Massachusetts
Renewable and Alternative Energy Portfolio Standards (RPS & APS)

ANNUAL COMPLIANCE REPORT FOR 2009

NOVEMBER 17, 2010

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Executive Office of Energy and Environmental Affairs
Commonwealth of Massachusetts

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The Department of Energy Resources is pleased to release this 2009 Annual Compliance Report for the Massachusetts Renewable and Alternative Energy Portfolio Standards (RPS and APS). This report is the first to chronicle developments in clean energy markets catalyzed by provisions of the 2008 Green Communities Act that strengthened and broadened the RPS and established the APS.

The RPS and APS programs are important components of a Massachusetts clean energy strategy that is led first and foremost by energy efficiency programs, which were also strengthened tremendously by the Green Communities Act and are now being ramped up by DOER and our partners. The RPS and APS programs have created markets to enable electric energy needs not met through efficiency to be satisfied by cleaner and more diverse resources, while improving the cost-effectiveness of our economy, creating new industries and jobs, contributing to our greenhouse gas reduction commitments, and improving our environment.

As evidenced by this report, our efforts to meet new renewable energy targets with a range of renewable energy resources are being met with great success. With our effective policy framework and partnerships within the government and the private sector, we are well prepared to continue and accelerate this progress.

The 2009 Compliance Year saw the beginning of new programs for RPS Class II and the APS. We are seeing important participation in these programs, as well as policy design issues that DOER will carefully assess and make adjustments only if necessary. Through the APS, we have begun to accelerate the deployment of efficient combined heat and power (CHP) technology in the Commonwealth. In Compliance Year 2010, we look forward to seeing the first results of the RPS Solar Carve-Out program, which is off to a strong start and will accelerate the substantial growth that the Commonwealth's solar industry has enjoyed since 2008.

DOER acknowledges that 2009-2010 has been a period during which the Department has been unusually involved in regulatory revisions to the RPS, primarily pertaining to biomass and the solar program. It is DOER's intent to complete these revisions prudently and quickly, and re-establish stability in our policies and programs. We know this is very important to all of our partners who have effectively met the challenges and opportunities that these programs have afforded.

Together, we are creating a greener energy future for the Commonwealth.

Phil Giudice
Commissioner

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*On 1/11/11, DOER corrected the APS Minimum Standard for 2015 in Table 7. See footnote 55.

EXECUTIVE SUMMARY

The Renewable and Alternative Energy Portfolio Standards (RPS and APS) are statutory obligations under the Green Communities Act of 2008 that require Retail Electricity Suppliers to obtain from qualified sources certain percentages of the electricity needed to supply their Massachusetts retail customers each year. Sources eligible for RPS Class I are post-1997 renewable plants, for RPS Class II Renewable Energy pre-1998 renewable plants, for RPS Class II Waste Energy pre-1998 Massachusetts waste-to-energy plants, and for APS plants using certain "alternative energy" technologies. These standards commenced in January 2009. RPS Class I succeeded the original RPS, which began with an obligation of one percent in 2003, then increased by a half percent annually, reached four percent in 2009, and increases one percent annually thereafter. The new Class II obligations do not increase annually, while the new APS obligation increases by a half percent annually through 2014 and a quarter percent annually thereafter.

The twenty-eight Retail Electricity Suppliers with RPS and APS obligations in 2009 met their obligations with a mix of (a) "certificates" purchased from the owners of qualified Generation Units, (b) Alternative Compliance Payments (ACPs) in lieu of certificates, and (c) surplus certificates banked from 2007 and 2008 (for 2009, only applicable to RPS Class I). Each RPS Class I and Class II Renewable Energy Certificate (REC) and each Waste Energy Certificate (WEC) represents the RPS "attributes" of one megawatt hour (MWh)[1] of electricity generated during the compliance year from a Generation Unit qualified for one of the standards. Alternative Energy Certificates (AECs) represent the APS attributes of the energy from APS qualified facilities during the compliance year, calculated in a manner that is prescribed in the APS regulations for each specific APS technology.

The supply of 2009 RPS Class I RECs exceeded demand for the third consecutive year. The total retail load obligation in 2009 was 48,302 gigawatt hours (GWh),[2] of which the four percent RPS Class I obligation was 1,932 GWh. This obligation was met by 2,130 GWh of 2009 Class I RECs purchased by the Suppliers and 190 GWh of RECs banked from 2007 and 2008. Not a single Supplier fell short of its obligation. This resulted in a 388 GWh surplus of 2009 Class I RECs, of which 386 GWh were banked forward for future compliance by twenty-seven Suppliers.

Note that, in addition to the 2,130 GWh of MA RPS Class I RECs documented in the 2009 Filings, another 429 GWh of MA RPS Class I RECs that *also* qualified for RPS in other New England states were evidently used for RPS in those states. Another 59 GWh of RECs were not used for RPS; of those, most were sold into the voluntary green power market, while some likely went unsold by the generators.

No increased electricity generation from new renewable sources in Massachusetts in 2009 was evident from the Filings, in contrast to moderately increased generation from wind farms in northern New England and very strong growth from wind farms in southeastern Canada. Meantime, supplies from northern New England biomass plants continued to decline in 2009. Most RPS Class I RECs came from electricity generated by wind turbines (37%), landfill methane fueled power plants (32%), and biomass-fired power plants (27%). The remaining supply came from anaerobic digester plants, hydroelectric plants, and solar photovoltaic arrays. Geographically, New York resources (landfill methane plants and wind farms) and resources in Maine (biomass and wind farms) each supplied 25% of

[1] One megawatt hour = one thousand kilowatt hours.

[2] One gigawatt hour = one thousand megawatt hours.

the RECs, wind farms in adjacent Canadian provinces 16%, New Hampshire (mostly biomass) 14.5%, and Massachusetts (mostly landfill methane) 9%.

The supply of RECs for the RPS Class II Renewable Energy requirement was significantly short of the demand. With only seven pre-1998 hydroelectric plants qualified in 2009, the Suppliers were able to acquire fewer than 36 GWh of RECs to meet the obligation of 590 GWh. Consequently, 94% of the obligation was met by ACPs, which totaled $13,872,775.

The supply of WECs for the RPS Class II Waste Energy requirement, on the other hand, exceeded demand. The Suppliers obtained 1,047 GWh, which was much more than the 574 GWh of obligation, and 330 GWh of surplus WECs were banked forward for future compliance.

The supply of 130 GWh of AECs for the APS, of which 129 GWh came from combined heat and power plants and 1 GWh from flywheel storage units, was only moderately short of demand. 73% of the 164 GWh APS obligation was met by AECs and 27% from ACPs totaling $890,380, while almost 9 GWh of surplus AECs were banked forward.

In sum, RPS Class I continued providing an incentive for the accelerated development of new Renewable Generation Units, while RPS Class II has begun to provide incentives for the continued and improved operation of older renewable and waste energy facilities, and APS has begun to provide a significant boost for combined heat and power (CHP) plants, which bring much higher efficiencies to the use of natural gas. Beginning in 2009, CHP and renewable energy resources, as well as clean energy development in the entire nation, have been additionally stimulated by federal recovery funds.

Looking ahead, 2010 has seen the launch of the Solar Carve-Out within RPS Class I, as well as proposed new eligibility standards for the Class I use of woody biomass, based on forest sustainability and life-cycle greenhouse gas emissions criteria. The biomass proposal is the subject of a public rulemaking process that is expected to reach its conclusion this winter.

SECTION ONE

INTRODUCTION TO THE RENEWABLE AND ALTERNATIVE ENERGY PORTFOLIO STANDARDS

This section briefly describes the Massachusetts Renewable and Alternative Energy Portfolio Standards (RPS and APS) as structured in 2009 pursuant to the Green Communities Act of 2008.[3] The last two paragraphs briefly summarize changes that took effect during 2010, which is after the period covered in this report.

The original RPS was a statutory obligation that Retail Electricity Suppliers ("Suppliers"), both regulated distribution utilities and competitive suppliers, obtain for their retail customers a small but growing percentage of electricity from sources that qualified as New Renewable Generation Units, namely generators that began operation after 1997 and used eligible resources and technologies – especially solar, wind, landfill methane, and biomass (meeting low emission and advanced technology criteria). The RPS began with an obligation of one percent in 2003, increased by a half percent annually through 2009, when it was renamed RPS Class I and reached four percent. Since 2009, RPS Class I has increased by one percent annually. The obligation is five percent in 2010 and will be fifteen percent in 2020. In addition to RPS Class I, as of 2009 the Retail Electricity Suppliers must comply with the three

[3] The RPS provisions of the Electricity Restructuring Act of 1997, later replaced by provisions of the Green Communities Act of 2008 (www.mass.gov/legis/laws/seslaw08/sl080169.htm), were incorporated in Massachusetts law at M.G.L., c. 25A, §11F, which is available at http://www.malegislature.gov/Laws/GeneralLaws/PartI/TitleII/Chapter25A/Section11F.

new energy portfolio standards, which are also structured as percentage obligations for Suppliers, but with each of the standards having different eligibility criteria and percentage obligations.

As of 2009, changes mandated by the Green Communities Act were implemented in three sets of regulations, respectively for RPS Class I, RPS Class II, and the Alternative Energy Portfolio Standard.[4] The new Regulation for RPS Class I (formerly RPS) continues to limit eligibility to post-1997 Generation Units (but with some grandfathered Vintage Generation Units from RPS still partially qualified). The list of RPS eligible resources was expanded to include hydroelectricity plants of small size (up to 25 MW) and minimal environmental impact, [5] as well as geothermal and "marine and hydro-kinetic" facilities. In addition, Behind-the-Meter Units (a.k.a., distributed generation), which formerly had to be within Massachusetts, now can qualify for RPS anywhere in the ISO New England (ISO-NE) control area (the New England grid), but with new metering provisions.[6]

RPS Class II is limited to and intended to support the continued operation of pre-1998 Generation Units. The RPS Class II Renewable Energy subclass is for Units that meet the same technology, resource, and location criteria as Class I, but with some differences for hydropower and biomass. The RPS Class II Waste Energy subclass provides incentives for pre-1998 Waste Energy generation, which had been listed as "renewable" but not "eligible" under the original RPS; however, the Class II eligibility of Waste Energy Generation Units (a.k.a., trash-to-energy plants) is conditioned on Massachusetts-specific recycling and other regulatory criteria.

