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The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner



November 1, 2012

Electric Utility Restructuring Legislative Oversight Committee
Legislative Office Building, Room 304
Concord, New Hampshire 03301

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 Garrity and Members of the Committees:

New Hampshire Revised Statutes Annotated Chapter 125-O¹, sections 19 – 28 established the state's Carbon Dioxide Emissions Budget Trading Program in accordance with 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) and the attached RGGI Fact Sheet (http://www.rggi.org/docs/RGGI_Fact_Sheet.pdf).

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

¹ See www.gencourt.state.nh.us/rsa/html/NHTOC/NHTOC-X-125-O.htm for full text.

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) The allocation and spending of the greenhouse gas emissions reduction fund, including associated energy savings and emissions reductions; 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.”

The statute further requires a review of the program in 2012 with specific reference to two other provisions as follows:

125-O:27 Review of the New Hampshire RGGI Program.

At the time of the 2012 comprehensive review by the signatory states as required in the MOU, the commission and the department shall concurrently review New Hampshire specific elements of the RGGI program, in particular 125-O:23, IV and 125-O:25, and include the results of such review in the agencies' annual report under RSA 125-O:21, VI.

125-O:25 Set Aside for Voluntary Purchase of Renewable Energy Certificates.

I. The department shall reserve from auction, for retirement purposes, a quantity of budget allowances, not to exceed one percent of the annual budget, equivalent to the CO₂ emissions reductions associated with renewable energy certificates recognized under RSA 362-F and purchased voluntarily by electricity customers and not resold.

II. Budgeted allowances reserved under paragraph I not retired at the end of each year shall be auctioned the following calendar year.”

House Bill 1490 (2012) 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 which are presently funded by just the system benefits charges. These changes are effective as of January 1, 2013. The bill also required the legislative oversight committee on electric utility restructuring to monitor and report on certain core energy efficiency programs.

Overview

The original intent of the RGGI states' phased approach was to stabilize or “cap” CO₂ emissions at then projected 2009 levels, and then gradually reduce emissions. Electricity generators would continue to be able to plan for and invest in lower-carbon alternatives and avoid electricity price impacts as an alternative method of complying with the RGGI requirements. Revenues from RGGI allowance auctions² have been primarily directed to energy efficiency measures intended, directly or indirectly, to reduce regional electricity demand and CO₂ emissions.

Quarterly RGGI auctions have been successfully conducted for four years. The state has received just over \$40,000,000 to date in allowance auction revenues for energy efficiency investments. Total revenues collected for use in the RGGI states have totaled \$1,081,624,938.19 to date.

The RGGI states jointly established an administrative entity, the Regional Greenhouse Gas Initiative, Inc. (RGGI, Inc.). This non-profit corporation was created to support development and implementation of the participating states' CO₂ Budget Trading Programs. One environmental and utility or energy commissioner from each of the RGGI states serve as the Board of Directors of the non-profit corporation. DES Commissioner Thomas Burack and PUC Commissioner Robert Scott fulfill these roles for New Hampshire. RGGI, Inc. provides technical and support services for key elements of the states' CO₂ Budget Trading programs, including:

- Development and maintenance of a system to report data from emissions sources subject to RGGI, and to track CO₂ allowances;
- Implementation of a platform to auction CO₂ allowances;
- Monitoring the market related to the auction and trading of CO₂ allowances;
- Providing technical assistance to the participating states in reviewing applications for emissions offset projects; and,
- Providing technical assistance to the participating states to evaluate proposed changes to the states' RGGI programs.

Each RGGI state retains its own sovereign authority to implement and enforce the program in its own state, and auction proceeds for individual state allowances are directed back to that state for distribution in accordance with state law. RGGI, Inc.

² An “allowance” is a limited authorization to emit one ton of CO₂ issued by a participating state. Generators must obtain one allowance for each ton of CO₂ they emit.

simply coordinates the joint activities, in particular the allowance auctions and allowance tracking, thereby achieving administrative efficiencies by reducing duplicative administrative programs.

Program Evaluation and Potential Changes

RGGI continues to function smoothly and as intended according to market monitoring analysis and reports. Four quarterly allowance auctions have been conducted since the October 2011 report (auction results and monitor reports are discussed on pages 8-9 of this report).

While RGGI is functioning as designed, current allowance prices remain at the minimum value because emissions are well below the level anticipated when the program was originally designed. This is the result of a number of unanticipated factors, including the following:

- Widespread regional fuel switching from oil and coal to natural gas due to relatively lower gas prices,
- Increased generation from non-emitting sources, such as wind and hydro,
- Weather,
- Economic conditions, and
- Increased energy efficiency, due in part to investment of RGGI funds.

RGGI participating states are currently completing the 2012 program review called for in the RGGI Memorandum of Understanding³ (MOU). As the MOU specifies, the program review will be a comprehensive evaluation to include program success, program impacts, additional reductions, imports and emissions leakage, and offsets. As part of the 2012 program review, RGGI participating states held regional stakeholder meetings. Point Carbon, an independent expert market analyst, was invited by the RGGI states to speak at one of the meetings. Following the March 20, 2012 stakeholder meeting during which modeling results of three potential future scenarios were presented. Point Carbon issued an analysis⁴ that stated:

“We model three scenarios for a tighter cap in RGGI based on presentations from the RGGI, Inc. March 20 stakeholder meeting. We find that none of these scenarios results in allowance prices climbing above the reserve price. This is due to the large bank emitters will be able to collect in 2013, along with a forecasted decline in business-as-usual emissions in RGGI due to new renewable generation.”

As stated above, the original intent of the RGGI states' phased approach was to stabilize or “cap” CO₂ emissions at current levels⁵, and then gradually reduce emissions. The initial regional cap of approximately 188 million allowances (of which New Hampshire's

³ see RGGI MOU <http://www.rggi.org/design/history/mou>

⁴ see <http://www.pointcarbon.com/1.1835463?date=20120420&sdte=1&ref=searchlist>

⁵ Average 9-State annual emissions for the 3-year (2009-2011) period were 108 million tons; average 10-State annual emissions were 125.5 million tons. 9-State emissions from July 1, 2011 through June 30, 2012 were 90,324,950 tons.

budget was approximately 8.6 million) was widely perceived to be “conservative” (i.e., the cap was set slightly above actual baseline (generally 2000 – 2002) average regional emissions). During the first control period when the regional annual cap was 188 million tons, compliance entities collectively “banked” 47 million allowances and are anticipated to bank allowances for future use if or when the regional cap is lowered. This accumulated bank of allowances results from the significant reduction in emissions, caused in large part by the unforeseeable lower natural gas prices and unprecedented economic downturn in 2008, as noted above. Over the past 4 auctions, the amount of allowances sold indicates that compliance entities are now buying just enough allowances to cover their emissions, and additional banking is not occurring in 2012.

Thus, in order to maintain the emissions reductions achieved to date, it is widely recognized that the regional cap should be reduced by an additional amount. Such an adjustment would reduce this accumulated bank of allowances and minimize the potential for use of this bank to emit more than current levels in the future.

Additional regional stakeholder webinars and meetings have been held in 2012. In addition to adjusting the cap, additional regional recommendations were presented. After receiving and considering comments from stakeholders, the designated commissioners from each RGGI state will meet in December to discuss any recommended model rule amendments to be proposed to each respective state Legislature for enactment and adoption. DES and PUC are full and effective participants in this review process, and will share any resulting information and recommendations. Should changes be needed, DES and PUC will also seek input from interested legislators, and specifically members of the joint legislative committees assigned to oversee these matters and the appropriate standing committees of the House and Senate.

DES and PUC have also specifically solicited comments from New Hampshire stakeholders relative to the 2012 review. A summary of those comments is attached.

Trends in Electric Rates

The cost of RGGI is a very small part of overall electricity bills. On average, the cap on CO₂ accounted for 0.19 to 0.55% of average residential electricity bills across the region.⁶ Based on typical household electricity usage, that translates into 43 cents per month for residential consumers. PSNH has estimated its compliance costs to be about \$1.325 million for 2012, or \$0.0003 per kWhr (\$1.325 million divided by 4,722,197 kWhr in distribution sales to default service customers), which translates to 15 cents per month for a household using 500 kWhr and 19.5 cents for a household using 650 kWhr.

Changes in electric rates, particularly the energy or generation component of rates, have been driven primarily by changes in the cost of fossil fuels, especially natural gas, which usually operates on the margin in New England which highly influences electric market prices. For Unital, National Grid and the New Hampshire Electric Cooperative, the cost

⁶ Fact Sheet: The Regional Greenhouse Gas Initiative (RGGI), 09-28-12:
http://www.rggi.org/docs/Documents/RGGI_Fact_Sheet_2012_09_28.pdf

of CO₂ allowances are reflected in their default service rates to the extent that natural gas power plants operating on the margin factor carbon allowance prices in bids that set the market clearing price for power.

The monthly average wholesale locational marginal price (LMP) for New Hampshire (which does not include ancillary service charges, as well as distribution and transmission charges) compared to New Hampshire wholesale natural gas prices since 2003 are shown in Figure 1.

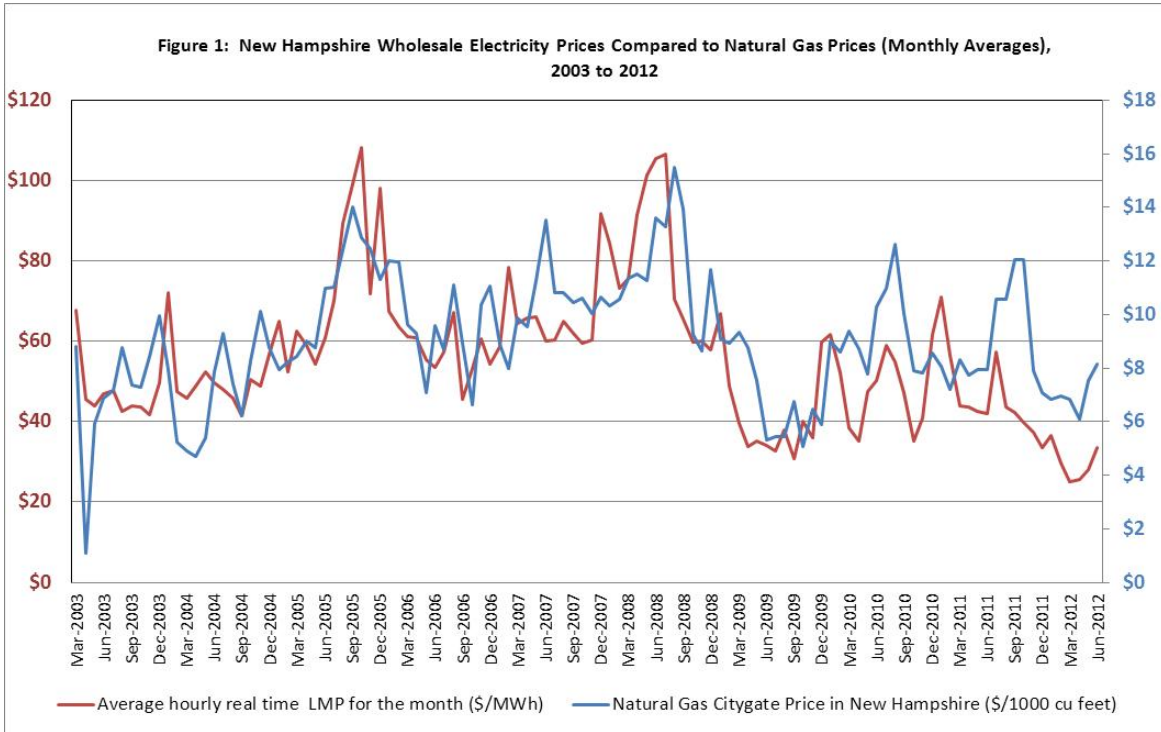
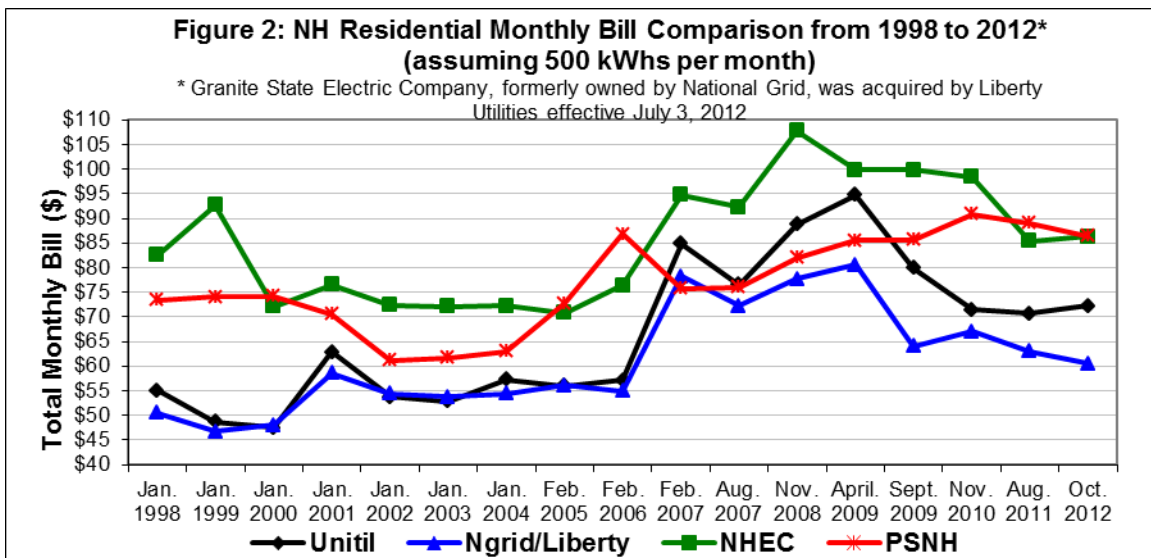


Figure 2 provides a monthly bill comparison of New Hampshire’s four electric utilities.



A comparison of average residential monthly electric bills for 500 kWh of use per month (close to the median usage level) for New England residential customers is shown in Figure 3.

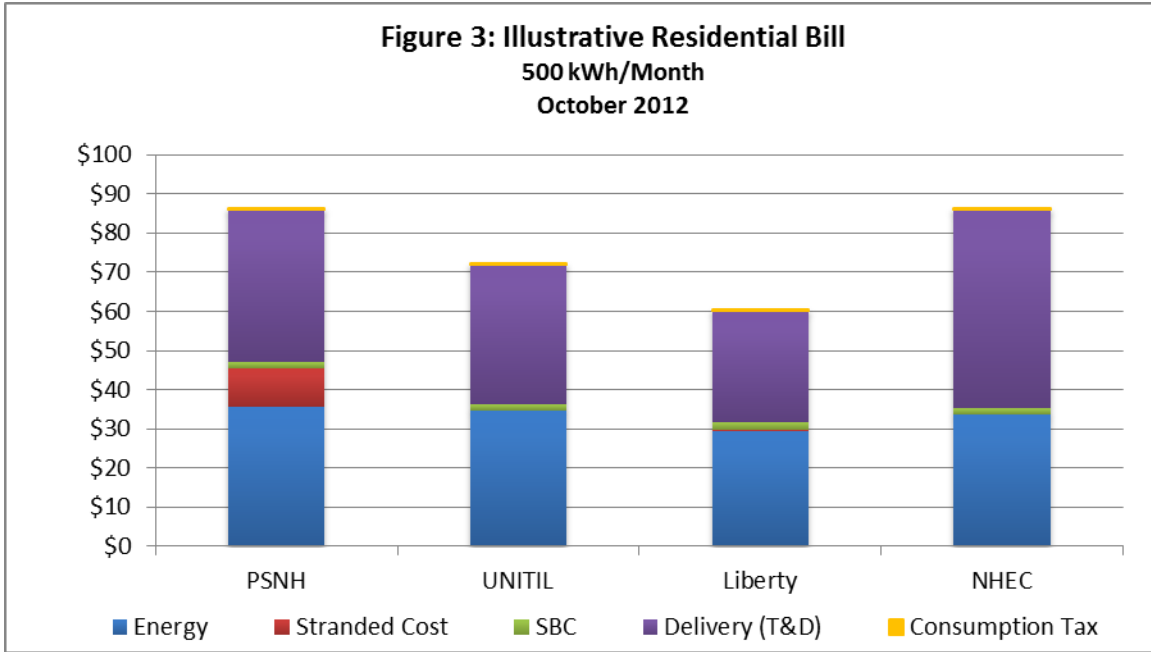
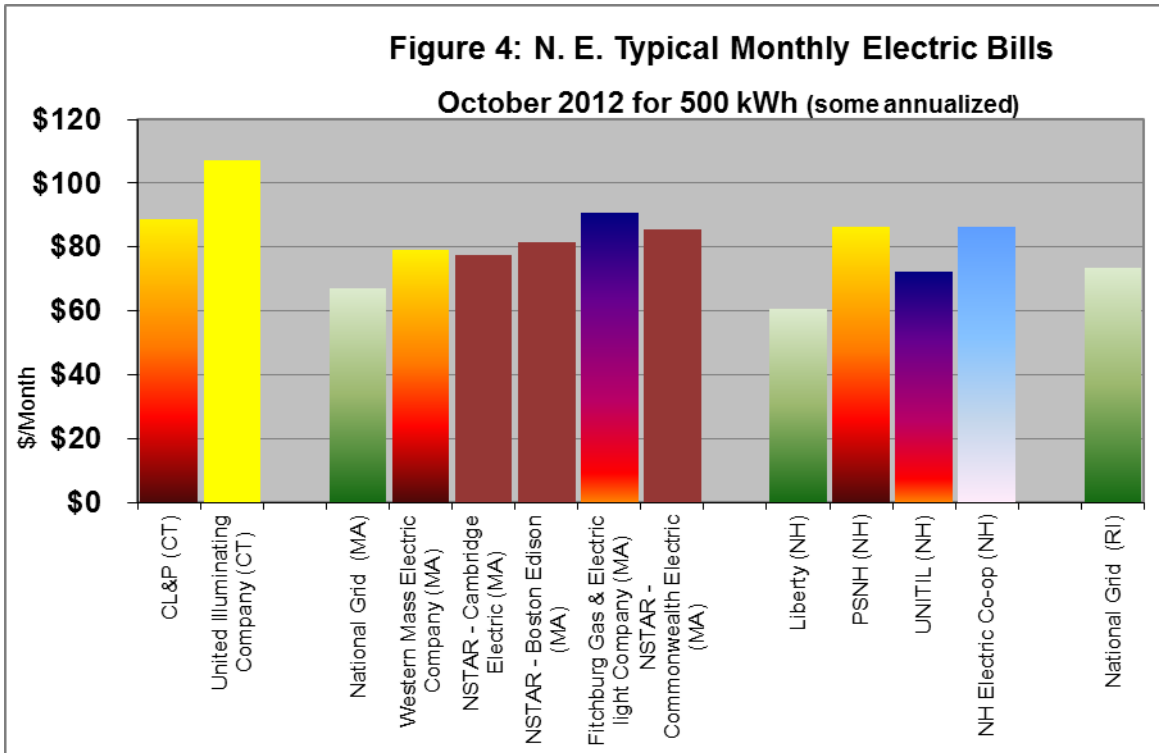


Figure 4 demonstrates the typical monthly bills for New England residents.



Allowance Auctions and Sales Information

The RGGI MOU established individual statewide allowance budgets under an initial regional budget cap of 188,076,976 tons. The regional and state specific caps were negotiated by the ten states based on adjusted regulated electric generation sector (25 MW or greater fossil fuel fired plants) emissions. New Jersey is no longer a participating state, effectively reducing the cap to 165,184,246 tons. New Hampshire’s current budget is 8,620,460 tons (or allowances) per year, based on 2003 – 2004 annual New Hampshire affected source emissions.

New Hampshire has participated in 16 regional auctions to date. New Hampshire specific auction details are presented in Table 1. A regional total of 478,255,415 allowances have been sold in 17 auctions. Another 109,497,963 allowances that were offered for sale went unsold. Greater than 88% of allowances have been purchased by regulated compliance entities (electric generators and their corporate affiliates). There has been no evidence of allowance hoarding for speculation by non-compliance entities and allowance shortages or escalating prices due to speculative behavior have not been observed.

There is a currently a Minimum Reserve Price (price floor) of \$1.93 per allowance⁷. The 2012 vintage allowances are being sold in four equal lots over 4 auctions. Each auction occurs in the last month of each quarter.

Market Monitoring and Secondary Market Reports

Market Monitor Report for Auction 17 (attached)⁸, prepared for the RGGI states by Potomac Economics, is typical of all auctions to date and stated:

“We observed the auction as it occurred and have completed our review and analysis of its results. Based on our review of bids in the auction, we find no material evidence of collusion or manipulation by bidders. Twenty-two bidders participated in the offering of CO2 allowances for the current control period. Bids were submitted to purchase 65 percent of the available supply of allowances, resulting in a clearing price equal to the reserve price of \$1.93 per ton. Compliance entities or their affiliates purchased 100 percent of the allowances in the offering. Based on our review of the administration of the market, we found that:

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
Total				\$40,776,077

*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.

⁷ The MRP will be raised for the 2013 auctions based on the Consumer Price Index

⁸ http://www.rggi.org/docs/Auctions/17/Auction_17_Market_Monitor_Report.pdf

- *The auction was administered in a fair and transparent manner in accordance with the noticed auction procedures and limitations.*
- *The auction results were consistent with the market rules and the bids received.*
- *Sensitive information was treated appropriately by the auction administrator.*
- *There were no indications of issues with the auction platform such as hardware or software problems, communications issues, or security breaches.*

In summary, the results of our monitoring of RGGI Auction 17 raise no material concerns regarding the auction process, barriers to participation in the auction, or the competitiveness of the auction results.”

Market Monitor reports for all auctions are available at http://www.rggi.org/market/market_monitor.

CO₂ Emissions Trends

Regional CO₂ emissions have dropped significantly over the past several years. Table 2 provides emission rates from New Hampshire sources from 2008 to 2011 in tons of CO₂. The PSNH plants have run less because of economic dispatch, i.e, there is an increasing amount of time when they can buy power in the market cheaper than their costs of producing their own from these plants. The two more efficient combined cycle natural gas plants however, have continued to be dispatched at about the same rate.

Table 2: 2008 – 2011 emissions from New Hampshire sources in tons of CO₂					
	2008	2009	2010	2011	Est. 2012***
PSNH	3,112,114 +	2,597,795 +	2,815,040 +	2,216,310 +	1,538,873 +
(Merrimack,	818,594* +	632,878* +	581,464* +	312,980* +	100,566* +
Schiller,	98,334 =	197,436 =	216,603 =	127,608 =	83,280 =
Newington)	4,029,042	3,428,109**	3,613,106**	2,656,898**	1,722,719**
Granite Ridge	1,974,812	1,708,459	1,445,639	1,687,224	1,995,201
Newington Energy	1,091,293	633,312	840,702	1,181,247	1,039,557
Total	7,095,147	5,769,880	5,899,447	5,525,369	4,757,477
*excludes 543,810 from biomass (net zero) in 2008, 567,175 in 2009, 520,856 in 2010, 471,165 in 2011, & 522,124 in 2012					
**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), and will receive 1,500,000 2012 allowances (CPA bonus) ⁹					
***actual first half 2012 emissions plus actual second half 2011 emissions					

⁹ In accordance with Air Resources Council June 2011 remand of DES decision

RGGI eligible emissions from the region for 2011 in tons of CO₂ are provided in Table 3.

Table 3: 2011 emissions from the RGGI region in tons of CO₂

State	CO ₂ Emissions	State	CO ₂ Emissions
CT	7,018,498	DE	4,150,396
MA	15,634,872	MD	26,631,106
ME	3,337,460	NH	5,525,369
NJ	17,117,779	NY	37,137,382
RI	3,946,582	VT	6,537
		Total	120,505,981
		Budget	188,076,976

Use of Auction Revenue by Each RGGI State

Each state directs its own strategy for investing CO₂ allowance proceeds in programs that benefit consumers and build a clean energy economy. A recent RGGI report¹⁰ shows that, overall, RGGI Participating States are investing close to 80 percent of CO₂ allowance proceeds in strategic energy programs:

- **52 percent** to improve energy efficiency;
- **11 percent** to accelerate the deployment of renewable energy technologies;
- **14 percent** to provide energy bill payment assistance, including assistance to low-income ratepayers;
- **1 percent** for a wide variety of greenhouse gas reduction programs, including programs to promote the development of carbon emission abatement technologies, efforts to reduce vehicle miles traveled, and programs to increase carbon sequestration.

These investments are reducing CO₂ emissions and generating important consumer benefits, including lower energy bills, greater electric system reliability and more jobs. Other independent reports by Analysis Group¹¹ and Environment Northeast¹² support these findings. Evaluations of several energy efficiency and renewable energy programs in the RGGI Participating States show \$3-\$4 in benefits for every \$1 invested.

Details on how other states are using their allowance auction proceeds are available at http://www.rggi.org/rggi_benefits/program_investments.

Background

New Hampshire has used RGGI auction proceeds to establish the Greenhouse Gas Emissions Reduction Fund (GHGERF). The fund has supported energy efficiency, conservation, and demand response programs to reduce greenhouse gas emissions generated within New Hampshire, as well as administrative costs. The administration of

¹⁰ see full report at http://www.rggi.org/docs/Investment_of_RGGI_Allowance_Proceeds.pdf

¹¹ see

http://www.analysisgroup.com/uploadedFiles/News_and_Events/News/AnalysisGroup_Release_Regional_Greenhouse_Gas_Initiative_2011_11_15.pdf

¹² see <http://www.env-ne.org/resources/detail/current-and-potential-economic-benefits-of-rggi>

the RGGI funds has been governed by RSA 125-O:8, II and 125-O:23 and New Hampshire Code of Administrative Rules Chapter [Puc 2600](#): Greenhouse Gas Emissions Reduction Fund, which directs a minimum of 10 percent of program allocations to low income energy efficiency programs. The balance of the funds has been allocated to electric and fossil fuel energy efficiency programs. In 2010 however, the General Court appropriated \$3.1 million from the GHGERF toward reduction of a shortfall in the General Fund budget.

These programs include, but are not limited to: energy audits, weatherization programs, energy efficiency related workforce development, revolving loan funds for energy efficiency investment, deployment of industrial process and control systems, passive solar heating and ventilation, building code compliance, improvements to electric and thermal efficiencies of existing buildings, retrofitting of housing, education and outreach, and demand response programs to reduce peak load. The PUC adopted final rules for the administration of the GHGERF in December 2009.

2009 GHGERF Grant Award Summary

New Hampshire's first \$1.2 million in auction revenue was allocated by the legislature to expand low income weatherization services for the 2008-09 heating season. In 2009, New Hampshire conducted a request for proposals (RFP) resulting in the allocation of an additional \$17.6 million to 30 programs that engaged non-profits, utilities, businesses, residents, municipalities, universities, and K-8 schools to reduce emissions through increased energy efficiency; energy education and outreach; benchmarking; and green workforce development. The RFP was developed in consultation with the state's Energy Efficiency and Sustainable Energy (EESSE) Board, created by the legislature in 2008 *"to promote and coordinate energy efficiency, demand response, and sustainable energy programs in the state."*

All of the 30 programs funded through the 2009 RFP have been completed with the exception of three non-lapsing revolving loan fund programs¹³. These include:

- The NH Business Energy Conservation Revolving Loan Fund run by the Business Finance Authority;
- The Municipal Energy Reduction Fund run by the NH Community Development Finance Authority; and,
- RLFs established for on-bill financing through the New Hampshire electric utilities.

The 2009 grants were multi-faceted and covered many different sectors as well as a wide range of services to the State. In addition to the establishment of revolving loan funds, 2009 GHGERF projects included:

- Trainings for trades-people in building audits and safe efficiency upgrades, as well as workshops for businesses, municipalities, and residents on energy efficiency;

¹³ The funds awarded to the revolving loan funds are repaid to the lending pool and become available for additional loans in perpetuity.

- Audits, and efficiency upgrades for farms, schools, non-profits, municipalities, and small and large businesses;
- A website to provide New Hampshire residents with a portal for creating energy plans as well as a connection to businesses providing a wide range of services to increase energy efficiency and properly install energy efficient and renewable energy systems.
- A grassroots program that uses the barn-raising concept to provide hands-on teaching and do-it-yourself implementation to weatherize homes and to install optimally-designed and sited solar hot water systems. This model has been replicated eight times in other regions of the state and has received national recognition.

More information on the 2009 program, including contracts and reports is available at <http://www.puc.nh.gov/Sustainable%20Energy/GHGERF%202009%20Grantees.htm>.

Measurement and verification analysis completed by the University of New Hampshire's Carbon Solutions New England (CSNE) program found that during the first year reporting period (July 2009 to July 2010), the GHGERF grants reduced energy use by 40,500 million BTU, saved NH residents and businesses \$1.5 million in energy costs, and reduced CO₂ emissions by 4,600 metric tons. This is the equivalent to taking 900 cars off of the road for one year. The CSNE analysis found that each dollar invested by GHGERF resulted in \$3.42 in direct energy savings.”¹⁴

2010 – 2012 Grant Award Activity Summary

In May 2010 the PUC issued its second Request for Proposals. The three program areas targeted through the second RFP included:

1. Program continuation for entities that:
 - a. Applied for and received a grant from the GHGERF in 2009;
 - b. Submitted multi-year program budgets or plans in their 2009 grant proposal; and,
 - c. Demonstrated success in implementing their proposal.
2. Programs to establish a portfolio of energy efficiency projects at large energy user sites to produce energy savings and greenhouse gas reductions; and,
3. Programs to significantly improve energy efficiency and reduce greenhouse gas emissions in affordable housing.

