STATE OF NEW HAMPSHIRE

CHAIRMAN
Martin P. Honigberg

COMMISSIONERS
Michael S. Giaimo
Kathryn M. Bailey, P.E.

EXECUTIVE DIRECTOR
Debra A. Howland

PUBLIC UTILITIES COMMISSION
21 S. Fruit St., Suite 10
Concord, N.H. 03301-2429

TDD Access: Relay NH
1-800-735-2964

Tel. (603) 271-2431

FAX No. 271-3878

Website:
www.puc.nh.gov

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

October 23, 2018 (*revised November 6, 2018*)

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 Regional Greenhouse Gas Initiative Annual Report Required of the Department of Environmental Services (Department) and the Public Utilities Commission (Commission)

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.[1]

The statute requires an annual report on the program:

> ***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*

[1] For more information on RGGI, please refer to the RGGI, Inc. website, *See* www.rggi.org.

availability of RGGI allowances to affected CO_2 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_2 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g) [Repealed]; and,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_2 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

Prior to 2013, auction revenues from RGGI allowances were primarily directed to energy efficiency measures intended to reduce regional electricity demand and CO_2 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 administered by the state's electric distribution utilities.

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 energy-related infrastructure, necessary to meet "peak" electricity demands, are reduced or avoided.[2] Thus, investment in energy efficiency ultimately reduces costs for everybody.

Quarterly RGGI auctions have been conducted for ten years. These auctions have run smoothly and an independent market monitor has concluded that these auctions have been efficient and have resulted in competitive outcomes. The state has received nearly $137 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 $3 billion to date.

[2] *See* SB 125 (2017) Committee to Study Transmission, Distribution, Generation and Other Costs in the State's Electricity System Final Report; http://www.gencourt.state.nh.us/statstudcomm/reports/1337.pdf.

Potential Changes

Amendments to RSA 125-O effective January 1, 2014 were made in order to implement the amended Model Rule, resulting from RGGI program changes recommended upon completion of the 2012 Program Review. Similarly, further amendments will be needed in order to implement program changes recommended upon completion of the 2016 Program Review. The Department and the Commission intend to draft bill language and seek sponsors to propose such changes in the 2019 legislative session.

Trends in Electric Rates

The cost of CO_2 emissions allowances is a very small part of overall electricity bills. With respect to New Hampshire, in 2017, RGGI allowance proceeds amounted to $11.1 million, of which approximately $7.8 million[3] was refunded to customers.[4] Therefore, the net compliance cost, excluding the amount refunded to customers, was $3.3 million.[5] When divided by New Hampshire's 2017 actual kWh sales usage of approximately 10.8 billion kilowatt-hours (kWh), the rate impact is $0.000306 per kWh,[6] which, in turn, translates to 20 cents per month for a typical residential customer.[7] The average cost associated with the CO_2 emissions cap accounted for 0.15% of an average residential customer bill.[8] 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 relative to natural gas prices.[9] This figure illustrates that electricity costs in New Hampshire are a function of natural gas price.[10]

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[3] Auctions 35, 36, 37 and 38.

[4] *See* Commission Order No. 25,664, May 9, 2015 (Docket DE 14-028), which provides guidance defining how refunds are distributed to customers.

[5] Note: $11.1 million - $7.8 million = $3.3 million

[6] Note: $3.3 million divided by 10.8 billion kWh = $0.000306 per kWh

[7] Based on 650 kWh per month (i.e., 650 kWh x $0.000306 = $0.20).

[8] Based on $0.20 per month divided by an average monthly electric bill for an Eversource residential customer of approximately $131 (see Figure 2) equals 0.15 percent.

[9] Consistent with prior reports, electricity prices reflect the monthly average locational marginal price for New Hampshire (excluding capacity and ancillary service charges, as well as distribution and transmissions charges).

[10] Information to prepare this figure was obtained from the U.S. Energy Information Administration and ISO New England. *See*: http://www.eia.gov/dnav/ng/hist/n3050nh3M.htm and https://www.iso-ne.com/isoexpress/web/reports/pricing/-/tree/zone-info.