The Alternative Energy Portfolio Standard (APS) is limited to and intended to support certain "alternative" largely non-renewable technologies and resources whose development the Legislature deemed worthy of incentives modeled on the RPS mandate.[7] Two APS technologies are active to date: Flywheel Storage and Combined Heat and Power (CHP, a.k.a., cogeneration).[8] The Alternative Energy Certificates (AECs) earned by a CHP Unit represent the energy saved (in MWh) by operating the Unit as compared to separately operating an on-site thermal plant and drawing electricity from the grid.[9] The quantity of AECs earned by a flywheel storage Unit is equal to 65% of the electricity discharged by the Unit and represents a value placed upon the reduction of peak power generation and voltage regulation provided by the Unit.

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[4] The new Regulations, respectively 225 CMR 14.00 (RPS Class I), 15.00 (Class II), and 16.00 (APS) became effective on an "emergency" basis on January 1, 2009, and the subsequent, formal rulemaking process concluded with the promulgation of final revised Regulations effective on June 12, 2009. This section describes the programs in their final, June 12th form.

[5] Hydroelectric plants in Class I are limited to post-1997 facilities of no more than 25 MW *or* to incremental output at pre-1998 facilities attributable to added capacity or efficiency improvements amounting to no more than 25 MW. However, the capacity for Class II eligibility is limited to no more than 5 MW per facility. In addition, stringent statutory environmental criteria apply to facilities under both Class I and Class II; these are normally met by certification by the Low Impact Hydropower Institute, a non-profit organization located in Portland, ME. See the details for Class I in 225 CMR 14.05(1)(a)6 and for Class II 225 CMR 15.05(1)(a)6.

[6] Another substantive change in RPS Class I is the addition of a provision that qualified plants not commit their generation "capacity" to Control Areas other than ISO-NE, with some exceptions, In addition, non-intermittent generators must participate in the ISO-NE Forward Capacity Market except to the extent that their capacity is previously committed elsewhere. For details, see 225 CMR 14,05(1)(e). In the case of plants outside of ISO-NE, the import rules now include a round-tripping prohibition, for which see 225 CMR 14.05(5)(d).

[7] The APS statute is at this link: http://www.malegislature.gov/Laws/GeneralLaws/PartI/TitleII/Chapter25A/Section11F1~2.

[8] Other technologies qualified under APS include the displacement of fossil fuels by certain paper-derived fuel cubes, coal gasification with permanent carbon sequestration, and "energy efficient steam technology. Stringent carbon dioxide emission reductions and other emission and efficiency criteria apply. However, regulations have not yet been developed for the second and third of the technologies listed in this footnote.

[9] For more detail of how an AEC is calculated for CHP Units, see the APS Regulation in 225 CMR 16.05(1)(a)2.

Suppliers meet their annual RPS and APS obligations by acquiring a sufficient quantity of MA RPS Class I and Class II qualified Renewable Energy Certificates ("RECs"), Class II Waste Energy Certificates ("WECs"), and APS-qualified Alternative Energy Certificates ("AECs"). These certificates are created and recorded at the NEPOOL Generation Information System ("GIS").[10] The GIS tracks all electricity generated within the ISO-NE control area and fed onto the New England grid, as well as electricity exchanged between ISO-NE and adjacent control areas.[11] For each megawatt-hour (MWh) of electricity, whether renewable or not, the GIS creates and deposits one serially-numbered, electronic certificate in the account of the facility that generated or imported the MWh. A certificate for energy output that qualifies for one or more of the New England states' energy portfolio standards is coded and named accordingly.[12] A Supplier with a portfolio standard obligation purchases RECs, WECs, and AECs from a generator, either directly or via a broker, and they are then electronically transferred from the generator's GIS account to the Supplier's GIS account. Each GIS certificate qualified for a Massachusetts Portfolio Standard can be used for compliance with *only* the Standard for which it is qualified; thus, a Class I REC cannot be used for compliance with Class II, nor visa versa.

The RPS and APS requirements are further detailed in the RPS and APS Regulations and on DOER's RPS/APS web pages (www.mass.gov/energy/rps), which also explain how facilities become qualified and how Suppliers demonstrate their compliance with RPS.[13]

In January 2010, a Solar Carve-Out within RPS Class I was launched, also pursuant to the Green Communities Act. Beginning in 2010, each Supplier will have to demonstrate annually that, *within* its Class I obligation, it has obtained a very small mandated percentage of Solar Carve-Out RECs (SRECs). An SREC represents one MWh of electricity generated by a solar photovoltaic (PV) system within Massachusetts that meets certain eligibility criteria, including limitations on the types and percentages of public funding of the system's installation costs. On a dollar per MWh basis, PV is now much costlier to install than the other major Class I renewable technologies. That expense is reflected in the cost structure embodied in the revised Class I regulation, with the intent of providing sufficient incentive to bring 400 MW of new, in-state, PV generating capacity on line by 2020.[14]

A rulemaking is currently underway which will significantly change the eligibility criteria pertaining to woody biomass use.[15] Changes in biomass eligibility will not take effect before 2011.

[10] See www.nepoolgis.com.

[11] The ISO-NE control area, covering most of New England, is a geographic region in which a common control system is used to maintain scheduled interchange of electrical energy within and without the region. ISO New England Inc. is the independent system operator for the ISO-NE control area, operating the New England electric power grid. See http://www.iso-ne.com/aboutiso/index.html.

[12] Not every certificate that is termed a REC is qualified for MA RPS. Each REC is encoded to indicate the Generation Unit name, location, and fuel from which the electricity was generated, as well as the state or states for which the Generation Unit and its RECs are RPS qualified. A MA qualified REC that is also qualified or RPS in another New England states can be sold, transferred, and used to meet either state's RSP obligation. By the end of each REC trading year, each REC can be located in only one state-specific Supplier sub-account at the NEPOOL GIS, so double-counting of RECs is not possible. Each state's RPS statute and regulations define the RPS eligibility of generation a bit differently, and those definitions can change over time.

[13] The Regulations for RPS and APS are available via DOER's RPS/APS homepage, http://www.mass.gov/energy/rps.

[14] For considerably more detail about the Solar Carve-Out, visit the RPS/APS homepage.

[15] DOER's current rulemaking activities can be accessed at DOER's RPS/APS homepage.

SECTION TWO

RPS CLASS I COMPLIANCE IN 2009

Summary

The total supply of electricity from RPS Class I Generation Units (represented by RECs) exceeded demand in 2009 for the third consecutive year, following the supply shortages of the previous four years of RPS, 2003-2006. The 2009 RPS Class I obligation for each Supplier was four percent (4%) of its retail load obligation at the NEPOOL GIS. The total retail load obligation in 2009 was 48,301,821 MWh, for which the 4% obligation was 1,932,089 MWh.[16] The total Class I REC supply was 2,319,753 MWh, which consisted of 2,129,918 RECs from 2009 generation plus 189,835 MWh of surplus banked from 2007 and 2008. None of the obligation was met through Alternative Compliance Payments (ACPs), for which the rate had been set at $60.92 per MWh.[17] The 2,319,753 MWh total yielded a surplus of 387,664 MWh, of which 386,059 MWh were eligible to be banked for compliance use in 2010 and 2011. See Table 2 for a comparison of the 2009 figures with those of previous years.

The Massachusetts RPS Class I (as well as Class II and APS) has a flexibility provision for any Supplier that holds compliance year RECs in excess of its current compliance obligation. The Supplier can "bank" towards its RPS compliance in the following year or two a quantity of RECs that does not exceed 30% of its RPS obligation in the year when the RECs were generated.[18] Given a REC surplus in 2009 and low REC prices during the 2009 REC trading year, all except one of the 28 Suppliers acquired more RECs than they needed for 2009 compliance, possibly as a hedge against any possible supply shortages and price increases for RECs in 2010 or 2011. Some Suppliers also might have anticipated a need for more RECs in 2009 than proved to be required to cover their obligations.

The supply of RECs from Class I Renewable Generation in Massachusetts paused in its historically slow but steady annual increase. The rate of that increase has been below the overall rate of increase for the northeast region as a whole, particularly, in 2009, from Vermont and Prince Edward Island. As a result, the *percentage* of total REC supply coming from in-state projects continued to decline.

Note that all figures regarding the quantities and percentages of MA Class I RECs from different jurisdictions must be understood in the context of a regional market in which the supply of RECs exceeds the demand and most, but not all, MA Class I RECs can be used for RPS compliance in multiple New England states. Thus, many more RECs are actually created than are reflected in the MA 2009 RPS Compliance Filings. Almost 429,000 RECs that were not used for MA RPS also qualified for one or more RPS programs in other New England states and were settled variously into Suppliers' state-specific, GIS subaccounts for the other states, presumably for RPS compliance in those states (97% of them for RI, NH, and CT, 3% for ME and VT). In addition, more than 59,000 RECs were either settled in MA subaccounts but not used for RPS or were not settled in any state subaccounts; many of those RECs were used for voluntary "green product" sales, while some likely went unsold by the generators.

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[16] Compliance is calculated separately for each Supplier, with fractions always rounded upwards. The figure given here is the total of those individual obligations, which is slightly higher than 4% of 48,301,821 MWh, namely 1,932,073.

[17] See the RPS Regulations at 225 CMR 14.08(3) regarding the procedures for ACP and the use of ACP funds. The announcement and calculation of the annual ACP rate can be accessed via the Compliance Information for Retail Electric Suppliers link on the RPS/APS homepage at http://www.mass.gov/energy/rps.

[18] For example, if a Supplier had a 2009 RPS Class I retail load obligation of one million MWh, then its 4% RPS obligation would be 40,000 MWh. If the Supplier acquired more Class I RECs than it needed to meet the Class I obligation, it could bank up to 12,000 MWh (30% of 40,000 MWh) of those 2009 RECs to use towards its Class I obligations in 2010 and 2011.

