



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Rhode Island Renewable Energy Standard

Annual RES Compliance Report for Compliance Year 2015

June 2017

Rhode Island Public Utilities Commission

89 Jefferson Boulevard

Warwick, Rhode Island 02888

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Rhode Island Renewable Energy Standard

Annual Compliance Report for Compliance Year 2015

Executive Summary

Introduction

Compliance Year 2015, from January 1, 2015 through December 31, 2015, was the ninth compliance year of the Rhode Island Renewable Energy Standard (RES).^{E1} Under R.I. Gen. Laws § 39-26-6, the Rhode Island Public Utilities Commission (PUC) is charged with implementing the RES and ensuring compliance by Obligated Entities.^{E2} In 2015, each Obligated Entity was required to obtain at least 8.5% of electrical energy (including line losses) sold to Rhode Island end-use customers from Eligible Renewable Energy Resources, with no less than 6.5% of that obligation sourced from New Renewable Energy Resources.

This ninth Annual RES Compliance Report is intended to satisfy the requirement in R.I. Gen. Laws § 39-26-6(f) to report “the status of the implementation of the renewable energy standards in Rhode Island and other states.” The legislation specifically requests a summary of the role of renewable energy certificates (RECs) and alternative compliance payments (ACPs) in meeting the RES obligation, as well as the amount of rate increases authorized to recover costs arising from implementation of the RES. New this year, this report includes information about continuing and developing issues regarding the administration of the RES.

2015 RES Obligation and Compliance

The State’s 2015 RES-obligated retail sales totaled 8,018,905 megawatt-hours (MWh) of electrical energy.^{E3} As shown in Table E.1 below, the total minimum obligation to be satisfied by New Renewable Energy Resources was 521,243 MWh (6.5% of each Obligated Entity’s retail sales).^{E4} The obligation to be satisfied by either Existing or New Renewable Energy Resources was 160,392 MWh (2.0% of each Obligated Entity’s retail sales). Almost all (99.8%) of the combined new and existing resource obligation was met through retirement of Rhode Island-eligible NEPOOL GIS Certificates, also referred to more generally as RECs,^{E5} with most of the remaining balance due to one Obligated Entity failing to comply with an outstanding obligation of 1,022 MWh,^{E6} and the remaining balance met through ACPs. This marks the third year in a row that a non-regulated power producer under bankruptcy protection failed to comply with its renewable energy obligation. Thus, for the third year in a row, the Rhode Island RES was not met.

The total number of New RECs procured by Obligated Entities in 2015 was 559,665. This represents a 7.4% surplus of New RECs across all Obligated Entities, up significantly from the 2.2% and 4.2% surpluses in

^{E1} Renewable Energy Certificates (RECs) are generated during a compliance year in real time, but trading runs from July through June. Thus, trading and compliance for Compliance Year 2015 runs from July 2015 through June 2016.

^{E2} Per R.I. Gen. Laws § 39-26-2, Obligated Entities including, but not limited to non-regulated power producers and electric utility distribution companies, sell electrical energy to end-use customers in Rhode Island. Block Island Power Company and Pascoag Utility District are specifically exempt.

^{E3} An individual Obligated Entity’s load obligation is rounded to the nearest whole megawatt-hour (MWh).

^{E4} An individual Obligated Entity’s New and Existing obligation is rounded up to the nearest whole MWh.

^{E5} NEPOOL GIS refers to the New England Power Pool Generation Information System, which as explained on its website, “issues and tracks certificates for each MWh of generation produced in the ISO New England control area, including imports from adjacent control areas, and all load served.” The terms “GIS Certificate” and “Renewable Energy Certificate,” or “REC,” are often used interchangeably in the marketplace. REC is a more general term, while it is the settlement of GIS Certificates that substantiates RES compliance.

^{E6} On July 30, 2014, Glacial Energy of New England indicated in its RES compliance filing to the PUC that it had filed for Chapter 11 bankruptcy protection effective April 11, 2014. In September 2015, the PUC began procedures for non-compliance described in Section 9 of the RES rules. Before completely selling its assets and ending its operations in Rhode Island, the company served load in Q1 of Compliance Year 2015, but did not submit a compliance report or meet its RES obligation for that load.

Table E.1: Composition of 2015 REC Compliance

	New RES Obligation	Existing RES Obligation
2015 Minimum Obligations (MWh) ^a	521,243 MWh	160,392 MWh
GIS Certificates Retired for 2015 RI RES Compliance (MWh, %)	520,444 MWh, (99.85%) ^b	160,142 MWh, (99.8%)
RI RES Compliance by Alternative Compliance Payments (MWh, \$)	18 MWh, \$1,207	9 MWh, \$604
Banked for Future Compliance	39,184 Certificates	Not Applicable
Over-compliance / RECs Not Banked	0	25,330 Certificates
Outstanding REC / ACP obligation (#, \$)	781 Certificates \$52,382	241 Certificates \$16,164
a. See footnote E3 of the text.		
b. This value includes the application of 24,839 banked RECs from Compliance Years 2013 and 2014 the application of RECs minted in 2015.		

Compliance Years 2013 and 2014, respectively. Due to this surplus, Obligated Entities banked 39,184 RECs for use in Compliance Years 2016 or 2017. This record-setting banking total was more than double the amount of banked in any other year. This surplus in New RECs reflects a sustained increase in regional renewable energy supply through the construction of additional capacity and the retrofitting of existing resources throughout the NEPOOL region, as well as a significant increase in the quantity of RES-eligible imports during this period.

Nearly 100% of the State’s 2015 Existing RES obligation was met through retiring RECs. Cumulatively, Obligated Entities combined to procure a net excess of 25,330 RECs above the 2015 Existing REC requirement. Banking of Existing RECs is not allowed under Rhode Island’s Renewable Energy Standard.

Taken as a whole, there was a New and Existing REC surplus among Obligated Entities. Taken individually, only three Obligated Entities chose to comply, partially, by making ACPs totaling only \$1,811 in lieu of retiring 18 New and 9 Existing RECs.^{E7} Disregarding the value of non-compliance caused by Glacial Energy of New England, described above, the value of ACPs paid in Compliance Year 2015 is the second lowest in RES history. Meanwhile eighteen Obligated Entities were able to bank excess New RECs minted in Compliance

Year 2015. This increased reliance on RECs and banking—and decreased reliance on ACPs—by individual entities is further evidence that the 2015 NEPOOL GIS REC market supply was less constrained than in previous compliance years.

2015 REC Resources

Most of the New RECs settled in 2015 were generated at facilities fueled by landfill gas (45.3%), followed by biomass (33.9%), hydro (8.6%), wind (7.7), solar photovoltaic (3.7%), and digester gas (0.8%).^{E8} This represents a sustained reliance on landfill gas with a slight resurgence in reliance on biomass (Figure E.1). There was also a notable decrease in reliance on wind, with moderate but steady increases in reliance on hydro and solar photovoltaic resources. In terms of location, most of the New RECs settled in 2014 were sourced from Rhode Island (43.1%), holding steady compared to 2014 (Figure E.2), with the rest coming from New Hampshire (24.9%); Maine (16.3%); New York imports (9.0%); Vermont (4.9%); Massachusetts (1.3%); and Connecticut (0.1%).

As in all previous compliance years, all of the Existing RECs were generated at hydro facilities. This year the hydro facilities were located in Maine, Massachusetts, New Hampshire, and Vermont.^{E9} Finally, twenty-two projects were approved as Renewable Energy Resources by the PUC since last year’s Annual Report.

^{E7} In Compliance Year 2015, ACPs in lieu of both New and Existing RECs are valued at \$67.07 per MWh.

^{E8} Not all of the RECs purchased, minted, and settled in Compliance Year 2014 were used to meet Compliance Year 2014 obligations. Some RECs were banked for use in Compliance Years 2015 and 2016. Additionally, this summary excludes voluntary REC purchases above and beyond the RES. Voluntary clean energy programs are summarized in Appendix 6 of this Report.

^{E9} Additional information on the composition of 2014 RES compliance by fuel type and geographic location is provided in Section III of this report.

The current total is 186 resources approved or conditionally approved as New, Existing, or partial New and partial Existing.^{E10}

2015 Customer Charges

The Narragansett Electric Company d/b/a National Grid (National Grid) is the only Obligated Entity for

which the PUC collects data on the charges to ratepayers for complying with the RES.^{E11} Early in a calendar year, National Grid proposes a RES charge designed to collect the costs of compliance during the upcoming compliance year, outstanding costs for the remainder of the current compliance year, and to true

Figure E.1: Historical New RECs by Fuel Source

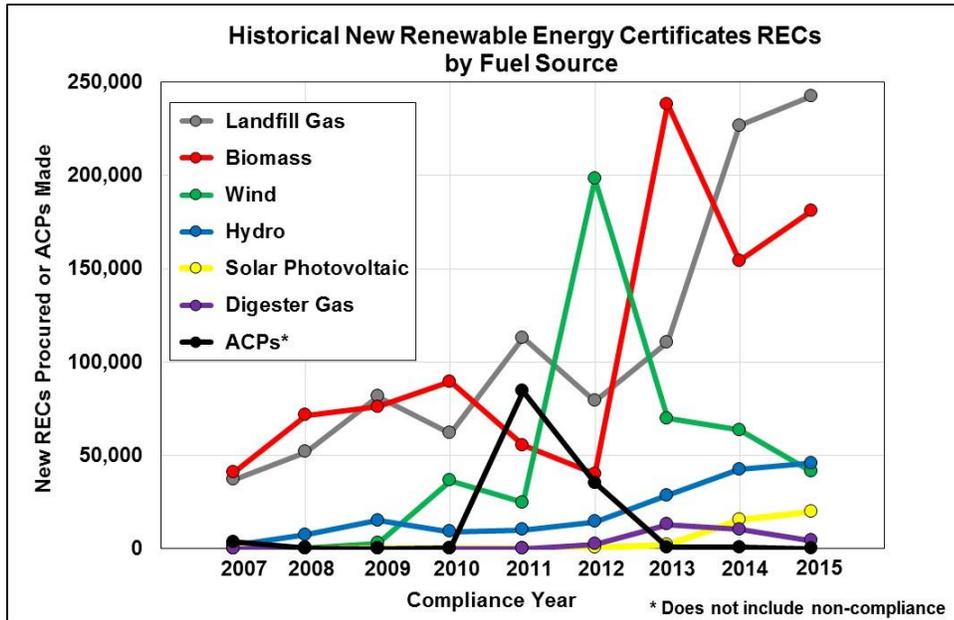
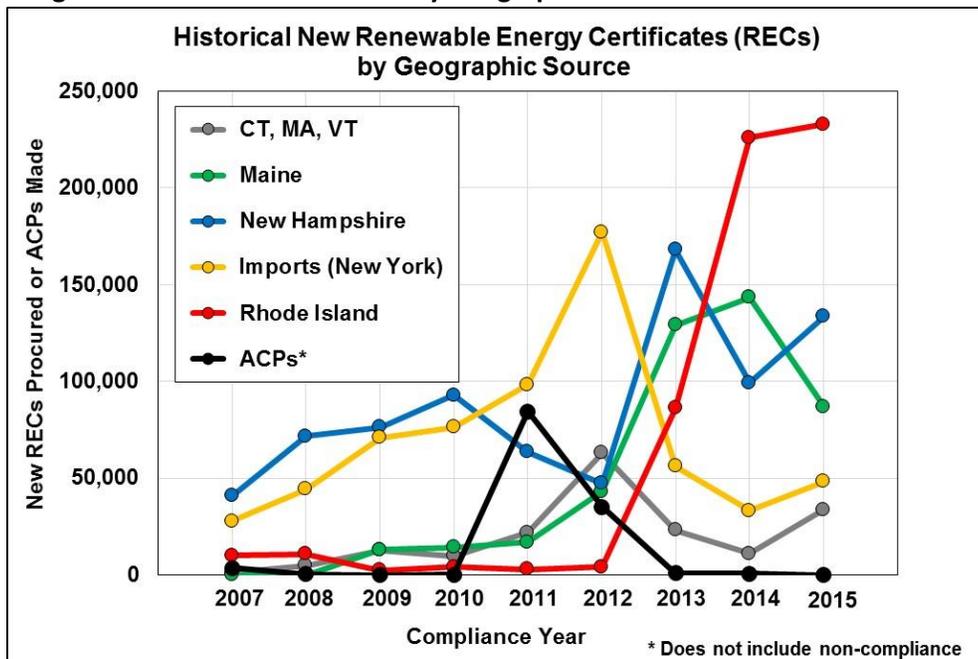


Figure E.2: Historical New RECs by Geographic Source



^{E10} A monthly status report on RES approvals and applications can be accessed here: <http://www.ripuc.org/utilityinfo/res.html>.

^{E11} The complete history of RES charges to National Grid’s Standard Offer Service customers is provided below in Table 4.

up any outstanding cumulative under- or over-collection made during previous compliance years.^{E12}

The charge of \$0.00294 per kilowatt-hour (kWh), effective April 1, 2015 through March 31, 2016, comprises a \$0.00366 per kWh factor for projected costs for Compliance Year 2015 and a negative \$0.00072 reconciliation factor for a cumulative over-collection of costs for previous years, including costs for Compliance Year 2014 (See the yellow row in Table E.2; Figure E.3). This charge represents an

approximately 39% decrease in the RES charge authorized in 2014.

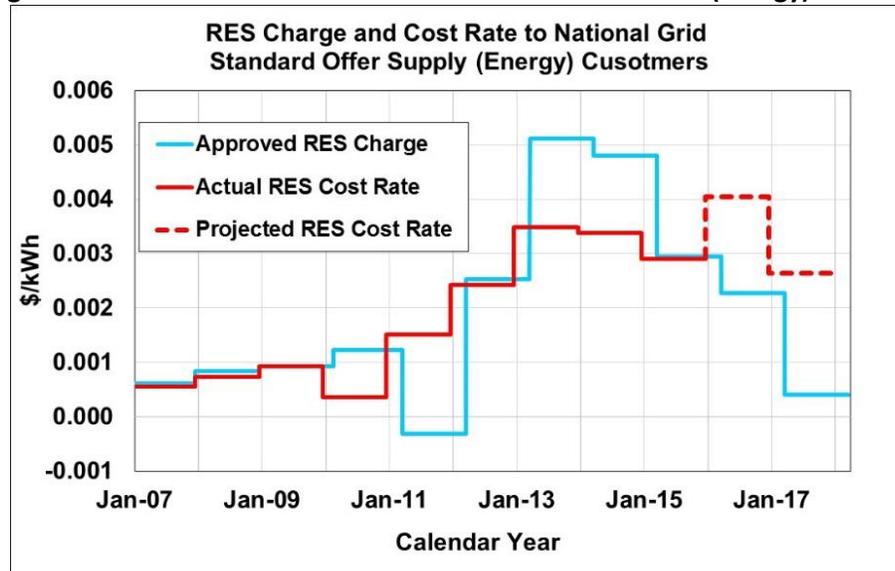
While this report focuses on Compliance Year 2015, it should be noted that in April 2016, the RES charge was reduced again to \$0.00228 per kWh. The slight decrease reflects a large over-collection factor that offset the projected increase in New REC compliance in 2016. In March of 2017, the PUC voted to approve National Grid’s proposal to decrease the RES charge, to \$0.00040 per kWh, for effect on April 1, 2017.^{E13}

Table E.2: Estimated Rate Impact for RES Compliance to Standard Offer Service Customers

Effective Date	Projected REC Procurement Cost (per kWh) ^a	Adder for previous and current costs (per kWh)	Authorized RES Charge (per kWh)	Monthly/ Annual Charge to 500-kWh Ratepayer
April 2017 – Report Date ^b	\$0.00264	(\$0.00224)	\$0.00040	\$0.20/\$2.40
April 2016 – March 2017	\$0.00405	(\$0.00177)	\$0.00228	\$1.14/\$13.68
April 2015 – March 2016	\$0.00366	(\$0.00072)	\$0.00294	\$1.47/\$17.64
April 2014 – March 2015	\$0.00430	\$0.00050	\$0.00480	\$2.40/\$28.80
April 2013 – March 2014	\$0.00371	\$0.00141	\$0.00512	\$2.56 / \$30.72

^a The projected REC procurement cost is for current year costs. The projected compliance rate for Compliance Year 2015 was \$0.00366/kWh, and was collected from April 2015 through March 2016.
^b Approved by PUC vote with written order pending. See also [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

Figure E.3: RES Charges and Cost Rate to National Grid Standard Offer Service (Energy) Customers



^{E12} National Grid typically files for rate change to the Renewable Energy Charge in late winter for effect on April 1st. Therefore the timing of changes in the RES charge occurs three months into the Compliance Year, and three months before the REC trading year turns over. For the 2015 example, see here: http://www.ripuc.org/eventsactions/docket/4490-NGrid-RES-Reconciliation_2-23-15.pdf.