Figure 1: New Hampshire Wholesale Electricity Prices Compared to Natural Gas Prices (Monthly Averages), January 2013 to May 2018

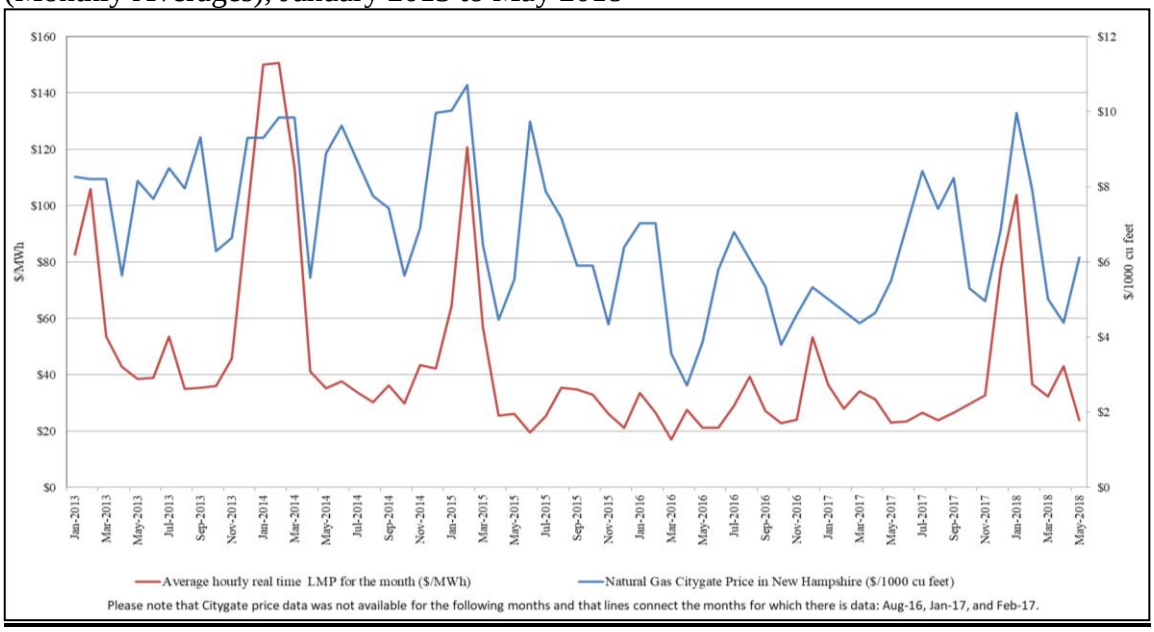
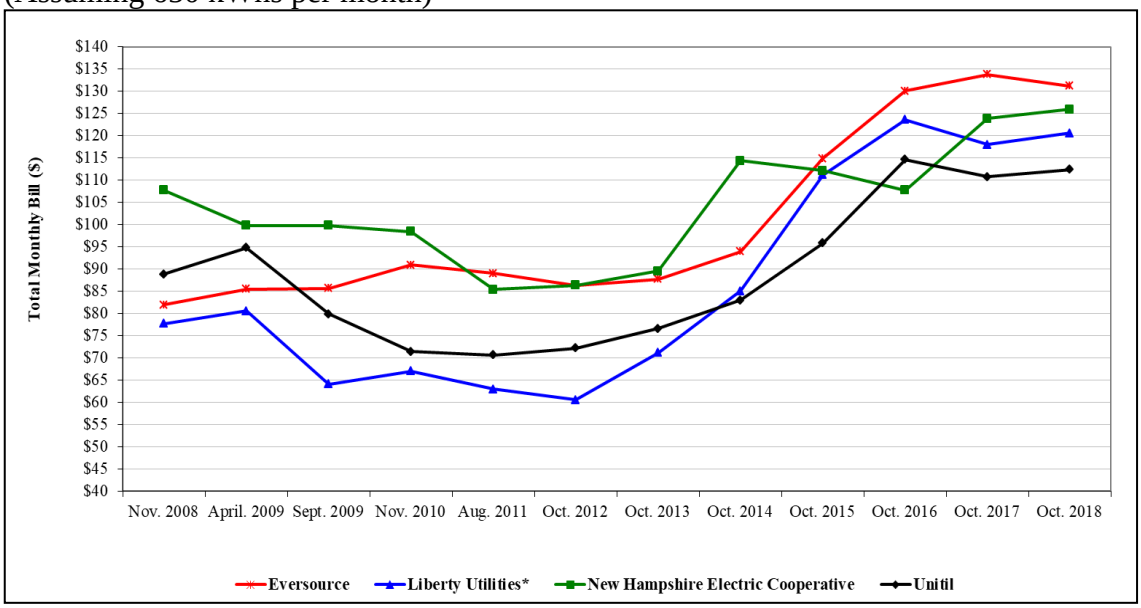


Figure 2 provides monthly residential bill comparisons for New Hampshire's four electric utilities for the years 2008 through 2018 based on a typical residential bill. The bill comparison is based on a "snapshot" using the rates in effect as of a specific month.[11]

Figure 2: New Hampshire Residential Monthly Bill Comparison from 2008 to 2018 (Assuming 650 kWhs per month)



