



2021 ANNUAL COMPLIANCE REPORT

EXECUTIVE SUMMARY

**RENEWABLE ENERGY PORTFOLIO STANDARD (RPS)
ALTERNATIVE ENERGY PORTFOLIO STANDARD (APS)
CLEAN PEAK ENERGY STANDARD (CPS)
CLEAN ENERGY STANDARD (CES)**

November 28, 2023

**Renewable and Alternative Energy Division
Department of Energy Resources
Executive Office of Energy and Environmental Affairs
Commonwealth of Massachusetts**

Executive Summary

The Commonwealth's different renewable portfolio standard regulations require the Massachusetts Department of Energy Resources (DOER) to prepare an annual report on the status of compliance with the different renewable portfolio standards. DOER oversees compliance with all of the Commonwealth's renewable portfolio standards. This Executive Summary of the 2021 Annual Compliance Report is accompanied by the Excel workbook that shows the required data associated with compliance.

The Renewable Energy Portfolio Standard (RPS) is a statutory obligation created by the Electricity Restructuring Act of 1997 and initiated by regulations in 2002. The statute was first revised by the Green Communities Act of 2008, which identified the original RPS as Class I, added a second class of RPS, Class II, and created the Alternative Energy Portfolio Standard (APS). The RPS and APS statutes were further modified by the Competitively Priced Electricity Act of 2012,¹ the Renewable Thermal Act of 2014,² the Energy Diversity Act of 2016,³ the Act to Advance Clean Energy of 2018⁴, and Chapter 8 of the Acts of 2021.⁵

The Clean Peak Standard (CPS), created in August 2018 under An Act to Advance Clean Energy,⁶ provides incentives to clean energy technologies that can supply electricity or reduce demand during seasonal peak hourly demand periods.

The Clean Energy Standard (CES), also introduced in 2018, complements the other portfolio standards to ensure that the greenhouse gas emission reductions set by the Commonwealth can be achieved. While DOER administers the RPS, APS, and CPS, the CES is administered by the Massachusetts Department of Environmental Protection (MassDEP).⁷

The Clean Energy Standard for Clean Existing Generation Units (CES-E) was added to the CES program beginning in 2021 to maintain the contribution of existing clean energy generation units. The CES Regulation required MassDEP to complete a review in 2017 of options for addressing clean generators that were in operation before 2011. In early 2019, MassDEP released a detailed discussion document of a "CES-E" requirement to maintain the clean energy supply from pre-2011 nuclear and large hydroelectric generators, and, following the subsequent stakeholder process, the regulation was amended to include a CES-E in July 2020.

The RPS, APS, CPS, and CES regulations require Massachusetts retail electricity suppliers to obtain, each year, a certain percentage of their retail customers' electricity supply from resources qualified under each portfolio standard. The RPS, APS, CPS, and CES requirements do not apply to municipal light plants.

Overall, the RPS, APS, CPS and CES portfolio standard programs operated successfully in 2021. Most retail electricity suppliers met their compliance obligations. Only three suppliers were non-compliant, however, their load obligations represented only 1% of the overall RPS Class I load obligation.

Load Obligation

In 2021, the load obligation was 44,374,196 MWh, a 1.6% increase from 2020 (43,673,802 MWh) and near the pre-pandemic 2019 load obligation of 44,705,757 MWh.

¹ Chapter 209 of the Acts of 2012

² Chapter 251 of the Acts of 2014

³ Chapter 188 of the Acts of 2016

⁴ Chapter 227 of the Acts of 2018 which created the Clean Peak Standard.