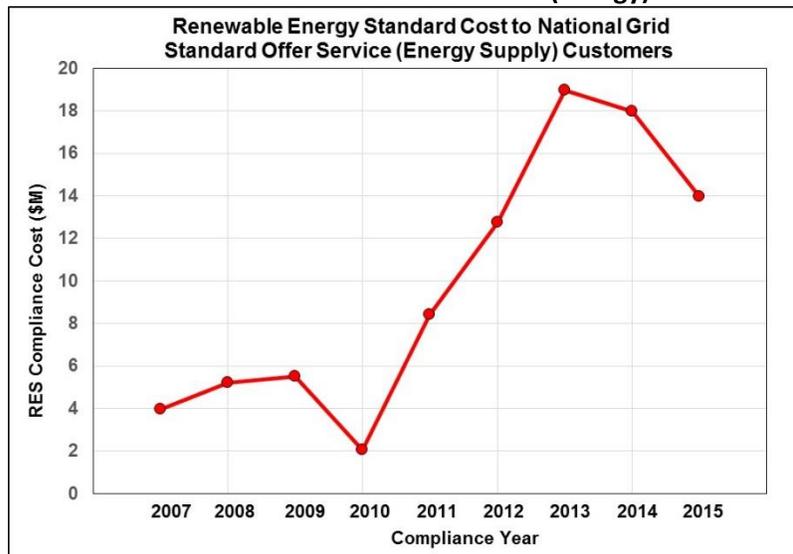
^{E13} National Grid 2017 Renewable Energy Standard Charge and Reconciliation, Attachment 1, [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

Table E.3: Summary of National Grid's 2015 REC Compliance Costs^a

Compliance Year	Total RES Costs (Millions)	New REC Costs (Millions)	Existing REC Costs (Millions)	ACP Costs (Millions)	Obligated Load (MWh)
2015	\$13.96	\$13.80	\$0.08	N/A	4,773,192
2014	\$17.95	\$17.93	\$0.07	N/A	5,317,349
2013	\$18.96	\$18.90	\$0.06	N/A	5,541,409
2012	\$12.8	\$12.75	\$0.05	N/A	5,272,388

^a New and Existing REC costs are based communications with National Grid employees. Summation of these costs may not match the reported total costs, which were based on National Grid filings cited in footnote 15 of the text.

Figure E.4: Compliance Costs to National Grid Standard Offer Service (Energy) Customers



2015 Compliance Costs

National Grid is also the only Obligated Entity for which the PUC collects cost-of-compliance data.^{E14} In order to meet its 2015 New and Existing RES obligations, National Grid incurred \$13.96 million in compliance costs (Table E.3; Figure E.4).^{E15} This is a decrease of approximately 22% from the cost incurred to comply with 2014 RES targets (\$17.95 million). Approximately \$11.38 million (82%) of that expense was for purchases of RECs generated by projects in National Grid’s Long-term Contracting programs.^{E16} This decrease of compliance cost to National Grid may reflect an increasing supply in Rhode Island-eligible RECs, which was also described above in relation to a surplus in

New RECs retired by Obligated Entities and a low reliance on ACPs in Compliance Year 2014. The current cost rate of the RES obligation to National Grid’s Standard Offer Service energy customers (Total RES Costs divided by Obligated Load) was approximately 0.00291 \$/kWh in Compliance Year 2015, down slightly from the previous two years (Figure E.3). National Grid originally projected the cost rate to increase in Compliance Year 2016 to 0.00405 \$/kWh, as illustrated by the first dashed segment of the cost rate line in Figure E.3. The company has since filed information that indicates that projection is too high,^{E17} and now

^{E14} The complete history of RES cost to National Grid’s Standard Offer Service customers is provided below in Table 5.

^{E15} Total RES cost is based on data found in National Grid’s 2015 Renewable Energy Standard Charge and Reconciliation filing and the Q3 Reconciliation Report (see http://www.ripuc.org/eventsactions/docket/4556-NGrid-RESFiling-2016_2-24-16.pdf and http://www.ripuc.org/eventsactions/docket/4556-NGrid-SOS-Reconcile-Q3-2016_10-31-16.pdf), and may not equal the sum of New REC and Existing REC costs, which are based on communications with National Grid

^{E16} R.I. Gen. Laws § 39-26.1 and § 39-26.2.

^{E17} See [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf)

projects the cost rate to decrease to 0.00264 \$/kWh in Compliance Year 2017.

It must be noted that this data only represents expenses incurred by Standard Offer Service customers of National Grid, accounting for approximately 59.5% of all retail energy served statewide in 2015. The remaining 40.5% of statewide electric load is serviced by competitive suppliers for whom the PUC does not have access to compliance cost data. A REC surplus would potentially lower compliance costs to other Obligated Entities. It should also be noted that National Grid passes unpredicted savings and expenses resulting from changes in the REC market onto Standard Offer Service customers and distribution customers. Other Obligated Entities (non-regulated competitive energy suppliers) may pass some of the REC market risk to their company's profits and losses rather than pass it onto their customers dollar-for-dollar. Finally, in addition to the costs enumerated above, the Commission incurred approximately \$79,000 in expenses related solely to the administration of the RES for Compliance Year 2015.

2015 Conclusions

This analysis concludes that the Rhode Island RES continues to operate successfully. One caveat to this conclusion is that, for three years in a row, a non-regulated power producer (i.e., a competitive supplier) failed to comply with its RES obligation, and caused the State to miss its full RES target. The cost of the RES has certainly decreased for National Grid Standard Offer Service customers and also likely decreased for customers of competitive suppliers. There is some evidence that compliance costs will not increase and potentially decrease in the short term due to a surplus of RECs in Rhode Island, but regional demand for renewable energy could counter this potential.

The number of Rhode Island-eligible generating units continues to grow, including facilities located within the State, as does the number of new renewable energy projects proposed throughout the region and adjacent control areas. The PUC remains optimistic that the supply of Rhode Island-eligible New RECs will continue to grow and that Obligated Entities will be able to source RECs in a balanced marketplace over the next few years, with sustained and minor reliance on ACPs. Economic conditions, various permitting and interconnection issues, uncertainty over the long-term

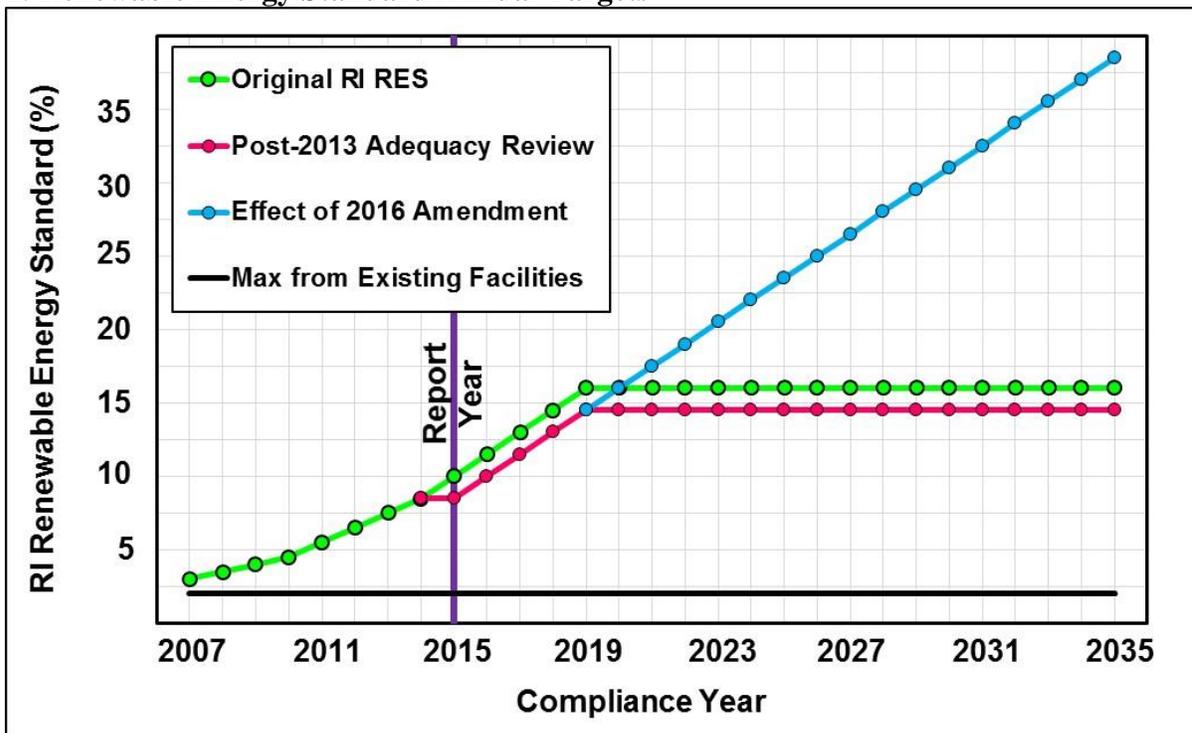
availability of federal incentives, availability of long-term contracting for renewable projects, and other factors that impact investment decisions, however, all have the potential to delay the large pipeline of projects currently under development. As a result, it is difficult to predict in which years supply will balance with demand, and in which years a gap between the two will exist.

I. Introduction to the Renewable Energy Standard

The Rhode Island Renewable Energy Standard (RES) was enacted in 2004 via R.I. Gen. Laws §§ 39-26-1 to 10 and requires the State’s retail electricity providers (referred to as Obligated Entities), excluding Pascoag Utility District and Block Island Power Company, to supply a defined proportion of their annual retail electricity sales from Eligible Renewable Energy Resources. The Rhode Island Public Utilities Commission (PUC) is the state agency that regulates and administers the RES. The PUC is required to report annually on the RES, as is provided in this document.

Legislative and regulatory actions have altered the annual RES targets since its original passage in 2004 (Figure 1). The original RES target was 16% renewable energy by 2019, remaining in effect thereafter, unless and until the PUC determined that the standard was no longer necessary.² Subsequently, in 2013, the PUC conducted a statutory review of the adequacy of renewable energy supplies and, as a result of that investigation, ordered a delay in the 1.5% increase in Compliance Year 2015. This decision resulted in a revised final target of 14.5% renewable energy.³ In 2016, the RES statute was amended to require annual increases of 1.5%, to continue from 2020 through 2035, resulting in a final target of 38.5% renewable energy.⁴

Figure 1. Renewable Energy Standard Annual Targets



² P.L. 2016, ch. 144, § 1 and P.L. 2016, ch. 155, § 1 deleted R.I. Gen. Laws § 39-26-4(a)(5), which previously provided, “In 2020 and each year thereafter, the minimum renewable energy standard established in 2019 shall be maintained unless the commission shall determine that such maintenance is no longer necessary for either amortization of investments in new renewable energy resources or for maintaining targets and objectives for renewable energy.” For P.L. 2016, ch. 155, § 1, *see here*: <http://webserver.rilin.state.ri.us/PublicLaws/law16/law16155.htm>.

³ This review was mandated by R.I. Gen. Laws § 39-26-6(d). This section of the law was amended by P.L. 2016, ch. 144, § 1 and P.L. 2016, ch. 155, § 1. *See also* footnote 1.

⁴ R.I. Gen. Laws §§ 39-26-1 to 10, as amended, does not explicitly maintain an RES proportion in 2036 and thereafter. *See also* footnote 24.

Compliance Year 2015 was the ninth compliance year for Rhode Island's RES.⁵ The RES required all Obligated Entities to obtain at least 8.5% of electricity sold in 2015 to Rhode Island end-use customers (inclusive of losses) from Eligible Renewable Energy Resources. No more than 2.0% could be from Existing Renewable Energy Resources and a minimum of 6.5% must have been obtained from New Renewable Energy Resources (Table A5 in Appendix 5).

Additional design elements of the RES were developed through a stakeholder process and adopted via the Rules and Regulations Governing the Implementation of a Renewable Energy Standard, which first became effective on December 7, 2005. Revised RES Regulations became effective on July 25, 2007. The RES Regulations require, among other provisions, that all Obligated Entities submit annual compliance filings to the PUC. This report is based on an aggregated summary of these compliance filings and is intended to satisfy the reporting requirements related to the enabling legislation at §39-26-6(f), which directs the PUC to report:

to the governor, the speaker of the house and the president of the senate on the status of the implementation of the renewable energy standards in Rhode Island and other states, and which report shall include in 2009, and each year thereafter, the level of use of renewable energy certificates by eligible renewable energy resources and the portion of renewable energy standards met through alternative compliance payment.

The RES statute defines eligible New and Existing Renewable Energy Resources at §39-26-5. All Renewable Energy Resources must be certified by the PUC (and the certification maintained) in order to participate in the RES program. Lists of New and Existing Renewable Energy Resources currently certified by the PUC are provided as Appendices 1 and 2, respectively. An up-to-date status of all approved and pending eligibility applications can be found on the PUC website at www.ripuc.org/utilityinfo/res.html.

All Renewable Energy Resources must also establish and maintain an account with the New England Power Pool Generation Information System (NEPOOL GIS). NEPOOL GIS maintains a record of each generator's monthly production, as well as the generator's descriptive characteristics such as generator location, fuel type, and actual emissions. One GIS Certificate is created for each megawatt-hour (MWh) of electrical energy production generated within, or imported into, the ISO New England (ISO-NE) control area, which encompasses Rhode Island. A single GIS Certificate for one MWh of eligible renewable energy generation is also commonly known as a Renewable Energy Certificate (REC).⁶ The GIS Certificate is the currency used to demonstrate compliance with the RES, as well as mandatory renewable energy requirements in other states, and voluntary renewable energy transactions throughout the ISO-NE control area. Through the use of GIS Certificates, which are created and transferred exclusively within the NEPOOL GIS, and the annual submission of RES compliance reports, the PUC ensures that a GIS Certificate used for RES compliance has not also been used to satisfy another obligation in Rhode Island or any other jurisdiction. In this way, the PUC guards against any "double counting" of RECs.

⁵ January 1, 2015 through December 31, 2015.

⁶ As explained on its website, NEPOOL GIS "issues and tracks certificates for each megawatt-hour (MWh) of generation produced in the ISO New England control area, including imports from adjacent control areas, and all load served." The terms "GIS Certificate" and "Renewable Energy Certificate," or "REC," are often used interchangeably in the marketplace. While REC is the more general term used to denote a generator's descriptive characteristics (i.e. fuel type, vintage and geographic location) it is the settlement of GIS Certificates within the Obligated Entity's NEPOOL GIS account that substantiates RES compliance.

II. Compliance Year 2015: Obligation and Sources of Compliance

Rhode Island’s actual 2015 RES-obligated retail sales totaled 8,018,905 MWh of electrical energy. As a result, the aggregate minimum New RES obligation (6.5%) was 521,243 MWh, while the aggregate New or Existing RES obligation (2.0%) was 160,392 MWh.⁷ Obligated Entities were required to meet the RES either through the purchase and retirement of NEPOOL GIS Renewable Energy Certificates (RECs)⁸ or through the provision of Alternative Compliance Credits, obtained by making Alternative Compliance Payments (ACPs) to the Rhode Island Commerce Corporation. The Rhode Island Commerce Corporation sets these funds aside in the Renewable Energy Development Fund, established under R.I. Gen. Laws § 39-26-7, to support investments in renewable energy. In 2015, the ACP rate was \$67.07 per MWh of obligation.⁹ The rate is the same for both New and Existing RES obligations. Additional information regarding ACP rates is found in Appendix 1.

Table 1: Obligated Entities Submitting 2015 REC Compliance Filings to the PUC

Distribution Utilities	
The Narragansett Electric Company d/b/a National Grid	
Competitive Retail Providers (Non-regulated power producers)	
Agera Energy, LLC	Gulf Oil Limited Partnership
Ambit Northeast, LLC	Liberty Power Holdings, LLC
Clearview (South Jersey Energy)	Mint Energy, LLC
Consolidated Edison Solutions, Inc.	Moore Energy, LLC
Constellation New Energy, Inc.	Noble Americas Gas and Power Corp.
Constellation Energy Services, Inc.	North American Power and Gas (BP Energy Company)
Devonshire Energy, LLC	South Jersey Energy Company (Halifax America Operating Co. and Emera Energy)
Direct Energy Business, LLC	Town Square Energy, LLC
Direct Energy Business Marketing (Hess Energy Marketing)	TransCanada Power Marketing, LLC
First Point Power (BP Energy Company)	Veridian Energy, LLC
Gexa Energy, LLC (NextEra Energy Services Rhode Island, LLC)	Westerly Hospital Energy Company LLC
Glacial Energy of New England, Inc.*	XOOM Energy, LLC

* Glacial Energy is known to have served retail load in 2015, but did not submit a compliance filing as required.

In total, twenty-five entities were obligated to submit RES Compliance Filings to the PUC including National Grid and twenty-four competitive retail energy providers, as shown in Table 1. Notably, one entity, Glacial

⁷ Note that the total New and Existing RES obligations are slightly higher than 6.5% and 2.0% of total obligated retail sales due to rounding protocols for individual Obligated Entities.

⁸ As explained on its website, NEPOOL GIS “issues and tracks certificates for each MWh of generation produced in the ISO New England control area, including imports from adjacent control areas, and all load served.” The terms “GIS Certificate” and “Renewable Energy Certificate,” or “REC,” are often used interchangeably in the marketplace. While REC is the more general term used to denote a generator’s descriptive characteristics (i.e. fuel type, vintage and geographic location) it is the settlement of GIS Certificates within the Obligated Entity’s NEPOOL GIS account that substantiates RES compliance. RECs are issued about seven months after they are generated. Thus, January 2014 RECs are issued June 15, 2014. Because of this lag, trading for 2014-vintage RECs and the costs incurred by Obligated Entities for Compliance Year 2014 continued through June 15, 2015.

⁹ See <http://www.ripuc.org/utilityinfo/RES-ACPRate.pdf>

Energy of New England, Inc., did not submit an RES Compliance Filing and failed to cover its obligation.¹⁰ Appendix 2 lists all entities from whom Compliance Filings were received and provides a detailed summary of RES compliance for National Grid along with a more limited summary for competitive retail electricity providers.