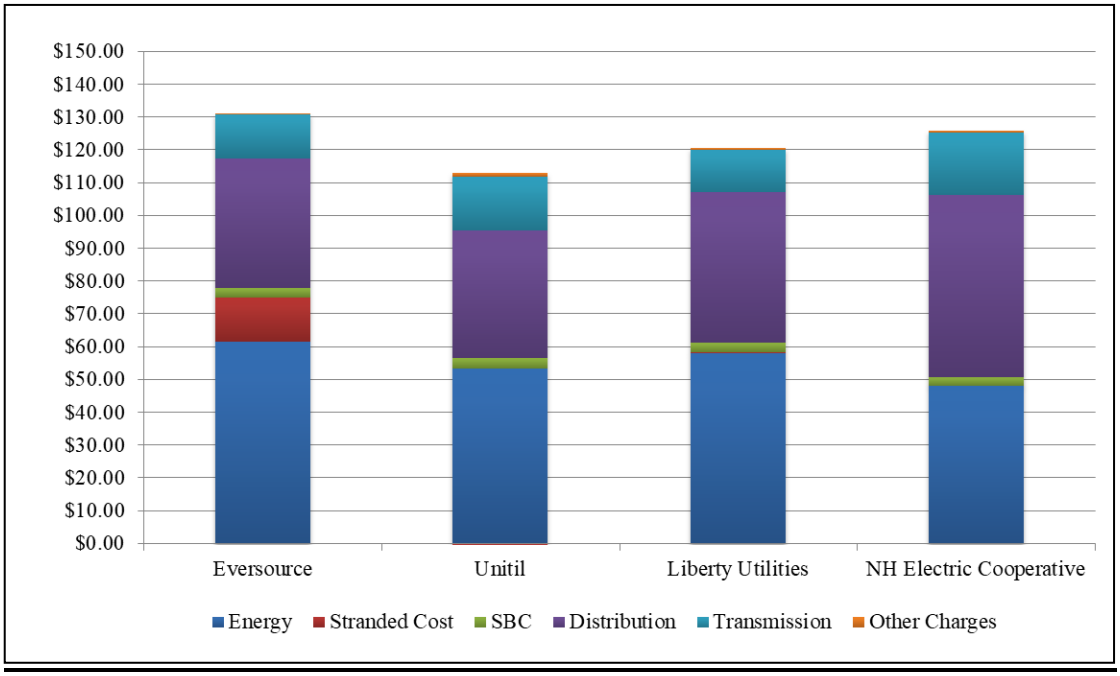
* Granite State Electric Company, formerly owned by National Grid, was acquired by Liberty Utilities effective July 3, 2012

[11] Figure 2 is derived from individual utility residential tariffs as posted to the Commission website, on the Electric Division webpage. *See* https://puc.nh.gov/Electric/electric.htm

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

A typical monthly residential bill in New Hampshire is in the range of $112 to $131 per month, depending on the utility. Monthly bill estimates are based on "typical" monthly residential usage of 650 kWh per month.[12] Figure 3 on the next page provides a chart showing the breakdown, by component, of a typical monthly residential bill as of October 1, 2018 for each of New Hampshire's four electric utilities.

Figure 3: Illustrative Residential Bill (650 kWh/Month with October 1, 2018 Tariffs)



The largest portion of electricity costs is the energy component. Customers who choose to receive that service from their electric distribution utility, receive what is known as Default Service. Default Service rates are a good indicator of market conditions, especially the rates of Eversource, Unitil, and Liberty Utilities as these utilities procure energy supply every six months through a competitively bid solicitation process. Figure 4 provides a comparison of the Default Service rates for New Hampshire's four electric utilities for the years 2008 through 2018.

[12] 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 2 and Figure 3.

Figure 4: New Hampshire Default Service Rates (2008 – 2018)

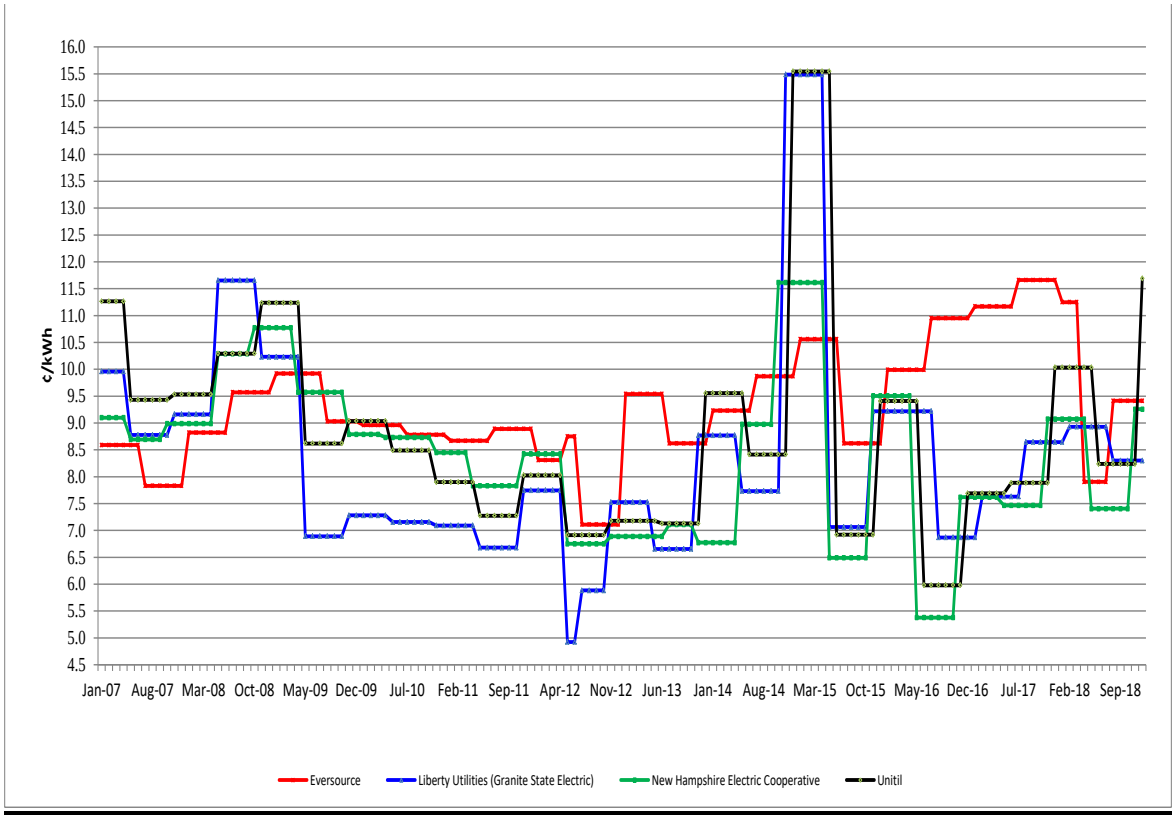


Figure 5: Eversource Default Service Rates (2008 – 2018)

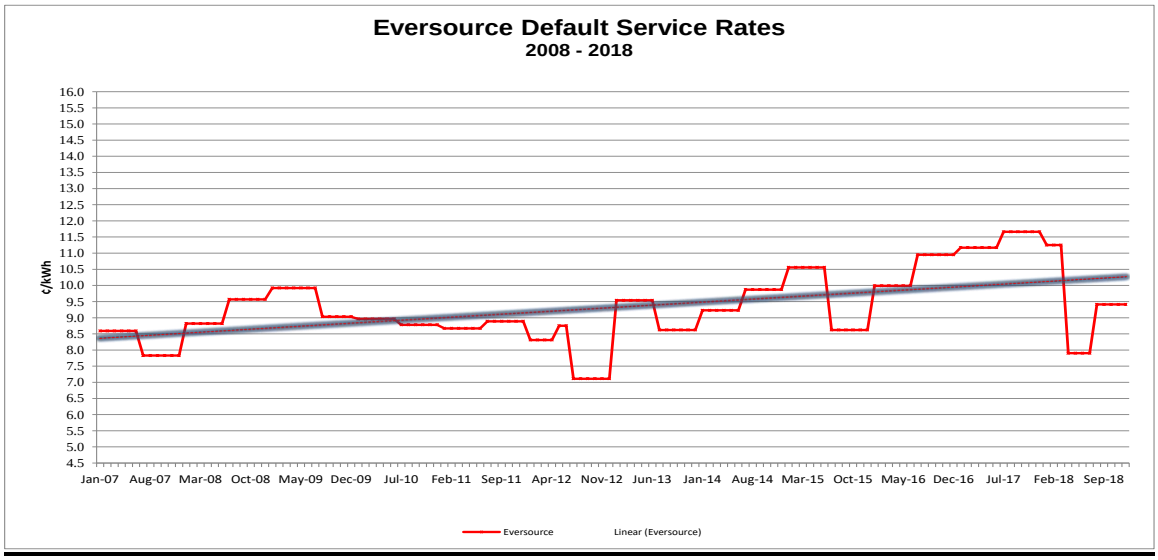


Figure 6: Liberty Utilities Default Service Rates (2008 – 2018)

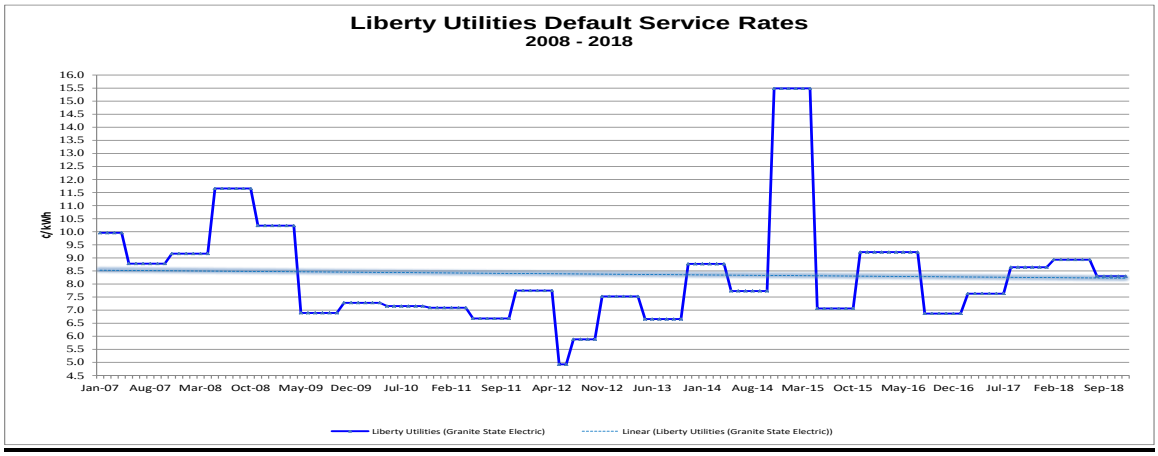


Figure 7: New Hampshire Electric Cooperative Default Service Rates (2008 – 2018)

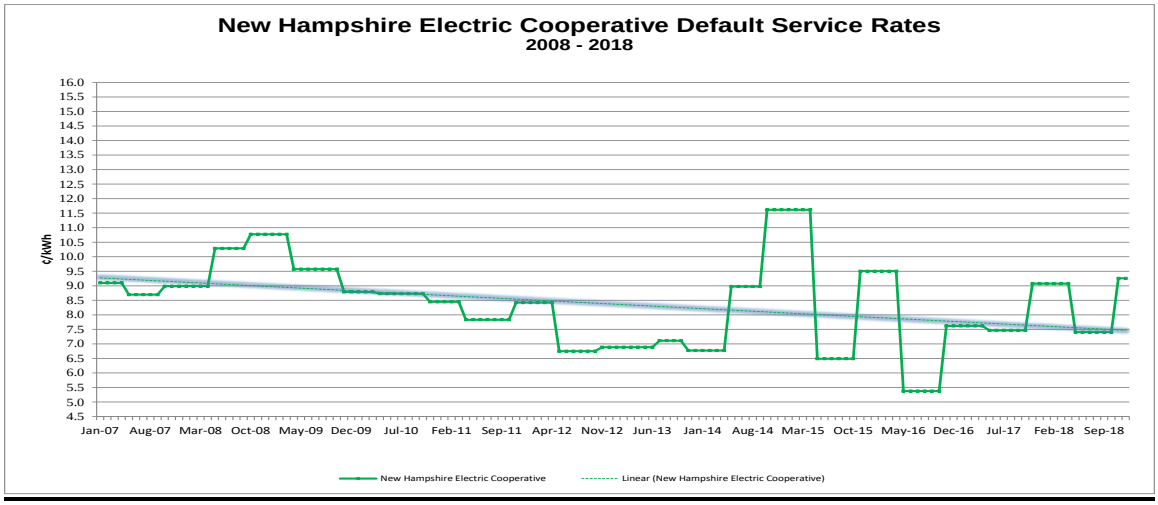
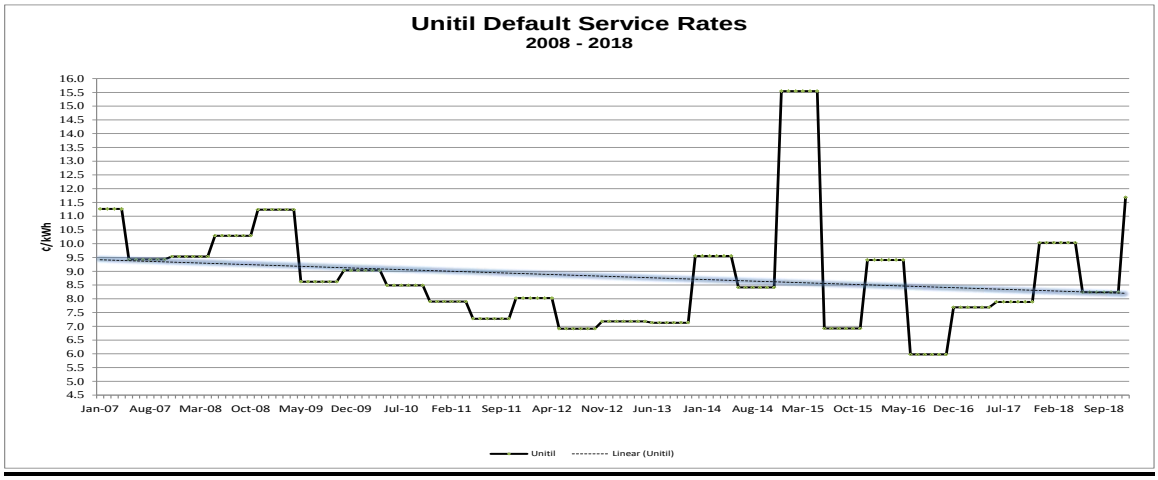