¹⁴ *The New Hampshire Greenhouse Gas Emissions Reduction Fund Year 1 (July 2009–June 2010) Evaluation*, Matthew Magnusson, M.B.A., Cameron P. Wake, Ph.D., Carbon Solutions New England, Institute for the Study of Earth, Oceans, and Space, University of New Hampshire, 2011. Executive Summary, available at www.puc.nh.gov/Sustainable%20Energy/GHGERF/Evaluations/GHGERF_Year%201_Executive%20Summary.pdf. The full report is available at: www.puc.nh.gov/Sustainable%20Energy/GHGERF/Evaluations/GHGERF_Year1_Report_11Feb2009.pdf

More details on the grant award process can be found in the [New Hampshire Greenhouse Emissions Reduction Fund \(Year 2 July 2010 – June 2011\)](#) report.¹⁵ Six grant awards for programs spanning two years were approved by the Governor and Council on December 8, 2010. A summary of each of these grant projects is provided below.¹⁶

Category I, Program Continuation

Business Finance Authority of New Hampshire (BFA) - \$2 million. Business Finance Authority of New Hampshire (BFA) - \$2 million. The BFA has expanded its Business Energy Conservation Revolving Loan Fund established initially through a \$2 million GHGERF grant in 2009. The revolving loan fund provides direct loans to both non-profit and for-profit organizations to improve energy efficiency in New Hampshire work places. These loans would not have been funded through other lending institutions, and are helping recipients to lower energy expenses and improve their competitiveness. Loan repayments are reinvested in the fund and used to help additional businesses finance their energy improvements, making the fund self-sustaining in the long-term. Businesses that have benefited through this program include:

- Foss Manufacturing, Hampton, which is ineligible to receive CORE funds, improved its electrical distribution, and upgraded motors and lighting. Foss began to repay their \$750,000 loan in October, 2010 and has increased employment from 306 to over 500 since the closing of their energy loan;
- Canam Steel Corporation, Claremont, borrowed \$750,000 for a \$4.5 million dollar project to replace space heating and ventilation and to complete a lighting upgrade. Canam began to repay their loan in February, 2011;
- Shelburne Plastics, Manchester, combined business funds with funds from PSNH and a \$750,000 BFA loan to improve the layout and operation of their blow molding operation, to consolidate their grinding operations and install efficient process chilling and air conditioning systems. Shelburne began to repay their loan in 2011;
- Ragged Mountain Resort Management, Danbury, borrowed \$600,000 for an \$873,900 project to reduce energy use while expanding snow making capacity by installing ultra-low energy snowmaking guns. The improvements were operational for the 2011-2012 ski season and helped the resort improve snowmaking in what was otherwise a dismal year. The resort has begun to repay the loan and is pursuing additional improvements using resort funds;

¹⁵

http://www.puc.nh.gov/Sustainable%20Energy/GHGERF/Evaluations/GHGERF_Year2_annual_report_II_March2012.pdf.

¹⁶ Legislative activity during the winter and spring of 2011 proposing the elimination of the RGGI program held back the development of the projects associated with the grants approved on December 8, 2010. Grantees and project partners were reluctant to move ahead on projects until they felt reasonably sure that their funding was secure.

- Smuttynose Brewing, Hampton, is using a \$500,000 loan to install energy efficiency measures in their new brewery. The total cost of the project is over \$15 million. The efficiency measures would have been dropped from the project but for the RLF because these measures do not contribute to the appraised value of the building. The brewery is scheduled to be completed by next summer, at which time loan repayment will begin;
- Vitex Extrusion, an aluminum extruder located in Franklin, used a \$500,000 RLF loan in 2010 to complete upgrades to 1 of its 2 production lines. The BFA is pursuing an additional \$600,000 project with Vitex to replace an aging oven that will enable the company to significantly expand production. Vitex currently employs 94 people and will add 14 jobs as a result of the latest project;
- Warwick Mills, New Ipswich, is leveraging a \$550,000 loan matched with both Community Development Block Grant (CDBG) and company funds to install a \$1,178,000 biomass plant to replace an inefficient oil-fired steam system that no longer supports production demands. The biomass system will save the company \$177,000/year in fuel costs. The project loan closed in July, 2012, and the new system will be operational for the 2012-2013 heating season. Warwick Mills employs over 100 people and expects to expand employment to 125 within 3 years.

As funds are repaid, the BFA will continue to fund new energy efficiency projects for the business community.

Retail Merchants Association of New Hampshire (RMANH) - \$2 million. The RMANH, in partnership with the non-profit Jordan Institute, has expanded its highly successful 2009, Giving Power Back, Energy Efficiency Program for retail businesses. The three-phase Giving Power Back program helps retailers and small businesses to identify energy savings opportunities and supports them in implementing measures to reduce energy costs.

- Phase 1 of the program provides an energy assessment that looks at the building as an interactive system, provides a summary of energy usage, and identifies opportunities to improve lighting, building shell insulation, air infiltration, mechanical and HVAC systems. Basic estimates for project costs and energy savings, and an estimate of the cost of the Phase 2 Comprehensive Audit, are determined. The assessment is completely paid for by RMANH grant funds approximate \$1,500 value).

Ken Young of Young's Restaurant in Durham expects to save nearly 50% on his energy costs. *"I knew that there had to be opportunities for me to reduce my energy costs, but did not realize the significant savings that could be realized through efficiency. The entire audit process was a great education for me. In just the first couple months after the project, I am seeing cost savings that I would have never guessed could have been achieved while greatly improving the comfort within the restaurant".*

- Phase 2 provides a comprehensive audit that offers specific remedies to improve building efficiency and help lower utility bills. Estimates for costs and savings include a detailed scope of work to present to contractors for comparable bids and proposals for specific projects. RMANH pays up to 60% of the cost of this phase.
- Phase 3 provides for implementation of the energy efficiency projects. RMANH rebates up to 20% (up to \$30,000) of the cost of energy efficiency measures that are completed. The program's staff also assists in securing utility rebates to further lower project costs and helps educate participants about applicable tax incentives and loan programs. According to the UNH CSNE report (referenced above on p. 13) depending on the measures implemented and the funding sources utilized, savings range from 20% to 50%.

The program's goal is to enroll 150 new businesses in 2011 - 2012, (up from 25 in 2009 – 2010) and to move 50 businesses to the second phase of the program. The program is also showcasing some of the best examples of these energy investments to spur other New Hampshire retailers to take similar actions.

Giving Power Back has enrolled in excess of 175 participants with over 130 businesses choosing to advance to the second phase of the program. More than 90 businesses have started the implementation process and are anticipating project completion by the first quarter of 2013. The Giving Power Back program's success is attributed to the hands-on support that it offers participants to help educate and guide them in the audit and project process.

Department of Resources and Economic Development, Division of Economic Development and Lakes Region Community College - \$400,000. The Efficiency Training Program (ETP) is a unique collaboration between Lakes Region Community College (LRCC), the Plymouth Area Renewable Energy Initiative (PAREI), and the State of New Hampshire Division of Economic Development (DRED). The Efficiency Training Program helps to prepare the workforce for jobs in the energy efficiency sector. The first phase of classes teaches individuals the essentials for conducting energy audits; the next series of classes and workshops train students in air sealing, insulation and the installation of other building shell improvements.

Classes developed and offered under the 2010 grant are extending participant qualifications by teaching the specifics of cost-effective, reliable and safe building upgrades. In this phase of the program, courses have been expanded to cover a wider range of job skills. Classes are supported by a mentoring program to give qualified candidates supervised hands-on experience before embarking on their own projects. This program helps to ensure that weatherization and energy efficiency measures are implemented through well-trained locally-based businesses who can guarantee that their energy efficiency and weatherization installations are both sound and safe. ETP promotes high standards with third party certification, including the Building Performance Institute's (BPI) Building Analyst and Air Leakage Control Installer

certification exams. Over the past three years ETP at LRCC has proctored 471 written and field Building Performance Institute (BPI) certification exams.

Those working in the building performance field have indicated that there is much latent demand for energy efficiency upgrades. The Efficiency Training Program has helped spur demand for building performance services by:

- Developing a workshop to educate real estate agents about energy features in existing homes.
- Expanding the Button Up homeowner energy efficiency curriculum, delivered in dozens of communities around New Hampshire.
- Developing programs for building contractors and other allied professionals.

ETP partners work together and with other organizations to develop a well-trained and capable building energy performance workforce throughout New Hampshire, spurring green jobs and local economic development. In the past three years ETP staff from LRCC and PAREI have delivered a wide range of training courses and workshops to over 625 participants.

PAREI enhances the ETP program by offering a variety of field experiences to connect individuals needing hands-on practice and experience with energy professionals installing energy efficiency measures. In 2012, ETP has conducted 12 one-on-one sessions with plans for 18 more. Since November 2011, PAREI's component of the ETP program has coordinated 11 short-term trainings ranging from energy equipment demonstrations to hands-on installation workshops to sponsoring speakers on natural building & building science techniques.

PAREI also manages an Energy Equipment Rental Program set up with a local hardware store made up entirely of residential and commercial diagnosing equipment including a blower door, insulation machine, thermal imaging camera, and other specialty pieces. In addition, the ETP collaboration recently finished a Commercial Energy Efficiency Workshop, the first of three statewide workshops designed to support and encourage the energy workforce in New Hampshire. In the coming months, ETP will revitalize Button Up NH offering workshops and hands on trainings to NH residents throughout this coming winter.

Category II, Large Energy Users

TRC Energy Services - \$5 million.

The nationally recognized NH P4P Program comprehensively addresses the energy efficiency needs of the commercial, industrial, and municipal government sectors by working with participants to improve the energy efficiency of their buildings. The Program is implemented through an open network of thirty (30) qualified Program Partners that range from small engineering firms to multinational performance contracting firms. Program Partners have been approved based on their demonstrated experience to develop comprehensive energy efficiency work scopes in commercial and

industrial facilities, oversee the installation of the proposed scope, and verify that the installation will achieve the estimated energy performance.

Participants in P4P work with their Partner to develop an Energy Reduction Plan for each project utilizing the whole-building technical component of a traditional energy audit, a financial plan for funding the energy efficient measures and a construction schedule for installation. Pay for Performance incentives are awarded upon the satisfactory completion of three program milestones: the development of an approved Energy Reduction Plan; complete construction of energy efficiency scope of work per the Plan; and, verification of energy savings through post-construction benchmarking.

The City of Manchester, with assistance from ARAMARK, a P4P Partner firm, recently invested in several energy efficiency measures at Manchester City Hall. Through equipment and control upgrades, lighting updates and other energy efficiency measures that were outlined in an Energy Reduction Plan, the city anticipates reducing the overall energy consumption of the City Hall by 17%.

Energy savings to Participants associated with the eighteen (18) projects in construction is estimated to be approximately \$800,000 per year for 20 years. Program incentives encumbered to-date total approximately \$3.0M. Participant contributions to the energy efficiency projects underway are estimated to be \$4.7M.

Category III, Improved Energy Efficiency in the Affordable Housing Sector¹⁷

New Hampshire Community Loan Fund - \$2 million. The Community Loan Fund is providing deep energy efficiency retrofits in approximately 425 manufactured homes (sometimes called mobile homes) located in more than a score of resident-owned communities (ROCs¹⁸) throughout the state. The state's community action agencies are using the GHGERF funds (leveraged with \$600,000 from the United States Department of Energy's Weatherization Innovation Pilot Program and approximately \$500,000 in CORE funds) to make permanent energy efficiency gains in low-income households that qualify for LIHEAP and federal weatherization work. The GHGERF funds allow deeper investments, including roof replacements where it is necessary to air-seal the home.

The project began with extensive training of the Community Action Agencies' crews in the best techniques for weatherizing manufactured housing. The training and a focus on innovation and process-improvement have reduced the number of man-hours required to

¹⁷ RSA 125-O:23, III and Puc 2603.01 provide that at least 10 percent of the moneys allocated from the GHGERF must be used to assist low-income residential customers to reduce total energy use including heating fuels and to foster the development and retrofitting of highly efficient and affordable housing.

¹⁸ ROC-NH™ (formerly called the Manufactured Housing Park Program) helps residents of manufactured housing parks come together to buy the land under their houses, build value and security in their homes and create stronger, vibrant communities.

weatherize a home by as much as 20 percent. The project is testing the cost-effectiveness of “close-proximity production”— weatherizing numerous homes within a single community in succession to reduce travel time, down-time between homes, and material-storage costs. Preliminary results are promising and the work is being evaluated by DOE’s Oak Ridge National Laboratory.

Through September 2012, the crews had weatherized 174 homes in 19 communities across New Hampshire. Production rates have increased over the last year as crews have completed ARRA-funded projects and turned their full attention to manufactured housing in resident-owned communities. Innovative partnerships with Habitat for Humanity and volunteers within each community have extended the reach of the Community Action programs and the GHGERF. By June 2013, the project expects to have weatherized 425 homes at an average cost of \$6,500 per home.

The efficiency work is expected to generate energy savings of 25 to 50 percent in most homes which translates into reduced annual energy bills of approximately \$1,225 per household. (The typical home should save approximately \$750 on kerosene or fuel oil and \$475 on electricity.) In addition to the direct financial benefit and dramatic improvements in comfort, the work is eliminating unsafe conditions in many homes where compromised systems created severe carbon-monoxide risks.

New Hampshire Housing Finance Authority (NHHFA) - \$2 million. NHHFA’s Greener Homes Program (GHP) and their contracted Program Implementer, TRC Energy Solutions, working in collaboration with the state’s CAP agencies, have now performed rigorous energy audits on **41 projects** around the state containing **1,277 units** of affordable rental housing. A team of third-party energy consultants trained and supervised by TRC has modeled each project’s energy consumption, allowing accurate comparisons of recommended work scopes and installation costs for project-specific energy retrofits across a broad range of existing multi-family housing. Projects with the most potential for the greatest energy use reductions are then identified. Despite shortfalls in anticipated program funding, the GHP will soon exceed their initial retrofit target of 785 units – to date, NHHFA’s Board has approved GHP funding to retrofit 888 units in 25 projects with the funds currently available. With the utility rebates available to many GHP projects, some further assistance from the CAPs, and an additional \$1M pledged by NHHFA’s Board in their new fiscal year, the final unit total will approach 1,000. The Greener Homes loans awarded to audited and approved projects have a 30-year term but zero interest, and no debt service payments are required, even from surplus operating cash. It is NHHFA’s intent that the cash savings resulting from reduced energy consumption post-retrofit will stay with the project, improving project cash flow and

- Post-retrofit cost savings for just one project, Wamesit Place in Portsmouth, will exceed \$107,000 annually.
- By combining high-efficiency boilers with solar thermal panels at Eastern Apartments in Concord, energy consumption in this project has been reduced by 60%.
- To date the Greener Homes Program has created 65 full-time-equivalent construction jobs in New Hampshire.

allowing the owner or manager to keep the rents as low as possible going forward. Every Greener Homes project must agree to a minimum of 20 years of future affordability in exchange for benefitting from the deferred-payment GHP loan.

GHGERF Program Evaluation

Measurement and verification analysis completed by the University of New Hampshire's Carbon Solutions New England (CSNE) program found that cumulative energy savings due to projects completed as of June 2012 are estimated to be equivalent to the annual energy use of 34,000 New Hampshire households. Additionally, the GHGERF creates annual energy savings for New Hampshire residents and businesses of over \$6.7 million and reduces annual carbon dioxide (CO₂) emissions by 22,900 metric tons.

Participating New Hampshire residents and businesses are expected to save \$107.8 million through 2030 based on current energy prices. Carbon dioxide emissions reductions are estimated to be 366,500 metric tons through 2030. Table 4 provides projected energy savings through 2030 for projects completed as of June 2012. Over the past three years, energy savings per dollar spent by the fund has improved. During the first year, the energy saved to GHGERF cost ratio was 10.2 MMBTUs saved per \$1,000 spent. The performance during the second year

Table 4: Projected energy savings through 2030 for projects completed as of June 2012

Fuel Type	Energy Reduced	MMBTU	Energy Savings (\$ millions)	CO2 reduced (thousand metric tons)
Electric	440.2 million (kWh)	1.5 million	\$61.2	217
Oil	7.9 million (gallons)	1.1 million	\$29.3	79.7
Natural Gas	13.1 million (therms)	1.4 million	\$17.3	69.7
Propane	12.7 thousand (gallons)	1.1 thousand	\$0.02	0.07
Total		3.9 million	\$107.8	366.5

decreased slightly to 9.5 MMBTUS saved per \$1,000 spent. The grants awarded in 2010 were only just beginning during the second reporting period (Jul 2010- 2011) and did not deliver any significant energy reductions during the second reporting period. This past reporting period, the impact of the 2010 grants was in full force and energy savings improved to 12.9 MMBTUS per \$1,000 spent as shown in Table 5 below.

Table 5: Energy savings and cost for three year period

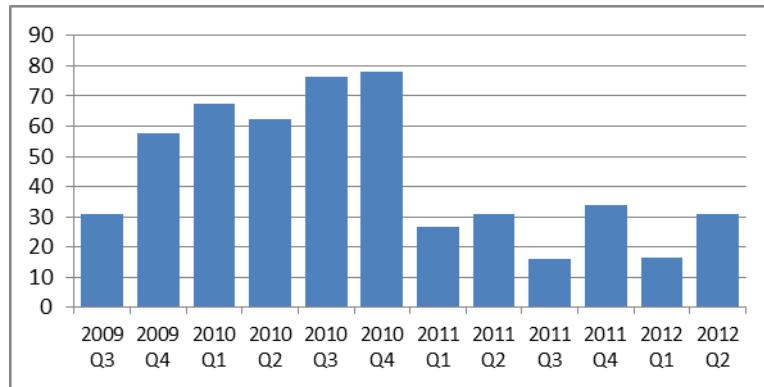
Time Period	MMBTU for Projects Completed in the Reporting Period	GHGERF Funds Paid to Grants	MMBTU Reduced per \$1,000 spent
Jul 2009 – Jun 2010	124,230	\$12,158,749	10.2
Jul 2010 – Jun 2011	58,589	\$6,195,484	9.5
Jul 2011 – Jun 2012	44,544	\$3,454,998	12.9

Direct employment impact associated with the grants was measured and documented by each grant recipient. Between July 2011 and June 2012, GHGERF grants supported 24

full-time equivalent (FTE) jobs.¹⁹ A FTE is a standard measurement for labor and is 2,080 work hours. Job activity ranged from construction jobs to professional service jobs.²⁰ The GHGERF grants directly supported 19 full time equivalent (FTE) jobs from July 2011 through June 2012. This is down 55% from the 53 FTE jobs that were supported by GHGERF in the previous year. The drop in employment, shown in Figure 5, was due to lower levels of grant activity caused by legislative uncertainty as grantees were reluctant to pursue grant activity while the legislature was debating New Hampshire’s participation in RGGI .

For every million dollars of GHGERF money expended through this reporting period, six FTE jobs were supported. This equates to one job supported for every \$167,600 of grant funds spent. The ratio of six FTE jobs per million

Figure 5: FTE jobs supported by GHGERF by quarter



dollars provided by GHGERF funding is somewhat higher than that reported from the America Recover and Reinvestment Act funding from the Department of Energy, which recorded 4.02 FTE jobs per million spent or one job for every \$248,750 spent.²¹

The 30 grants awarded from GHGERF in a competitive process in 2009 met a wide range of needs in the energy efficiency marketplace and served a broad group of energy consumers throughout the state. The six grants awarded in 2010 (including the continuation of 3 grants from 2009) built on the lessons learned from the first year of the program and were more targeted at specific sectors. The first three years of the program have delivered significant energy savings and provided positive economic impacts for the New Hampshire economy. The employment impact of GHGERF was the direct support of 132 full time equivalent jobs through June 2012.

The 2010 grants have, as expected, provided additional energy savings on top of the energy savings realized by completion of the grants awarded in 2009. Lessons learned from the first round of grants resulted in a higher energy savings per dollar spent by GHGERF than in the previous two reporting periods. The model of having a central

¹⁹ Supported means funding from GHGERF paid for workers directly engaged in carrying out the activities of the grant. Grant reporting, labor hours were reported for all grant employees, contractors and subcontractors.

²⁰ Labor type was not classified nor was a distinction made between a new vs. retained job.

²¹ Through June 2012, ARRA funded \$23.8 billion projects that resulted in 95,751 FTE jobs. <http://www.recovery.gov/Transparency/RecipientReportedData/Pages/JobSummary.aspx>

specialized expert organization work with multiple energy customers, as seen in all of the grants awarded in 2010, has proven to be a highly successful.

Revenue and Allocations of the GHGERF

Revenue and allocations and expenses of the GHGERF are summarized in Table 6 below.

Table 6: Summary of Actual and Projected Revenues into the GHGERF			
Description	Revenue	Allocation/ Expense	Resulting Balance in GHGERF
FY 2011 Balance Forward	\$ 9,344,071.45		\$ 9,344,071.45
Total Auctions From FY 2012	\$ 6,275,545.40		\$ 15,619,616.85
Total Interest From FY 2012	\$ 17,909.66		\$ 15,637,526.51
FY 2012 Admin Costs (PUC, DES & RGGI, Inc. dues)		\$ 423,436.28	
FY 2012 Grants/Awards Paid		\$ 4,013,885.61	
FY 2012 Total Expenses		\$ 4,437,321.89	\$ 11,200,204.62
FY 2012 Encumbered Grants/Awards		\$ 6,214,213.17	\$ 4,985,991.45
FY 2012 Encumbered Contracts		\$ 21,285.61	\$ 4,964,705.84
September Auction (FY 2013)	\$ 2,063,563.72		\$ 7,028,269.56
FY 2013 Admin. Budget + Consult.		\$ 397,151.00	
FY 2013 Grants/Awards		\$ 2,901,416.00	
FY 2013 Allocated to CORE (PUC Order No. 25,425) ²²		\$ 3,189,999.00	
Total FY 2013 Allocations		\$ 6,488,566.00	\$ 539,703.56
FY 2014 Allocations (Grants/Awards + Consult.)	\$ -	\$ -	\$ -

The administrative costs are consistent with and pursuant to the legislatively approved budgets for the PUC and DES and in accordance with RSA 125-O:23, I.

Proposed Federal CO₂ Cap and Trade Program Impacts

The states set out to establish a program that could serve as a working model for national legislation and RGGI has done that. There has been no further action at the federal level since our last report. In order to implement the Clean Air Act requirements and to avoid further litigation, EPA has entered into a settlement agreement²³ to pursue federal regulatory, rather than legislative, means of addressing the climate change problem. EPA is continuing the process of adopting a New Source Performance Standard (NSPS) regulation to limit greenhouse gas emissions from new power plants. Rather than comply

²² **DE 12-262**, is currently open regarding the 2013-2014 CORE NH Electric and Gas Energy Efficiency Programs and the use of the remaining RGGI funds.

²³ See <http://www.epa.gov/airquality/pdfs/settlementfactsheet.pdf>

with a mandated requirement, existing power plants may prefer a more flexible alternative compliance program like RGGI. Power plants are familiar with similar programs for other pollutants. If the RGGI states are successful in convincing EPA²⁴ to accept RGGI as an alternative to the NSPS, then other non-RGGI states may seek to implement RGGI, as well, rather than implement a mandated NSPS. Thus, the geographical area for RGGI could be expanded.

There are recent developments in world carbon markets that may influence dialogue at the federal level surrounding any potential federal program. These developments include;

- California - As mandated by state law AB32, the state's economy wide carbon trading program commences January 1, 2013 in a phased manner, and incorporates many elements pioneered by RGGI, including a carbon cap and distribution of a portion of allowances by auction (the first auction of at least 21.8 million allowances is scheduled for Nov. 14 with a reserve, or minimum price of \$10). Starting in 2013, major GHG-emitting sources, such as electricity generation (including imports), and large stationary sources (e.g., refineries, cement production facilities, oil and gas production facilities, glass manufacturing facilities, and food processing plants) that emit more than 25,000 MTCO₂e per year will have to comply with the Program.
- Quebec - As part of the Western Climate Initiative, Quebec's carbon program also commences in 2013 in a phased manner similar to California's. Both California and Quebec have proposed amendments to their existing regulations intended to link the two programs and allow trading between them.
- China - As recently reported in Bloomberg.com,²⁵ "Four cement makers in China, the world's biggest emitter, bought 1.3 million pollution permits for 60 yuan (\$9.55) a metric ton last month in Guangdong. The province plans the largest of seven pilot programs for a proposed national market within three years. Exchanges will trade permits to emit an estimated 1 billion metric tons of greenhouse gases a year by 2015, close to half the volume in the European Union system."

Should you have any questions or need further information regarding the issues discussed in this report please feel free to contact: Michael Fitzgerald, DES Air Resources Division Technical Services Bureau Administrator (271-6390, michael.fitzgerald@des.nh.gov),

²⁴ The EPA has indicated that it "believes it is important to recognize and account for the emission benefits resulting from EE/RE policies and programs in" state implementation plans for compliance with various Clean Air Act requirements. "EE/RE policies and programs" refer to energy efficiency and renewable energy programs such as the RGGI funded Greenhouse Gas Emissions Reduction Fund, renewable portfolio standards, and regulated utility energy efficiency programs. For more information see www.epa.gov/airquality/eere.html.

²⁵ <http://www.bloomberg.com/news/2012-10-12/china-carbon-debut-defies-emission-doubters-energy-markets.html>

Joe Fontaine, Air Resources Division Trading Programs Manager (271-6794, joseph.fontaine@des.nh.gov), or Jack Ruderman, PUC Sustainable Energy Director (271-6012, Jack.Ruderman@puc.nh.gov).

Sincerely,



Craig A. Wright

Acting Director, Air Resources Division, DES

Jack Ruderman

Director, Sustainable Energy Division, PUC

Attachments: RGGI Fact Sheets
Market Monitor Report for Auction 17
Stakeholder Comments

cc: Air Resources Council Chairman Robert Duval
PUC Chairman Amy L. Ignatius
PUC Commissioner Robert R. Scott
PUC Commissioner Michael D. Harrington

Regional Greenhouse Gas Initiative

an Initiative of the Northeast and Mid-Atlantic States of the U.S.

ABOUT THE REGIONAL GREENHOUSE GAS INITIATIVE (RGGI)

WHAT IS RGGI?

The Regional Greenhouse Gas Initiative (RGGI) is the nation's first mandatory, market-based program to reduce emissions of carbon dioxide (CO₂), the principal human-caused greenhouse gas.

The states participating in RGGI have established a regional cap on CO₂ emissions from the power sector and are requiring power plants to possess a tradable CO₂ allowance for each ton of CO₂ they emit.

WHAT DOES RGGI DO?

RGGI reduces CO₂ emissions by establishing a regional cap on the amount of CO₂ that power plants can emit through the issuance of a limited number of tradable CO₂ allowances. This approach allows market forces to determine the most economic means of reducing emissions and creates market certainty needed to drive long-term investments in clean energy.

RGGI lays the foundation for a North American carbon market.

The RGGI program has created the infrastructure for a market-based approach to regulating CO₂ emissions with strong market oversight. The RGGI emissions allowance tracking system and independent market monitor reports allow the public to view, customize and download reports of CO₂ allowance market activity and RGGI program data.

RGGI re-invests in the clean energy economy. The RGGI participating states have each chosen to auction nearly all CO₂ allowances and to invest proceeds in consumer benefit programs to build a clean energy economy. Overall, participating states are investing 63 percent of RGGI auction proceeds in programs to improve end-use energy efficiency and accelerate the deployment of renewable energy technologies. These investments reduce greenhouse gas emissions and generate important consumer benefits, including lower energy bills, greater electric system reliability, and more jobs.

RGGI provides a model for other programs to reduce CO₂ emissions. RGGI demonstrates that programs to reduce CO₂ emissions can benefit both the environment and the economy. Innovative aspects of RGGI, including allowance auctions and strategic reinvestment of auction proceeds, are influencing the development of other cap-and-trade programs, including the Western Climate Initiative (WCI) and the European Union Emissions Trading Scheme for CO₂ (EU-ETS).

RGGI QUICK FACTS

States: CT, DE, MA, MD, ME, NH, NY, RI, VT

Coverage: Fossil fuel-fired power plants 25 megawatts or greater in size (currently 168 facilities region-wide)

2012 CO₂ Emissions Cap: 165 million short tons

Timing of CO₂ Reductions: 2009-2014, cap stabilizes emissions; 2015-2018, cap declines by 2.5 percent per year for total reduction of 10 percent

CO₂ Allowance Auctions: Regional, held quarterly, open to all who qualify

Compliance Period: Three years, first compliance period January 1, 2009 – December 31, 2011; second compliance period January 1, 2012 – December 31, 2014

CO₂ Emission Offsets: Qualifying GHG reduction projects outside the electricity sector. Currently, power plants may use offsets to meet 3.3 percent of their compliance obligation (limit on use increases to 5–10 percent of compliance obligation under specified conditions)

Auction Proceeds: \$1.08 billion through September 2012. Overall, 80 percent invested in consumer benefit programs, including energy efficiency, renewable energy, direct energy bill assistance and other greenhouse gas reduction programs

WHY DO THE RGGI STATES AUCTION CO₂ ALLOWANCES?

Auctioning CO₂ allowances ensures that all parties have access to CO₂ allowances under uniform terms. At the same time, auctioning allowances, rather than distributing them for free, realizes the value of the CO₂ allowances for reinvestment in strategic energy programs that save consumers money and create jobs.

WHAT IS THE RGGI CAP?

The RGGI cap is the total number of CO₂ allowances issued by participating states, and establishes a regional budget for CO₂ emissions from the power sector. From 2012 to 2014, the RGGI cap is 165 million short tons of CO₂ per year. Beginning in 2015, the cap will decrease by 2.5 percent per year, for a total reduction of 10 percent by 2018.

