

STATE OF NEW HAMPSHIRE

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The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**

Thomas S. Burack, Commissioner



October 20, 2016

Electric Utility Restructuring Legislative Oversight Committee and  
Air Pollution Advisory Committee  
Legislative Office Building, Room 304  
Concord, New Hampshire 03301

Re: RSA 125-O:21 RGGI annual report required of the Department of Environmental Services (DES) and the Public Utilities Commission (PUC)

Dear Chairman Richardson and Members of the Committees:

New Hampshire Revised Statutes Annotated Chapter 125-O, sections 20 – 29, establishes the state's Carbon Dioxide Emissions Budget Trading Program as part of the Regional Greenhouse Gas Initiative (RGGI). RGGI is a cooperative effort by nine Northeast and Mid-Atlantic States (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont) to reduce greenhouse gas emissions from the electric power generation sector. For more information on RGGI please refer to the website ([www.rggi.org](http://www.rggi.org)).

The statute requires an annual report on the program as follows:

***125-O:21 Carbon Dioxide Emissions Budget Trading Program. –***

*VI. The department and the commission shall report on an annual basis to the air pollution advisory committee under RSA 125-J:11 and the legislative oversight committee on electric utility restructuring under RSA 374-F:5, on the status of the implementation of RGGI in New Hampshire, with emphasis on the prices and availability of RGGI allowances to affected CO<sub>2</sub> sources and the trends in electric rates for New Hampshire businesses and ratepayers. The report shall include but not be limited to:*

- a) The number of allowances sold in the RGGI program and the type of entities purchasing allowances;*
- b) The number of unsold allowances in the RGGI program;*
- c) The available price data of allowances from the regional auction and secondary markets;*
- d) Market monitoring reports;*
- e) The CO<sub>2</sub> emissions by affected source, state, and RGGI region;*
- f) The spending of revenues from auction allowances by each RGGI state;*
- g) [Repealed]; and,*
- h) The status of any proposed or adopted federal CO<sub>2</sub> cap and trade program, the impact on New Hampshire's RGGI program, and recommendations for any proposed legislation necessary to accommodate the federal program.*

### **Overview**

In the past, revenues from RGGI allowance auctions have been primarily directed to energy efficiency measures intended to reduce regional electricity demand and CO<sub>2</sub> emissions. House Bill 1490 (Ch. 281, Laws of 2012; effective January 1, 2013) amended RSA 125-O:23 by replacing the greenhouse gas emission reduction fund with the energy efficiency fund, lowering the rebate threshold for auction proceeds to \$1, and allocating the remaining proceeds received by the state from the sale of allowances to Core energy efficiency programs to be administered by the State's electric distribution utilities.

Energy efficiency investment increases the program's ability to lower electric rates (via avoided capital investments needed for new transmission, distribution and capacity). The overall benefit to consumers, is conservatively estimated to be between \$3 to \$4 savings for every \$1 invested, this does not include the associated economic activity resulting from these investments. Investment of RGGI proceeds toward energy efficiency directly benefits *all* New Hampshire citizens and ratepayers by reducing the overall demand for electricity, which in turn reduces the additional capital investment needed by electricity providers to meet increased demand. In particular, the high cost of both generation and transmission infrastructure necessary to meet "peak" electricity demands are reduced or avoided.<sup>1</sup> Thus, investment in energy efficiency ultimately reduces costs for everybody.

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<sup>1</sup> See ISO New England *ISO on Background Energy Efficiency Forecast* presentation (slide 22) at [http://www.iso-ne.com/static-assets/documents/nwsiss/pr/2012/ee\\_forecast\\_final\\_12122012\\_post.pdf](http://www.iso-ne.com/static-assets/documents/nwsiss/pr/2012/ee_forecast_final_12122012_post.pdf)

Quarterly RGGI auctions have been conducted for eight years, smoothly and efficiently. The state has received nearly \$113 million to date in allowance auction revenues for energy efficiency investments and ratepayer rebates. Total revenues collected for consumer benefit in the nine RGGI states have totaled over \$2.47 billion to date.

### **Potential Changes**

RGGI States are conducting a regional 2016 Program Review that may involve program amendment recommendations as soon as the 2017 legislative session. A proposed amended Model Rule may be released soon.

### **Trends in Electric Rates**

The cost of CO<sub>2</sub> emissions allowances is a very small part of overall electricity bills. On average, the costs associated with the CO<sub>2</sub> emissions cap accounted for 0.19% to 0.55% of average residential electricity bills across the region.<sup>2</sup> With respect to New Hampshire, in 2015, RGGI allowance proceeds amounted to \$24.4 million, of which approximately \$20.4 million was refunded to customers.<sup>3</sup> Therefore, the net compliance cost, excluding the amount refunded to customers, was \$4.0 million.

