, while those from calendar year 2011 jumped from $2.6 million the prior year to more than $19 million, primarily due to a sharp rise in revenues from Class III ACPs.

Looking to the future, it is difficult to project likely ACP revenues. REC markets are inherently dynamic and at times can be volatile. And, as previously discussed, the regional

nature of REC markets, coupled with the numerous legislative changes to the RPS law in SB 218, make accurate forecasting quite challenging.

ATTACHMENT A

Applicant:

Technology:
Reviewer:
Date:

Is this project eligible to receive funding under the C&I rebate program?
Will the project be completed within two years?

Criteria	Score		Comments
Project benefits and impacts			
The extent to which the project is likely to expand or support the production capacity of renewable energy facilities located in New Hampshire (including specifically NH REC qualification)	**25**		
Likely cost-effectiveness	**10**		
Promotes market transformation, innovation, and energy cost savings	**5**		
Reduces New Hampshire's peak load as well as defer or eliminate local utility distribution plant expenditures	**5**		
Economic development and job creation	**10**		
Environmental benefits including CO2e reductions	**10**		
Increases fuel diversity in the production of electricity or thermal energy for consumption in New Hampshire	**5**		
Capacity to successfully complete the initiative	**20**		
Significance of the proposed assistance of the renewable energy fund in the viability of the project, and the utilization of other financial resources	**10**		
GRAND TOTAL	**100**		

ATTACHMENT A (cont.)

Total Project Cost:
Requested Award:
System Capacity/Annual energy production:
Recommended Award:

General Comments: