

STATE OF NEW HAMPSHIRE

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The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner



October 30, 2015

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).

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 CO₂ 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 CO₂ 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- g) [Repealed]; and,*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 CO₂ 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 CO₂ 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 at \$3-4 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.¹ Thus, investment in energy efficiency ultimately reduces costs for everybody.

¹ 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

Quarterly RGGI auctions have been conducted for seven years, smoothly and efficiently. The state has received over \$94 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 \$2.25 billion to date.

Potential Changes

RGGI States will conduct a regional 2016 Program Review that may involve future program amendment recommendations.

Trends in Electric Rates

The cost of CO₂ emissions allowances is a very small part of overall electricity bills. On average, the costs associated with the CO₂ emissions cap accounted for 0.19% to 0.55% of average residential electricity bills across the region.² With respect to New Hampshire, in 2014, RGGI allowance proceeds amounted to \$14.1 million, of which approximately \$11.1 million was refunded to customers.³ Therefore, the net compliance cost, excluding the amount refunded to customers, was approximately \$3.0 million. More specifically, when divided by New Hampshire's 2014 actual kWh sales usage of approximately 11 billion kWh, the rate impact is \$0.000273 per kWh (\$3 million divided by 11 billion kWh) which, in turn, translates to 18 cents per month for a residential customer, or 0.16% to 0.20% of the electric bill, for a household using 650 kWh.⁴ The net compliance costs are offset by strategic reinvestment of funds in energy efficiency measures which reduce demand for electricity, and give households and businesses better control over their energy bills.

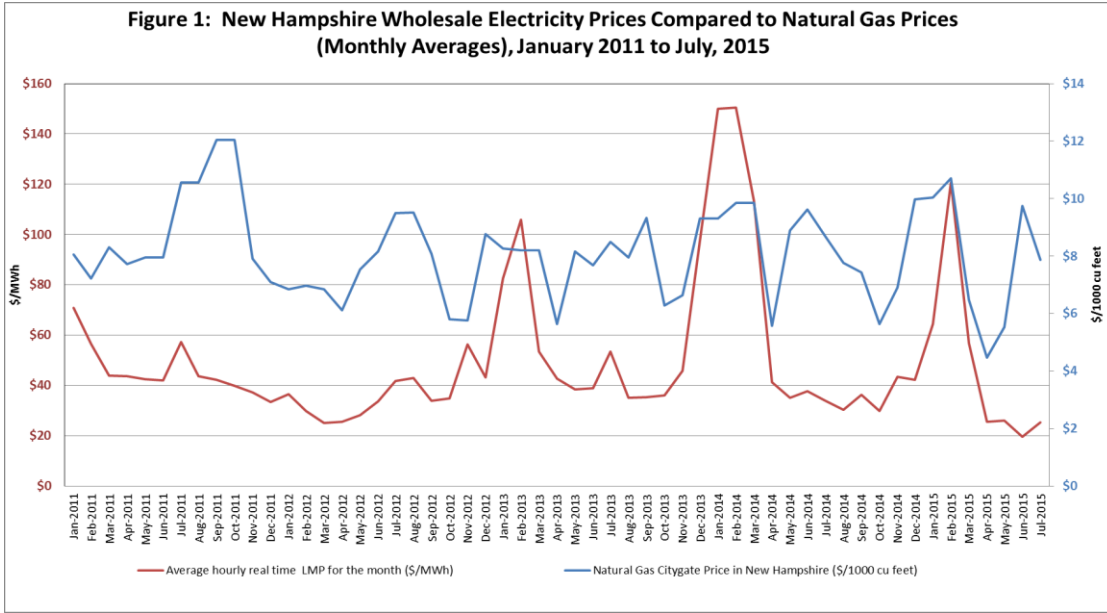
In New England, natural gas powered electric generators provide approximately 50% of the region's electricity. As a result, they are often the last units to be dispatched to meet demand thereby setting the wholesale electric price at the gas generator's bid price. The main driver of this bid price is the cost of the fuel source (i.e. the price of natural gas). Therefore, wholesale electricity prices have a direct correlation to natural gas prices. The full retail electric rate is largely comprised of transmission, distribution and wholesale energy costs. The variation in retail electric rates is driven in large part by the variation in wholesale energy costs, which as discussed is driven by the variation in natural gas prices. This correlation between changes in retail electric rates and natural gas prices is illustrated in Figure 1.⁵

² Source: 2014 RGGI Annual Report.