Figure 8: Unitil Default Service Rates (2008 – 2018)



Allowance Auctions and Sales Information

New Hampshire's 2018 CO_2 base budget is 4,291,624 tons (or allowances) per year. The base budget will be lowered by 2.5% in 2019 and each year thereafter.

During the first five years (2009 – 2013) of the program, a large bank of privately held allowances was accumulated raising 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 2018 NH budget is 3,149,261 allowances.

New Hampshire has participated in forty-one regional auctions to date. New Hampshire specific auction details are presented in Table 1. A regional total of 944,239,489 allowances have been sold. Another 156,405,811 allowances that were offered for sale went unsold. An additional 5 million and 10 million Cost Containment Reserve allowances were sold in March 2014 and September 2015 respectively. Seventy-four percent of the allowances have been purchased by compliance entities and their affiliates.

Table 1: NH Auction Sales and Revenues to Date

Auction (Vintage)	Date	Allowances	Price	Revenue
1-14 (2009-2011)	9/25/08 - 12/7/11	14,479,101	$3.51 to $1.86	$33,431,577
15-26 (2012-2014)	3/14/12 – 12/3/14	14,530,449	$1.93 to $5.21	$43,426,203
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
30-2015	12/2/15	848,830	$7.50	$6,366,225
31-2016	3/9/16	820,469	$5.25	$4,307,462
32-2016	6/1/16	913,075	$4.53	$4,136,230
33-2016	9/7/16	820,469	$4.54	$3,724,929
34-2016	12/7/16	820,469	$3.55	$2,912,665
35-2017	3/8/17	792,817	$3.00	$2,378,451
36-2017	6/7/17	882,443	$2.53	$2,232,581
37-2017	9/6/17	792,817	$4.35	$3,448,754
38-2017	**12/6/17**	**792,818**	**$3.80**	**$3,012,708**
39-2018	**3/14/18**	**765,857**	**$3.79**	**$2,902,598**
40-2018	**6/13/18**	**853,761**	**$4.02**	**$3,432,119**
41-2018	**9/5/18**	**765,857**	**$4.50**	**$3,446,356**
Total				**$136,671,186**

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 41 was prepared for the RGGI states by Potomac Economics. It states:

> *In summary, the results of our monitoring of RGGI Auction 41 raise no material concerns regarding the auction process, barriers to participation in the auction, or the competitiveness of the auction results.*

CO_2 Emissions Trends

Table 2 provides emission rates from New Hampshire sources from 2008 to 2017 in million tons of CO_2.

Table 2: 2008 – 2017 emissions from New Hampshire sources in million tons of CO_2

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Merrimack, Schiller Units 4 & 6, Newington	**4.03**	**3.43***	**3.61***	**2.66***	**1.59***	**1.83***	**1.58***	**1.22**	**0.4 + 0.1 + 0.05 = 0.55**	**0.28 + 0.09 + 0.04 = 0.41**
Granite Ridge	**1.97**	**1.71**	**1.45**	**1.69**	**2.10**	**1.51**	**1.53**	**1.99**	**1.44**	**1.18**
Essential Power Newington	**1.09**	**0.63**	**0.84**	**1.18**	**0.94**	**0.32**	**0.45**	**0.61**	**0.57**	**0.39**
Total	**7.10**	**5.77**	**5.90**	**5.53**	**4.64**	**3.65**	**3.57**	**3.82**	**2.55**	**1.98**

* 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 2017 in tons of CO_2 are provided in Table 3.