More specifically, when divided by New Hampshire's 2015 actual kWh sales usage of approximately 11 billion kWh, the rate impact is \$0.000364 per kWh (\$4 million divided by 11 billion kWh) which, in turn, translates to 24 cents per month for an average residential customer.<sup>4</sup> The net compliance costs are offset by strategic reinvestment in energy efficiency measures which reduce demand for electricity and give households and businesses better control over their energy bills.

Figure 1 shows New Hampshire's monthly average wholesale prices for electricity versus natural gas.<sup>5</sup> This figure shows that the cost of electricity in New Hampshire generally trends similarly to the cost of natural gas. Information to prepare this graph was taken from the U.S. Energy Information Administration (EIA) and ISO New England (ISO-NE) websites.<sup>6</sup>

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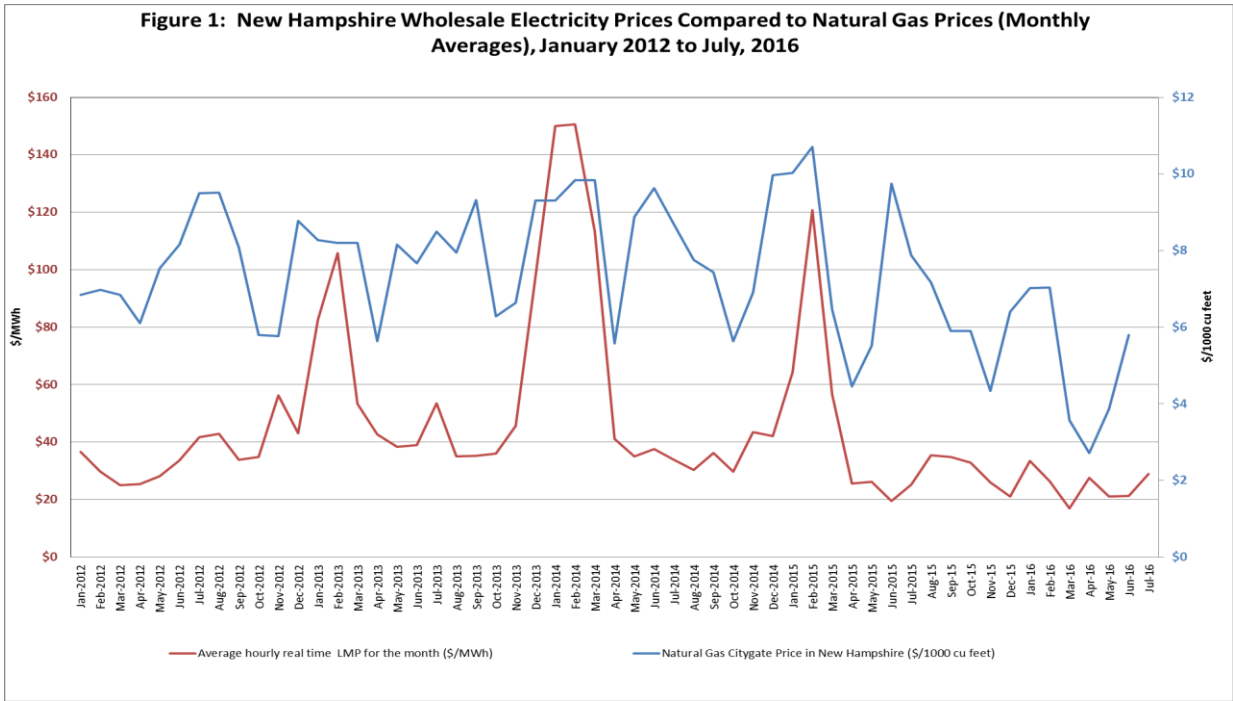
<sup>2</sup> Source: 2014 RGGI Annual Report.

<sup>3</sup> Reference Commission Order [No. 25,664](#), May 9, 2015 (Docket DE 14-028).

<sup>4</sup> The amount of 24 cents is calculated based on an average monthly kWh usage of 650 kWh x \$0.000364.

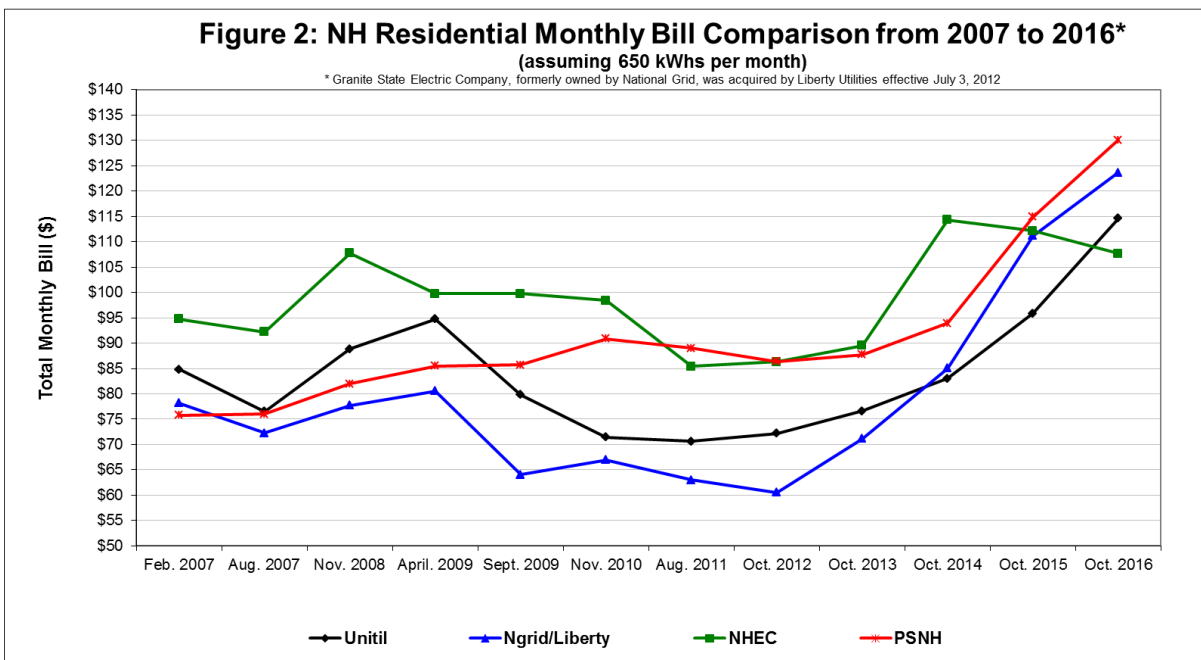
<sup>5</sup> The electricity prices in Figure 1 reflect the monthly average locational marginal price (LMP) for New Hampshire (excluding capacity and ancillary service charges, as well as distribution and transmissions charges), consistent with the 2014 Report.

<sup>6</sup> Sources are as follows: <http://www.eia.gov/dnav/ng/hist/n3050nh3M.htm> and <https://www.iso-ne.com/isoexpress/web/reports/pricing/-/tree/zone-info>.