WILL RGGI AFFECT RETAIL ELECTRICITY PRICES?

The cost of CO₂ emissions allowances is a very small part of overall electricity bills. On average, the cap on CO₂ emissions accounted for 0.19% to 0.55% of average residential electricity bills across the RGGI region in 2011. Based on typical household electricity usage, that translates into 43 cents per month for residential consumers. This very small increase is offset by strategic reinvestment of CO₂ allowance proceeds in energy efficiency measures which reduce demand for electricity and give households and businesses control over their energy bills.

HOW CAN MARKET PARTICIPANTS OBTAIN CO₂ ALLOWANCES?

Market participants can obtain CO₂ allowances in quarterly CO₂ allowance auctions or through various secondary markets, including the Chicago Climate Futures Exchange (CCFE) and the Green Exchange.

HOW DO POWER PLANTS COMPLY WITH RGGI?

RGGI compliance occurs in three-year control periods. At the end of each control period, each regulated power plant must submit one CO₂ allowance for each ton of CO₂ emitted over the preceding three years. The first control period began on January 1, 2009, and extended through December 31, 2011. The second control period began on January 1, 2012, and extends through December 31, 2014.

WHAT ROLE DO OFFSETS PLAY IN RGGI?

An *offset* represents project-based greenhouse gas emissions reductions or carbon sequestration achieved outside of the capped electricity sector. Offsets provide compliance flexibility for regulated power plants, and create significant environmental and economic co-benefits for offset project sponsors (such as landfill operators or farmers). RGGI participating states currently allow regulated power plants to use a carefully chosen group of qualifying offsets to meet up to 3.3 percent of their CO₂ compliance obligation. Examples of eligible offset project categories include projects that capture or destroy methane from landfills or through agricultural manure management operations. Both of these projects reduce emissions of the potent greenhouse gas methane.

To learn more about how RGGI works and how states are investing in the clean energy economy visit the RGGI website at: <http://www.rggi.org>

RGGI Inc.



**MARKET MONITOR REPORT
FOR AUCTION 17**

Prepared for:

RGGI, Inc., on behalf of the RGGI Participating States

Prepared By:

**POTOMAC
ECONOMICS**

September 7, 2012

This report was prepared by Potomac Economics (the contractor) in the course of performing work contracted for and sponsored by RGGI, Inc. on behalf of states participating in RGGI (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont). The opinions expressed in this report do not necessarily reflect those of RGGI, Inc. or any of the states participating in RGGI, and reference to any specific product, service, process, or method does not constitute an implied or expressed recommendation or endorsement of it. Further, RGGI, Inc., the states participating in RGGI, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods, or other information contained, described, disclosed, or referred to in this report. RGGI, Inc., the states participating in RGGI, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

The Regional Greenhouse Gas Initiative (RGGI) is the first mandatory market-based regulatory program in the U.S. to reduce greenhouse gas emissions. RGGI is a cooperative effort of Northeast and Mid- Atlantic states to reduce emissions of carbon dioxide (CO₂) from the power sector.

RGGI, Inc. is a non-profit corporation created to provide technical and administrative services to the states participating in the Regional Greenhouse Gas Initiative.

MARKET MONITOR REPORT FOR AUCTION 17

As the Market Monitor for the RGGI CO₂ allowance market, Potomac Economics monitors the conduct of market participants in the auctions and in the secondary market to identify indications of market manipulation or collusion. We also review the administration of the auctions by World Energy Solutions. This report summarizes our findings regarding RGGI Auction 17, which was held on September 5, 2012.

We observed the auction as it occurred and have completed our review and analysis of its results. Based on our review of bids in the auction, we find no material evidence of collusion or manipulation by bidders.

Twenty-two bidders participated in the offering of CO₂ allowances for the current control period. Bids were submitted to purchase 65 percent of the available supply of allowances, resulting in a clearing price equal to the reserve price of \$1.93 per ton. Compliance entities or their affiliates purchased 100 percent of the allowances in the offering. There was no indication of barriers to participation in the auction.

Based on our review of the administration of the market, we found that:

- The auction was administered in a fair and transparent manner in accordance with the noticed auction procedures and limitations.
- The auction results were consistent with the market rules and the bids received.
- Sensitive information was treated appropriately by the auction administrator.
- There were no indications of issues with the auction platform such as hardware or software problems, communications issues, or security breaches.

In summary, the results of our monitoring of RGGI Auction 17 raise no material concerns regarding the auction process, barriers to participation in the auction, or the competitiveness of the auction results. The appendix provides additional information about the market for RGGI CO₂ allowances and outcomes of the auction.

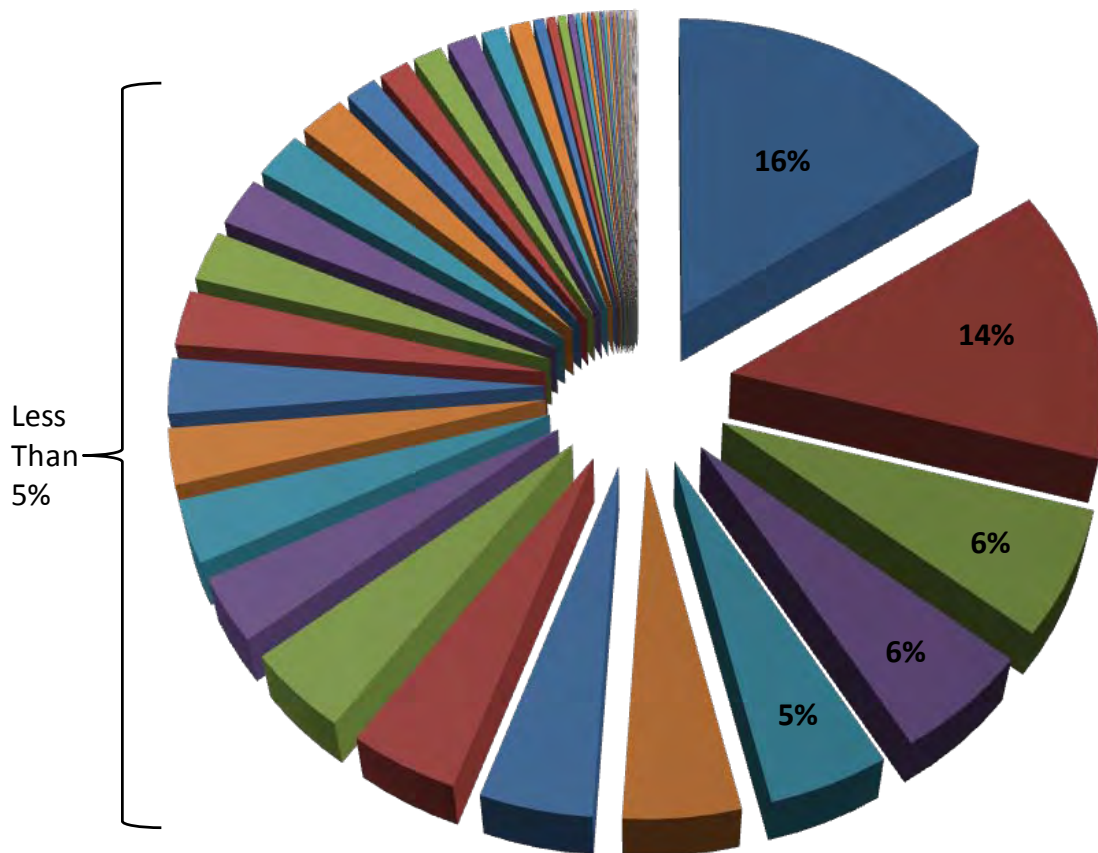
APPENDIX

A. DISPERSION OF PROJECTED DEMAND

The wide dispersion of projected demand for RGGI allowances across compliance entities facilitates the competitive performance of the auction.

The following figure shows the relative shares of projected demand for RGGI allowances by compliance entity in the current control period. The largest compliance entity represents only 16 percent of the total projected demand for allowances. More than half of the projected demand is composed of entities that each account for less than 5 percent of the total demand. Participation by a large number of entities facilitates the competitive performance of the auction.

Figure 1: Projected Demand for RGGI Allowances Shares by Compliance Entity



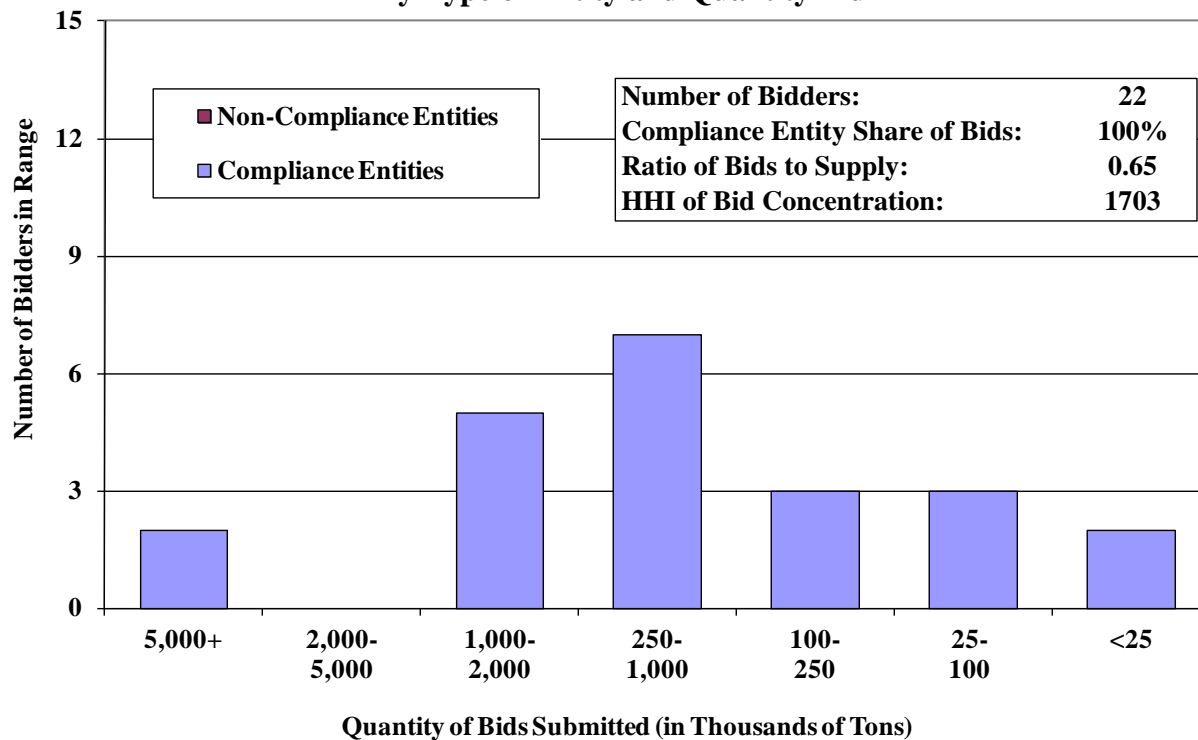
B. DISPERSION OF BIDS IN AUCTION 17

In the offering of allowances for the current control period, bids were submitted by 22 compliance entities and no non-compliance entities. In our review of the bids and the qualification process, we found no material evidence of anti-competitive conduct or significant barriers to participation.