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

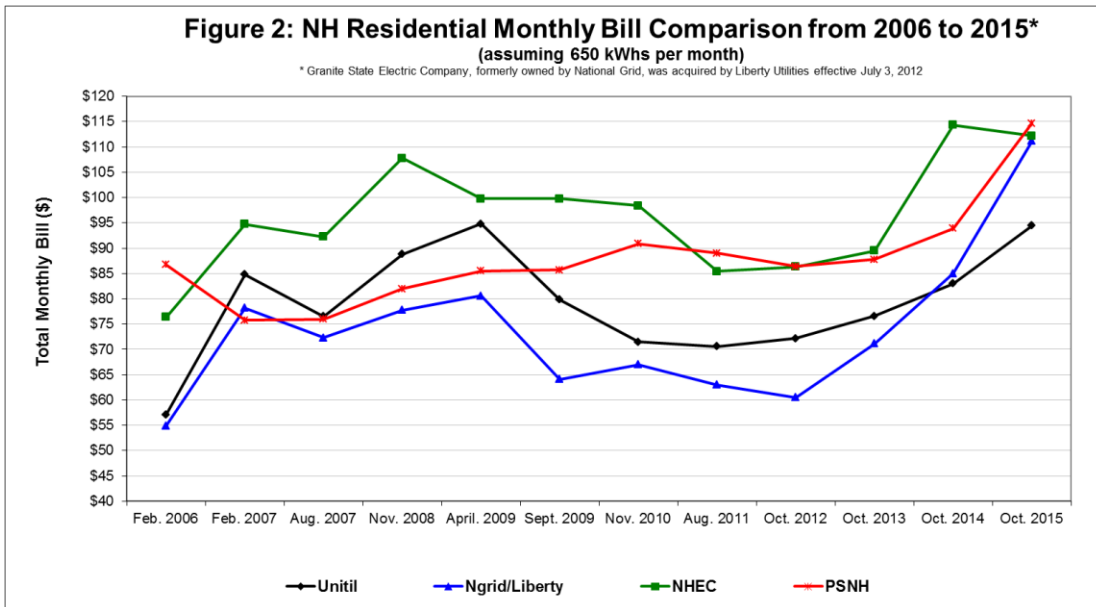
⁴ The amount of 18 cents is calculated based on an average monthly kWh usage of 650 kWh x \$0.000273.

⁵ Consistent with the 2014 Report



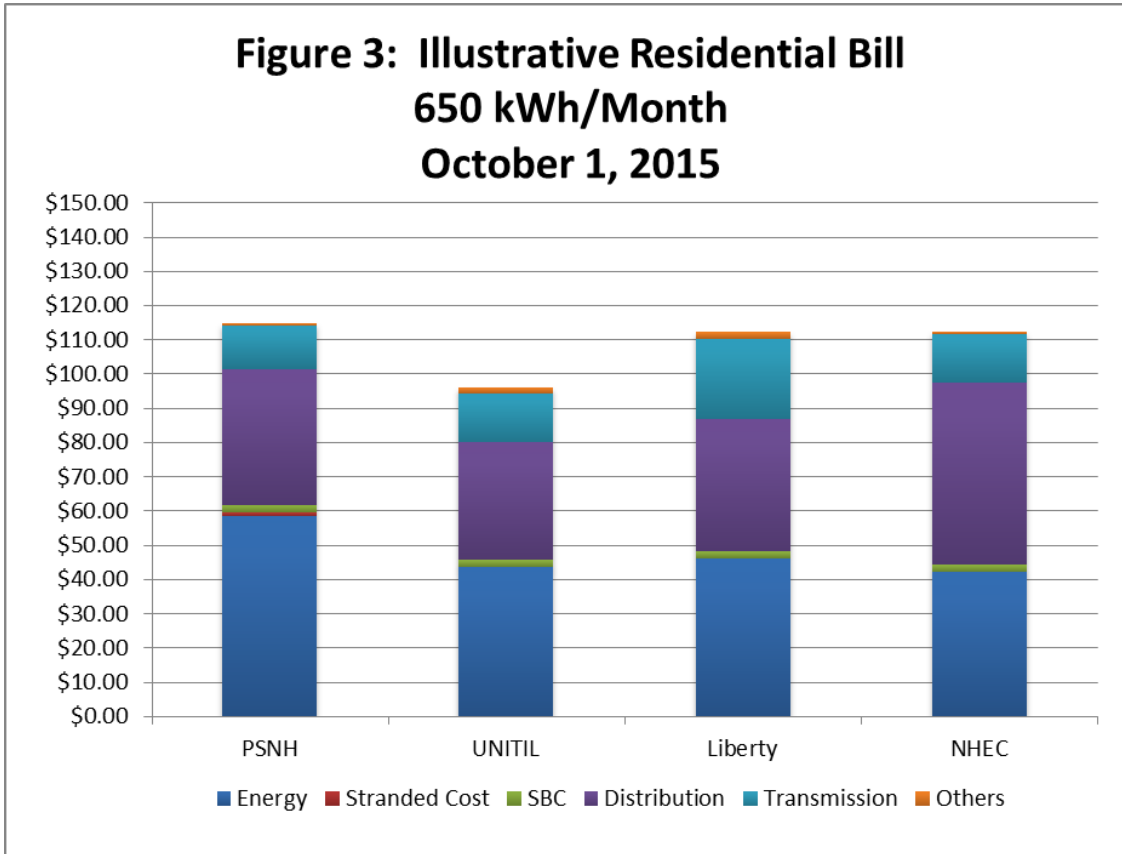
The electricity prices in Figure 1 reflect the monthly average locational marginal price (LMP) for New Hampshire (excluding capacity and ancillary service charges, as well as distribution and transmissions charges). Information to prepare the above graph was taken from EIA and ISO websites.⁶