Sources: EIA and ISO-NE

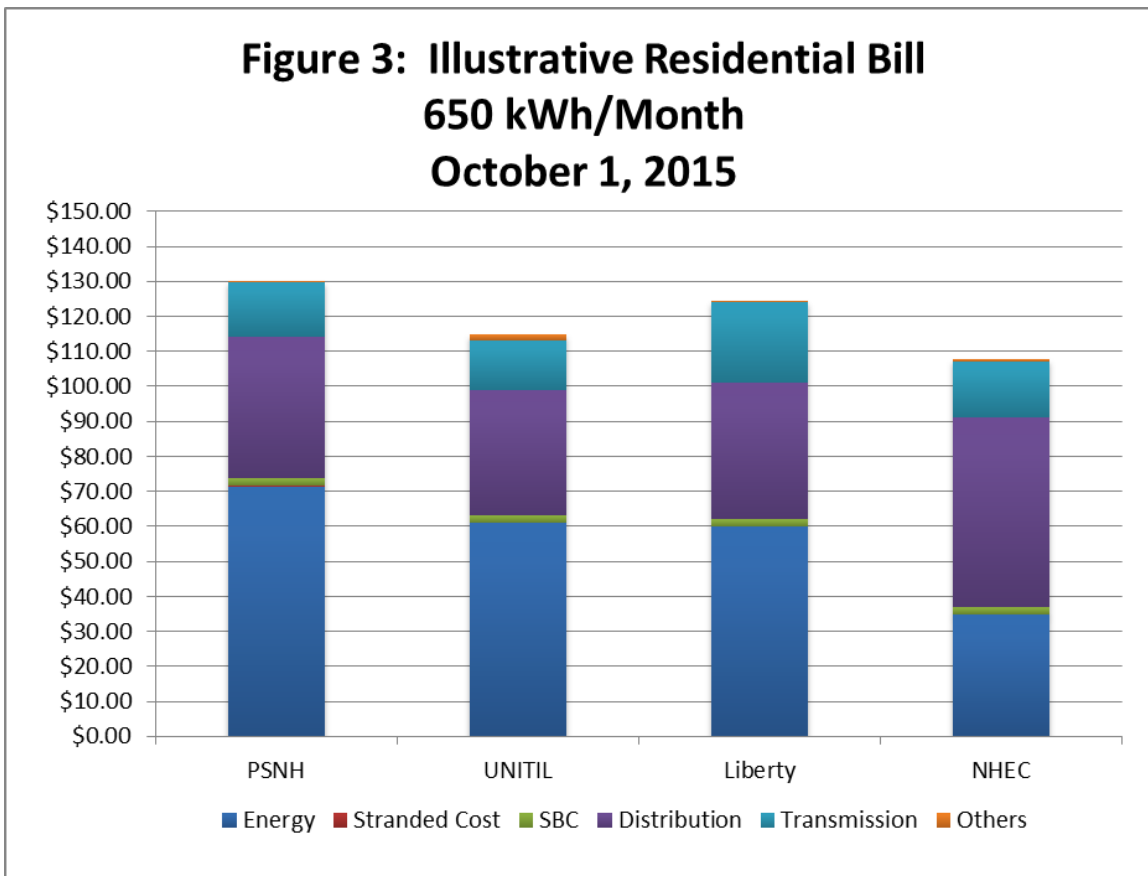
Figure 2 provides monthly residential bill comparisons for New Hampshire’s four electric utilities for the years 2007 through 2016 based on a typical residential bill. The bill comparison is based on a “snapshot” using the rates in effect as of a specific month, most recently based on October rates. Information to prepare this graph was taken from the tariffs as posted to the Commission website, on the Electric Division webpages.



Source: NHPUC

A residential customer bill is comprised of a monthly customer charge, plus volumetric energy, stranded cost, system benefits (SBC), distribution, transmission and other charges. As shown in Figure 2, the average residential customer electricity bill has generally increased over the past 10 years. This trend is primarily due to increased transmission and distribution charges.

Figure 3 provides a graph showing the components of an average monthly residential bill as of October 1, 2015 for New Hampshire’s four electric utilities. It indicates that average monthly residential bills in New Hampshire are in the range of \$108 to \$130 per month. The average monthly bills are based on an estimated monthly residential usage of 650 kWh per month.<sup>7</sup>

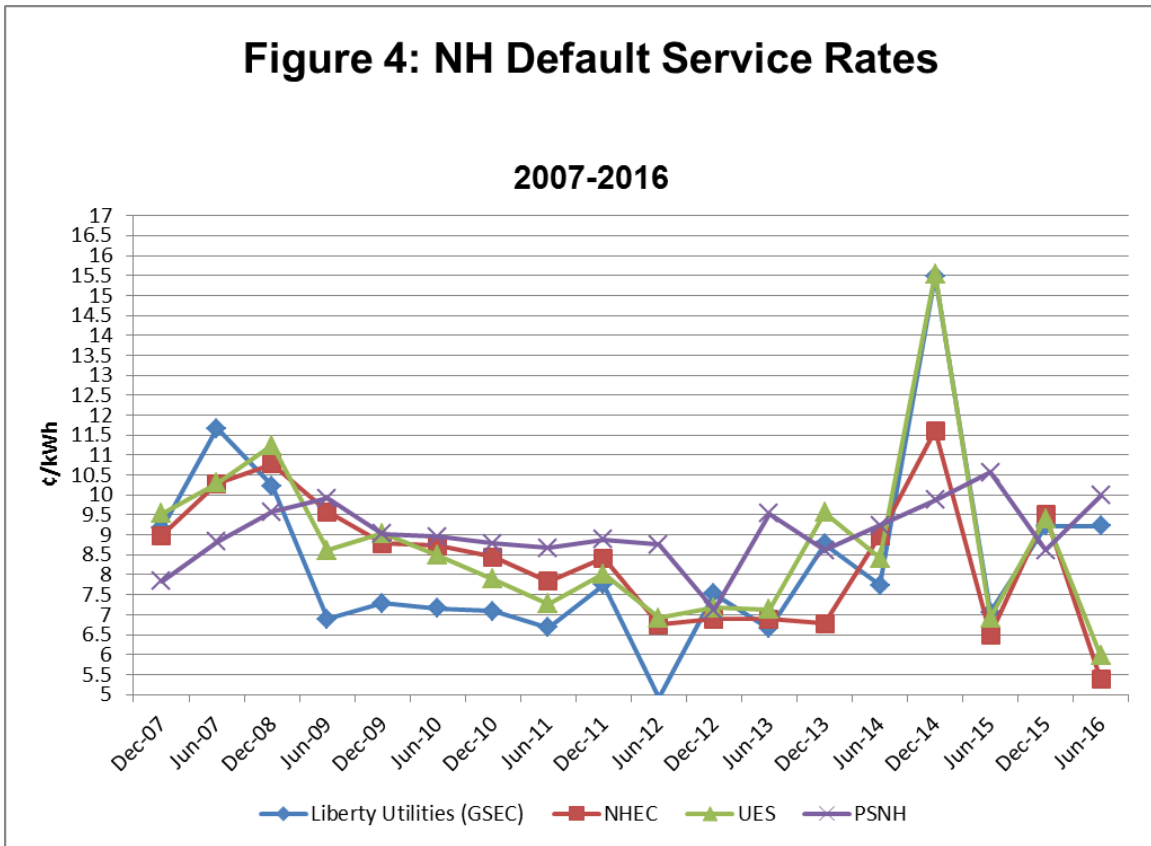


Source: NHPUC

The largest component of electricity costs is the energy component which for customers who choose to receive that service from their electric distribution utility is known as Default Service. Default Service rates are a good indicator of market conditions, especially the rates of Unitil and Liberty, as they go out to the market two times per year

<sup>7</sup> Historically, the average monthly kilowatt hours (kWh) used by New Hampshire households was estimated to be 500 kWh. The household average monthly kWh is estimated to have risen to 650 kWh over the past several years; and, this change is reflected in Figure 3.

for bids to provide default service to customers. Figure 4 provides a comparison of the Default Service rates for New Hampshire’s four electric utilities for the years 2010 through 2016.<sup>8</sup>



Source: NHPUC

<sup>8</sup> For the year 2016, Default Service rates are available only for Liberty and PSNH at this time.

## Allowance Auctions and Sales Information

New Hampshire's current (2016) CO<sub>2</sub> base budget is 4,514,529 tons (or allowances) per year. The base budget will be lowered by 2.5% in 2017 and each year thereafter.

During the first five years (2009 – 2013) of the program, a large bank of privately held allowances was accumulated. This raised concerns that this bank could be used to allow emissions to creep back up above current levels if there were no further adjustments. Therefore, per RSA 125:O, this bank will be gradually reduced by the application of adjustments to the base budget. The adjusted 2016 NH budget is 3,372,166 allowances.

New Hampshire has participated in 32 regional auctions to date. New Hampshire specific auction details are presented in Table 1. A regional total of 797,021,161 allowances have been sold in 33 auctions. Another 156,405,811 allowances that were offered for sale went unsold. An additional 5 million Cost Containment Reserve allowances were sold in March 2014 and 10 million Cost Containment Reserve allowances were sold in September 2015. 77% of the allowances have been purchased by compliance entities and their affiliates.