Compliance Details

DOER received filings from 28 Retail Electricity Suppliers, entities that served retail load in Massachusetts during 2009. These included four investor-owned, distribution companies that are regulated by the Massachusetts Department of Public Utilities (DPU) and twenty-four competitive suppliers that are licensed, but not regulated by the DPU. [19] In Table One, two competitive suppliers new to the Massachusetts RPS market are listed in italics.

Table One
2009 Massachusetts Retail Electricity Suppliers

Distribution Utilities	
Fitchburg Gas & Electric Co., d/b/a Unitil	NSTAR Electric Co.
Massachusetts and Nantucket Electric Companies, d/b/a National Grid	Western Massachusetts Electric Co.
Competitive Suppliers	
Consolidated Edison Solutions, Inc.	Harvard Dedicated Energy, Ltd
Constellation NewEnergy, Inc.	Hess Corporation
Devonshire Energy LLC	Horizon Power and Light LLC
Direct Energy Business, LLC	Integrys Energy Services, Inc.
Direct Energy Services, LLC	Liberty Power Holdings LLC
Dominion Retail, Inc.	MXenergy Electric, Inc.
East Avenue Energy LLC	Pepco Energy Services, Inc.
Easy Energy of Massachusetts LLC	Sempra Energy Solutions LLC
GDF Suez Energy Resources NA, Inc.[20]	South Jersey Energy Company
Gexa Energy, LLC	Spark Energy, LP
Glacial Energy of New England, Inc.	TransCanada Power Marketing Ltd.
Hampshire Council of Governments	WFM Intermediary New England Energy LLC

All of the Suppliers complied with their RPS obligations, with 100% of the compliance met by Class I Renewable Generation. Most of the compliance (90.2%) came from 2009 generation, as distinguished from using RECs banked from 2007 and 2008 compliance surplus (9.8%). For the first time in program history, none of the 2009 compliance obligation was met using the Alternative Compliance mechanism, that is, by making ACPs to the Massachusetts Clean Energy Center (MassCEC).[21] About 20% of the RECs from 2009 generation were qualified to be banked forward for use towards RPS Class I Compliance in 2010 or 2011; the comparable figure for 2008 was about 11%.

The detailed compliance figures for all six of the RPS compliance years are in Table Two, with more detail for 2009 in Appendix Two. The progression of compliance during the first seven years of

[19] Regulated distribution utilities provide electricity under "Basic Service" to those customers in their franchise territories who do not purchase electricity from competitive suppliers. Competitive suppliers compete for and supply electricity to retail customers in any or all of the distribution utility territories.

[20] The former Suez Energy Resources NA, Inc. is now a constituent of GDF Suez.

[21] See footnote 17 regarding the ACP mechanism.

the program, 2003-09, is illustrated in Figure One. The initial shortage of qualified generation and RECs is evident in the high reliance on ACPs during 2004-06, a trend that was reversed in 2007. The RPS obligation clearly has demonstrated its success in providing incentive for accelerated development of new Renewable Generation Units since the original RPS regulations were issued in April of 2002.

Table Two
Aggregated Information from the RPS Class I
Annual Compliance Filings, 2003-2009 (MWh)[22]

	2009	2008	2007	2006	2005	2004	2003
CY Retail Sales (load obligation) [23]	48,301,821	50,321,635	50,978,101	50,143,130	51,558,778	50,063,092	49,834,324
CY aggregated RPS Obligation[24]	1,932,089	1,761,257	1,529,343	1,253,578	1,031,176	750,946	498,343
Total RECs from CY Generation	2,129,918	1,896,008	1,599,533	938,772	644,849	444,680	304,112
minus CY total surplus RECs	(387,664)	(216,550)	(87,957)	(9,458)	(739)	(20,297)	(60,837)
Net CY RECs for CY Obligation	1,742,254	1,679,458	1,511,576	929,314	644,110	424,383	243,275
plus banked from pre-CY surpluses[25]	189,835	80,605	6,863	1,661	19,531	61,147	255,069
Total RECs used for CY Obligation	1,932,089	1,760,063	1,518,439	930,975	663,641	485,530	498,344
plus total ACP credits	0	1,208	10,920	322,625	367,858	265,424	181
Total for Compliance Obligation	1,932,089	1,761,271	1,529,359	1,253,600	1,031,499	750,954	498,525
Surplus Attributes banked forward[26]	386,059	210,580	80,743	9,458	739	20,297	61,314
ACP proceeds (in dollars, rounded)	$0	$70,765	$623,750	$17,786,316	$19,566,367	$13,645,448	$9,056

[22] CY is the abbreviation for Compliance Year, which is coterminous with a calendar year. Note that these are aggregated figures. However, compliance is calculated separately for each Supplier, with fractions always rounded upwards. Therefore, the RPS Obligation as calculated on the total "CY Retail Sales" is always less than the "CY Aggregated Compliance Obligation" Listed in this table and elsewhere in the report.

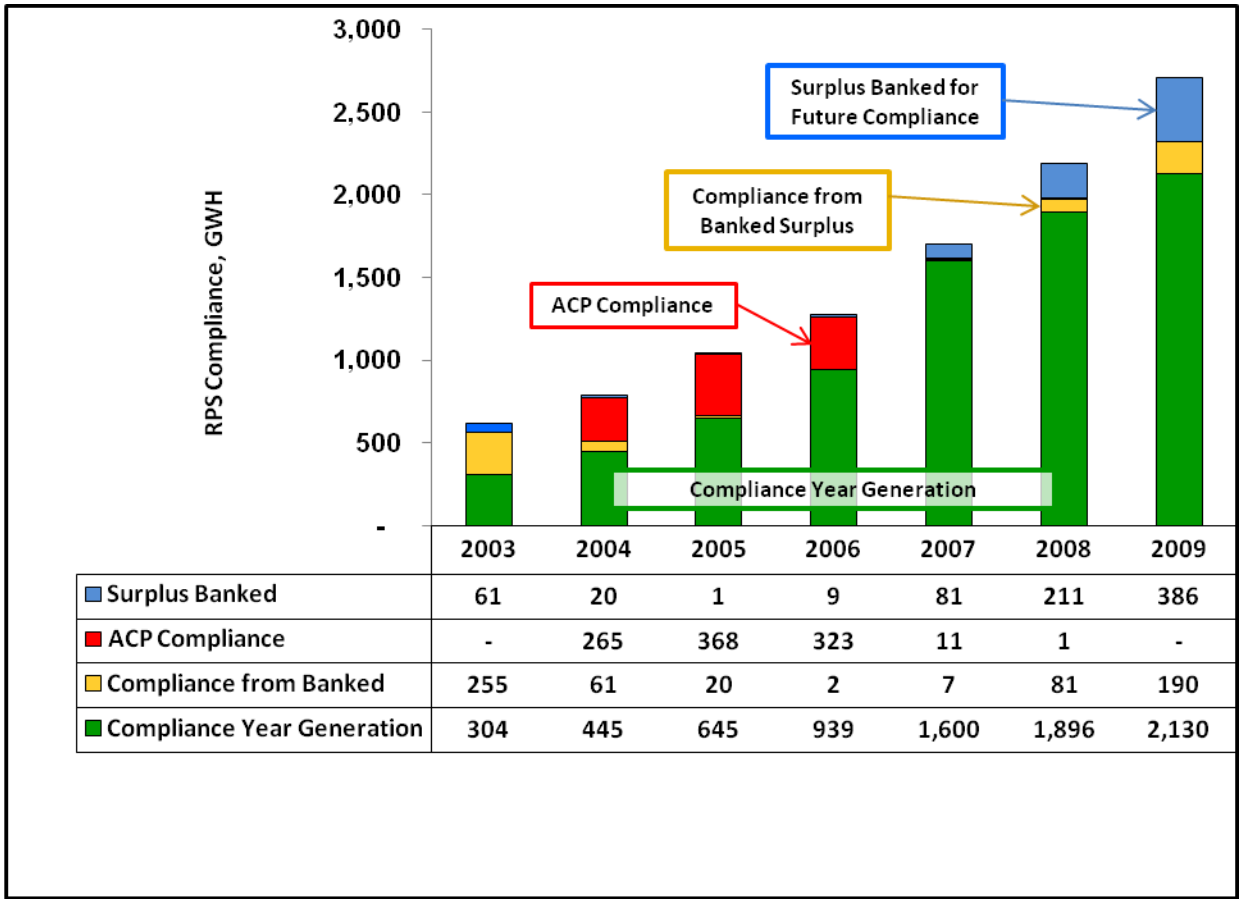
[23] DOER requires that each supplier use as its "retail electricity sales" the quantity of its "load obligation" assigned at the NEPOOL GIS (see Part 4 of the NEPOOL GIS Operating Rules, available via https://www.nepoolgis.com/). For additional detail, see the *Guideline for Retail Electricity Suppliers on the Determination of Sales to End-use Customers for Calculating the Annual RPS Obligation*, at http://www.mass.gov/doer/rps/rps-compliance-guideline.pdf. (Note that the figure for 2007 on this row was corrected on 12/1/08.)

[24] The RPS/RPS Class I Minimum Standard obligation for each of the CYs 2003 through 2009 was, respectively, 1%, 1.5%, 2%, 2.5%, 3%, 3.5, and 4%.

[25] RECs for RPS qualified New Renewable Generation from 2002, were "banked" by some Retail Suppliers to use for 2003 compliance under the "Early Compliance" provision of the 2002 regulation at 225 CMR 14.08(2) and 14.09(2). Those RECs jump-started the program when the financial incentives of RPS had not yet resulted in a sufficient supply of RECs.

[26] The large differences in some years between the quantity of surplus RECs and the quantity banked is due to some Suppliers having purchased more RECs than the limit that they were permitted to bank. Recall that a Supplier cannot bank a quantity of RECs that is greater than 30% of its total RPS compliance obligation for the year in which those RECs were generated. Also note that banked RPS Class I RECs can be applied to compliance only with the RPS Class I obligation, not any other portfolio standard class or subclass.