The following figure summarizes the quantity of allowances for which bids were submitted by each bidder. Two compliance entities submitted bids for a large quantity of allowances (e.g., at least 5 million tons). Overall, compliance entities accounted for 100 percent of the quantity of allowances for which bids were submitted. The quantity of allowances for which bids were submitted increased to 0.65 times the available supply in Auction 17 from 0.57 times the available supply in Auction 16 and 0.62 times the available supply in Auction 15.

The bid quantities were widely distributed among the 22 bidders. The concentration of bids, using the Herfindahl-Hirschman Index (“HHI”), fell from 2046 in Auction 16 to 1703 in Auction 17. The HHI is a standard measure of concentration calculated by squaring each entity’s share and then summing the squares across all entities (hence, the index ranges from 0 to 10,000).

**Figure 2: Quantity of Bids Submitted by Entity
By Type of Entity and Quantity Bid**



C. SUMMARY OF PURCHASES OF ALLOWANCES IN AUCTION 17

In the offering of allowances for the current control period, awards were distributed across 22 bidders with two bidders purchasing two million tons or more and 14 bidders purchasing 250,000 tons or more. Compliance entities or their affiliates purchased 100 percent of the allowances in the auction.

The share of allowances purchased and several other quantities are reported for two types of entities:

- *Compliance Entities:* This includes all compliance entities and their affiliates. In this report, affiliated firms are firms that: (i) have a parent-subsidary relationship with a compliance entity, (ii) are subsidiaries of a parent company that has a large interest in a compliance entity, (iii) have substantial control over the operation of a budget source and/or responsibility for acquiring RGGI allowances to satisfy its compliance obligations.
- *Non-Compliance Entities:* Other firms.

The following statistics summarize the purchases and holdings of allowances by compliance entities and their affiliates under the RGGI program:

- In Auction 17, compliance entities and their affiliates purchased 100 percent of the allowances sold.
- In the first seventeen RGGI auctions, compliance entities and their affiliates purchased 88 percent of the allowances sold.
- Compliance entities and their affiliates will hold 92 percent of the allowances in circulation following the settlement of allowances sold in Auction 17.

The following table shows the quantity of allowances purchased by each bidder. The identity of each bidder is masked, and the bidders are ranked according to the amount of allowances awarded, from largest to smallest.

Table 1: Quantity of Allowances Awarded by Bidder

Bidder	Number of Allowances Awarded
Bidder 1	8,000,000
Bidder 2	5,128,000
Bidder 3	1,900,000
Bidder 4	1,615,000
Bidder 5	1,350,000
Bidder 6	1,085,000
Bidder 7	1,000,000
Bidder 8	850,000
Bidder 9	800,000
Bidder 10	550,000
Bidder 11	500,000
Bidder 12	450,000
Bidder 13	397,000
Bidder 14	273,000
Bidder 15	190,000
Bidder 16	173,000
Bidder 17	120,000
Bidder 18	97,000
Bidder 19	40,000
Bidder 20	31,000
Bidder 21	20,000
Bidder 22	20,000

D. SUMMARY OF BID PRICES IN AUCTION 17

The distribution of bid prices submitted in the auction indicates that the demand for allowances was relatively elastic, which is a signal that the results were competitive.

The following table reports several statistics regarding the bid prices for bids submitted in Auction 17. The median and mean bid prices are weighted by the quantity of each bid.

Bid Prices:	
Minimum	\$1.93
Maximum	\$6.51
Average (Median)	\$1.95
Average (Mean)	\$2.02
Clearing Price:	\$1.93

E. NAMES OF POTENTIAL BIDDERS IN AUCTION 17

In accordance with Sections 2.8 and 3 of the Auction Notice for CO₂ Allowance Auction 17 on September 5, 2012, the Participating States are releasing the names of Potential Bidders in Auction 17. The states defined potential bidders as: “Each Applicant that has been qualified and submitted a complete *Intent to Bid*.” The list of 29 Potential Bidders is as follows:

Astoria Energy, LLC	Indeck Energy Serv. of Silver Springs
Berkshire Power Company, LLC	Indeck-Corinth Limited Partnership
Brooklyn Navy Yard Cogen Partners, LP	Indeck-Yerkes Limited Partnership
Caithness Long Island, LLC	IPR-GDF SUEZ Energy Marketing NA, Inc.
Calpine Energy Services, LP	J-Power USA Development Co., Ltd.
Castleton Power, LLC	Kleen Energy Systems, LLC
Consolidated Edison Comp. of NY, Inc.	Millennium Power Partners, LP
Constellation Energy Commodities Group	National Grid Gen. dba National Grid
Dominion Energy Marketing, Inc.	New Athens Generating Company, LLC
EDF Trading North America, LLC	Power Authority of the State of New York
Empire Generating Co., LLC	Public Service Company of New Hampshire
EquiPower Resources	RBC
Essential Power, LLC	Selkirk Cogen Partners, LP
GenOn Energy Management, LLC	Verso Paper Corp.
Granite Ridge Energy, LLC	

Summary of NH Stakeholders Comments on Regional Greenhouse Gas Initiative (RGGI) 2012 Program Review

Commenter	Comment
Concerned Citizen Weare, NH	climate change already happening in NH future changes will be more damaging and harder to adjust to work together to continue to reduce CO2 (lower cap)
The Jordan Institute	<p>The current cap on emissions was set too high. Due to this excess of allowances, the price fell to and remains at the floor As a result, we have not made as great a reduction in emissions as would have been possible with a more realistic initial allocation Therefore, we recommend that the region-wide allocation be reduced significantly We congratulate NH on its original program setting up a competitive request-for-proposal process which operated outside of traditional utility-run programs Most impressive about these programs was that they leveraged private dollars A fuels-blind approach resulted in greater savings Strong customer participation; served a larger constituency cost effectively While directing auction proceeds above \$1 to be returned to ratepayers sounds like a solution to some, we understand it to be a lost opportunity Energy consumption has remained flat or declined It is hard to understand why the NH Legislature felt that utility players would be more effective at reducing the size of ratepayers' bills at a time when further reductions in sales would hurt shareholders' returns</p> <p>Recommendations:</p> <p style="padding-left: 40px;">All recipients of funding should exhibit greater transparency in their overhead costs, administrative costs, and implementation costs The cost-benefit algorithm used by both the electric and gas utilities should be made available Once the algorithm has become transparent to sophisticated users, there should be a process whereby potentially erroneous rebate decisions can be appealed We strongly encourage a fuels-blind approach Future funding and rebates should be outcome based, not technology specific Significantly reduce the amount of fossil fuel used to avoid sending billions of dollars out of state every year Many of these dollars leave the country and pose a significant national security risk</p>
Enviro Orgs CLF	<p>see joint comments submitted to RGGI, Inc.</p> <ol style="list-style-type: none"> 1) Adjust the cap to ensure that it reduces emissions 20% below current levels by 2020 and is on track to reduce emissions by at least 80% by 2050 2) Ensure that the revenues from the RGGI program are invested in energy efficiency and renewable energy programs that will save energy, lower costs, create local jobs and reduce pollution; and 3) Prevent loopholes that will undermine the effectiveness of the program in achieving its emission reduction targets. <p>Where changes require legislative action, it is incumbent upon the Department and the Commission to work with the Legislature and the Governor to enact revisions to . the enabling legislation that will optimize program performance and ensure that the emission reduction goals of the program are achieved in New Hampshire and region-wide</p> <p>Complete the transition required by House Bill 1490, consistent with CLF's August 17, 2012 comments filed in the Commission's docket on the 2011-2012 CORE Energy Efficiency Programs (DE 10-188) Specifically, the parties should work together to identify additional creative and innovative energy efficiency programs, including existing non-CORE programs, that satisfy the statutory requirements for funding with revenues from the Systems Benefit Charge and could be effectively funded as CORE programs with the benefit of RGGI auction proceeds.</p>
Environment Northeast	<p>In order to take advantage of the emissions decline, policy makers must account for structural changes in the regional electric sector, specifically the decrease in the relative price of natural gas in relation to other fuels, the increase in non-emitting generation, and increased investments in energy efficiency These structural changes show no sign of reversing in the near term, and states should adjust the regional emissions cap and retire unsold allowances to reflect new realities in the power sector and maintain RGGI's effectiveness. Investing RGGI auction proceeds in energy efficiency is the most cost-effective means to reducing GHG emissions and provides the highest level of consumer benefits. RGGI-funded investments in energy efficiency reduce energy demand, thus bringing down power plant emissions and the price of RGGI emissions allowances The decision in HB 1490 to return a greater portion of revenue to rebates and curtail energy efficiency programs will deprive New Hampshire ratepayers of the consumer benefits associated with expanding energy efficiency programs. The New Hampshire economy and New Hampshire ratepayers would be well-served by a reconsideration of the benefits of investing in energy efficiency. The voluntary clean energy set aside supports renewable energy by accounting for emissions reductions attributable to voluntary purchases of renewable energy by consumers</p>