### Market Monitoring Reports

A market monitor evaluates each auction of RGGI allowances. To

<b>Table 1: NH Auction Sales and Revenues to Date</b>				
Auction (Vintage)	Date	Allowances	Price	Revenue
1-2009	9/25/08	0	\$3.07	\$0
2-2009	12/17/08	1,189,610	\$3.38	<b>\$4,020,882</b>
3-2009 3-2012	3/18/09	1,189,611 86,850	\$3.51 \$3.05	<b>\$4,175,535</b> <b>\$264,892</b>
4-2009 4-2012	6/17/09	1,189,610 86,850	\$3.23 \$2.06	<b>\$3,842,440</b> <b>\$178,911</b>
5-2009 5-2012	9/9/09	1,189,610 86,850	\$2.19 \$1.87	<b>\$2,605,246</b> <b>\$162,409</b>
6-2009 6-2012	12/2/09	1,362,019 63,922*	\$2.05 \$1.86	<b>\$2,792,139</b> <b>\$118,895</b>
7-2010 7-2013	3/10/10	1,487,013 84,941*	\$2.07 \$1.86	<b>\$3,078,117</b> <b>\$157,990</b>
8-2010 8-2013	6/9/10	1,487,013 86,850	\$1.88 \$1.86	<b>\$2,795,584</b> <b>\$161,541</b>
9-2010 9-2013	9/8/10	1,122,109** 53,296*	\$1.86 \$1.86	<b>\$2,087,123</b> <b>\$99,130</b>
10-2010 10-2013	12/1/10	852,627** 47,609*	\$1.86 \$1.86	<b>\$1,585,886</b> <b>\$88,553</b>
11-2011 11-2014	3/9/11	1,659,423 86,850	\$1.89 \$1.89	<b>\$3,136,309</b> <b>\$164,147</b>
12-2011 12-2014	6/8/11	443,512** 43,915*	\$1.89 \$1.89	<b>\$838,238</b> <b>\$82,999</b>
13-2011 13-2014	9/7/11	263,886** 0*	\$1.89 \$0	<b>\$498,745</b> <b>\$0</b>
14-2011 14-2014	12/7/11	944,201** 0*	\$1.89 \$0	<b>\$1,784,540</b> <b>\$0</b>
15-2012	3/14/12	1,021,008***	\$1.93	<b>\$1,970,545</b>
16-2012	6/6/12	1,047,521***	\$1.93	<b>\$2,021,716</b>
17-2012	9/5/12	1,069,204***	\$1.93	<b>\$2,063,564</b>
18-2012	12/5/12	868,680***	\$1.93	<b>\$1,676,552</b>
19-2013	3/13/13	1,821,863	\$2.80	<b>\$5,101,216</b>
20-2013	6/5/13	1,650,162	\$3.21	<b>\$5,297,020</b>
21-2013	9/4/13	1,650,162	\$2.67	<b>\$4,405,933</b>
22-2013	12/4/13	1,650,164	\$3.00	<b>\$4,950,492</b>
23-2014	3/5/14	1,081,406	\$4.00	<b>\$4,325,624</b>
24-2014	6/4/14	648,741	\$5.02	<b>\$3,256,680</b>
25-2014	9/3/14	648,741	\$4.88	<b>\$3,165,856</b>
26-2014	12/3/14	648,741	\$5.21	<b>\$3,379,941</b>
27-2015	3/11/15	848,829	\$5.41	<b>\$4,592,165</b>
28-2015	6/3/15	943,809	\$5.50	<b>\$5,190,950</b>
29-2015	9/9/15	848,829	\$6.02	<b>\$8,251,602</b>
<b>30-2015</b>	12/2/15	848,830	\$7.50	\$6,366,225
<b>31-2016</b>	3/9/16	820,469	\$5.25	\$4,307,462
<b>32-2016</b>	6/1/16	913,075	\$4.53	\$4,136,230
<b>33-2016</b>	9/7/16	820,469	\$4.54	\$3,724,929
<b>Total</b>				<b>\$112,,904,953</b>
*86,850 allowances were offered; some went unsold.				
**1,487,013 allowances were offered; some went unsold				
***1,650,162 allowances were offered; some went unsold.				

date no issues of significance have arisen. The attached Market Monitor Report for Auction 33 was prepared for the RGGI states by Potomac Economics. It states:

*In summary, the results of our monitoring of RGGI Auction 33 raise no material concerns regarding the auction process, barriers to participation in the auction, or the competitiveness of the auction results.*

### **CO<sub>2</sub> Emissions Trends**

Table 2 provides emission rates from New Hampshire sources from 2008 to 2015 in tons of CO<sub>2</sub>.

<b>Table 2: 2008 – 2015 emissions from New Hampshire sources in million tons of CO<sub>2</sub></b>								
	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
PSNH (Merrimack, Schiller, Newington)	<b>4.03</b>	<b>3.43*</b>	<b>3.61*</b>	<b>2.66*</b>	<b>1.59*</b>	<b>1.83*</b>	<b>1.58*</b>	<b>1.22</b>
Granite Ridge	<b>1.97</b>	<b>1.71</b>	<b>1.45</b>	<b>1.69</b>	<b>2.10</b>	<b>1.51</b>	<b>1.53</b>	<b>1.99</b>
Newington Energy	<b>1.09</b>	<b>0.63</b>	<b>0.84</b>	<b>1.18</b>	<b>0.94</b>	<b>0.32</b>	<b>0.45</b>	<b>0.61</b>
<b>Total</b>	<b>7.10</b>	<b>5.77</b>	<b>5.90</b>	<b>5.53</b>	<b>4.64</b>	<b>3.65</b>	<b>3.57</b>	<b>3.82</b>
* PSNH received 3,564,718 2009 allowances (early reduction & Clean Power Act (CPA) bonus), 2,500,000 2010 allowances (CPA bonus), 2,500,000 2011 allowances (CPA bonus), 1,500,000 2012 allowances (CPA bonus), 1,500,000 2013 allowances (CPA bonus), and 1,500,000 2014 allowances (CPA bonus)								

Emissions from the RGGI region for 2015 in tons of CO<sub>2</sub> are provided in Table 3.