Figure One
RPS Class I Compliance, 2003-2009



	2003	2004	2005	2006	2007	2008	2009
Surplus Banked	61	20	1	9	81	211	386
ACP Compliance	-	265	368	323	11	1	-
Compliance from Banked	255	61	20	2	7	81	190
Compliance Year Generation	304	445	645	939	1,600	1,896	2,130

Generation Sources by Location

The percentages of 2009 RECs from the six New England states, New York, and the adjacent Canadian provinces are illustrated in Figure Two. Note that a small portion of northern Maine ("NMISA") is outside of the New England grid and connects to ISO-NE via the New Brunswick control area; therefore, the output of NMISA generators must be imported to ISO-NE to earn RECs, as with all generation outside of and adjacent to ISO-NE. Figure Three illustrates the seven year trend of RECs, 2003-2009, by location of the generation. Appendix Three has a pair of tables listing the data from which these graphs were generated.

Between 2008 and 2009, the supply of RECs for MA RPS Class I compliance that was sourced from Generation Units inside the ISO-NE control area increased by almost 12%, while the supply of RECs from electricity imported from Units outside of ISO-NE increased by 13%, as contrasted with the previous year-on-year increases of 0% and 59%. As a result, the ISO-NE share of the 2009 total remained at 56% from 2008 to 2009, and the imported share remained at 44%. While about 62% of 2008 imports came from New York, the New York share of imports dropped to 56% in 2009 in the face of much faster growth of wind imports from Prince Edward Island (in the New Brunswick control area).

Figure Two
2009 RPS Class I Compliance by Generator Location

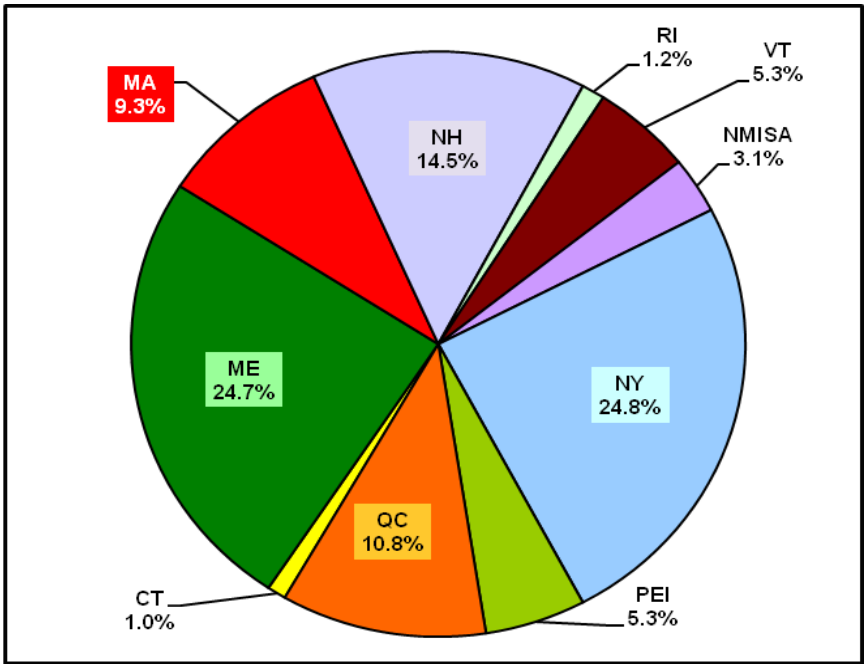
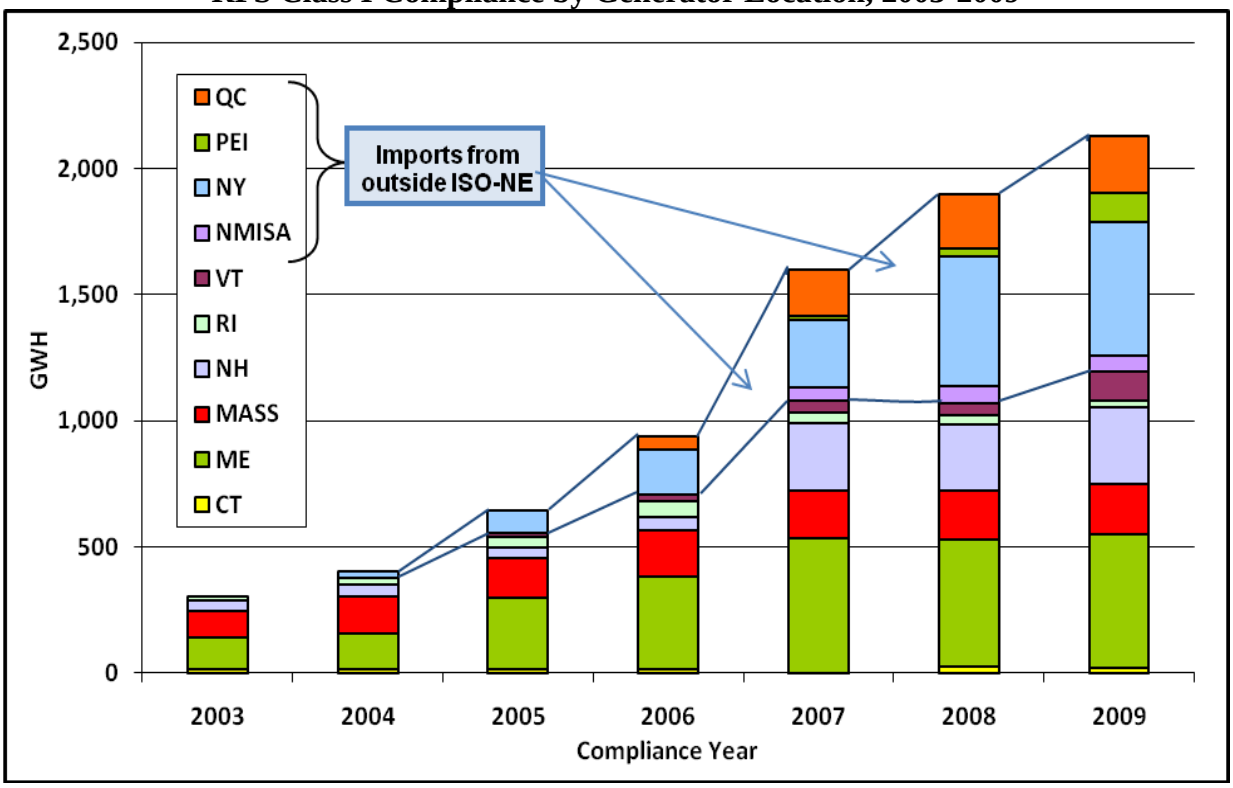


Figure Three
RPS Class I Compliance by Generator Location, 2003-2009



Generation Sources by Type

The percentages of 2009 RECs from the qualified types of renewable resources are illustrated in Figure Four, while Figure Five illustrates the seven year trend of RECs, 2003-2009, by resource type. Appendix Three has a pair of tables listing the data from which these graphs were generated.

Most of the wind RECs came from wind farms in "control areas" adjacent to the ISO-NE control area, namely New York, Quebec, and New Brunswick (including northern Maine [NMISA], Nova Scotia, and Prince Edward Island). RECs for non-ISO-NE resources are earned only on electricity imported into ISO-NE. Wind output has been increasing at a higher rate than biomass and landfill methane since 2005 and, in 2009, became the largest single source of renewable electricity for MA RPS. The wind power share of the growing REC pie has grown from 7% in 2006, to 19% in 2007, to 27% in 2008, and to 37% in 2009. Given the magnitude of the wind resource – in the mountains, on the New England coast, off the coasts of Massachusetts and elsewhere, and in the adjacent control areas – DOER expects wind to continue increasing its market share in the RPS.

The bulk of landfill methane electricity output is from Massachusetts, Rhode Island, and New York, but with some landfill projects in each of the other New England states. Landfill output was the largest source of RPS RECs for several years but increased more slowly than that of biomass during 2003-2007 and was overtaken by biomass as the largest source in 2008. However, energy from new landfill plants in New York entered the market in 2008 while energy from biomass declined. At 32%, landfill methane was the second largest REC source in 2009, followed by biomass.

Almost all the RPS-qualified biomass generation is located in Maine and New Hampshire. Biomass plant output increased substantially from year to year during 2003-2007, overtaking landfill methane in 2007 as the largest single resource type. In 2008, however, while landfill methane generation rose substantially, the output from biomass plants declined, with two plants in Maine having stopped production; one of those plants has since resumed production, while the other is still shuttered.

Hydroelectricity was added to the qualified mix for RPS Class I in 2009, mostly from post-1998 increases in output at some older plants due to capacity and efficiency upgrades. It provided only 2% in 2009 but is expected to show modest increases in 2010.

Most of the anaerobic digester output, which provided under 2% of the 2009 RECs, is from the Deer Island Wastewater Treatment Plant, supplemented by very small, dairy farm manure-based units, mainly in northern Vermont; however, RECs from the Vermont facilities have provided hardly any RECs for MA RPS compliance. A not inconsiderable anaerobic digester potential may exist at additional wastewater treatment plants and at food processing facilities in Massachusetts and other states.

Solar photovoltaic arrays, all of them in Massachusetts, provide a small but growing quantity of RECs for MA RPS; that growth will accelerate from 2009 onward, propelled by focused federal stimulus funding, as well as state incentives, since 2009 and by the RPS Class I Solar Carve-Out launched in January 2010.

Figure Four
2009 RPS Class I Compliance by Generator Type

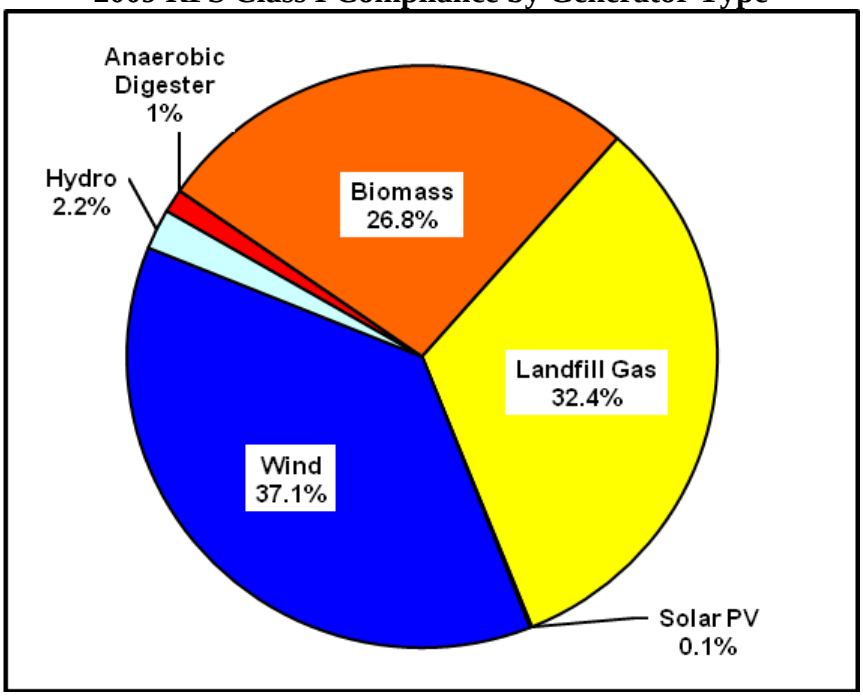
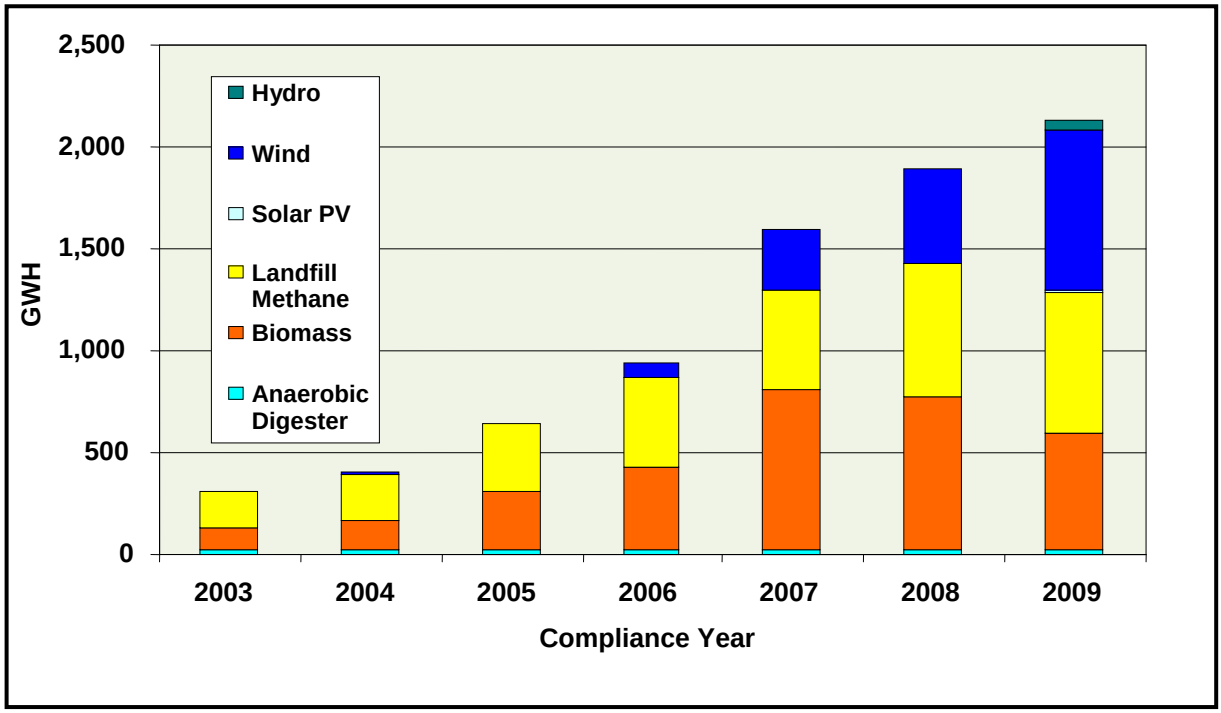


Figure Five
RPS Class I Compliance by Generator Type, 2003-2009



SECTION THREE

RPS CLASS II RENEWABLE ENERGY COMPLIANCE IN 2009

RPS Class II was established in the Green Communities Act of 2008 with the purpose of providing incentives for the continued operation of pre-1998 renewable energy plants and Massachusetts waste energy plants. RPS Class II Renewable Energy is generated by the same resources and technologies as Class I, with two exceptions. First, hydroelectric plants in Class II are limited to 5 MW (vs. 25 MW in Class I). Second, biomass plants in Class II share the Class I "low emissions" criteria but omit the Class I "advanced technology" criteria. Because it is only pre-1998 plants that can qualify for Class II, the Minimum Standard (annual compliance percentage) does not rise over time.[27] That standard is 3.6% of total retail sales, as represented by GIS load obligations. (Note that an additional, separate standard of 3.5% applies to the Waste Energy subclass within RPS Class II, described in the next section.)

A major but temporary difference between RPS Class I and all of the new standards is a transition mechanism mandated by law to mitigate the price impact of the standards for the competitive Suppliers. These Suppliers, unlike regulated utilities, are not able to pass the additional compliance costs along to retail customers with whom they were already contracted to deliver electricity at a price that did not include the purchase of the newly-required Class II RECs, WECs, and AECs. A competitive Supplier, rather than having to comply with RPS Class II or APS for its entire retail load, must meet those standards only for the portion of its load that is served under contracts that were executed or extended on or after January 1, 2009. Accordingly, each Supplier (both types) was required to report in its Filing to DOER the quantity of electricity delivered under pre-2009 contracts (termed Exempt Load) and to subtract that amount from the total load reported for Class I. In addition, each Supplier was required to project its Exempt Load for the next five years, 2010-14; this data is reported in Section Six, Table Seven.[28] This exemption declines rapidly over those five years, so that by 2015, all Suppliers must comply with RPS Class II and APS for virtually their entire total load obligation.

In 2009, the net (non-exempt) load for the Class II Renewable Energy obligation was 16,383,050 MWh, and the total of the 28 Suppliers' 3.6% Class II Renewable Energy obligations was 589,801 MWh. The Class II REC supply was very short of the demand. As a result, only three small competitive suppliers met their full obligations by acquiring 2,835 Class II RECs (giving them a surplus of 653 RECs to bank forward), and two more Suppliers acquired 32,708 Class II RECs, for a total of

[27] If a pre-1998 Generation Unit increases its annual output by installing additional capacity or improving its efficiency, then that increased output may qualify for RPS Class I under the Incremental Generation provisions in 225 CMR 14.05(2).

[28] The Exempt Load provision of the Class II Regulation was meant to apply only to competitive suppliers, since the regulated utilities can recover the extra costs of Class II compliance from their retail customers by means of DPU-approved rate changes, provided that the DPU deems the costs to have been reasonable and prudently incurred. However, due to an evident ambiguity regarding the term "contracts" in the Regulations, in 225 CMR 15.07 and 225 CMR 16.07, not all of the utilities understood this until DOER issued a detailed *RPS Class II & APS Compliance Basis Guideline* for calculating Exempt Load in May of 2010, after three of the four quarters of 2009 REC trading had already occurred. Any utility that previously had assumed that it could deduct its Exempt Load would be very short of RPS Class II RECs and WECs, as well as AECs, and suddenly have to incur substantial, unanticipated expense during the last few weeks of trading if it suddenly had to purchase a much larger quantity of certificates than previously assumed. In addition, its cost recovery filing at the DPU would be fraught with uncertainties. Consequently, DOER issued a supplementary Guideline that permitted the four utilities to choose whether or not to use the Exempt Load mechanism *for 2009 compliance only*. In addition, if a utility chose to use that option and, as a result of the 30% banking limit was left with more surplus certificates than it could bank (due to having bought more earlier as a result of having assumed *no* Exempt Load), and it could produce certain documentation, then it was permitted to bank the excess beyond the 30% limit. Only one company, National Grid, had such extra surplus (of WECs only), and it did provide such documentation.

35,543. Twenty-five Suppliers had a total shortfall of 554,911 RECs. That was 94% of the RPS Class II Renewable Energy obligation, which was met mostly or entirely by the Alternative Compliance mechanism, that is, by making ACPs to the MassCEC at the rate of $20 per MWh, totaling $13,872,775. These figures are displayed in Table Three, with more detail in Appendix Two, Table B.

The above facts indicate a significant shortage of qualified Class II Renewable Energy generation. In this first year of the Class II standard, only seven facilities with a total capacity of 13 MW became qualified, with most of that capacity qualified for only part of the year. DOER received no applications from non-hydroelectric facilities in 2009, although one New York landfill project that was already qualified for Class I under a Vintage Waiver has since qualified for Class II, effective as of the second quarter of the 2010 Compliance Year, and several more are in the application pipeline. An additional four hydroelectricity plants have been approved to date, with 4.1 MW effective as of the second quarter of the 2010 Compliance Year and another 6 MW effective for the third quarter; another 10 MW of hydro are in the application pipeline. In addition, DOER has reached out to the owners and operators of pre-1998 landfill projects in New England and New York and expects applications from some of them. However, with insufficient qualifying generators and a declining exempt load, DOER expects another substantial shortfall for 2010, which is a matter to be further reviewed and analyzed by DOER.

Table Three
Aggregated Data from the RPS Class II Renewable Energy Compliance Filings, 2009 (MWh)

	2009
CY Retail Sales (load obligation) [29]	**48,301,821**
Exempt Load	**31,918,771**
Net Load	**16,383,050**
CY aggregated RPS II RE Obligation, at 3.6% [30]	**589,801**
Total Class II RECs from CY Generation	**35,543**
***minus* CY total surplus Class II RECs**	**653**
Net CY RECs for CY Obligation	**34,890**
***plus* banked from pre-CY surpluses** [31]	**0**
Total Class II RECs used for CY Obligation	**34,890**
***plus* total ACP credits**	**554,911**
Total for Compliance Obligation	**589,801**
Surplus Attributes banked forward [32]	**653**
ACP proceeds	**$13,872,775**

[29] This figure is the same as the Class I figure in Table Two.