Table 3: 2017 emissions from the RGGI region in tons of CO_2

State	CO_2 Emissions	State	CO_2 Emissions	State	CO_2 Emissions
CT	**6,832,784**	DE	**3,244,029**	MA	**10,888,678**
MD	**12,678,303**	ME	**1,069,650**	NH	**1,982,047**
RI	**3,213,211**	VT	**4,349**	NY	**24,618,245**
				Total	**64,531,296**
				Budget	**84,344,203**

Use of Auction Revenue by Each RGGI State

The Regional Investment Report of RGGI CO_2 Allowance Proceeds, 2016,[13] provides an overview of each participating state's activities. The report estimates that RGGI auction proceeds in 2016 are estimated to return $1.7 billion in lifetime energy bill savings to more than 182,000 households and 2,680 businesses which participated in programs funded by RGGI investments, and to more than 800,000 households and 100,000 businesses which received direct bill assistance.[14]

These RGGI related investments are projected to offset the need for approximately 7 million megawatt hours (MWh) of electricity generation, save more than 30.4 million British Thermal Units (MMBtu) of fossil fuels, and avoid the release of approximately 6.4 million short tons of carbon dioxide pollution into the atmosphere over their lifetime. These benefits are limited to the direct benefits arising from specific 2016 projects, and do not include larger macroeconomic effects that may occur as a result of the RGGI cap and market signal.

Use of RGGI Proceeds in New Hampshire

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_2 budget allowances and administered by the Commission. The GHGERF supported a competitive grant program in 2009 and 2010, awarding $31 million for 36 energy efficiency projects/programs.[15] Two of these competitive grant programs established revolving loan funds (RLF) for businesses and municipalities undertaking energy efficiency projects; these RLFs continue 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. 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. During the period of July 1, 2017 through June 30, 2018, there were nine Municipal Energy Reduction Fund (MERF) loans in repayment status with a total balance of $868,739. During this period there were four MERF loans approved: City of Claremont Community Center for $51,730; Town of Franconia for $19,430; Town of Newmarket for $43,300; and Town of Gorham for $38,732. Other loans in repayment during this period include the Cities of Dover, Franklin, Claremont (street lighting) and Manchester, Towns of

[13] *See* http://www.rggi.org/rggi_benefits.
[14] *See* https://www.rggi.org/sites/default/files/Uploads/Proceeds/RGGI_Proceeds_Report_2016.pdf.
[15] For details for each grant award please *see*: http://www.puc.nh.gov/Sustainable%20Energy/GHGERF.htm.

Gilmanton and Sandwich, and the Manchester Housing Authority. There were no loan defaults recorded for MERF loans during this period. Since July, there have not been any new loans approved. While CDFA has had several conversations with prospective MERF applicants, there are no MERF projects currently in the application pipeline.

- 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. BFA has used the revolving loan funds to make 17 different loans, including the re-lending of funds repaid to BFA from early borrowers in the program. This has resulted in $6,365,000 in combined lending to borrowers as diverse as Vitex Extrusions in Franklin, to the Concord YMCA, to Gorham Paper and Tissue in New Hampshire's North Country. These loans have enabled these companies, who employ many hundreds of employees, to have better control over the cost of their power which is essential to remaining competitive in today's economy. Out of the 17 loans made to date, two loans went into default. Funds are made available to relend to new companies as previous loans are repaid to the BFA. The current balance available for lending with this program is approximately $865,000, but changes frequently as new loans are made or previous loans are repaid.

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_2 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 Commission 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 Commission 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 though a competitive bid process." The legislation directed the Commission's Electric Division to conduct a competitive bid process and the Electric Division issued Request for Proposal (RFP) #14-004 for this purpose.

The Commission completed the selection process and awarded a three-year contract to Eversource on behalf of the four New Hampshire electric utilities (i.e. Liberty Utilities, Eversource, NH Electric Cooperative and Unitil Energy Systems) to administer the all-fuels comprehensive energy efficiency programs through December 31, 2018. On July

20, 2018, the Commission's Electric Division issued RFP #18-005 seeking a qualified firm to provide a comprehensive energy efficiency program for residential non-low-income customers for a 3-year period starting in 2019.

Proposed Federal Program Impacts

Power plants account for roughly one-third of all domestic greenhouse gas emissions.

New Hampshire and the RGGI States continue to work together to demonstrate that RGGI, a market-based program with greater flexibility for sources, is a working model for national legislation. 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 US Supreme Court could consider the legality of the Clean Power Plan soon.[16] On August 21, 2018, EPA proposed the Affordable Clean Energy Plan.