Table 2: Summary of 2015 REC Compliance

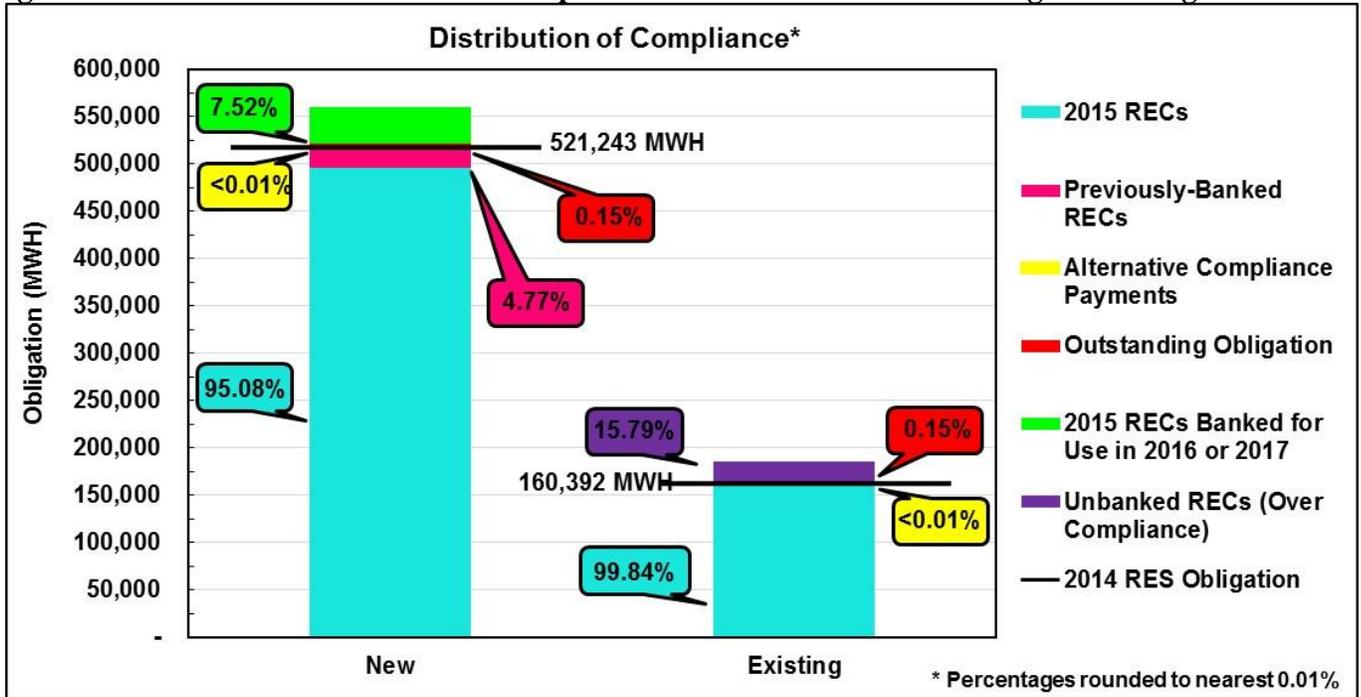
Results for Compliance Year 2015		(MWh)*
A	2015 RES Obligated Retail Sales	8,018,905
A.1	National Grid	4,773,192
A.2	Competitive Suppliers (23 submitting filings of 24 total)	3,245,713
New RES Obligations and New Renewable Energy Certificates		
B	Total 2015 New RECs Settled in Rhode Island**	559,665
B.1	2015 New RECs Purchased	534,826
B.2	Banked 2013 and 2014 New RECs Applied	24,839
C	New RES Obligations (6.5% of “A”)	521,243
C.1	Banked RECs Applied to 2015 New Obligations (from B.2)	24,839
C.2	2015 New RECs Applied to 2015 New Obligations (subset of B.1)	495,605
C.3	Alternative Compliance Payment Credits Applied to 2015 New RES Obligations	18
C.4	Outstanding Obligation (RECs or ACPs)	781
D	Banked RECs Available for Compliance Year 2016 or 2017	
D.1	Remaining RECs Available after Meeting New RES Obligations	39,221
D.2	2015 New RECs Applied to 2015 Existing RES Obligations	37
D.3	RECs Banked for Future Use in Compliance Years 2016 or 2017	39,184
D.4	2015 New RECs Purchased above 30% Banking Cap (not eligible for banking)	0
Existing RES Obligations and Existing Renewable Energy Certificates		
E	Existing RES Obligations (2.0% of “A”)	160,392
E.1	2015 Existing RECs Applied to 2015 Existing RES Obligations	160,105
E.2	2015 New RECs Applied to 2015 Existing RES Obligations (from D.2)	37
E.3	Alternative Compliance Payment Credits Applied to 2015 Existing RES Obligations	9
E.4	Outstanding Obligation (RECs or ACPs)	241
F	Total 2015 Existing RECs Settled in Rhode Island¹	185,435
F.1	2015 Existing and New RECs Applied to 2015 Existing RES Obligations (E.1 plus E.2)	160,142
F.2	2015 Existing RECs Purchased above 2015 RES Obligations (not eligible for banking)	25,330
* Values may not be additive due to rounding protocol with individual Obligated Entities.		
** Does not include RECs purchased on behalf of end-use customers for voluntary clean energy programs. See Appendix 4 for details on RECs purchased for voluntary programs.		

¹⁰ As reported in the Compliance Year 2014 report, Glacial Energy filed for Chapter 11 bankruptcy protection effective April 11, 2014. The PUC informed the Rhode Island Commerce Corporation of the outstanding ACP payment and, in September 2015, began procedures for non-compliance described in Section 9 of the RES rules. The company’s portion of the total Rhode Island RES obligation in 2015 (1,022 MWh) was not met through ACP or REC procurement.

Twenty-one of these entities met their entire RES obligation by retiring RECs. Three competitive energy suppliers met a portion of their 2015 individual RES obligations by making ACPs to the Rhode Island Commerce Corporation; no Obligated Entities complied entirely with ACPs. Eleven Obligated Entities utilized some of their Banked Compliance to meet their 2015 obligation. Eighteen Obligated Entities banked RECs minted in 2015 for use in 2016 or 2017; this number is up significantly from 2014, when only eleven entities banked excess RECs. A breakdown of compliance by the numbers is presented in Table 2.

For Compliance Year 2015 RECs were used to meet more than 99% of Rhode Island’s New RES obligation (Figure 2). The total number of New RECs retired by Obligated Entities was 559,665, including 24,839 Certificates banked from Compliance Year 2013 or 2014 and 39,184 New RECs (minted in 2015) that were banked for use toward compliance in either Compliance Year 2016 or 2017. This represented a 7.4% surplus compared to the 2015 New RES obligation for all Obligated Entities. This surplus is up significantly from the 2.2% and 4.2% surpluses for Compliance Years 2014 and 2013, respectively. This surplus in New RECs reflects a sustained increase in regional renewable energy supply through the construction of additional capacity and the retrofitting of existing resources throughout the NEPOOL region, as well as a significant increase in the quantity of RES-eligible imports during this period.

Figure 2: Distribution of Sources for Compliance with 2015 New and Existing RES Obligations



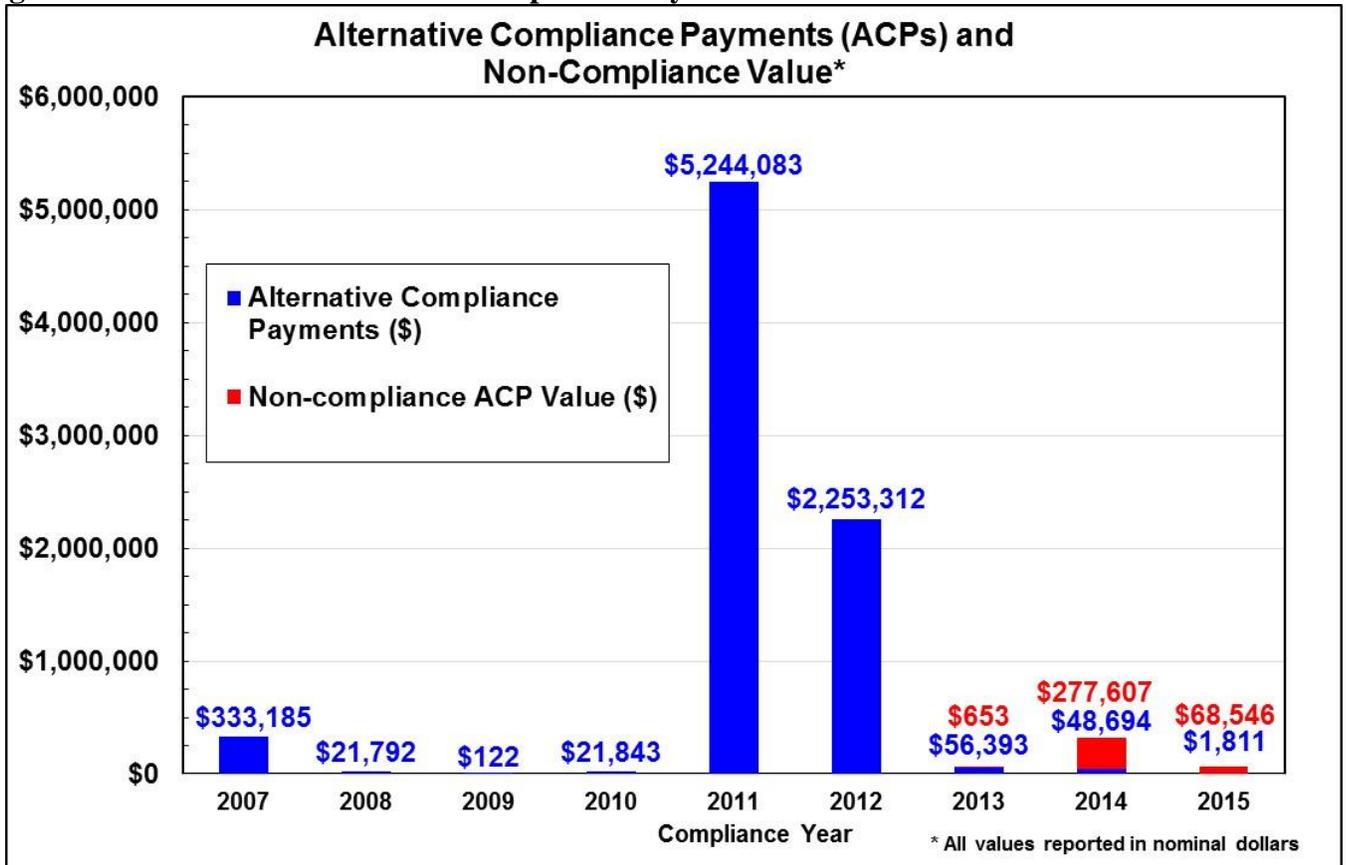
Nearly 100% of the State’s 2015 Existing or New RES obligation was met through retiring RECs (Figure 2). In total, Obligated Entities combined to procure an excess of 25,330 RECs above the 2015 Existing REC requirement, a 15.8% surplus.¹¹ Unlike New RECs, banking of Existing RECs is not allowed under Rhode Island’s Renewable Energy Standard Rules and Regulations.

Taken as a whole, there was a New and Existing REC surplus among Obligated Entities. Taken individually, three Obligated Entities chose to comply, partially, by making ACPs totaling approximately \$1,811 in lieu of

¹¹ National Grid was not one of these entities. It is possible that these companies injudiciously over-procured RECs, or they purchased these RECs intentionally for some other purpose.

retiring 18 New and 9 Existing RECs.¹² In addition, one Obligated Entity, Glacial Energy of New England, Inc., filed for Chapter 11 bankruptcy protection in 2014, and left an outstanding obligation of 1,022 MWh with an ACP value of approximately \$68,546. Disregarding the balance left by the bankruptcy proceeding, the ACP cost in Compliance Year 2015 is the second lowest recorded cost since the RES began in 2007 (Figure 3).

Figure 3: Total Annual Alternative Compliance Payments

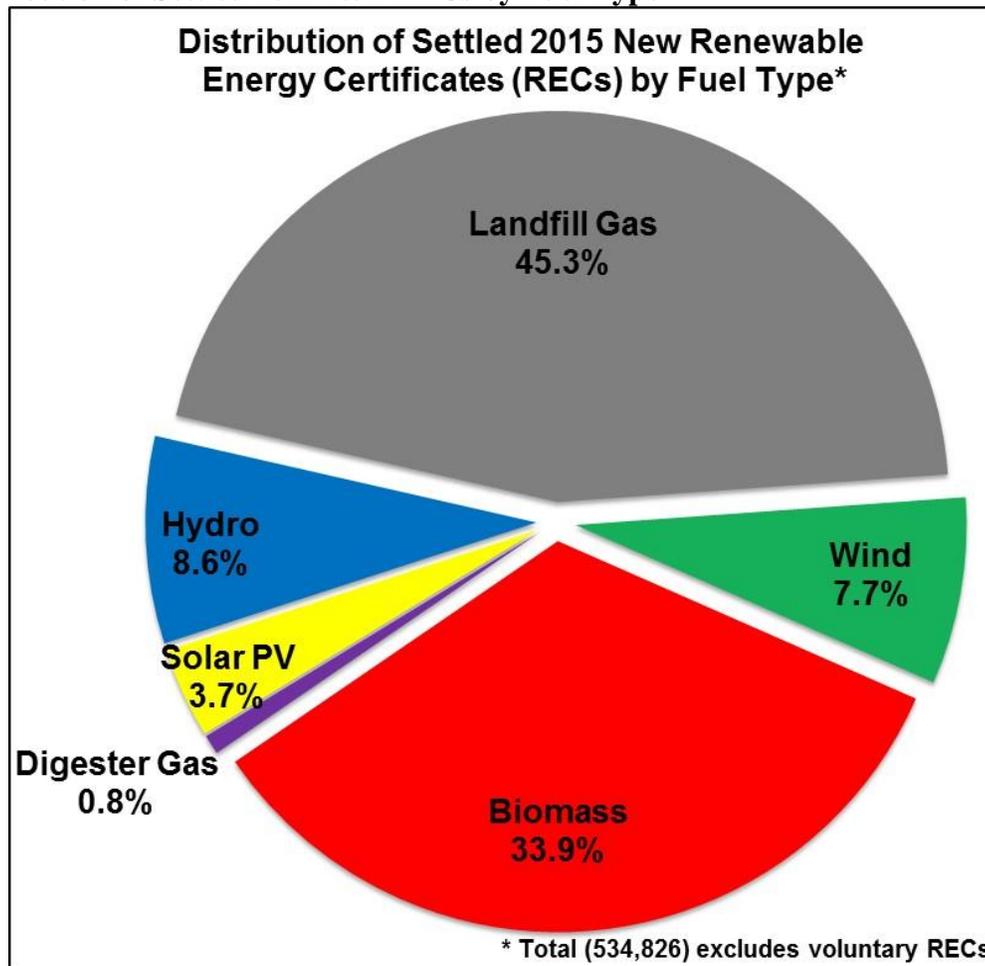


¹² In Compliance Year 2015, ACPs in lieu of both New and Existing RECs are valued at \$67.07 per MWh.

III. 2015 RES Compliance by Fuel Type and Geographic Location

In 2015, New and Existing RECs minted, purchased, and settled in Compliance Year 2015 were generated by six types of renewable energy generators: biomass, digester gas, hydroelectric, landfill gas, solar photovoltaic, and wind (Figure 4).¹³ As in Compliance Year 2014, most of the New RECs settled in 2015 were generated at facilities fueled by landfill gas (45.3%), followed by biomass (33.9%), hydro (8.6%), wind (7.7%), solar photovoltaic (3.7%), and digester gas (0.8%). Again, as in Compliance Year 2014, in terms of location, most of the New RECs settled in 2015 were sourced from Rhode Island (43.5%), with the rest coming from New Hampshire (24.9%); Maine (16.3%); New York imports (9.0%); Vermont (4.9%); Massachusetts (1.3%); and Connecticut (0.1%) (Figure 5). Compliance Year 2015 saw a significant resurgence of New RECs generated from biomass resources, with a continued and gradual decline of New RECs from wind resources (Figure 6). New RECs sourced from New Hampshire once again surpassed those from Maine, while a significant increase in New RECs from Vermont pushed up the tally from Western New England (Figure 7).

Figure 4: Distribution of Settled 2015 New RECs by Fuel Type



¹³ Not all of the RECs purchased, minted, and settled in Compliance Year 2014 were used to meet Compliance Year 2014 obligations. Some RECs were banked for use in Compliance Years 2015 and 2016, while others were purchased in excess of the obligation. This summary of New and Existing REC resources excludes RECs retired for the purpose of substantiating renewable energy claims associated with end-use customer voluntary purchases above and beyond the RES. Voluntary clean energy programs are summarized in Appendix 6 of this Report.

The continued prevalence of New RECs sourced from Rhode Island, and of landfill gas as a resource, is largely driven by a single project, the Rhode Island LFG Genco, LLC landfill gas generation plant in Johnston, Rhode Island (Genco Plant). Pursuant to R.I. Gen. Laws § 39-26.1-9, the Genco Plant owners executed a power purchase agreement (PPA) in May 2010 with National Grid.¹⁴ The plant achieved commercial operation in May 2013 and was subsequently approved by the PUC as a Rhode Island-eligible renewable energy resource on June 11, 2013.¹⁵ Thus, the Genco Plant's second full year of operation was Compliance Year 2015, during which National Grid would have expected the plant's annual energy output to be 239,016.6 MWh.¹⁶ The PPA included the sale of RECs generated from the Genco Plant to National Grid, all of which were in turn sold to Standard Offer Service energy supply customers to help meet National Grid's 2015 RES obligation.¹⁷ Therefore the plant was expected to produce approximately 46% of the 521,243 New REC obligation in Compliance Year 2015. In actuality, approximately 39% of the New RECs settled in 2015 (approximately 40% of the New REC obligation in Compliance Year 2015) were sourced from landfill gas facilities in Rhode Island, most of which were generated by the Genco Plant.¹⁸

The resurgence in biomass RECs was driven by a significant increase in the use of biomass RECs from New Hampshire, compared to 2014, accounting for about 24% of all settled New RECs. This number, however is still down significantly from 2013 when approximately 36% of all New RECs settled came from biomass facilities in New Hampshire.¹⁹ Meanwhile, the only other source of New biomass RECs in 2015 was Maine, and there was a slight decrease in reliance on these RECs compared to 2014.

Compliance Year 2015 also had a sustained decrease in reliance (as in 2013 and 2014) on wind-generated New RECs compared to Compliance Year 2012 when wind was the primary source of New RECs in (Figure 6). Previously, this decrease had been caused by a decrease in reliance on New York Imports; in 2012, New RECs generated by wind imported from New York accounted for more RECs than any other source, at 35% of all New RECs settled in that compliance year. The continued decline is due to a decrease in wind RECs from Maine, as well as New York. Meanwhile, a significant increase in wind RECs from Vermont counteracted the decline in wind RECs.

Additionally, there is a continued and steady increase in New RECs generated from hydroelectric facilities throughout the region. There is also a steady increase in solar photovoltaic RECs from Rhode Island, which is the only source of solar photovoltaic RECs in 2015, as in 2014. The use of these solar RECs is primarily

¹⁴ The statute exempted the project from PUC review and approval under certain project conditions that were indeed met by the proposed project. The statute required certain certification of the PPA by the Division of Public Utilities and Carriers, the Department of Administration, the Commerce Corporation (formerly the Economic Development Corporation), and the Office of Energy Resources, all of which were issued in July 2010. The PPA can be found at [http://www.ripuc.org/eventsactions/docket/D-10-36-NGrid-PPA-LFG\(6-7-10\).pdf](http://www.ripuc.org/eventsactions/docket/D-10-36-NGrid-PPA-LFG(6-7-10).pdf).

¹⁵ PUC Amended Effective Date Pursuant to Order No. 21165, [http://www.ripuc.org/eventsactions/docket/4201-PUC-LFGGenco-AmendedEffectiveDate\(10-4-13\).pdf](http://www.ripuc.org/eventsactions/docket/4201-PUC-LFGGenco-AmendedEffectiveDate(10-4-13).pdf).

¹⁶ See, e.g., National Grid Long-Term Contracting for Renewable Energy Recovery Factor Docket No. 4673, Attachment 1 at 2, [http://www.ripuc.org/eventsactions/docket/4673-NGrid-LTCRER\(11-14-16\).pdf](http://www.ripuc.org/eventsactions/docket/4673-NGrid-LTCRER(11-14-16).pdf).

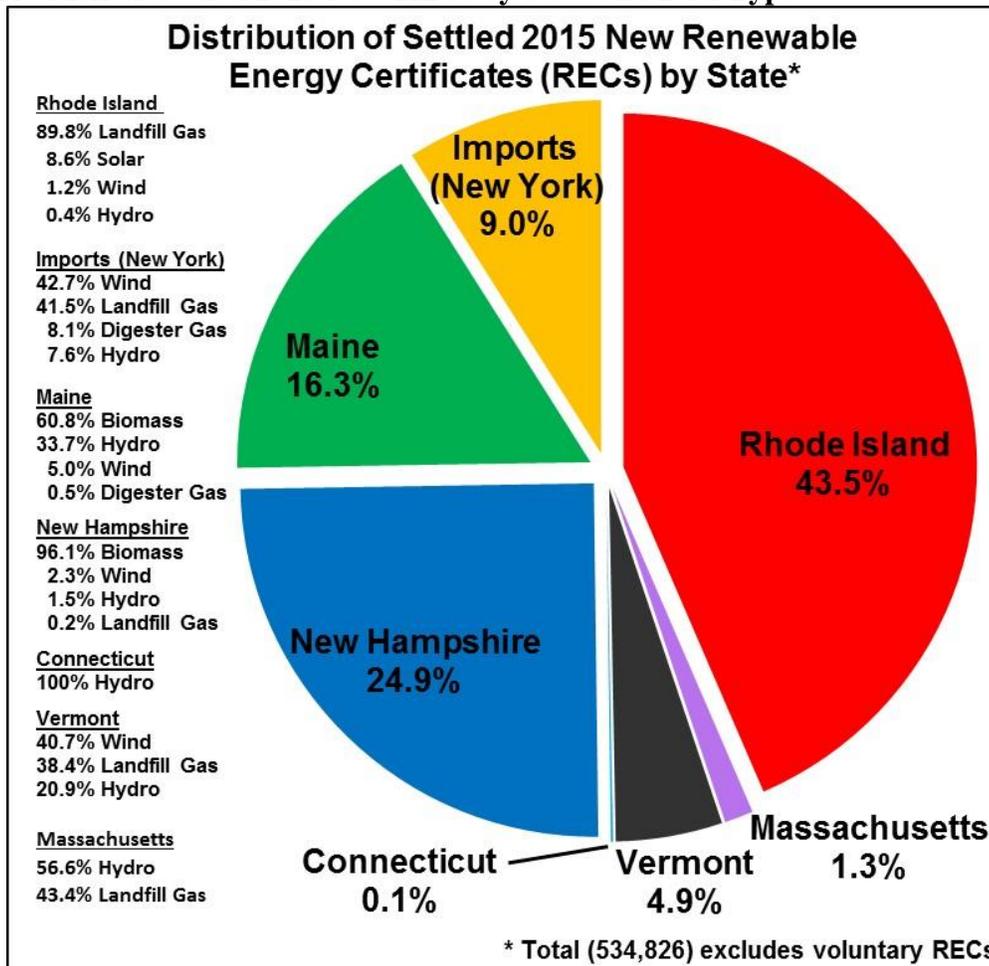
¹⁷ In Compliance Year 2015, National Grid filed a RES compliance plan that included using all RECs from all contracts signed pursuant to R.I. Gen. Laws § 39-26.1 and § 39-26.2 to meet the RES obligation for Standard Offer Service customers. See National Grid 2015 Standard Offer Service Procurement Plan 2015 Renewable Energy Standard Procurement Plan Docket No. 4490, Schedule 7, [http://www.ripuc.org/eventsactions/docket/4490-SOS-RES-ProcurementFiling\(3-3-14\).pdf](http://www.ripuc.org/eventsactions/docket/4490-SOS-RES-ProcurementFiling(3-3-14).pdf).

¹⁸ In Compliance Year 2014, the only other RES-eligible landfill gas facilities located in Rhode Island were Johnston Landfill Expansion Phases I and II, also located in Johnston, Rhode Island, with 2.4 MW and a 6 MW nameplate capacity, respectively. This report does not investigate to whom RECs from these facilities, if any, were sold or transferred.

¹⁹ Rhode Island Renewable Energy Standard Annual RES Compliance Report for Compliance Year 2013, February 2013. Full report at <http://www.ripuc.org/utilityinfo/RES-2013-AnnualReport.pdf>.

the direct result of National Grid’s statutory long-term contracting programs,²⁰ rather than a direct result of the RES.

Figure 5: Distribution of Settled 2015 New RECs by State and Fuel Type



Altogether, the historical view of the amount of New RECs procured from all jurisdictions is presented in Figure 6, along with ACPs for comparison.²¹ While this chart does not show exactly which RECs were used for compliance and which were banked for future compliance, this view does help illustrate the continued reliance on RECs from Rhode Island and a sustained lack of reliance on ACPs in Compliance Year 2015.

Finally, as in all previous compliance years, all of the Existing RECs minted, purchased, and settled in Compliance Year 2015 were generated at hydroelectric facilities. This year, the Existing RECs were sourced from Maine (52.4%), New Hampshire (33.9%), Massachusetts (13.6%), and Vermont (0.1%).²²

²⁰ R.I. Gen. Laws § 39-26.1 and § 39-26.2.

²¹ Appendix 5 contains additional information of historical data for the distribution of New and Existing RECs by fuel type and location for 2007 through 2015.

²² These percentages include purchases for voluntary programs and over-compliance. Appendix 5 contains additional information of historical data for the distribution of New and Existing RECs by fuel type and location for 2007 through 2015.

Figure 6: Historical New RECs by Fuel Source

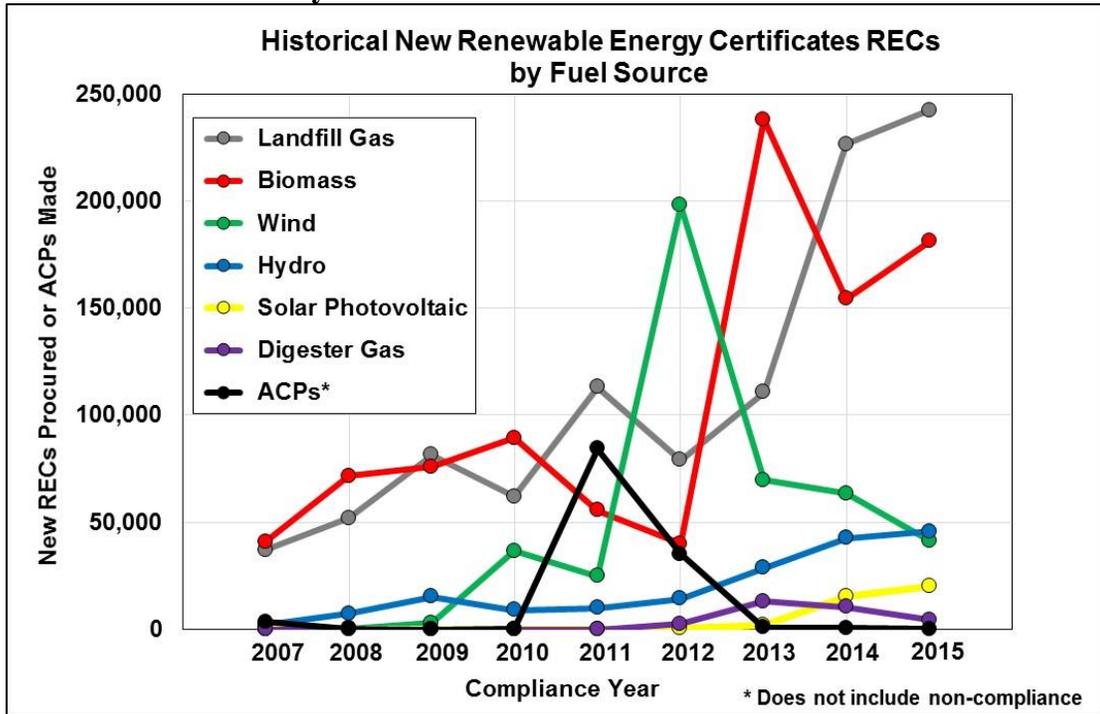
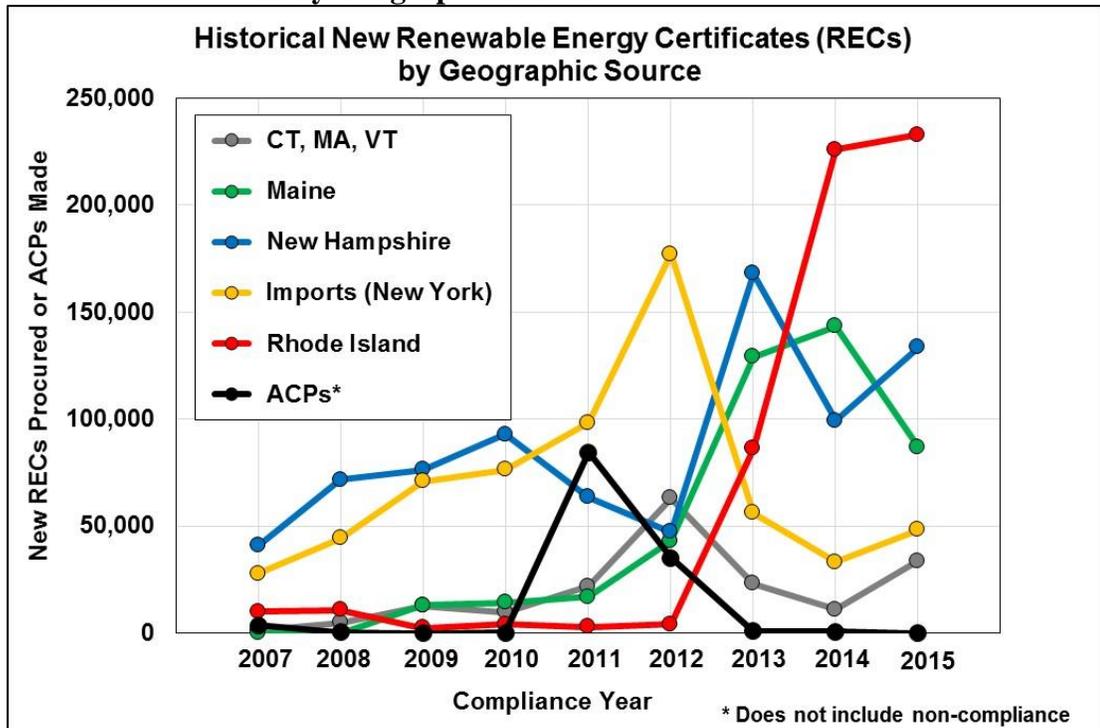


Figure 7: Historical New RECs by Geographic Source



IV. Renewable Energy Standard – Future Obligations

The RES enabling legislation at §39-26-4 establishes annual targets for both New and Existing RES obligations through 2019. At § 39-26-4(a)(3), the enabling legislation provides for an “additional one percent (1%) of retail electricity sales in each of the following compliance years 2011, 2012, 2013, 2014, provided that the commission has determined the adequacy, or potential adequacy, of renewable energy supplies to meet these percentage requirements.” At § 39-26-4(a)(4), the legislation provides for an additional 1.5% per year through 2019 with the similar PUC requirement to determine the adequacy of supply. Finally, at § 39-26-4(a)(5), the enabling legislation states that in “2020 and each year thereafter, the minimum renewable energy standard established in 2019 shall be maintained unless the commission shall determine that such maintenance is no longer necessary for either amortization of investments in new renewable energy resources or for maintaining targets and objectives for renewable energy.”

The manner in which the PUC fulfilled the requirement to determine supply adequacy, as well as the timing and implications of the PUC’s decision-making authority, is articulated in the RES Regulations under § 39-26-6(d). By statute, the PUC was directed to determine on or before January 1, 2014 the adequacy or potential adequacy of renewable energy supplies to meet the increase in the RES targets scheduled for 2015.

In a January 2010 Order for Docket 4050, the PUC determined that adequate renewable energy supplies existed to meet the RES target increase scheduled for 2011. Additional information on this proceeding and the PUC’s complete Order can be found at the PUC website.²³ In a February 2014 Order for Docket 4404, the PUC determined there was potential inadequacy of renewable energy supply to meet the target increase of 1.5% scheduled for 2015. The result of this determination was to delay this scheduled increase in the RES by a period of one year, thereby capping the escalation of the New RES target at 12.5% rather than 14.0% (with an additional 2% to come from Existing or New RECs). Additional information on this proceeding and the PUC’s complete Order can be found at the PUC website.²⁴ Finally, in 2016, the RES statute was amended to require annual increase of 1.5% to continue from 2020 through 2035, resulting in a final target of 38.5% renewable energy.²⁵

The percentage targets shown in Figure 1 above and in the calculated future RES obligations in Table 3 below are adjusted to reflect the PUC’s one-year delay of the 1.5% increase to Compliance Year 2015 and the RES amendments of 2016 that increase the targets through 2035. The quantity (in MWhs) of future years’ RES obligations are estimated by multiplying the forecasted value of total obligated sales in Rhode Island by the RES target for each year. The forecast of Rhode Island’s obligated sales is based on the Forecast Data File of the ISO-NE’s 2016 Capacity, Energy, Loads, and Transmission (“CELT”) Report²⁶ and exempted load, including both Pascoag Utility District and Block Island Power Company retail sales.²⁷

²³ For additional information, refer to materials filed in Commission Docket 4050 at: www.ripuc.org/eventsactions/docket/4050page.html

²⁴ For additional information, refer to materials filed in Commission Docket 4404 at: <http://www.ripuc.org/eventsactions/docket/4404page.html>. In particular, Commission Report and Order No. 21353 can be viewed at: http://www.ripuc.org/eventsactions/docket/4404-RES-Adequacy-Ord21353_2-10-14.pdf.

²⁵ R.I. Gen. Laws §§ 39-26-1 to 10, as amended, does not explicitly maintain a RES proportion in 2036 and thereafter. See also footnote 3.

²⁶ ISO-NE 2016 CELT Forecast Data. See tab 2, column X– GROSS-PV-PDR, Gross Energy in GWh less Behind-the-Meter PV and Passive Demand Resources.

²⁷ Historical load for Block Island and Pascoag can be found at <http://www.eia.gov/electricity/data/eia826/>. Here we assume exempted load is 2.59% in all future years.

Table 3: Forecast of RES MWh, by Compliance Year, for both New and Existing Resources

Compliance Year	Actual/Forecasted RES-Obligated Retail Sales ^a (MWhs)	Minimum MWhs from New Renewable Energy Resources ^b (per Figure 1 targets)^c	MWhs from <i>either</i> New <i>or</i> Existing Renewable Energy Resources ^b (2.0%)
2007 (Actual)	8,335,706	83,357	166,715
2008 (Actual)	8,279,006	124,190	165,584
2009 (Actual)	7,910,112	158,212	158,212
2010 (Actual)	8,242,937	206,082	164,866
2011 (Actual)	8,157,796	285,531	163,165
2012 (Actual)	8,123,025	365,545	162,469
2013 (Actual)	8,193,979	450,678	163,891
2014 (Actual)	7,985,473	519,067	159,720
2015 (Actual) ^d	8,018,905	521,243	160,392
2016	8,188,000	638,000	164,000
2017	8,154,000	755,000	163,000
2018	8,078,000	866,000	162,000
2019	7,987,000	972,000	160,000
2020 ^e	7,870,000	1,073,000	157,000
2021	7,771,000	1,173,000	155,000
2022	7,692,000	1,274,000	154,000
2023	7,626,000	1,374,000	153,000
2024	7,573,000	1,475,000	151,000
2025 ^f	7,528,000	1,577,000	151,000

^a Assumes 2.59% of load exempted from RES obligation in future years.
^b Note that the total New and Existing RES obligations are slightly higher than the % New and % Existing of total obligated retail sales due to rounding protocols for individual Obligated Entities.
^c The annual targets are also listed in Table A5 of Appendix 5.
^d After conducting a review pursuant to R.I. Gen. Laws § 39-26-6(d), in Docket No. 4404, the PUC delayed implementation of the scheduled 1.5% increase in 2015. This resulted in a delay of all subsequent increases for a period of one year.
^e The RES was amended in 2016 to continue with a 1.5% increase annually from 2020 to 2035.
^f The 2016 ISO-NE CELT forecast ends in 2025.