Figure 2 provides monthly bill comparisons for New Hampshire’s four electric utilities for the years 2006 through 2015, assuming an average monthly kilowatt hours (kWh) use by New Hampshire households is 650 kWh.



⁶ Sources are as follows: <http://www.eia.gov/dnav/ng/hist/n3050nh3M.htm> and http://www.iso-ne.com/markets/hstdata/znl_info/monthly/

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 \$96 to \$114 per month. The average monthly bills are based on an estimated monthly residential usage of 650 kWh per month.⁷



Information to prepare Figures 2 and 3 was taken from the tariffs as posted to the Commission website, in the Electric Division section.

⁷ 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 Figures 2 and 3 (consistent with the 2014 Report).

Allowance Auctions and Sales Information

New Hampshire's current (2015) CO₂ base budget is 4,630,286 tons (or allowances) per year, about equal to the 2012 annual emissions (4,642,898 tons). The base budget will be lowered by 2.5% in 2016 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 2015 NH budget is 3,487,923 allowances.

New Hampshire has participated in 28 regional auctions to date. New Hampshire specific auction details are presented in Table 1. A regional total of 785,290,958 allowances have been sold in 29 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 regulated compliance entities.

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	\$4,020,882
3-2009 3-2012	3/18/09	1,189,611 86,850	\$3.51 \$3.05	\$4,175,535 \$264,892
4-2009 4-2012	6/17/09	1,189,610 86,850	\$3.23 \$2.06	\$3,842,440 \$178,911
5-2009 5-2012	9/9/09	1,189,610 86,850	\$2.19 \$1.87	\$2,605,246 \$162,409
6-2009 6-2012	12/2/09	1,362,019 63,922*	\$2.05 \$1.86	\$2,792,139 \$118,895
7-2010 7-2013	3/10/10	1,487,013 84,941*	\$2.07 \$1.86	\$3,078,117 \$157,990
8-2010 8-2013	6/9/10	1,487,013 86,850	\$1.88 \$1.86	\$2,795,584 \$161,541
9-2010 9-2013	9/8/10	1,122,109** 53,296*	\$1.86 \$1.86	\$2,087,123 \$99,130
10-2010 10-2013	12/1/10	852,627** 47,609*	\$1.86 \$1.86	\$1,585,886 \$88,553
11-2011 11-2014	3/9/11	1,659,423 86,850	\$1.89 \$1.89	\$3,136,309 \$164,147
12-2011 12-2014	6/8/11	443,512** 43,915*	\$1.89 \$1.89	\$838,238 \$82,999
13-2011 13-2014	9/7/11	263,886** 0*	\$1.89 \$0	\$498,745 \$0
14-2011 14-2014	12/7/11	944,201** 0*	\$1.89 \$0	\$1,784,540 \$0
15-2012	3/14/12	1,021,008***	\$1.93	\$1,970,545
16-2012	6/6/12	1,047,521***	\$1.93	\$2,021,716
17-2012	9/5/12	1,069,204***	\$1.93	\$2,063,564
18-2012	12/5/12	868,680***	\$1.93	\$1,676,552
19-2013	3/13/13	1,821,863	\$2.80	\$5,101,216
20-2013	6/5/13	1,650,162	\$3.21	\$5,297,020
21-2013	9/4/13	1,650,162	\$2.67	\$4,405,933
22-2013	12/4/13	1,650,164	\$3.00	\$4,950,492
23-2014	3/5/14	1,081,406	\$4.00	\$4,325,624
24-2014	6/4/14	648,741	\$5.02	\$3,256,680
25-2014	9/3/14	648,741	\$4.88	\$3,165,856
26-2014	12/3/14	648,741	\$5.21	\$3,379,941
27-2015	3/11/15	848,829	\$5.41	\$4,592,165
28-2015	6/3/15	943,809	\$5.50	\$5,190,950
29-2015	9/9/15	848,829	\$6.02	\$8,251,602
Total				\$94,370,107

Market Monitoring Reports

A market monitor evaluates each auction of RGGI allowances. To date no issues of significance have arisen. The attached Market Monitor Report for Auction 29 was prepared for the RGGI states by Potomac Economics. It states:

In summary, the results of our monitoring of RGGI Auction 29 raise no material concerns regarding the auction process, barriers to participation in the auction, or the competitiveness of the auction results.