**Table 3: 2015 emissions from the RGGI region in tons of CO<sub>2</sub>**

<b>State</b>	<b>CO<sub>2</sub> Emissions</b>	<b>State</b>	<b>CO<sub>2</sub> Emissions</b>	<b>State</b>	<b>CO<sub>2</sub> Emissions</b>	
CT	<b>8,154,295</b>	DE	<b>3,519,097</b>	MA	<b>12,280,219</b>	
MD	<b>18,050,117</b>	ME	<b>1,778,346</b>	NH	<b>3,818,378</b>	
RI	<b>3,075,646</b>	VT	<b>1,216</b>	NY	<b>32,524,521</b>	
					Total	<b>83,201,835</b>
					Budget	<b>88,725,000</b>



## **Use of Auction Revenue by Each RGGI State**

*The Regional Investment report of RGGI CO<sub>2</sub> Allowance Proceeds, 2014* posted at [http://www.rggi.org/rggi\\_benefits](http://www.rggi.org/rggi_benefits), provides an overview of each participating state's activities. The report estimates that investments of RGGI auction proceeds to date are projected to return \$4.67 billion in lifetime energy bill savings to 4.6 million participating households and 21,400 businesses in the region. These investments are projected to offset the need for approximately 20.6 million megawatt hours (MWh) of electricity generation, save more than 76.1 million British Thermal Units (mmBTU) of fossil fuels, and avoid the release of approximately 15.4 million short tons of carbon dioxide (CO<sub>2</sub>) pollution into the atmosphere over their lifetime.

### **Use of RGGI Proceeds in NH**

House Bill 1434 (Ch. 182, Laws of 2008; effective June 11, 2008) created the State's Greenhouse Gas Emissions Reduction Fund (GHGERF), to be funded with the proceeds from quarterly auctions of the State's CO<sub>2</sub> budget allowances and administered by the PUC. The GHGERF offered a competitive grant program in 2009 and 2010, awarding \$31 million for 36 energy efficiency projects/programs.<sup>9</sup>

During fiscal year 2016, two of these competitive grant programs, which created revolving loan funds (RLF) for energy efficiency projects, continued to operate. The New Hampshire Business Finance Authority (BFA) continues to manage a \$2 million RLF and the New Hampshire Community Development Finance Authority (CDFA) is managing a \$1.5 million RLF directed towards municipalities. Currently nearly all funding allocated to the RLFs is committed. A brief summary of each RLF follows:

- The Municipal Energy Reduction Fund (MERF), administered by the CDFA, provides financing to fund improvements to the overall energy efficiency performance of a municipality. Two recent project loans helped the City of Claremont and the City of Franklin replace high pressure sodium street lights with LED street lights. The estimated annual cost savings to the City of Claremont from the lighting conversions is approximately \$85,000 and the estimated annual cost savings to the City of Franklin is approximately \$31,000 per year.
- The Business Energy Conservation Fund, administered by the BFA, is a revolving loan program for businesses and non-profit organizations to finance energy efficiency improvements. The loan terms are flexible, and the BFA will work with interested applicants to customize a loan package that results in increased energy efficiency and financial savings. The RLF has provided loans to businesses such as Ragged Mountain Resort in Danbury and Vitex Extrusion in Franklin for energy efficiency improvements. In total, four loans have been repaid and the

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<sup>9</sup> Details for each grant award are available at the PUC's website <http://www.puc.nh.gov/Sustainable%20Energy/GHGERF.htm>.

fund's cash on hand was \$602,775 as of June 30, 2016. These funds have since been committed to projects in Concord and Franklin.

In fiscal year 2016, Keene ICE constructed a new indoor ice skating facility that incorporates a number of innovative design features to reduce energy use and expense. Ice rinks are notorious for their energy use because of the need to maintain an ice surface year-round while keeping the air temperature in the facility bearable. Working with the Jordan Institute and C&S Grocers' refrigeration and energy efficiency experts, they developed a number of innovative and replicable design approaches, including an airtight building design, a high efficiency ice refrigeration system, a heat reclamation system, high efficiency lighting, and an electric-resurfacing machine.