V. Authorized Rate Increases and RES Compliance Costs

R.I. Gen. Laws § 39-26-6(f) states that the annual report shall include “the amount of rate increases authorized pursuant to subsection (b)” where subsection (b) of R.I. Gen. Laws § 39-26-6 reads that the PUC shall “[a]uthorize rate recovery by electric distribution companies of all prudent incremental costs arising from the implementation of this chapter, including, without limitation, the purchase of NEPOOL GIS certificates, the payment of alternative compliance payments, required payments to support the NEPOOL GIS, assessments made pursuant to §39-26-7(c) and the incremental costs of complying with energy source disclosure requirements.” The only electric distribution company that qualifies as an Obligated Entity is National Grid, as the statutory definition of “Obligated Entity” specifically excludes Block Island Power Company and the Pascoag Utility District.²⁸

Table 4: Estimated Rate Impact for RES Compliance to Standard Offer Service Customers

Effective Date	Projected REC Procurement Cost (per kWh) ^a	Adder for previous and current costs (per kWh)	Authorized RES Charge (per kWh)	Monthly/ Annual Charge to 500-kWh Ratepayer
April 2017 – Report Date ^b	\$0.00264	(\$0.00224)	\$0.00040	\$0.20/\$2.40
April 2016 – March 2017	\$0.00405	(\$0.00177)	\$0.00228	\$1.44/\$17.28
April 2015 – March 2016	\$0.00366	(\$0.00072)	\$0.00294	\$1.47/\$17.64
April 2014 – March 2015	\$0.00430	\$0.00050	\$0.00480	\$2.40/\$28.80
April 2013 – March 2014	\$0.00371	\$0.00141	\$0.00512	\$2.56 / \$30.72
April 2012 – March 2013	\$0.00209	\$0.00044	\$0.00253	\$1.265 / \$15.18
April 2011 – March 2012	\$0.00064	(\$0.00095)	(\$0.00031)	(\$0.156) / (\$1.86)
March 2010 – March 2011	\$0.00095	\$0.00028	\$0.00123	\$0.615 / \$7.38
January 2009 – February 2010	\$0.00105	(\$0.00012)	\$0.00093	\$0.465 / \$5.58
2008	\$0.00084	^c	\$0.00084	\$0.42 / \$5.04
2007	\$0.00062	N/A	\$0.00062	\$0.31 / \$3.72

^a The projected REC procurement cost is for current year costs, i.e., the projected compliance rate for Compliance Year 2015 was \$0.00366/kWh, and was collected from April 2015 through March 2016.

^b Proposed for effect April 1, 2017. See also [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

^c In 2008 a specific RES reconciliation charge was not proposed in the RES Charge filing. Reconciliation of over- or under-collection would have occurred through Standard Offer Service and Last Resort Service reconciliation filings.

Early in each calendar year, National Grid proposes a RES charge designed to collect the costs of compliance during the upcoming compliance year, outstanding costs for the remainder of the current compliance year,

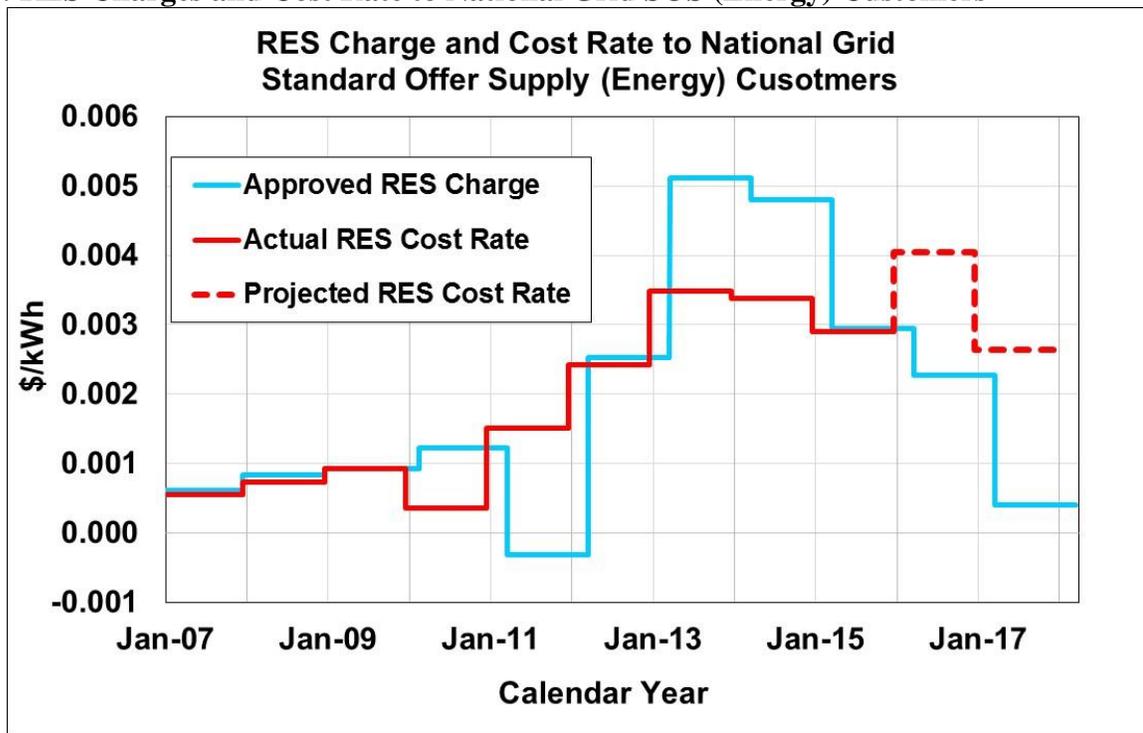
²⁸ R.I. Gen. Laws § 39-26-2(16).

and to true up any outstanding cumulative under- or over-collection made during previous compliance years.²⁹ The reconciling nature of this charge ensures that when compliance costs are lower than National Grid anticipates, the over-collections are returned to ratepayers; symmetrically, when compliance costs are higher than anticipated, the National Grid can recover under-collections.

Table 4 provides data on the authorized RES charge (in dollars per kWh) billed to National Grid’s customers from 2007 through the report date, as well as the total charges to a 500-kWh Residential Class ratepayer by month and year (see also the blue line on Figure 8). The factors of the approved charge are based on projected market conditions, anticipated REC pricing, estimates of electricity consumption, and estimates of market share, among other prudent considerations.³⁰ Projected cost for the upcoming compliance year (mostly controlled by New REC cost rather than Existing REC cost) is found in the second column; the reconciliation factor for previous compliance years is found in the third column. The charge of \$0.00294 per kWh, effective April 1, 2015 through March 31, 2016 comprises a \$0.00366 per kWh factor for projected costs for Compliance Year 2015 and a negative \$0.00072 reconciliation factor for a cumulative over-collection of costs for previous years, including costs for Compliance Year 2014 (see the yellow row in Table 4). This charge represents an approximately 39% decrease in the RES charge authorized in 2014.

While this report focuses on Compliance Year 2015, it should be noted that in April 2016, the RES charge was reduced again to \$0.00228 per kWh. The slight decrease reflects a large over-collection factor that offset

Figure 8: RES Charges and Cost Rate to National Grid SOS (Energy) Customers



²⁹ National Grid typically files for rate change to the Renewable Energy Charge in late winter for effect on April 1st. Therefore the timing of changes in the RES charge occurs three months into the Compliance Year, and three months before the REC trading year turns over. For the 2015 example, see here: http://www.ripuc.org/eventsactions/docket/4490-NGrid-RES-Reconciliation_2-23-15.pdf.

³⁰ For additional information regarding 2015 projections and charges, refer to National Grid’s “2015 Renewable Energy Standard Charge and Reconciliation,” Attachment 1; [http://www.ripuc.org/eventsactions/docket/4393-NGrid-RES-Reconciliation-Filing\(2-20-14\).pdf](http://www.ripuc.org/eventsactions/docket/4393-NGrid-RES-Reconciliation-Filing(2-20-14).pdf).

the projected increase in New REC compliance in 2016. In February 2017, National Grid proposed to decrease the RES charge, for effect on April 1, 2017, to \$0.00040 per kWh.³¹ Approved by PUC, this is the second lowest charge in RES history.³² It was caused by both a significant decrease in National Grid's projection of New REC prices and a large over-collection factor.

National Grid successfully executed its proposed REC procurement plan for compliance year 2015. Based on the data reported below in Table 5 and in Appendix 2 Table A2, during the 2015 trading year, National Grid was able to procure Rhode Island-eligible New RECs at an average price of approximately \$44. This is well below National Grid's February 2015 projection of \$52.75, well below National Grid's average cost in Compliance Year 2015 of \$52, and well below the ACP level of \$67.07. National Grid's most recent estimate of New REC prices is an average cost of \$25.88 for New RECs in Compliance Year 2017.³³

Table 5: Summary of National Grid's REC Compliance Costs, 2007 - 2015

Compliance Year	Total RES Costs (Millions) ^a	New REC Costs (Millions) ^a	Existing REC Costs (Millions) ^a	ACP Costs (Millions)	Obligated Load (MWh)
2015	\$13.96	\$13.80	\$0.08	N/A	4,773,192
2014	\$17.95	\$17.93	\$0.07	N/A	5,317,349
2013	\$18.96	\$18.90	\$0.06	N/A	5,541,409
2012	\$12.8	\$12.75	\$0.05	N/A	5,272,388
2011	\$8.43	\$3.85	\$0.05	\$4.53	5,554,272
2010	\$2.07	\$2.02	\$0.05	N/A	5,695,951
2009	\$5.51	\$5.28	\$0.22	N/A	5,902,667
2008	\$5.21	\$5.02	\$0.19	N/A	7,123,559
2007	\$3.97	\$3.79	\$0.19	N/A	7,177,538

^a Total RES cost is based on data found in National Grid's 2015 Renewable Energy Standard Charge and Reconciliation filing and the Q3 Reconciliation Report (see <http://www.ripuc.org/eventsactions/docket/4556-NGrid-RESFiling-2016-2-24-16.pdf> and <http://www.ripuc.org/eventsactions/docket/4556-NGrid-SOS-Reconcile-Q3-2016-10-31-16.pdf>), and may not equal the sum of New REC and Existing REC costs, which are based on communications with National Grid.

Most of the RECs National Grid actually purchased were from renewable generation projects that had power purchase agreements (PPA) to sell all attributes, including energy; capacity; and RECs, to National Grid pursuant to R.I. Gen. Laws § 39-26.1 and § 39-26.2. The PPAs typically do not include a specific price for the RECs, but rather a bundled price for all products purchased through the contract. Each quarter National Grid collects spot market data regarding New REC prices in the Rhode Island-eligible market and uses that to provide an estimated spot market value for the RECs procured through the PPAs. This estimated spot market rate for the RECs is charged to Standard Offer Supply energy customers for the RECs actually generated by the contracted resources, and the revenue from that charge is used to offset the cost of the PPAs to National Grid distribution customers.³⁴ National Grid's remaining REC needs are purchased through a

³¹ National Grid 2017 Renewable Energy Standard Charge and Reconciliation, Attachment 1; [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

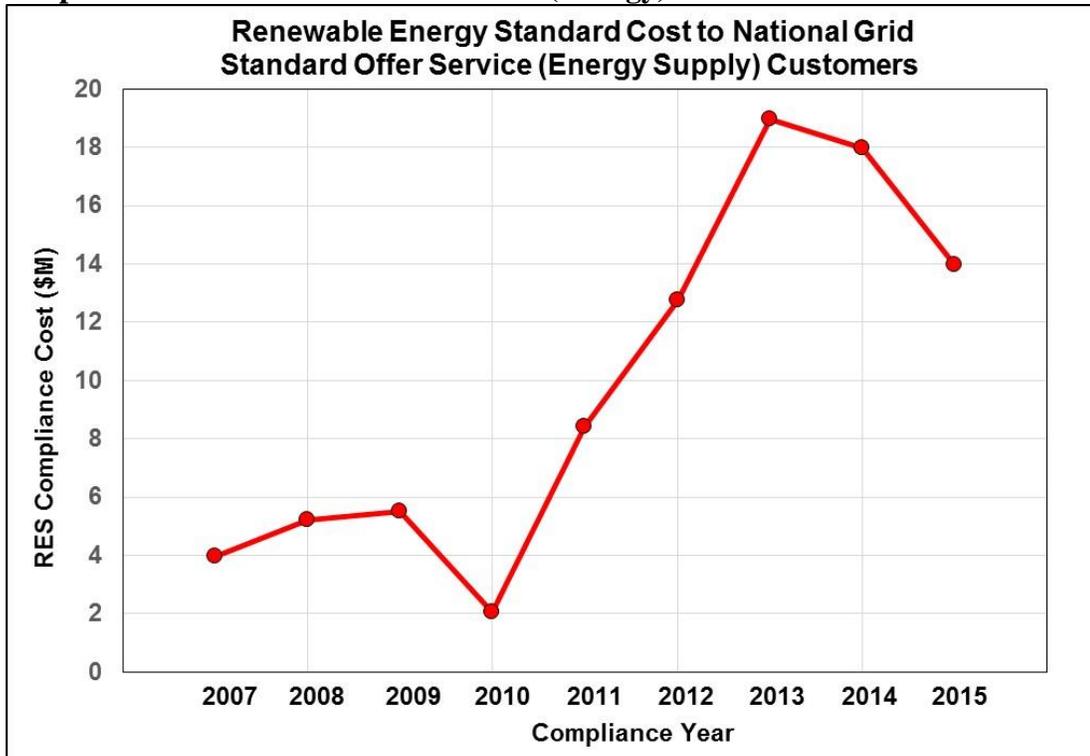
³² A written order is pending.

³³ National Grid 2017 Renewable Energy Standard Charge and Reconciliation, Attachment 1; [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

³⁴ The remaining over- or under-recovery for these PPAs is then reconciled through a charge to all National Grid distribution ratepayers. Distribution customers are all electric customers in National Grid's territory; Standard Offer Supply customers are the subset of distribution customers that buy their energy supply from National Grid rather than a competitive supplier.

request-for-proposal procurement process approved annually by the PUC through a docketed proceeding.³⁵ In addition to RES charges and rate impacts, a more accurate and complete picture of compliance costs includes REC procurement expenses, since these reflect actual costs rather than projected costs and reconciliations. In order to meet its 2015 New and Existing RES obligations, National Grid incurred \$13.96 million in compliance costs (Table 5; Figure 9).³⁶ This is a decrease of approximately 22% from the cost incurred to comply with 2014 RES targets (\$17.95 million). Approximately \$11.38 million of the \$13.96 million expense (82%) was for purchases of RECs through National Grid’s PPAs described above.³⁷ This decrease in compliance cost to National Grid likely reflects an increasing supply in Rhode Island-eligible RECs, which was also described above (in Section II) in relation to a surplus in New RECs retired by Obligated Entities and a low reliance on ACPs in Compliance Year 2015.

Figure 9: Compliance Costs to National Grid SOS (Energy) Customers



The current cost rate of the RES obligation to National Grid’s Standard Offer Service energy customers, calculated as Total RES Costs divided by Obligated Load,³⁸ was approximately 0.00291 \$/kWh in Compliance Year 2015, down slightly from the previous two years (*see* the red line on Figure 7). For Compliance Year 2016, National Grid originally projected a cost rate of 0.00405 \$/kWh, illustrated by the dashed segment of the cost rate line (drawn in red) in Figure 8 (*see also* Table 4). Data contained in National Grid’s 2017

³⁵ See, e.g., National Grid 2015 Standard Offer Service Procurement Plan 2014 Renewable Energy Standard Procurement Plan Docket No. 4490, Schedule 7; [http://www.ripuc.org/eventsactions/docket/4490-SOS-RES-ProcurementFiling\(3-3-14\).pdf](http://www.ripuc.org/eventsactions/docket/4490-SOS-RES-ProcurementFiling(3-3-14).pdf).

³⁶ Total RES cost is based on data found in National Grid’s 2015 Renewable Energy Standard Charge and Reconciliation filing and the Q3 Reconciliation Report, and may not equal the sum of New REC and Existing REC costs, which are based on communications with National Grid. See http://www.ripuc.org/eventsactions/docket/4556-NGrid-RESFiling-2016_2-24-16.pdf and http://www.ripuc.org/eventsactions/docket/4556-NGrid-SOS-Reconcile-Q3-2016_10-31-16.pdf.

³⁷ See footnote 35 for underlying data.

³⁸ We note that cost rate as defined here is not the same as the price of New RECs.

Renewable Energy Standard Charge and Reconciliation filing in PUC Docket No. 4605,³⁹ however, signals that the final Compliance Year 2016 cost rate may be under 0.00300 \$/kWh.⁴⁰ Furthermore, National Grid projects the cost rate will continue to decline to 0.00264 \$/kWh (Figure 8 and Table 4). Notably, National Grid has filed information with the PUC that projects, beginning in Compliance Year 2017, the company will have more New RECs supplied through long-term renewable energy contracts⁴¹ and the Renewable Energy Growth Program⁴² than their projected annual New REC obligation.⁴³ In that same filing, National Grid proposed to adjust its current RES Procurement Plan (for approval by the PUC) to include sales options should the amount of RECS from the contracts and Renewable Energy Growth Program exceed the company's obligation and banking allowance.⁴⁴

It must be noted that this data only represents expenses incurred by Standard Offer Service customers of National Grid, accounting for approximately 59.5% of all retail load statewide in 2015. The remaining 40.5% of statewide electric load is serviced by competitive suppliers for whom the PUC does not have access to compliance cost data.⁴⁵ Lacking that data, it can still be presumed that a REC surplus would potentially lower compliance costs to these other Obligated Entities. It should also be noted that National Grid passes unpredicted savings and expenses resulting from changes in the REC market onto Standard Offer Service customers and distribution customers. Competitive suppliers, on the other hand, may pass some of the REC market risk to their company's profits and losses rather than pass it onto their customers dollar-for-dollar. Finally, in addition to the costs enumerated above, the Commission incurred approximately \$79,000 in expenses related solely to the administration of the RES for Compliance Year 2015.

³⁹ [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf)

⁴⁰ As of the report date, National Grid was still incurring costs for compliance in Compliance Year 2016.

⁴¹ R.I. Gen. Laws § 39-26.1 and § 39-26.2

⁴² R.I. Gen. Laws § 39-26.6

⁴³ National Grid 2018 Renewable Energy Standard Procurement Plan at 3, [http://www.ripuc.org/eventsactions/docket/4692-NGrid-2018-RES-ProcurementPlan\(3-1-17\).pdf](http://www.ripuc.org/eventsactions/docket/4692-NGrid-2018-RES-ProcurementPlan(3-1-17).pdf).

⁴⁴ Per R.I. Gen. Laws § 39-26-6(a)(3)(ii), banking of excess compliance in a compliance year is allowed for two subsequent compliance years and is capped at 30% of the current compliance year's obligation

⁴⁵ Notably, the share of load served by competitive suppliers increased from 33.4% in 2014 to 40.5% in 2015.

VI. Renewable Energy Standard Implementation in New England

The RES enabling legislation requests a report on “the status of the implementation of the renewable energy standards in Rhode Island **and other states**” [emphasis added]. This section provides an update on the implementation of similar programs in the other five New England states.

All six New England states now have active Renewable Energy Standards (also known as RES as enacted in Rhode Island & Vermont) or Renewable Portfolio Standards (also known as RPS as enacted in Massachusetts, Connecticut, New Hampshire, and Maine). Each of the established RPS programs has multiple classes – also referred to as tiers in some cases – which are used to differentiate the compliance obligations associated with each state’s programmatic objectives. Class I requirements (equivalent to Rhode Island’s “New” obligation) focus on supply that has either been constructed after a specified date or which meets maximum emissions thresholds, as well as other eligibility criteria. “Existing” requirements⁴⁶ generally focus on supply that was in operation prior to the creation of the applicable state’s RPS program, and compliance targets are generally intended to provide the minimum amount of additional revenue believed to be necessary to keep these existing renewable energy facilities in operation. To this end, RPS requirements for existing resources are intended to maintain the current fleet rather than spur the development of new generating facilities. In addition to distinguishing between New and Existing renewable energy obligations, some New England RPS program classes include specific requirements for solar, biomass, hydroelectric, combined heat and power, waste-to-energy, thermal resources, and energy efficiency.

In Massachusetts, the solar obligation has historically been calculated annually and subtracted from the Class I requirement. This is referred to as a solar “carve-out.”⁴⁷ New Hampshire’s solar requirement stands alone and is referred to as its Class II obligation. Connecticut has a Class III requirement for conservation and load management resources, as well as combined heat and power (CHP). In addition to its primary Class II requirement, Massachusetts also has a secondary Class II requirement dedicated to Waste-to-Energy (WTE), as well as an Alternative Energy Portfolio Standard (APS) for CHP, flywheel storage, coal gasification, and efficient steam technologies. Connecticut also has incentive programs for zero and low emission distributed energy systems as well as a residential solar program. While not explicitly within the RPS, these programs effectively create solar and fuel cell “carve-outs” within Connecticut’s Class I RPS. Vermont’s RES includes a Class I obligation for existing renewable electricity resources and a Class II obligation specified for distributed generation (up to 10 MW) interconnected to the state’s distribution system.

The remainder of this section focuses exclusively on the class or portion of each state’s RPS requirement that is most analogous to Rhode Island’s New Resources requirement, including the interaction between these classes and other classes in certain limited circumstances.

Massachusetts

Massachusetts has New England’s longest-running RPS. The Massachusetts Class I market has experienced periods of shortage (2004 to 2006, and 2011 to 2013), and periods of approximate equilibrium (2007 to 2010 and 2014). Due to unequal distribution of RECs and banking, some Obligated Entities held surpluses during these years, while others made ACPs. The following table summarizes aggregate Massachusetts Class I ACPs from 2004 to 2014.

⁴⁶ Including Class II in Massachusetts, Connecticut, and Maine; Class III in New Hampshire; Class IV in New Hampshire; Class I in Vermont; and “Existing” in Rhode Island.

⁴⁷ Massachusetts is currently drafting a regulation that would create a separate long-term carve-out to support new emerging technologies. In addition, it is also designing a third solar program, which will not be a carve-out.

<i>\$M</i>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Class I ACPs	\$13.6	\$19.6	\$17.8	\$0.6	\$0.1	\$0.0	\$0.2	\$6.6	\$16.4	\$2.1	\$0.4

Looking forward, however, the success of state-based programs (particularly for distributed generation) and flat or declining load (electricity consumption) region-wide are expected to result in Class 1 market oversupply beginning in 2015 – and potentially for the next several years.

The Massachusetts Department of Energy Resources (DOER) also administers a Class I solar carve-out, which is expected to yield at least 1,600 MW of installed solar by late 2016 or early 2017 that is eligible to generate Solar Renewable Energy Certificates, known as SRECs. All SRECs generated under the program will count towards the Class I RPS target.

Pursuant to new legislation passed in 2016, DOER is also currently developing a successor to the Class I solar carve-out program. The program is likely to incentivize between 1,600 and 2,000 MW DC of new supply, incremental to the solar carve-out. The successor program will not be a Class I carve-out, and the additional supply incentivized under the program will generate standard Massachusetts Class I RECs, and thus serve as a substantial source of incremental Massachusetts Class I supply. Recent legislative efforts in several New England states have focused on long-term renewable energy contracting through the regulated distribution utilities, in an effort to satisfy RPS obligations as cost effectively as possible. Massachusetts, Connecticut, and Rhode Island recently partnered in a long-term procurement solicitation known as the Clean Energy RFP (CERFP). The Request for Proposals (RFP) was issued in November 2015; responses were collected at the end of January 2016, and 461 MWs of successful proposals were announced in October 2016. Contract execution and regulatory approval are expected in 2017. The legislative authority underlying the CERFP allows for substantial additional procurement from Massachusetts and Connecticut. At this time, the magnitude and timing of additional potential procurements are not clear, and may depend on market conditions.

Finally, omnibus energy legislation passed in 2016 will require Massachusetts’ electric distribution companies to conduct several future procurements for nearly 3,000 MW of “clean energy generation” (which includes Class I-eligible RECs) as well as Class I-eligible offshore wind through 2022, without a substantial increase in the rate of growth for the RPS Class I requirements. While these dynamics will not likely make a substantial impact in near-term supply/demand dynamics, these procurements seem likely to push the market even further towards long-term oversupply without a substantial increase in the state’s RPS requirements.

Connecticut

Connecticut had its first RPS compliance year in 2004. Due to variations in its RPS eligibility standards compared to the rest of the region (Connecticut does not have a vintage requirement), Connecticut has historically had access to a larger pool of eligible supply. As RPS targets increase over time, however, new supply is required to fulfill New England’s aggregate obligations, and Connecticut competes for supply with all other states. In 2010, as the regional market began to trend towards REC shortage, the differential between Connecticut’s Penalty Payment (Connecticut did not formally adopt the term ACP), which is fixed at \$55/MWh, and the other New England states’ ACPs (\$66.99 in 2016 and escalating each year with the Consumer Price Index) previously caused available RECs to seek higher value markets outside of Connecticut (when eligibility allowed), leaving Connecticut load-serving entities to rely on alternative compliance mechanisms to fulfill their RPS obligations. However, that trend is reversing as supply resulting from several years of policy and development efforts began hitting the market between 2014 and 2016, leading to a convergence in regional REC prices that began at the end of 2014 and has continued through 2016. Total annual Connecticut Class I Penalty Payments are summarized below.

<i>\$M</i>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Class I ACPs	\$0	\$0	\$3.5	\$0.1	\$0.1	\$0.05	\$3.0	\$22	\$39	\$31	\$7.0

Pursuant to Public Connecticut Act 13-303 (which made several changes to the RPS that were described in the 2013 Compliance Report), the Connecticut Public Utilities Regulatory Authority (PURA) concluded an investigation into whether RECs generated from resources eligible for Vermont’s Sustainably Priced Energy Enterprise Development (SPEED) program and used toward Connecticut Class I RPS compliance constituted “double-counting.” PURA found that RECs generated to date in Vermont should not be disqualified from use toward Connecticut Class I compliance because the SPEED requirement in effect at the time was not set up to measure compliance until 2017. The risk for future years has been eliminated now that Vermont has adopted a RES, which becomes effective in 2017.

As referenced in the Massachusetts section, Connecticut has significant legislative authority for long-term contracting and participated in the recent CERFP.

Maine

Maine’s first compliance year for its Class I RPS⁴⁸ requirement was 2008. While Maine’s eligibility requirements provided for ample supply to meet the early year RPS targets, an uneven distribution of REC ownership and banking has led to a modest amount of ACPs in recent years. Beginning in 2011, the certification of refurbished biomass projects (whose RPS eligibility is unique to Maine) caused a sharp decline in ACP collections, shown in the table below in thousands of dollars.

<i>\$K</i>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Class I ACPs	NA	NA	NA	NA	\$693	\$319	\$319	\$54	\$2	\$4	\$198

After several years of significant surplus, a decline in the state’s pulp and paper industry – and electricity production from associated biomass projects – has brought supply and demand into approximately equilibrium. If demand exceeds supply, Maine will begin to compete with other New England RPS markets for RECs to fulfill its Class I obligation. In the 2016 legislative session, the state passed into law LD 1676 - An Act to Establish a Process for the Procurement of Biomass Resources, which allocated \$13.4 million in surplus budget money to subsidize two-year electricity contracts with up to 80 MW of biomass plants. In December 2016, awards were announced for the purchase of approximately 80 MW across four facilities. This procurement may not prevent the eventual closure of several plants, but it is likely to at least prolong the lifespan of the winning facilities. The legislature also passed a resolve establishing a commission to study the economic, environmental, and energy benefits of the state’s biomass industry (LD 1693). The findings of this report are likely to spur additional legislation in support of the industry.

New Hampshire

New Hampshire’s first compliance year for Class I was 2009. Beginning in 2011, New Hampshire experienced dramatic ACPs for Class III, the category designated for biomass resources less than or equal to 25 MW and beginning operation prior to 1/1/2006, owing to the fact that New Hampshire Class III generators are also eligible for Connecticut Class I and elected to sell into the Connecticut market at any time during which the CT Class I REC price is greater than the New Hampshire Class III ACP.

⁴⁸ Maine has had an “Existing” RPS requirement since 2000. An abundance of qualifying in-state supply has enabled the state to easily satisfy this requirement each year.

<i>\$M</i>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Class 1 ACPs	NA	NA	NA	NA	NA	\$0	\$0.03	\$2.2	\$3	\$14	\$1	\$1.2

In order to stem ACP payments, in April 2015 the New Hampshire Public Utilities Commission (NHPUC) again ordered the Class III RPS target reduced from 8.0% to 0.5% through 2016. In November 2016, the NHPUC established an additional proceeding to potentially reduce the 2016 Class I Thermal and 2017 Class III RPS targets. For Class III targets, the NHPUC may change the obligation from 8% to between 85% and 95% of "reasonably expected potential annual output of eligible sources."⁴⁹ For Class I Thermal, the increase in obligation could be delayed up to one year, meaning that the 2016 obligation of 1.3% would remain the same in 2017.

It is also important to note that, similar to Connecticut, New Hampshire's ACP rate has been well below that of other New England states' ACPs (\$55.75 in 2015 for Class I vs. \$67.07 in 2015 and escalating each year with the Consumer Price Index), causing any uncontracted RECs to seek higher value markets outside of New Hampshire (when eligibility allows) and leaving New Hampshire's load-serving entities to rely on alternative compliance mechanisms to fulfill their RPS obligations.

Vermont

Vermont's RES has both Total Renewable Energy and Distributed Renewable Generation requirements. The minimum obligation for Total Renewable Energy is 55% of each retail electricity provider's electricity sales during the year beginning January 1, 2017, increasing to 75% on January 1, 2032; the target will maintain at 75% thereafter. It is expected that this obligation can be met with existing resources, particularly in early years. For Distributed Renewable Generation, which more closely resembles the New Resources requirement of the Rhode Island RES, the minimum obligation is set at 1% for the year beginning January 1, 2017, increasing to 10% on January 1, 2032 and thereafter. Until the Vermont RES's first compliance year (2017), Vermont utilities will be allowed to sell the Renewable Energy Credits associated with their electricity purchases to Obligated Entities in other New England states.

Summary Projection of Regional RES Targets and Demand

Table 6 provides a summary of RPS targets throughout New England. Table 7 provides an estimate of the corresponding gigawatt-hours (GWh) RPS demand through 2025. The forecasted RPS obligations are based upon ISO-NE's forecast of Annual Energy Net of Behind the Meter PV and Passive Demand Resources, found in their 2016 CELT Report,⁵⁰ and adjusted to exclude an estimate of public or other utilities exempted from state RPS obligations. For example, both Pascoag Utility District and Block Island Power Company have been removed from the forecast of Rhode Island REC demand.

As can be seen in Figures 10 and 11, Massachusetts and Connecticut represent the majority of New England's RPS demand through 2025. In 2015, these two states accounted for 46% and 34% of demand, respectively. Rhode Island represented 5% of the region's 2015 New Renewable RES demand (Rhode Island accounted for about 6.5% of all electrical energy use in New England during 2015). By 2025, the allocation of New Renewable RES demand across the region is projected as follows: Massachusetts – 48%; Connecticut – 29%; Rhode Island – 8%; New Hampshire – 7%; Maine – 6%; and Vermont - 2% (Figure 12).

⁴⁹ NH Rev. Stat. § 362-F:4 (2016).

⁵⁰ The ISO-NE 2016 CELT Report is available at: <http://www.iso-ne.com/system-planning/system-plans-studies/celt>

Table 6: Summary of New England States' New Renewable RPS Targets (%)

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
MA Class I	10.0%	11.0%	12.0%	13.0%	14.0%	15.0%	16.0%	17.0%	18.0%	19.0%	20.0%
CT Class I	12.5%	14.0%	15.5%	17.0%	19.5%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
RI-New ⁵¹	6.5%	8.0%	9.5%	11.0%	12.5%	14.0%	15.5%	17.0%	18.5%	20.0%	21.5%
VT DG	0.0%	0.0%	1.0%	1.6%	2.2%	2.8%	3.4%	4.0%	4.6%	5.2%	5.8%
ME Class I	8.0%	9.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
NH Class I ⁵²	5.4%	5.6%	6.4%	7.2%	8.0%	8.8%	9.6%	10.4%	11.2%	12.1%	13.0%

Table 7: Projection of New England States' New Renewable RPS Demand (GWh)

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
MA Class I	4,799	5,375	5,843	6,305	6,777	7,216	7,658	8,110	8,568	9,029	9,496
CT Class I	3,572	4,072	4,590	5,073	5,465	5,862	5,820	5,787	5,757	5,728	5,702
RI New	521	638	755	866	972	1,073	1,173	1,274	1,374	1,475	1,577
VT DG	-	-	58	94	130	163	195	227	257	288	317
ME Class I	918	1,004	1,116	1,123	1,128	1,121	1,116	1,113	1,111	1,110	1,109
NH Class I	584	606	697	790	883	974	1,067	1,161	1,256	1,363	1,471
Total	10,393	11,695	13,059	14,250	15,356	16,410	17,030	17,670	18,323	18,994	19,671

⁵¹ After conducting a review pursuant to R.I. Gen. Laws § 39-26-6(d), in Docket 4404, a majority of the PUC voted to delay implementation of the scheduled 1.5% increase of the minimum RES percentage from New Renewable Energy Resources in 2015. This resulted in a delay of all subsequent increases for a period of one year.

⁵² Beginning in 2013, a set percentage of the annual New Hampshire Class 1 incremental demand must come from qualifying renewable producing useful thermal energy. The set percentage is 0.4% in 2014, 0.6% in 2015, 1.3% in 2016, increasing annually thereafter by 0.1% from 2017 through 2023. As a result, the renewable electricity obligation is reduced. The net RPS requirement for electric power is shown here.