[30] See footnote 16 regarding the difference between totaling individual obligations and calculating an overall obligation.

[31] Since 2009 was the first year for RPS Class II, no RECs were created in the previous year. However, this row may include data during some future years.

[32] Any surplus RPS Class II Attributes (measured as quantities of qualified surplus RECs) beyond the 30% banking limit can be applied to compliance only with the RPS Class II Renewable Energy obligation, not any other portfolio standard. See footnote 18 regarding the 30% limit.

SECTION FOUR

RPS CLASS II WASTE ENERGY COMPLIANCE IN 2009

RPS Class II Waste Energy is a separate sub-class within RPS Class II. This means that each Supplier must comply separately with both the Renewable Energy subclass and the Waste Energy subclass. Qualification is limited to plants that meet the Massachusetts Department of Environmental Protection regulations for such facilities.[33] The MassDEP regulations, in addition to the usual provisions for municipal solid waste handling, emissions, etc., provide for enhanced sorting and recycling and for the owner of each plant to remit to the MassDEP 50% of its proceeds from selling RPS Class II WECs. The MassDEP uses those funds to help finance municipal recycling programs.

Table Four
Aggregated Data from the RPS Class II Waste Energy Compliance Filings, 2009 (MWh)

	2009
CY Retail Sales (load obligation) [34]	**48,301,820**
Exempt Load[35]	**31,891,115**
Net Load	**16,410,706**
CY aggregated RPS II WE Obligation, at 3.5%[36]	**574,384**
Total WECs from CY Generation	**1,046,833**
***minus* CY total surplus WECs**	**473,177**
Net CY WECs for CY Obligation	**573,656**
***plus* banked from pre-CY surpluses**[37]	**0**
Total WECs used for CY Obligation	**573,656**
***plus* total ACP credits**	**728**
Total for Compliance Obligation	**574,384**
Surplus WE Attributes banked forward[38]	**330,288**
ACP proceeds (rounded)	**$7,280**

In 2009, the net load for the Class II Waste Energy obligation was 16,410,706,[39] and the total of the 28 Suppliers' Class II Waste Energy obligations of 3.5% was 574,384 MWh. To comply with that

[33] 310 CMR 7.08(2) and 310 CMR 19.000.

[34] This figure is the same as the Class I figure in Table Two.

[35] This figure and the resulting Net Load are different from the equivalent figure in Tables Three and Five because one small supplier took the option of not subtracting its otherwise Exempt Load for this subclass,

[36] See footnote 16 regarding the difference between totaling individual obligations and calculating an overall obligation.

[37] Since 2009 was the first year for RPS Class II, no WECs were created in the previous year. However, this row will include data during some future years.

[38] Any surplus RPS Class II Waste Energy Attributes (measured as quantities of qualified surplus WECs) can be applied to compliance only with the RPS Class II Waste Energy obligation, not any other portfolio standard.

[39] This figure is different from the equivalent figure in Tables Three and Five because one small supplier took the option of not subtracting its otherwise Exempt Load for this subclass.

obligation, the Suppliers acquired 1,046,833 WECs, which yielded a surplus of 473,177 WECs, of which 330,288 were eligible to bank towards Class II Waste Energy compliance over the next two compliance years. The surplus notwithstanding, two very small Suppliers acquired no WECs and two other Suppliers failed to purchase enough WECs. Those four Suppliers met their total shortfall of 728 WECs by making ACPs to the MassCEC at the ACP rate of $10 per MWh, for total payments of $7,280. These figures are displayed in Table Four, with more detail in Appendix Two, Table C.

The surplus in 2009 was due to the large Exempt Load mandated in the Green Communities Act and discussed above in the second paragraph of Section Three. In fact, a very large quantity of WECs went unsold due to the Exempt Load. The surplus will diminish sharply over the next five years, which should bring supply and demand into a rough parity.

SECTION FIVE

APS ALTERNATIVE ENERGY COMPLIANCE IN 2009[40]

The Alternative Energy Portfolio Standard (APS) is a new obligation mandated under the Green Communities Act of 2008. The APS is designed to support certain "alternative" electric power system technologies that largely do not utilize renewable energy resources and that the legislators deemed worthy of support. The support took the form of financial incentives provided by an energy portfolio standard on the model of RPS. Each Supplier must comply separately with both APS and RPS.

Table Five
Aggregated Data from the APS Compliance Filings, 2009 (MWh)

	2009
CY Retail Sales (load obligation) [41]	48,301,821
Exempt Load[42]	31,918,771
Net Load	16,383,050
CY calculated APS AEC Obligation, at 1.0%[43]	163,844
Total AECs from CY Generation	129,925
minus CY total surplus AECs	10,600
Net CY AECs for CY Obligation	119,325
plus banked from pre-CY surpluses[44]	0
Total AECs used for CY Obligation	119,325
plus total ACP credits	44,519
Total for Compliance Obligation	163,844
Surplus Alternative Energy Attributes banked forward	8,838
ACP proceeds (rounded)	$890,380

[40] See Section One, page 6, for a description of the APS and an explanation of how AECs are determined for CHP plants.
[41] This figure is the same as the Class I figure in Table Two.
[42] See Section Three for an explanation of Exempt and Net Load.
[43] See footnote 16 regarding the difference between totaling individual obligations and calculating an overall obligation.
[44] Since 2009 was the first year for APS, no AECs were created in the previous year. However, this row will include data during some future years.

In 2009, the net load for the APS obligation was 16,383,050 MWh, for which the 28 Suppliers' 1.0% APS obligations totaled 163,844 MWh. To comply with that obligation, 19 of the 28 Suppliers purchased 129,925AECs, while 9 purchased none. A shortfall of 44,519 AECs by fourteen Suppliers was met by making ACPs to the MassCEC at the rate of $20 per MWh. The payments totaled $890,380. While the total supply of AECs was short, 14 Suppliers acquired a surplus totaling 10,600 AECs, of which 8,838 AECs were banked towards APS compliance over the next two compliance years. Of the 129,925 AECs, 99.2% came from CHP plants, while only 0.8% came from flywheel storage units. These figures are displayed in Table Five; more detail is in Appendix Two, Table D, and in Appendix Three, Table H.

SECTION SIX

PROJECTION OF FUTURE RPS AND APS COMPLIANCE OBLIGATIONS AND SUPPLY

DOER provides here one possible scenario for the future RPS and APS compliance obligations through 2015. This scenario is based on the ISO-NE reference case for load growth in the 2010 CELT Report[45] and differs from the scenario presented in the previous two RPS Annual Compliance Reports. These scenarios had been adjusted to account for the Commonwealth's mandates for energy efficiency under the Green Communities Act of 2008. Any scenario is determined by one's choice of assumptions, which are subject to substantial uncertainty. For example, important variables affecting load include: (a) temperature and weather, (b) national and regional economic conditions, (c) the degree of success in implementing energy efficiency programs, and (d) the degree of electric vehicle penetration into the market. In general, presenting a single scenario offers simplicity but misrepresents the degree of uncertainty in these variables. Rather than developing multiple load scenarios, which is outside the scope of this report, DOER chose to base its RPS reference case on the ISO-NE 2010 reference case. Other analysts can easily replace the ISO-NE reference case with other ISO-NE scenarios or alternative scenarios altogether to see the affect of various assumptions on the RPS obligation.

Table Six lists both the actual (2003-09) and projected (2010-2015) total retail sales – as load obligation[46] – and the resulting actual and projected RPS Class I obligation. The RPS Class I minimum percentage obligations increase as specified in the statute and regulations.[47] This table provides figures only through 2015, although the annually increasing RPS Class I obligation continues indefinitely.

Figure Six shows DOER's projection for the growth in demand for "premium" RECs by the RPS mandates of the five New England states that have similar, albeit not identical, mandates for new renewable energy generation. Those mandates consist of the CT RPS Class I, the ME RPS, the NH RPS Classes I and II, and the mandate for new facilities in the RI Renewable Energy Standard.[48] All figures are based on ISO-NE load growth projections from the 2010 CELT Report.[49]

[45]The ISO-NE figures are from Tab 2, column R in the 2010 CELT Report at http://iso-ne.com/trans/celt/fsct_detail/2010/isone_fcst_data_2010.xls.

[46] See explanation and reference in footnote 23 regarding the use of "load obligation" for "retail sales."

[47] The minimum percentages for RPS compliance are in the regulations at 225 CMR 14.07(1).

[48] Details on the other programs are available via http://www.dsireusa.org/library/includes/type.cfm?EE=1&RE=1.

[49]The ISO-NE figures are from Tab 2, column R in the 2010 CELT Report at http://iso-ne.com/trans/celt/fsct_detail/2010/isone_fcst_data_2010.xls.