Rather than comply with a 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 (New Jersey and Virginia) are seeking to implement RGGI, or RGGI- like programs. Thus, the geographical area for RGGI could be expanded, consistent with the original intent of RGGI.

Proposed revisions to the state's RGGI program are being considered in the context of the statutorily required 2016 comprehensive review of New Hampshire's RGGI program (pursuant to RSA 125-O:27). On August 23, 2017, the participating RGGI states proposed revisions to the RGGI Model Rule. After a dozen or more stakeholder meetings, the 2016 RGGI program review concluded that the regional cap needed to be reduced to a level more reflective of current emissions in order to "lock in" the environmental gains of the past few years and to continue to send the appropriate market price signals to encourage further reductions necessary to achieve long-term climate goals. These proposed revisions would lower the regional cap in 2021 to 75,147,784 tons, which will decline by 2.275 million tons per year through 2030.

The states have proposed implementing the annual cap decline collectively, but the 2021 cap includes an additional 752,431 tons of reductions that only seven states will implement (ME & NH are excluded). There will also be additional adjustments to account for the full bank of excess allowances at the end of 2020. Also, seven states (ME & NH are excluded) will implement an Emissions Containment Reserve (ECR). 10% of the allowances in states' budgets will be withheld from auctions to secure additional emissions reductions, if prices fall below $6.00 in 2021 (rising by 7% annually thereafter). All nine states will continue to implement the Cost Containment Reserve (CCR), but the size will be lowered from 10 million to 10% of the cap, and the CCR

[16] For more details, please *see* http://www2.epa.gov/cleanpowerplan.

trigger will be $13.00 in 2021 and rise by 7% annually. Retention of offset provisions will now be optional for each state.

In order to reduce the potential administrative burden of reviewing highly technical applications, DES may propose to eliminate all offset categories for New Hampshire, because the CCR is the primary cost containment mechanism and offsets have never been used to date, because offsets that have been created are sold in the California market, because California allowance prices are higher. Awarded offset allowances (if any) by other states would remain fungible across the states. Since 2008, the RGGI program has demonstrated that a market-based approach to limiting CO_2 emissions in the electricity generation sector can make significant environmental progress while enhancing economic growth.

Implementing RGGI for New Hampshire makes sense both economically and environmentally. Because New Hampshire is part of a regional electric market, we are directly affected by the decisions made by other states. If New Hampshire alone were to discontinue its participation in RGGI, it would still incur the costs of the RGGI program without receiving any financial benefit. The RGGI program helps to continue our work toward energy independence and a cleaner environment.

Although RGGI is clearly intended to reduce CO_2 emissions in order to address climate change, it is important to understand that it was only after significant study and debate that New Hampshire opted into RGGI as a "no regrets" policy that directly benefits the state both economically and from an energy independence perspective. These conclusions remain fundamentally sound today, whether one believes that climate change induced by emissions of greenhouse gases from human activity is occurring or not.

While both the DES and the PUC participated in the development of RGGI, we did not endorse enactment of a New Hampshire statute until we were certain that the program would meet our state's needs and would not impose economic hardship on New Hampshire's citizens and ratepayers. New Hampshire was one of the last states to become a participant in RGGI, and we did so only after a University of New Hampshire economic study confirmed that New Hampshire would be better off participating in RGGI than not, and that RGGI would have a net *positive* impact on New Hampshire's economy as well as help to stabilize and, over the longer term, reduce the state's electricity costs. Even then, New Hampshire's enabling legislation includes several safeguards to additionally protect the state from potential unintended consequences of any significant market volatility.

Therefore, we are proposing to postpone introduction of requested legislative changes resulting from the 2016 Program Review until the 2019 session, in order to be relatively certain that said changes will be adopted in all eight other RGGI States first. Another Program Review will be initiated in 2021.

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).ed

Sincerely,

Craig A. Wright
Director, Air Resources Division, DES

Karen Cramton
Director, Sustainable Energy Division, PUC

Attachments: Market Monitor Report for Auction 41

cc: Rep. Douglas Thomas
Rep. Chris Christensen
Rep. Robert Backus
Sen. Martha Fuller Clark
Sen. Dan Feltes
Rep. Herbert Richardson
Rep. Richard Barry
Sen. Jeb Bradley
Rep. Herbert Vadney
Rep. Michael Vose
Rep. Jacqueline Cali-Pitts
Sen. Kevin Avard
Michael Fitzgerald, Designee of the Commissioner of Environmental Services
Commissioner John Barthelmes, Department of Safety
Governor's designee