Figure 10: Forecast of New England States' New RES Obligations

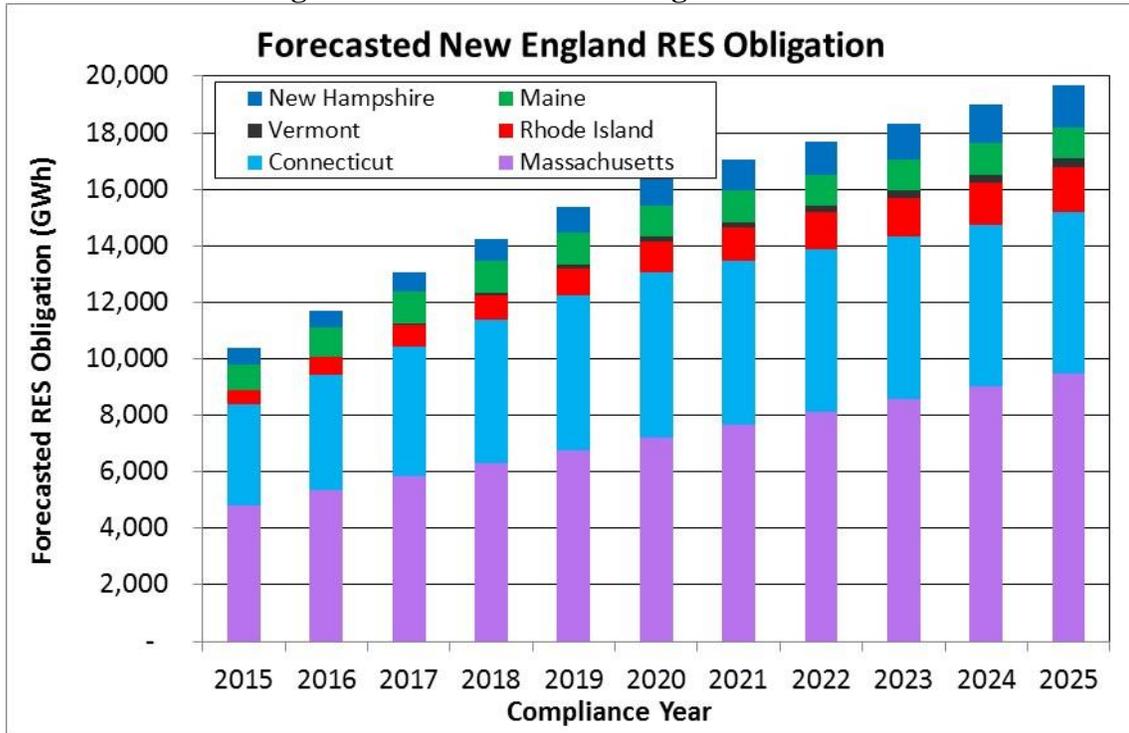


Figure 11: 2015 Composition of Aggregate RES Demand in New England

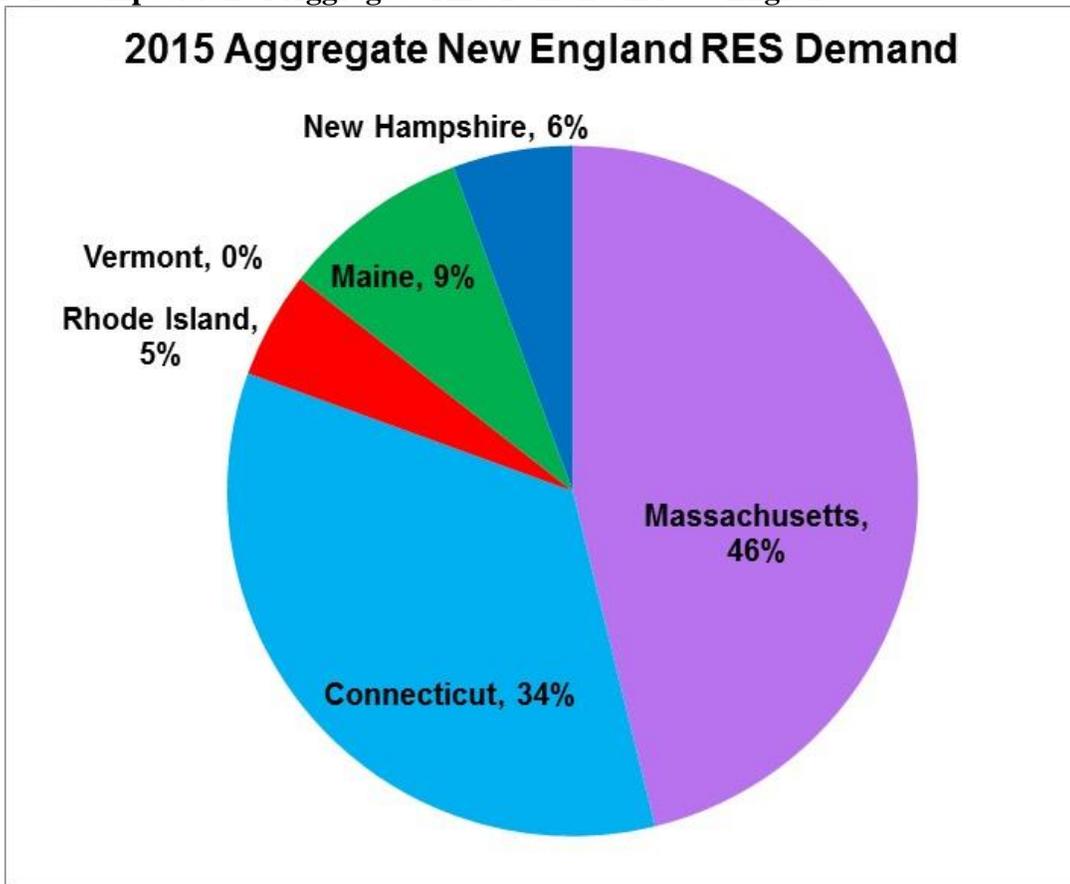
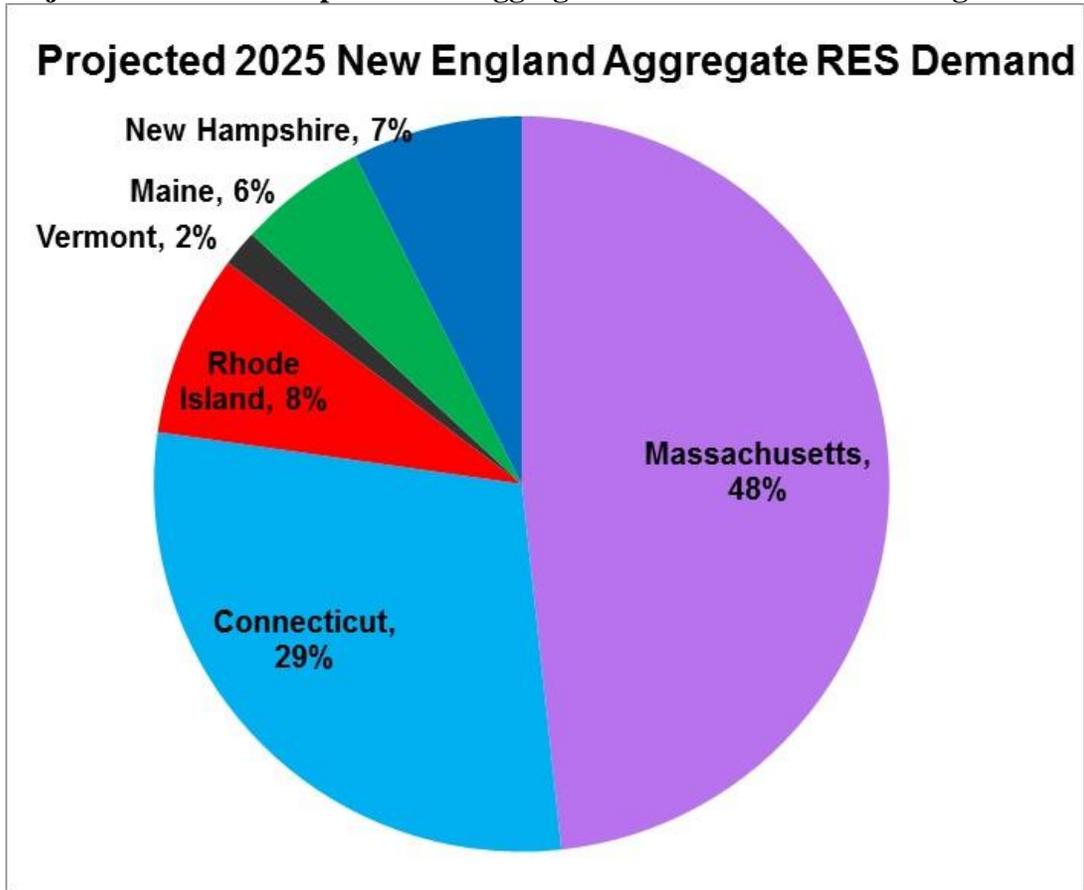


Figure 12: Projection of 2025 Composition of Aggregate RES Demand in New England



VII. Continuing and Developing Issues Related to the RES

This year, the PUC includes a new section of the Annual RES Compliance Report to describe important issues that the PUC has identified; worked on; and in some cases, resolved, in its role of administering and regulating the RES from the previous year. The issues here are not related only to the compliance year that is the focus of the report (in this case Compliance Year 2015); rather, these are issues identified since the last report was published (in this case April 2016).

Non-Compliance

In 2013, the first known instance of an Obligated Entity's failure to comply with its RES Obligation occurred. In that compliance year, a competitive supplier failed to cover its entire obligation, which would have required an additional 10 RECs to be retired, or \$653 to be paid in ACPs (Figure 3). Because of this failure, the RES target for Compliance Year 2013 was technically not met in full.

On July 30, 2015, just after the deadline for Obligated Entities to prove compliance with the RES in Compliance Year 2014, the PUC received notice from Glacial Energy (a nonregulated power producer or competitive supplier) that the company had filed for Chapter 11 bankruptcy protection effective April 11, 2014—more than a year earlier. The company left an outstanding obligation of 4,196 MWh in Compliance Year 2014 that would have required \$277,607 in ACPs. By the time the PUC became aware of the company's bankruptcy filing, two things had occurred. First, the company had served retail load in Q1 of 2015, thereby creating an RES obligation in Compliance Year 2015 that the company failed to satisfy (1,022 MWh or \$68,546 in ACPs). Second, as part of the settlement approved in the bankruptcy filing, Glacial Energy sold its assets and businesses, including its Rhode Island retail energy sales business.⁵³ With Glacial Energy's two years of non-compliance, the RES target technically has not been met in full for the past three years (Compliance Year 2013 through 2015).

In September 2015, the PUC began procedures for non-compliance described in Section 9 of the RES rules as a result of Glacial Energy's unmet RES obligation.⁵⁴ The rules allow the PUC to suspend a supplier's license and impose financial penalties if a company continues to be non-compliant with the rules. In this case, however, Glacial Energy was no longer a going concern and had already ceased doing business in Rhode Island. Therefore, the PUC had no effective means to ensure compliance in this instance.⁵⁵ This situation presented a heretofore unidentified weakness in the PUC's ability to administer and regulate the RES.

As a result, after raising this concern to the General Assembly, in 2016, the PUC and the Division of Public Utilities and Carriers (Division) supported Rhode Island legislation requiring nonregulated power producers to post financial assurance, subject to forfeiture for failure to comply with consumer protection rules and laws, as well as for non-compliance with RES rules and laws.⁵⁶ The Division is currently promulgating regulations regarding these new requirements, and the PUC is optimistic that the new consumer protection requirements will improve the PUC's ability to administer and regulate the RES. The 2016 law will create a funding source to allow ACPs to be transferred to Commerce Rhode Island in the event of noncompliance by Obligated Entities, thus reducing or eliminating shortfalls in meeting the annual RES targets.

⁵³ *In re* Gridway Energy Holdings Inc., et al., No. 14-10833 (CSS) (Bankr. Del. Apr. 6, 2015) (unpublished order).

⁵⁴ Rules and Regulations Governing the Implementation of a Renewable Energy Standard (RES); http://www.ripuc.org/utilityinfo/RES_Rules.pdf

⁵⁵ The matter of the PUC issuing warnings to and sanctions on Glacial Energy was further complicated by the fact that the company was under Chapter 11 bankruptcy protection.

⁵⁶ See R.I. Gen. Laws § 39-1-27.1(c)(9), as amended by 2016 P.L 483; 2016 P.L 487.

Energy Source Disclosure and Voluntary REC purchases

The Renewable Energy Standard Act requires the PUC to “establish and enforce right-to-know regulations requiring any [O]bligated [E]ntity to distribute energy source disclosures to all customers of each electrical energy product offered.”⁵⁷ The PUC is currently working to improve Obligated Entities’ (non-regulated power producers’) understanding of this requirement, as well as ensure that energy customers understand what energy products they have purchased.

The PUC’s Energy Source Disclosure rules require all Obligated Entities to provide their customers with an Energy Source Disclosure label annually and file the label with the PUC.⁵⁸ For each energy product a company sells,⁵⁹ the label must include the percentage of energy supplied from resources with different fuels that contributed to the total product. This requirement includes disclosing the percentage of the energy product that came from eligible renewable energy resources as well as non-renewable resources, such as natural gas, coal, nuclear, and large hydroelectric plants, together with the emissions caused by generation of energy. For example, at a minimum, in Compliance Year 2015, all Obligated Entities that complied with the RES through the retirement of RECs should report at least 8.5% of their energy came from eligible renewable energy resources.

Beginning in 2015, the PUC noted that some non-regulated power producers in the residential market were advertising up to 100% renewable energy products at prices very near or below National Grid’s Standard Offer Supply rate, which was only 8.5% renewable during 2015. Upon receiving the RES compliance filings of these Obligated Entities, the number of voluntary RECs retired by these same suppliers (if any) were vastly insufficient to achieve the high percentage of renewable energy advertised. Furthermore, the Energy Source Disclosure labels that were filed with the PUC by many of these Obligated Entities did not reflect the advertised percentages.

The apparent inconsistencies could have a number of explanations. One possible explanation is that none of these products advertised were actually sold to customers. Another is that the products were sold, but the Obligated Entities are not properly disaggregating these sales from their other energy products. Yet another is that the companies are using other tradable renewable commodities that are generated outside of the NEPOOL GIS renewable market to deliver the energy as advertised, and do not report the use of these commodities to the PUC or on their Energy Source Disclosure label. With regard to this possibility, we note that the Energy Source Disclosure rules require that “NE-GIS certificates shall be used for the calculation of the Energy source disclosure.”⁶⁰ The PUC intends to continue to investigate this issue, resolve any market confusion, and eliminate any inconsistent and improper reporting by Obligated Entities.

Underutilization of Net Metering RECs

In a recent filing, National Grid estimated that the existing net metering fleet in Rhode Island is capable of an annual production of approximately 43,242 MWh. The PUC estimates that approximately 25% of this energy is not linked to a facility that is registered as renewable energy resource for the purposes of generating and

⁵⁷ R.I. Gen. Laws § 39-26-9(a).

⁵⁸ Rules Governing Energy Source Disclosure; [http://www.ripuc.org/rulesregs/commrules/3642-FinalESD\(2-18-05\).pdf](http://www.ripuc.org/rulesregs/commrules/3642-FinalESD(2-18-05).pdf).

⁵⁹ Electrical energy product is defined in Rule III.C as “an electrical energy offering, including but not limited to last resort and standard offer service, that can be distinguished by its generation attributes or other characteristics, and that is offered for sale by an obligated entity to end-use customers. Rules Governing Energy Source Disclosure; [http://www.ripuc.org/rulesregs/commrules/3642-FinalESD\(2-18-05\).pdf](http://www.ripuc.org/rulesregs/commrules/3642-FinalESD(2-18-05).pdf).

⁶⁰ Rule V.D, Rules Governing Energy Source Disclosure; [http://www.ripuc.org/rulesregs/commrules/3642-FinalESD\(2-18-05\).pdf](http://www.ripuc.org/rulesregs/commrules/3642-FinalESD(2-18-05).pdf).

selling RECs. Assuming National Grid's most recent projection of Rhode Island REC prices (\$25.88), this represents approximately \$276,000 that is not monetized and sold for the benefit of the project owners.

There are a few possible reasons these facilities are not registered. For example, one possibility is that the unit owners prefer to keep the renewable attributes generated by their facilities to achieve a high fraction of renewable energy supplied to their host site. Another is that the unit owners are unaware of their potential eligibility. It is also possible that these unregistered units are typically small and, at \$25 per REC, would only generate a few hundred dollars annually to offset the cost of participating in the market, which would have significant start-up and ongoing costs.

Regarding the barriers presented in the latter two possibilities described above, the PUC has been open in discussing, with both potential public or private aggregators, how to take advantage of economies of scale that would lower the barrier to registering these units. This could provide a shared stream of income to both the aggregator and the unit owner, as well as benefit renewable generation deployment in Rhode Island and increase the supply of eligible New RECs in Rhode Island.

Remote Net Metering Clusters

In 2016, the PUC received its first applications for renewable energy resource registration from remote net metering facilities (also known as virtual net metering facilities). When PUC staff and consultants identified inconsistencies in the application of the first remote net metering system, the team quickly worked with the facility developers to resolve the issue. To reduce applicant error and improve the application process, the PUC has amended the application forms to better account for the characteristics of these remote facilities that were not anticipated in the original application.

After resolving that issue, the PUC team turned to the first remote cluster application, which was originally a series of separate applications submitted by owners that controlled subsets of what could be described as a single facility. Further complicating the issue was the way the facility was registered with the wholesale market and the fact that some of the owners were using their portion of the facility to remote net meter, while others had enrolled their portion of the facility in the Renewable Energy Growth Program.

After discovering and defining the problem, the PUC staff and consultant team worked with the facility owners, National Grid, NEPOOL GIS operators, and ISO-New England to determine a way to register the facilities as a single renewable asset, with temporary and permanent plans for disaggregating the facility. The PUC plans to work with National Grid to identify similar projects early in development when it is still possible to use this newly developed knowledge to avoid the challenges this group of projects faced.