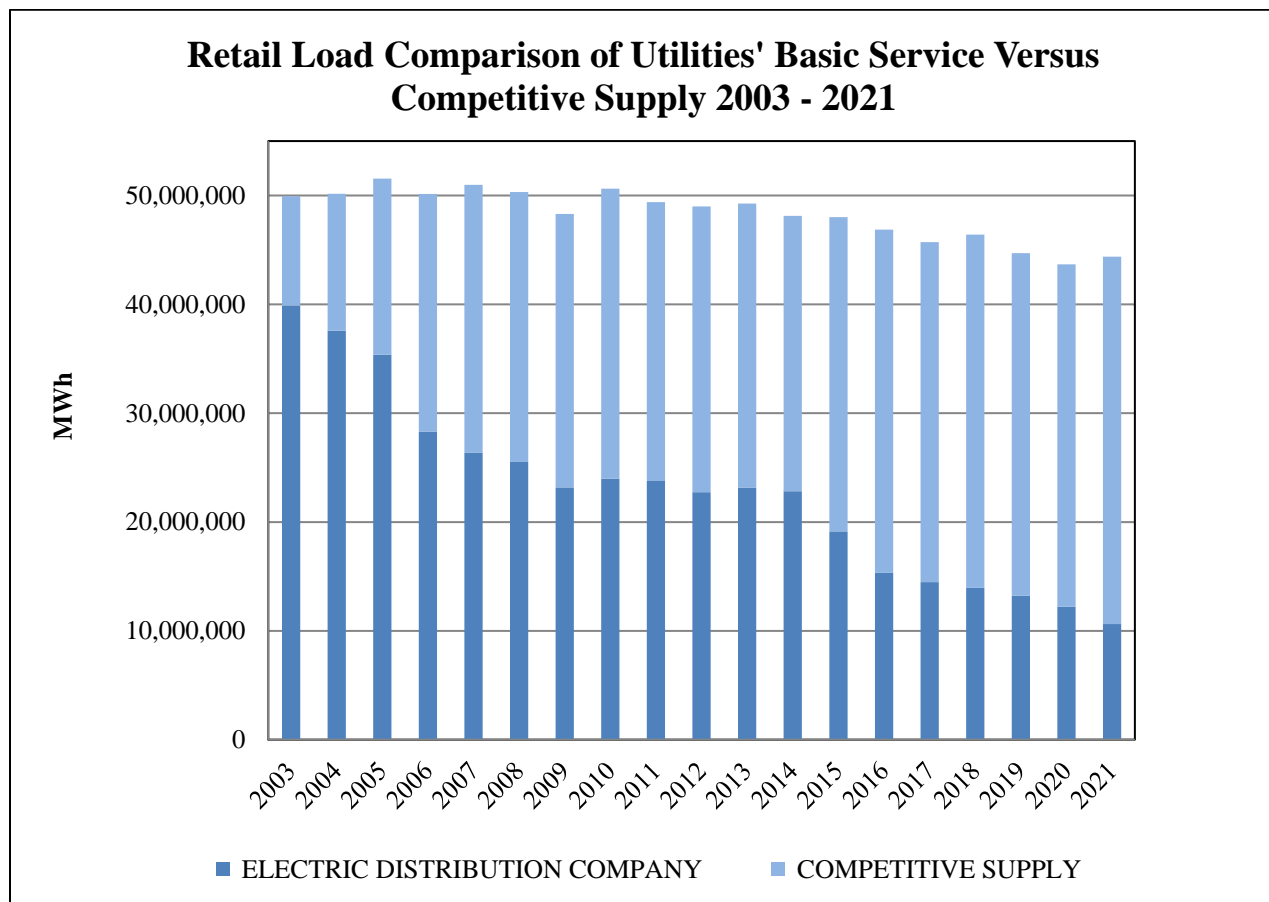
⁵ Chapter 8 of the Acts of 2021 increased the RPS Class I Minimum Standard from 2% to 3% annually for the years 2025 through 2029.

⁶ Chapter 227 of the Acts of 2018

⁷ In agreement with the Massachusetts Department of Environmental Protection, DOER's annual report on RPS and APS will also serve as the Annual Clean Energy Resource Report as specified in 310 CMR 7.75(9)(b), Clean Energy Standard

In accordance with MassDEP's Clean Energy Standard (310 CMR 7.75 (9)(b)4), the reported 2021 load (44,374,196 MWh) was equivalent to 96% of the reported 2018 load (46,409,960 MWh).

The following graph shows the division of retail load between that served by Electric Distribution Companies' Basic Service and competitive retail supply. The growth of municipal aggregation in the Commonwealth, which is served by competitive supply, has accelerated the shift away from load served by Basic Service.



Renewable Energy Certificates (RECs)

To achieve RPS, APS, CPS and CES compliance, each Retail Electricity Supplier must obtain enough renewable generation certificates to satisfy its minimum standard obligation or make an Alternative Compliance Payment (ACP) for enough credits to satisfy the minimum standard obligation.

Each renewable generation certificate represents the renewable generation attributes of one MWh of electricity generated during the Compliance Year by a qualified Generation Unit (however, the MWh value of some SREC II generation is discounted by SREC factors related to project size or type of location⁸, and Clean Peak Energy Certificates may represent more or less than one MWh of generation⁹ because of locational, seasonal, or peak hour factors and the vintage of the generation unit).