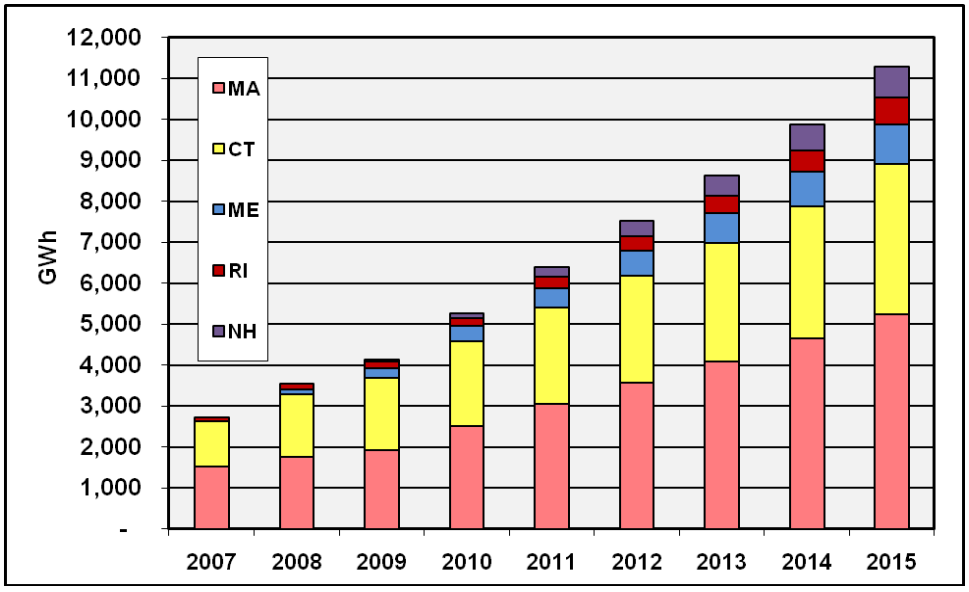
Table Six

MA RPS Class I Annual Compliance Obligations, Actual (2003-2009) & Projected (20010-2015)[50]

Year	Actual/*Projected* Load Obligation, MWh[51]	RPS Class I % Obligation	RPS Class MWh Obligation[52]
2003	49,834,324	1.0%	498,343
2004	50,063,092	1.5%	750,954
2005	51,558,778	2.0%	1,031,176
2006	50,143,130	2.5%	1,253,578
2007	50,978,101	3.0%	1,529,343
2008	50,321,635	3.5%	1,761,257
2009	**48,301,821**	**4.0%**	**1,932,089**
2010	*50,550,800*	5.0%	*2,527,540*
2011	*50,933,500*	6.0%	*3,056,010*
2012	*51,182,900*	7.0%	*3,582,803*
2013	*51,269,760*	8.0%	*4,101,581*
2014	*51,919,060*	9.0%	*4,672,715*
2015	*52,486,660*	10.0%	*5,248,666*

Figure Six

New England Premium RPS Compliance Obligations by State, Actual (2003-2009) & Projected (2010-2015)



[50] The actual figures for 2003 through 2009 are from RPS annual compliance filings. The projections starting in 2010 are from the ISO-NE load growth projections in its 2010 CELT Report, with the portion of the Massachusetts load attributable to the municipally owned companies netted out.

[51] See explanation and reference in footnote 3 regarding the use of "load obligation" for "retail sales."

[52] See footnote 16 regarding the sum of individual obligations vs. the calculation of an overall RPS obligation from the total sales (as GIS load). The figures through 2009 are the former, and the projected obligations are the latter.

Table Seven lists the 2009 actual load obligations for the newly commenced portfolio standards, RPS Class II and APS, and load obligations projected for 2010 through 2015 (although, like Class I, the standards continue beyond that date. The total load obligation for each year is listed first and is identical to the figures in Table Six. However, since, as explained in Section Three, electricity sold under pre-2009 contracts is exempt from these standards, the projected Exempt Load provided by Suppliers is then deducted to yield a net load obligation. Then the net load for each year is multiplied by the mandated percentage standard. That standard does not rise for Class II, since that is for qualified pre-1998 plants, but it does rise for APS.

Table Seven
MA RPS Class II & APS Annual Compliance Obligations, Net of Exempt Load, Actual (2009) & *Projected (2010-2015)*
(as MWh except where indicated)

Year	Actual/ *Projected* Load Obligation[53]	Actual/ *Projected* Exempt Load Obligation[54]	Actual/ *Projected* Net Load Obligation	RPS Class II RECs at 3.6% of Net Load Obligation	RPS Class II WECs at 3.5% of Net Load Obligation	APS Mini-mum Standard[55]	APS AEC Obligation
2009[56]	48,301,821	31,918,771	16,383,050	589,801	574,368	1.0%	163,844
2010	*50,550,800*	*6,719,823*	*43,830,977*	*1,577,915*	*1,534,084*	*1.5%*	*657,465*
2011	*50,933,500*	*3,831,255*	*47,102,245*	*1,695,681*	*1,648,579*	*2.0%*	*942,045*
2012	*51,182,900*	*1,422,677*	*49,760,223*	*1,791,368*	*1,741,608*	*2.5%*	*1,244,006*
2013	*51,269,760*	*755,023*	*50,514,737*	*1,818,531*	*1,768,016*	*3.0%*	*1,515,442*
2014	*51,919,060*	*129,365*	*51,789,695*	*1,864,429*	*1,812,639*	*3.5%*	*1,812,639*
2015	*52,486,660*	*0*	*52,486,660*	*1,889,520*	*1,837,033*	*3.75%*	*1,968250*

Projection of future RPS Class I REC supply is particularly difficult at this time for various reasons. Much of the uncertainty derives from forces external to the program itself, especially from the prospects of changing renewable energy and climate policies at the federal level, including the uncertain future of additional federal stimulus funding, and continued, looming uncertainties in the national and global economies. DOER does expect growth in Massachusetts and elsewhere from onshore and offshore wind farm development, as well as from hydropower, solar, and anaerobic gas projects. The effect of the projected Cape Wind project on the supply over the next several years will depend on the actual timetable of construction. The potential for new or incremental hydroelectric projects that meet the environmental standards of the program is difficult to predict. Solar PV projects have received strong state and federal financial incentives since 2009 and have begun to show up in the RPS market in

[53] The Load Obligation projections here are the same those for RPS Class I in Table Six. See explanation and reference in footnote 3 regarding the use of "load obligation" for "retail sales."

[54] This figure (and the resultant Net Load) is for 2009 was actually 31,918,771 in the case of RPS Class II WECs, due to the omission of Exempt Load by one small competitive supplier, as noted elsewhere, which explains the small apparent error in the WEC percentage figure for 2009. DOER did not request 2015 exempt load obligation figures from the Filers but assumes that the figure will at or close to zero by then, as contracts continue to expire.

[55] Note that the original 11/17/10 version of this report erroneously listed the 2015 APS minimum standard as 4.0%. This 1/11/11 revised version corrects that figure, as well as the resulting AEC obligation for 2015 in the final column.

[56] Each of the 2009 REC, WEC, and AEC obligations is the total of 28 individual obligations and, due to consistent upward rounding, is greater than the result of multiplying the total load obligation by the Minimum Standard.

2010,[57] while DOER thinks there may be an untapped potential for anaerobic digester gas projects at food processing facilities. The proposed changes in the RPS Class I eligibility of woody biomass fueled plants, the subject of a current public rulemaking, could lead to greater constraints on biomass project development and downward pressure on REC supply. In general, the relatively low price for Class I RECs has a dampening effect on new project development.

With regard to Class II RECs, the pre-1998 installed capacity cannot rise, so the unknown is how much of that capacity is potentially eligible for Class II and can be brought into the program over the months ahead. This is a matter that DOER will further analyze. See the discussion above in Section Three.

Class II WECs are likely to remain in surplus for several more years, while the net load obligation rises to the desired point of close parity.

APS is experiencing a growing rate of applications for CHP Units, but DOER is not prepared to provide a projection at this time. Here, too, the growing supply will have to chase a growing net load obligation, along with a rising minimum standard.

[57] Note that, as of 2010, the RPS Class I Minimum Standard will include within it a Solar Carve-Out obligation, for which the eligibility criteria are more extensive and certificates values much higher than for non-Carve-Out qualified PV. For additional details, see the penultimate paragraph of Section One and also footnote 14.

APPENDIX ONE

RPS 2009 Compliance Filings, Review, and Verification

All Suppliers that sold retail electricity to end-use customers in the territories of the four Massachusetts regulated utilities during 2009 were required to file their Annual Compliance Filings for 2009 by July 1, 2010. DOER issued forms and instructions for the Filings on June 9th, six days before the end of the NEPOOL GIS trading period for the fourth quarter of 2009. By July 2nd DOER had received Filings from all four of the regulated utility companies and from all of the twenty-four competitive Suppliers.

The review, which began in July 2010, encompassed both printed and electronic copies of Filers' compliance summary tables and GIS spreadsheet reports. The electronic files enabled DOER to aggregate, analyze, and summarize the information in the Filings, while the printed versions of GIS reports were used to verify the electronic versions of those reports. DOER contacted Suppliers for correction of mathematical errors and for some additional information, documentation, explanations, and clarifications.

Although the Filings continued to show improvement over the previous years, some competitive Suppliers *still* did not correctly assign "load" in their GIS sub-accounts. Therefore, in order to verify the figures provided in their Filings, DOER has continued to rely on data submitted on a confidential basis by the regulated utilities.

Benefiting from improved staffing and sophisticated data management, the 2009 Filings were submitted, reviewed, supplemented, corrected, clarified, and accepted smoothly.

APPENDIX TWO[58]
2009 RPS and APS Compliance Summaries

Table A: RPS Class I Compliance Summary

	RETAIL SALES	CLASS I RENEWABLE ENERGY ATTRIBUTES					CY 2009 4.0% RPS CLASS I OBLIGATION	BANKING FOR FUTURE COMPLIANCE		
RETAIL ELECTRICITY SUPPLIERS	Load Obligation from Filing	2009 MA Class I RECs	2007 Banked Attributes	2008 Banked Attributes	Alternative Compliance Credits	Total RPS Class I Attributes		Excess Attributes	Banking Limit (30%)	Banked Attributes
DISTRIBUTION COMPANIES										
Fitchburg Gas & Electric (Unitil)	261,388	9,813	0	2,720	0	12,533	10,456	2,077	3,137	2,077
National Grid	11,861,787	548,803	0	2,984	0	551,787	474,472	77,315	142,342	77,315
NSTAR	9,160,896	440,693	0	32,632	0	473,325	366,437	106,888	109,932	106,888
W Mass Electric (NU)	1,892,303	70,852	0	4,844	0	75,696	75,693	3	22,708	3
SUBTOTALS	23,176,374	1,070,530	0	43,180	0	1,113,341	927,058	186,283	278,119	186,283
COMPETITIVE SUPPLIERS										
Consolidated Edison Solutions										
Constellation New Energy										
Devonshire Energy										
Direct Energy Business										
Direct Energy Services										
Dominion Retail										
East Avenue Energy										
Easy Energy of Mass.										
GDF Suez Energy Resources										
Gexa Energy										
Glacial Energy of NE										
Hampshire Council of Governments										
Harvard Dedicated Energy										
Hess Corporation										
Horizon Power & Light										
Integrys Energy Services										
Liberty Power Holdings										
MXenergy Electric										
Pepco Energy Services										
Sempra Energy Solutions										
South Jersey Energy										
Spark Energy										
TransCanada Power Marketing										
WFM Intermediary NE Energy										
SUBTOTALS	25,125,446	1,059,757	3,460	143,195	0	1,206,412	1,005,031	201,381	301,521	199,776
TOTALS	48,301,821	2,129,918	3,460	186,375	0	2,319,753	1,932,089	387,664	579,640	386,059
	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh

[58] All data for the competitive suppliers is aggregated in these four tables in accordance with the provision for confidentiality of product-specific data in the RPS Regulation, 225 CMR 14.09(2)(b). Data for the regulated distribution utility companies is made public in filings at the MA Department of Public Utilities. All four tables have the same competitive suppliers.