Green Gas

In 2016, the PUC began examining the use of "green" or "renewable" gas in other jurisdictions. This gas could be used to generate renewable electric energy or could be used to generate renewable thermal energy. The current RES rules, however, do not allow such electric generation to be registered as renewable if the gas is transported on the gas distribution system. This is because tracking the delivery and sale of the renewable gas was determined to be too difficult and unreliable when the rules were promulgated. The PUC is now, however, investigating if bilateral contracts, such as those used to import renewable energy from New York, could be used to overcome these barriers identified in the rulemaking proceeding. Notably, gas utilities in other jurisdictions in the United States, and National Grid in the United Kingdom, offer green gas products.

VIII. Conclusion

Based upon the PUC's analysis of regulated utility data; competitive supplier data; and general market trends, the supply of, and demand for, New RECs were in equilibrium for the Compliance Year 2015, with the possibility that there was a slight oversupply of New RECs. The evidence for equilibrium or slight oversupply manifested through the sustained reduced reliance on ACPs for RES compliance as in 2014, coupled with a dramatic increase in the banking of New RECs. In fact, the use of 27 ACPs in total by three obligated entities could be described as *de minimis*, while the number of banked RECs (39,184) was the largest in Rhode Island's RES history and was more than double the amount banked in any previous compliance year.

As new capacity comes on-line and renewable energy imports increase, there is potential for this trend to sustain a mild market surplus for a short period. This is further supported by National Grid's projection that the utility's contracted and Renewable Energy Growth projects will potentially over supply the company with New RECS beginning in Compliance Year 2017. These conditions are likely what caused the decrease in RES cost to National Grid energy customers (down approximately \$4 million from Compliance Year 2014.) National Grid also projects a decrease in cost of the RES per kWh through Compliance Year 2017. Since National Grid is likely to remain the supplier with the greatest demand for New RECs over the next few compliance years, any oversupply the company has would likely help decrease REC prices in the market. It should be noted, however, that demand for RECs across the region is increasing, as states expand their renewable portfolio targets, and this regional demand could help drive up compliance costs in Rhode Island.

The PUC is concerned that, regardless of the improved market supply of renewable energy to meet the RES-mandated demand, obligated entities may fail to comply because of other financial issues. Compliance Year 2015 is the third year in a row during which the full RES target was technically not met because a non-regulated power producer filed for bankruptcy protection and failed to comply with their RES obligation. The PUC is optimistic that new consumer protection laws that took effect in 2016 and rules in promulgation will help reduce the risk of non-compliance. The PUC is also optimistic that it will make progress on continuing and emerging issues related to the RES.

The number of facilities and the amount of potential generation certified under the Rhode Island RES also continues to increase. Since the last Renewable Energy Standard Annual Report, the PUC has approved or conditionally approved twenty-three renewable energy facilities for RES certification – twenty-two with RES “New” and one RES “Existing” eligibility designation. These generators combined for almost 865 MW of additional certified New and Existing nameplate capacity. As of this report, 186 qualified renewable energy resource facilities have been approved or conditionally approved under the Rhode Island RES, accounting for over 2,900 MW of renewable energy nameplate capacity certified as New or Existing. This includes up to twelve MW DC of small scale solar PV capacity pre-approved by the PUC for National Grid's Small Scale Solar Aggregation – of which nearly half (5.844 MW), from 821 actual projects, have already been documented through National Grid's required quarterly filings (last submittal being for Quarter 3, 2016). Growth should continue as new policy initiatives supporting the renewable energy industry take hold, and local and regional economic conditions improve. The PUC will continue to examine and report on these trends in future compliance reports.

The success of the state's Renewable Energy Standard and growth in the number of qualified renewable energy facilities since 2007 leaves the PUC cautiously optimistic that the RES and similar programs throughout New England will continue to spur renewable energy development in the region. It is important to note, however, that the continued availability of long-term contracts – for both large-scale and distributed resources – and access to renewable energy financing are important to sustaining regional RPS success. Based on recent policies established and revised within Rhode Island, the State remains in good position to support

local and regional resource growth. These policies include long-term contracting statutes, the Renewable Energy Growth program, and cooperative long-term contracting initiatives between Massachusetts, Connecticut, and Rhode Island.

The PUC regards Compliance Year 2015 a success and the resources available in the marketplace as sufficient to meet RES demand. In the coming year, the PUC will continue to monitor the regional renewable energy marketplace and the State's continued ability to achieve its established targets in a just and reasonable manner.

Appendix 1: Alternative Compliance Payments

Section 7.3 of the Rhode Island Rules and Regulations Implementing a Renewable Energy Standard (RES Rules) permits Obligated Entities to meet the RES either through the purchase and retirement of NEPOOL GIS Certificates or through the provision of Alternative compliance payments (ACPs), obtained by making payment to the Rhode Island Commerce Corporation. The Rhode Island Commerce Corporation sets these funds aside in the Renewable Energy Development Fund to support renewable energy development. The ACP rate is the same for both New and Existing obligations.

Section 3.2 of the RES Rules states that ACPs must be made at a rate of \$50 per MWh of renewable energy obligation, in 2003 dollars, adjusted annually by the annual change in the United States Bureau of Labor Statistics' Consumer Price Index. Additionally, Section 7.9 of the Rules states that the PUC will publish the ACP rate by January 31 of each Compliance Year. For Compliance Year 2015, the ACP rate was \$67.07 per MWh of obligation.

Table A1.1: Historical Rhode Island ACP Rate

Compliance Year	ACP Rate
2007	\$57.12
2008	\$58.58
2009	\$60.92
2010	\$60.93
2011	\$62.13
2012	\$64.02
2013	\$65.27
2014	66.16
2015	\$67.07

Connecticut, Maine, Massachusetts, and New Hampshire all have similar ACP mechanisms – although New Hampshire passed legislation in 2012 to adjust the 2013 ACP downward to \$55.00 with subsequent escalations of only one-half of the Consumer Price Index thereafter. The Table below shows the 2015 ACP rates used by other New England states for the various REC classes defined in each state.

Table A1.2: Regional ACP Rates for Compliance Year 2015

2014 ACP Rates	CT	ME	MA	NH
Class I	\$55	\$67.07	\$67.07	\$55.75
Class II	\$55	N/A	\$27.53	\$55.75
Class III	\$31	N/A	N/A	\$45.00
Class IV	N/A	N/A	N/A	\$27.23

Appendix 2: Rhode Island RES 2015 Compliance Summary⁶¹

Table A2: 2015 Compliance Summary by Obligated Entity

Obligated Entity	Retail Sales (from filing)	RES Obligations (MWh)		NEPOOL GIS Certificates					Alternative Compliance Payments		Banked "New" RECs for Future Compliance
	Load (MWh)	6.5% "New" Obligation	2.0% "Existing" Obligation	"New" RECs	Banked from 2012 or 2013	Total "New" RECs	"Existing" RECs	"New" Applied to Existing	"New" (MWh)	"Existing" (MWh)	RECs Eligible for 2015 or 2016
<i>Inputs</i>											
Distribution Companies											
Narragansett	4,773,192	310,258	95,464	313,443	665	314,108	95,464	0	0	0	3,850
Competitive Suppliers											
Agera Energy, LLC											
Ambit Northeast, LLC											
Clearview (South Jersey Energy ISO 1, LLC)											
ConEdison Solutions											
Constellation NewEnergy, Inc.											
Constellation Energy Services, Inc.											
Devonshire Energy, LLC											
Direct Energy Business, LLC											
Direct Energy Business Marketing (Hess Energy Marketing)											
First Point Power (BP Energy Company)											
Gexa Energy, LLC (Next Era)											
Glacial Energy of New England, Inc.1											
Gulf Oil Limited Partnership											
Liberty Power Holdings LLC											
Mint Energy, LLC											
Moore Energy, LLC											
Noble Americas Gas & Power Corp.											
North American Power and Gas (BP Energy Company)											
South Jersey Energy Co. (Halifax American Operating Co. and Emera Energy)											
Town Square Energy, LLC											
TransCanada Power Marketing Ltd.											
Viridian Energy, LLC											
Westerly Hospital Energy Company LLC (Freedom Energy Logistics, LLC)											
XOOM Energy, LLC											
subtotal	3,245,713	210,985	64,928	221,383	24,174	245,557	89,971	37	18	9	35,334
Totals	8,018,905	521,243	160,392	534,826	24,839	559,665	185,435	37	18	9	39,184

⁶¹ Please note that data for individual competitive suppliers is confidential and not subject to public release. The limited competitive supplier data presented in Appendix 2 is a result of the Commission's confidential treatment of their filings. Thus, competitive supplier information within this report is only presented in a summarized fashion to avoid the potential identification of proprietary business activities.

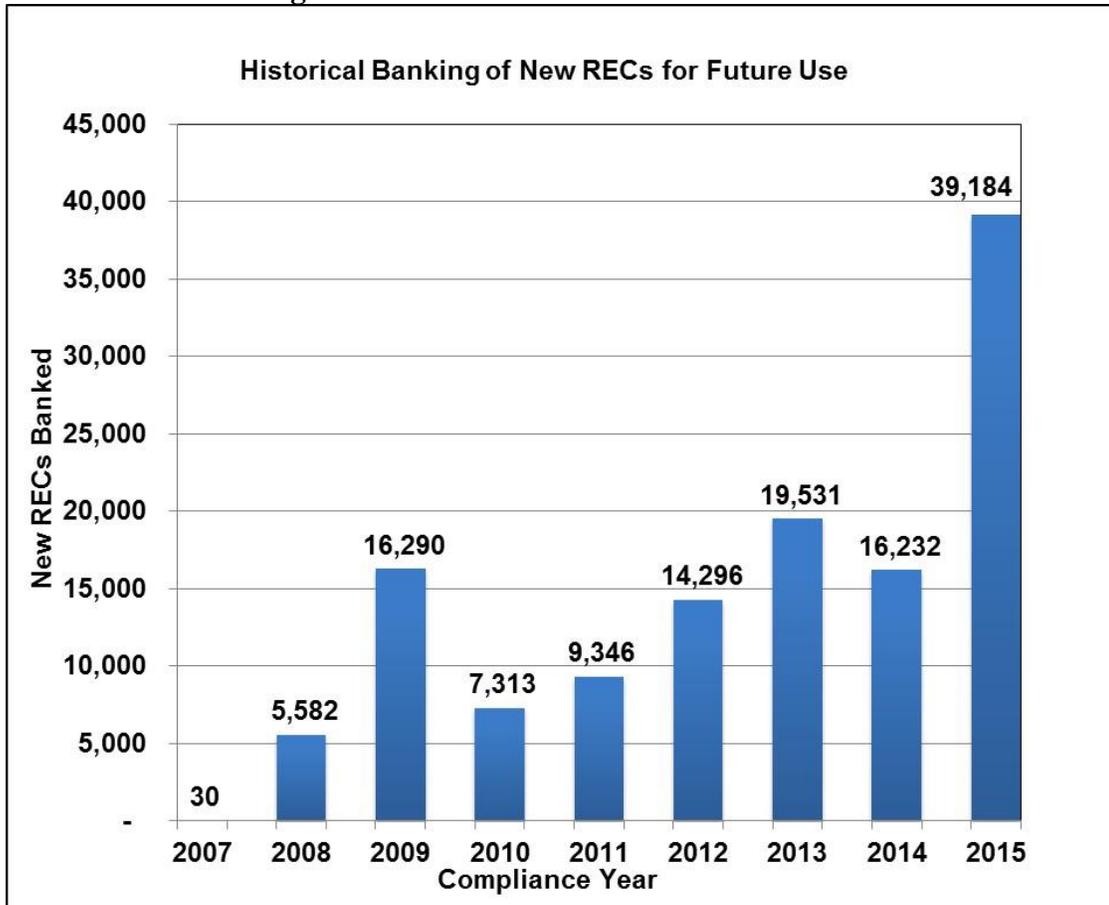
Appendix 3: Historical Breakdown of ACPs and Banking

The charts below provide additional detail on the breakdown of New and Existing RECs purchased by Rhode Island’s Obligated Entities for the period 2007-2015.

Table A3.1: Historic Utilization of Alternative Compliance Payments (ACPs)

	New		Existing		Total	
	MWh	\$	MWh	\$	MWh	\$
2007	3,563	203,519	227	12,966	3,790	216,485
2008	295	17,281	77	4,511	372	21,792
2009	1	61	1	61	2	122
2010	192	11,699	166	10,114	358	21,813
2011	84,402	5,243,896	3	186	84,405	5,244,083
2012	35,195	2,253,184	2	128	35,197	2,253,312
2013	803	52,412	61	3,981	864	56,393
2014	732	48,429	4	265	736	48,694
2015	18	1,207	9	604	27	1,811

Figure A3.1: Historical Banking of New RECs for Future Use



Appendix 4: Voluntary Clean Energy Programs

As a competitive retail electricity market, Rhode Island provides load serving entities with the opportunity to offer customized electric supply options to both their existing and prospective retail customers. One example of such an offer is for the voluntary purchase of renewable energy resources above and beyond the State’s minimum RES requirements. Collectively, the offers of such products are known as voluntary clean energy programs or as the voluntary green power market.⁶² National Grid’s “GreenUp” program is just one example.

For Compliance Year 2015, National Grid reported the purchase of RECs on behalf of end-use customers as part of voluntary clean energy programs. The table below provides a summary of the quantities of voluntary REC purchases made on behalf of customers.

Table A4.1 History of Voluntary REC Purchases on Behalf of RI Customers

New RECs		2008	2009	2010	2011	2012	2013	2014	2015
A	Total New RECs settled in Rhode Island on behalf of end-use customers for voluntary clean energy programs	5,350	7,480	6,642	3,750	689	111	513	502
A.1	<i>New Voluntary RECs – National Grid</i>	5,161	6,833	4,366	1,474	689	111	513	502
A.2	<i>New Voluntary RECs – All Competitive Suppliers</i>	189	647	2,276	2,276	0	0	0	0
Existing RECs		2008	2009	2010	2011	2012	2013	2014	2015
B	Existing RECs settled in Rhode Island on behalf of end-use customers for voluntary clean energy programs	7,624	2,603	0	0	538	2,181	119	718
B.1	<i>Existing Voluntary RECs – National Grid</i>	7,624	2,603	0	0	338	1,181	119	718
B.2	<i>Existing Voluntary RECs – Competitive Suppliers</i>	0	0	0	0	200	1,000	0	0

The NEPOOL GIS Certificate, or REC, is the currency used to demonstrate compliance not only with the mandatory RES, but also with voluntary renewable energy transactions. Through the use of GIS Certificates, which are created and transferred exclusively within the NEPOOL GIS, and the annual submission of RES compliance reports, the PUC ensures that a NEPOOL GIS Certificate used for RES compliance has not also been used to satisfy another obligation in Rhode Island or any other jurisdiction. For example, National Grid hosts voluntary renewable energy programs in both Rhode Island and Massachusetts. The use of NEPOOL GIS Certificates and the annual review of RES Compliance Reports ensure that each MWh of renewable

⁶² By comparison, the RES is referred to as the “mandatory” or “compliance” renewable energy market.

energy production is used to meet only one obligation. This prohibition on double-counting is codified at Section 7.10(iii)(e) of the RES Rules, which states:

Assurances satisfactory to the [PUC] that the New or Existing Renewable NEPOOL GIS Certificates have not otherwise been, nor will be, sold, retired, claimed or represented as part of electrical energy output or sales, or used to satisfy obligations in jurisdictions other than Rhode Island.

While voluntary markets represent only a small fraction of NEPOOL GIS Certificates, it is nonetheless important to the integrity of both programs that all certificates are tracked and settled appropriately.

Appendix 5: Current RES Annual Targets

Table A5: RES Targets, by compliance year through 2035, for both new and existing resources

Compliance Year	Total Target percentage	Minimum percentage from New Renewable Energy Resources	Percentage from <i>either Existing or New Renewable Energy Resources</i>
2007	3.0%	1.0%	2.0%
2008	3.5%	1.5%	2.0%
2009	4.0%	2.0%	2.0%
2010	4.5%	2.5%	2.0%
2011	5.5%	3.5%	2.0%
2012	6.5%	4.5%	2.0%
2013	7.5%	5.5%	2.0%
2014	8.5%	6.5%	2.0%
2015 ^a	8.5%	6.5%	2.0%
2016	10.0%	8.0%	2.0%
2017	11.5%	9.5%	2.0%
2018	13.0%	11.0%	2.0%
2019	14.5%	12.5%	2.0%
2020 ^b	16.0%	14.0%	2.0%
2021	17.5%	15.5%	2.0%
2022	19.0%	17.0%	2.0%
2023	20.5%	18.5%	2.0%
2024	22.0%	20.0%	2.0%
2025	23.5%	21.5%	2.0%
2026	25.0%	23.0%	2.0%
2027	26.5%	24.5%	2.0%
2028	28.0%	26.0%	2.0%
2029	29.5%	27.5%	2.0%
2030	31.0%	29.0%	2.0%
2031	32.5%	30.5%	2.0%
2032	34.0%	32.0%	2.0%
2033	35.5%	33.5%	2.0%
2034	37.0%	35.0%	2.0%
2035 ^c	38.5%	36.5%	2.0%

^a After conducting a review pursuant to R.I. Gen. Laws Sec. 39-26-6(d) (prior to the 2016 amendment), in Docket No. 4404, the PUC delayed implementation of the scheduled 1.5% increase in 2015. This resulted in a delay of all subsequent increases for a period of one year.

^b R.I. Gen. Laws § 39-26-4 was amended to extend an annual 1.5% increase from 2020 through 2035.

^c R.I. Gen. Laws §§ 39-26-1 to 10, as amended, does not explicitly maintain a RES proportion in 2036 and thereafter. *See also* footnotes 3 and 24 in the body of this report.