CO₂ Emissions Trends

Table 2 provides emission rates from New Hampshire sources from 2008 to 2014 in tons of CO₂.

Table 2: 2008 – 2014 emissions from New Hampshire sources in million tons of CO₂							
	2008	2009	2010	2011	2012	2013	2014
PSNH (Merrimack, Schiller, Newington)	4.03	3.43*	3.61*	2.66*	1.59*	1.83*	1.58*
Granite Ridge	1.97	1.71	1.45	1.69	2.10	1.51	1.53
Newington Energy	1.09	0.63	0.84	1.18	0.94	0.32	0.45
Total	7.10	5.77	5.90	5.53	4.64	3.65	3.57
* 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 2014 in tons of CO₂ are provided in Table 3.

Table 3: 2014 emissions from the RGGI region in tons of CO₂

State	CO₂ Emissions	State	CO₂ Emissions	State	CO₂ Emissions
CT	7,034,697	DE	3,932,999	MA	11,793,969
MD	20,903,449	ME	2,255,472	NH	3,573,178
RI	2,767,290	VT	2,708	NY	33,797,065
				Total	86,060,827
				Budget	91,000,000

Use of Auction Revenue by Each RGGI State

The Regional Investment report of RGGI CO₂ Allowance Proceeds, 2013 posted at 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 \$2.9 billion in lifetime energy bill savings to 3.7 million participating households and 17,800 businesses in the region. These investments are projected to offset the need for approximately 11.5 million megawatt hours (MWh) of electricity generation, save more than 48.7 million British Thermal Units (mmBTU) of fossil fuels, and avoid the release of approximately 10.3 million short tons of carbon dioxide (CO₂) 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 CO₂ 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.⁸

Four of these competitive grant program energy efficiency programs operated during fiscal year 2015, including two revolving loan funds (RLF). The Business Finance Authority continues to manage a \$4 million RLF and the Community Development Finance Authority is managing a \$1.5 million RLF directed towards municipalities. Currently nearly all funding allocated to the RLFs is committed. Two additional programs, including a \$5 million energy efficiency program managed by TRC Energy Services (TRC) targeting large energy users, and an energy efficiency program for retail businesses managed by the NH Retail Association closed on June 30, 2015. A summary of the two completed grants follows:

- **The New Hampshire Retail Association's** (formerly known as Retail Merchants Association of NH - RMANH) *Giving Power Back* energy efficiency program enrolled 206 small and mid-sized businesses to undertake a wide variety of energy evaluations, audits and deep energy retrofits. Of the total enrollments, 147 completed comprehensive energy audits. Of those, 108 went on to complete extensive energy efficiency upgrade projects, generating a projected annual energy savings of over \$800,000. The program provided over \$1.2 million in rebates and generated close to \$8 million in total project costs while achieving an overall CO₂savings of 73%. During the course of this program, the NH Retail Association also developed a Field Guide to Energy Conservation and Efficiency, which is available at their website,

⁸ Details for each grant award are available at the PUC's website <http://www.puc.nh.gov/Sustainable%20Energy/GHGERF.htm>.

<http://www.retailnh.com>, and contracted with GDS Associates to assess the effectiveness of prescribed energy efficiency measures and standards. The Measurement & Verification Report is also available on their website. The program closed June 30, 2015.

- TRC Energy Services' (TRC) New Hampshire **Pay for Performance** program (NH P4P) greatly exceeded the energy savings goals that were established when the program launched. With funding from the GHGERF, TRC designed and managed the NH P4P Program, which delivered comprehensive energy efficiency solutions to 74 commercial, industrial, and municipal facilities across the state. The project generated \$14 million in construction with 29 percent covered by program incentives. Through a network of more than 30 approved Partner firms, energy reduction plans were developed for each project to meet at least a 15% reduction in total facility source energy consumption. With a whole-building approach to energy savings, NH P4P has saved close to 13 million kWh of electricity and 91,400 MMBTU of fossil fuels – resulting in greenhouse gas reductions of more than 15,000 tons. The program closed June 30, 2015.

In 2012, the legislature enacted HB 1490, a provision of which terminated the GHGERF as of the end of 2012, and replaced it with the Energy Efficiency Fund (EEF). The bill also placed a cap of \$1 for each RGGI CO₂ allowance sale, and directed that any proceeds above the cap be rebated to electric ratepayers. 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, directs 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 directs 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 is currently in the RFP review and selection process.

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. 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), Joe Fontaine, Air Resources Division Trading Programs Manager (271-6794, joseph.fontaine@des.nh.gov), or Karen Cramton, Director, PUC, Sustainable Energy Division (271-2431, 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 29

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