In 2012, the legislature enacted HB 1490, a provision which replaced the GHGERF with the Energy Efficiency Fund (EEF). The bill also placed a cap of \$1 for each RGGI CO<sub>2</sub> allowance sale, and directed that any proceeds above the cap be rebated to electric ratepayers in the form of bill assistance. The legislation directed the PUC to allocate remaining RGGI revenues to the Core energy efficiency programs administered by the State's electric distribution utilities, beginning in 2013.

In 2013, the New Hampshire legislature enacted SB 123, requiring the PUC to allocate 15% of these funds to the Core low-income weatherization program, and directing the electric utilities to set aside up to \$2 million of the remaining RGGI funds for Core municipal and local government energy efficiency projects.

SB 268, enacted in June 2014, directed that any RGGI proceeds remaining after the rebate to ratepayers and the set-asides for the low-income core efficiency program and municipal and local government energy efficiency projects be allocated "to all-fuels, comprehensive energy efficiency programs administered by qualified parties which may include electric distribution companies as selected through a competitive bid process." The legislation directed the PUC's Electric Division to conduct a competitive bid process and the Electric Division issued Request For Proposal (RFP) #14-004 for this purpose on November 25, 2014. The PUC completed the selection process and awarded a contract to Eversource on behalf of the four New Hampshire electric utilities (i.e. Granite State Electric, Eversource, NH Electric Cooperative and Unutil Energy Systems) to administer the all-fuels comprehensive energy efficiency programs.

### **Proposed Federal Program Impacts**

Power plants are the largest concentrated source of emissions in the United States, together accounting for roughly one-third of all domestic greenhouse gas emissions.


New Hampshire and the RGGI States continue to work with EPA to ensure that RGGI, a market-based program with greater flexibility for sources, is an option under State plans that will be required by EPA to meet future requirements. The states set out to establish a

program that could serve as a working model for national legislation and RGGI has done that. On June 2, 2014, EPA proposed Clean Air Act standards to cut carbon pollution from existing power plants in order to combat climate change and improve public health. On August 3, 2015, EPA finalized those standards. On February 9, 2016, the Supreme Court stayed implementation of the Clean Power Plan pending judicial review. The Court's decision was not on the merits of the rule. EPA firmly believes the Clean Power Plan will be upheld when the merits are considered because the rule rests on strong scientific and legal foundations. For the states that choose to continue to work to cut carbon pollution from power plants and seek the agency's guidance and assistance, EPA will continue to provide tools and support. The US Court of Appeals for the District of Columbia Circuit will hear oral arguments in the litigation before all participating judges on September 27, 2016. The US Supreme Court could consider the legality of the Clean Power Plan potentially in 2017. For more details, please see <http://www2.epa.gov/cleanpowerplan>.

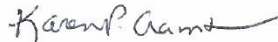
Under EPA's Clean Power Plan, rather than comply with EPA's rate-based requirement, states may prefer a more flexible alternative compliance program like RGGI. Power plants are familiar with similar programs for other pollutants. Other non-RGGI states may seek to implement RGGI, or RGGI-like programs, as an alternative to the federal guidelines, rather than implement a rate-based approach. Thus, the geographical area for RGGI could be expanded, consistent with the original intent of RGGI.

If you have any questions or need further information, please contact: Michael Fitzgerald, Assistant Director, DES, Air Resources Division (271-6390, [michael.fitzgerald@des.nh.gov](mailto:michael.fitzgerald@des.nh.gov)), Joe Fontaine, Air Resources Division Trading Programs Manager (271-6794, [joseph.fontaine@des.nh.gov](mailto:joseph.fontaine@des.nh.gov)), or Karen Cramton, Director, PUC, Sustainable Energy Division (271-2431, [karen.cramton@puc.nh.gov](mailto:karen.cramton@puc.nh.gov)).

Sincerely,



Craig A. Wright  
Director, Air Resources Division, DES



Karen Cramton  
Director, Sustainable Energy Division, PUC

Attachments: Market Monitor Report for Auction 33

cc:	Rep. Charles Townsend	Rep. Herbert Richardson	Rep. David Borden
	Rep. James Devine	Rep. Robert Introne	Rep. Jacqueline Cali-Pitts
	Rep. Robert Backus	Sen. Jeb Bradley	Sen. Sam Cataldo
	Sen. Martha Fuller Clark	Sen. Andy Sanborn	Rep. Herbert Vadney
	Sen. Dan Feltes		
	Thomas Burack, Environmental Services		John Barthelmes, Dept of Safety