Table B: RPS Class II Renewable Energy Compliance Summary

	RETAIL SALES			CLASS II RENEWABLE ENERGY ATTRIBUTES				BANKING FOR FUTURE COMPLIANCE		
RETAIL ELECTRICITY SUPPLIERS	Load Obligation from Filing	Exempt Retail Load	Net Retail Load	2009 MA Class II RECs	Alternative Compliance Credits	Total RPS Class II RE Attributes	CY 2009 3.6% RPS Class II RE Obligation	Excess Attributes	Banking Limit (30%)	Banked Attributes
DISTRIBUTION COMPANIES										
Fitchburg Gas & Electric (Unitil)	261,388	168,737	92,651	0	3,336	3,336	3,336	0	1,001	0
National Grid	11,861,787	6,498,801	5,362,986	27,727	165,341	193,068	193,068	0	57,921	0
NSTAR	9,160,896	6,265,591	2,895,305	0	104,231	104,231	104,231	0	31,270	0
WMass Electric (NU)	1,892,303	1,320,833	571,470	0	20,573	20,573	20,573	0	6,172	0
SUBTOTALS	**23,176,374**	**14,253,962**	**8,922,412**	**27,727**	**293,481**	**321,208**	**321,208**	**0**	**96,364**	**0**
COMPETITIVE SUPPLIERS										
SUBTOTALS	**25,125,446**	**17,664,809**	**7,460,638**	**7,816**	**261,430**	**269,246**	**268,593**	**653**	**80,590**	**653**
TOTALS	**48,301,820**	**31,918,771**	**16,383,050**	**35,543**	**554,911**	**590,454**	**589,801**	**653**	**176,954**	**653**
	MWh	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**

Table C: RPS Class II Waste Energy Compliance Summary

	RETAIL SALES			CLASS II WASTE ENERGY ATTRIBUTES				BANKING FOR FUTURE COMPLIANCE		
RETAIL ELECTRICITY SUPPLIERS	Load Obligation from Filing	Exempt Retail Load	Net Retail Load	2009 MA WECs	Alternative Compliance Credits	Total WE Attributes	CY 2009 3.5% RPS Class II WE Obligation	Excess Attributes	Banking Limit (30%)	Banked Attributes
DISTRIBUTION COMPANIES										
Fitchburg Gas & Electric (Unitil)	261,388	168,737	92,651	3,500	0	3,500	3,243	257	973	257
National Grid	11,861,787	6,498,801	5,362,986	454,800	0	454,800	187,705	267,095	56,312	267,095[59]
NSTAR	9,160,896	6,265,591	2,895,305	266,826	0	266,826	101,336	165,490	30,401	30,401
WMass Electric (NU)	1,892,303	1,320,833	571,470	20,002	0	20,002	20,002	0	6,001	0
SUBTOTALS	**23,176,374**	**14,253,962**	**8,922,412**	**745,128**	**0**	**745,128**	**312,286**	**432,842**	**93,687**	**297,753**
COMPETITIVE SUPPLIERS										
SUBTOTALS	**25,125,446**	**17,637,153**	**7,487,294**	**301,705**	**728**	**302,433**	**262,098**	**40,335**	**78,639**	**32,535**
TOTALS	**48,301,820**	**31,891,115**	**16,410,706**	**1,046,833**	**728**	**1,047,561**	**574,384**	**473,177**	**172,326**	**330,288**
	MWh	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**

Table D: APS Alternative Energy Compliance Summary

	RETAIL SALES			ALTERNATIVE ENERGY ATTRIBUTES				BANKING FOR FUTURE COMPLIANCE		
RETAIL ELECTRICITY SUPPLIERS	Load Obligation from Filing	Exempt Retail Load	Net Retail Load	2009 MA AECs	Alternative Compliance Credits	Total APS Attributes	CY 2009 1.0% APS Obligation	Excess Attributes	Banking Limit (30%)	Banked Attributes
DISTRIBUTION COMPANIES										
Fitchburg Gas & Electric (Unitil)	261,388	168,737	92,651	1,700	0	1,700	927	773	279	279
National Grid	11,861,787	6,498,801	5,362,986	35,000	18,630	53,630	53,630	0	16,089	0
NSTAR	9,160,896	6,265,591	2,895,305	30,000	0	30,000	28,954	1,046	8,687	1,046
W Mass Electric (NU)	1,892,303	1,320,833	571,470	4,251	1,464	5,715	5,715	0	1,715	0
SUBTOTALS	**23,176,374**	**14,253,962**	**8,922,412**	**70,951**	**20,094**	**91,045**	**89,226**	**1,819**	**26,770**	**1,325**
COMPETITIVE SUPPLIERS										
SUBTOTALS	**25,125,446**	**17,664,809**	**7,460,638**	**58,974**	**24,425**	**83,399**	**74,618**	**8,785**	**22,395**	**7,513**
TOTALS	**48,301,820**	**31,918,771**	**16,383,050**	**129,925**	**44,519**	**174,444**	**163,844**	**10,600**	**49,166**	**8,838**
	MWh	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**

[59] See footnote 28 regarding National Grid being allowed to bank more WECs than the 30% limit.

APPENDIX THREE
Data Tables for RPS and APS Compliance by Generation Location and Type

The first two tables below provide the data from which the graphs in Figures Two through Five were generated.

Table E
RPS Class I Compliance by Generation Location, 2003-2009

Year	2003	2004	2005	2006	2007	2008	2009	2009
Location	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**%**
Massachusetts	108,106	146,228	157,022	184,777	192,200	197,949	**197,530**	**9.3%**
Connecticut	15,209	13,810	14,353	13,204	10,180	25,333	**21,371**	**1.0%**
Maine	122,958	142,715	285,289	367,298	520,821	500,479	**526,906**	**24.7%**
New Hampshire	42,845	45,800	40,677	53,556	265,062	261,468	**307,909**	**14.5%**
Rhode Island	15,117	26,521	42,659	62,230	42,562	34,848	**26,061**	**1.2%**
Vermont	0	0	14,476	26,595	46,915	49,207	**112,670**	**5.3%**
Northern Maine ISA (NMISA)	0	0	0	455	54,079	66,418	**66,071**	**3.1%**
New York	0	26,369	90,373	175,961	265,299	517,427	**527,751**	**24.8%**
Prince Edward Island	0	0	0	0	16,922	28,111	**113,282**	**5.3%**
Quebec	0	0	0	54,696	85,493	215,835	**230,367**	**10.8%**
Total	**304,235**	**401,443**	**644,849**	**938,772**	**1,599,533**	**1,896,811**	**2,129,918**	**100%**

Table F
RPS Class I Compliance by Generation Type, 2003-2009

Year	2003	2004	2005	2006	2007	2008	2009	2009
Type	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**MWh**	**%**
Anaerobic Digester	24,571	20,662	23,710	27,115	27,511	26,328	**28,204**	**1.3%**
Biomass	108,106	146,228	285,289	395,856	782,315	743,882	**571,757**	**26.8%**
Hydroelectricity	0	0	0	0	0	0	**47,490**	**2.2%**
Landfill Gas	171,025	230,553	335,151	449,633	486,558	660,937	**690,851**	**32.4%**
Solar	0	0	6	216	803	1,799	**2,420**	**0.1%**
Wind	533	4,000	693	65,952	302,346	463,865	**789,196**	**37.1%**
Totals	**304,235**	**401,443**	**644,849**	**938,772**	**1,599,533**	**1,896,811**	**2,129,918**	**100.0%**

Table G
RPS Class II Renewable Energy Compliance by Generation Location, 2009
(all Hydroelectric in 2009)

Year / Location	2009 MWh	2009 %
Massachusetts	483	1.4%
Connecticut	805	2.3%
New Hampshire	33,514	94.3%
Rhode Island	741	2.1%
Total	**35,543**	**100.0%**

No Table is provided for RPS Class II Renewable Energy generation type because all qualified generation was from hydroelectric plants in 2009. Landfill methane has been added to the mix in 2010.

No table is provided for RPS Class II Waste Energy because all of the qualified units are of the same type, and all are located in Massachusetts.

Table H
APS Compliance by Generation Type, 2009
(all Massachusetts in 2009)

Year / Type	2009 MWh	2009 %
Combined Heat & Power	128,922	99.2%
Flywheel Storage	1,003	0.8%
Totals	**129,925**	**100.0%**

No table is provided for APS Generation Location because all of the qualified units in 2009 were in Massachusetts.

APPENDIX FOUR

MA RPS and APS Qualified Generation Units

The data that was presented in the last Appendix of each of the reports for 2003 through 2007 has been omitted from this report and the report for 2008. Beginning in the summer of 2010, these data have been presented at DOER's RPS and APS web pages in downloadable spreadsheets with additional useful information, including RPS and APS qualification dates, effective dates, commercial start dates, and GIS identification. The spreadsheets will be updated at regular intervals to include new RPS Class I and Class II Generation Units, as well as APS Alternative Energy Units, as they become qualified and begin operation. The data will be more timely and capable of sorting, which will make the data more readily accessible and more useful. These spreadsheets have replaced the former HTML-formatted tables at DOER's RPS and APS web pages.