⁸ See 225 CMR 14.05(9)(l)

⁹ See 225 CMR 21.05(6)

Under the APS program, an Alternative Energy Certificate (AEC) represents either the MWh-equivalent of the fuel savings in thermal energy or the direct Useful Thermal Energy generated from APS-qualified facilities as determined by the APS regulations¹⁰ for each specific alternative energy technology.

RPS Class I RECs Production

The total number of RPS Class I RECs generated (net of SRECs and SREC IIs) equaled 11,959,668 MWh, which represents an increase of 16.2% over 2020. Some of these RECs also qualified for portfolio standards in other jurisdictions and may have been used for compliance in other New England states (mostly Connecticut, New Hampshire, and Rhode Island). In addition, some RECs were used to meet voluntary green product requirements that exceeded RPS requirements.¹¹ In addition, RPS Class I RECs were also used to meet the CES obligation.

Eligible Resources and Fuel Types

Eligible RPS Class I resources include post-1997 renewable generation units located in New England or in adjacent electricity control areas.¹² Eligible RPS Class II - Renewable resources include pre-1998 renewable generation units (primarily small hydropower) located in New England or in adjacent electricity control areas. The following fuel types are eligible for RPS Class I and RPS Class II:

- solar photovoltaic or solar thermal;
- wind;
- ocean thermal, wave or tidal energy;
- fuel cells using an eligible RPS Class I or II renewable fuel;
- landfill methane gas;
- hydroelectric;
- low-emission, advanced biomass power conversion technologies using an eligible biomass fuel such as manufactured biomass fuel, by-products or waste from animals or agricultural crops, food or vegetative material, algae, organic refuse derived fuel, anaerobic digester gas and other biogases that are derived from such resources;¹³
- marine or hydrokinetic energy; and
- geothermal energy.

Eligible Class II waste-to-energy generation units must be pre-1998 waste-to-energy plants located in Massachusetts that meet certain MassDEP recycling requirements.

Eligible APS resources include air and ground source heat pumps, solar thermal or solar thermal electric energy, woody biomass, liquid biofuels, biogas, fuel cells, and waste-to-energy thermal in addition to Combined Heat and Power (CHP).

Eligible CPS resources include RPS Class I resources qualified after January 1, 2019, qualified RPS resources paired with battery storage, stand-alone batteries, and demand response assets.

¹⁰ See 225 CMR 16.00

¹¹ Class I RECs retired as “Voluntary Renewable Energy (VRE) purchases,” will reduce the number of emissions allowances that can be sold in the RGGI Auction for a future year which will serve to reduce the regional emissions allowance cap for non-renewable thermal power plants. See 225 CMR 13.14, DOER CO2 budget trading program auction regulation. More information about RGGI can be found at <http://www.rggi.org/>.

¹² These include New York (NYISO), New Brunswick, Nova Scotia, Prince Edward Island and Quebec.

¹³ Woody biomass generation units may no longer apply for a Statement of Qualification beginning January 1, 2022.

In 2021, no separate qualifying generators were eligible to produce stand-alone Clean Energy Credits (CECs). Therefore, RPS Class I RECs were used to meet the CES obligation.

For CES-E, existing clean generation units include certain existing nuclear and hydroelectric plants with nameplate capacity greater than 30 MW and which were in commercial operation before January 1, 2011.¹⁴ The generation from qualified existing clean generation units create existing clean generation attributes (ECECs).

Compliance

RPS Class I

An adequate supply of RPS Class I RECs existed in the market to meet the RPS Class I obligation with suppliers banking 670,468 Class I RECs. Only 2,272 RPS Class I ACP credits were used for compliance.

Overall, wind resources accounted for 46.1% of the total RPS Class I REC generation (including SRECs and SREC IIs) while solar photovoltaic arrays accounted for 45.2%. Overall, the percentage of solar generation slightly increased over last year, and the percentage of wind decreased slightly.

Solar Carve-Out (SCO)

The SCO market was again slightly over-supplied in 2021. Suppliers banked 33,678 SRECs. Participants also provided 7,616 SRECs to the clearinghouse auction. ACP receipts continued to fall to their lowest level in six years. or to \$194,545 in 2021.

Solar Carve-Out II (SCO II)

The SCO II program became more under-supplied in 2021. Suppliers only banked 6,004 SREC IIs. ACP receipts rose to \$36,947,700, from \$3,807,168 in 2020.

RPS Class II Renewable

The RPS Class II Renewable Energy program remained comparatively more out-of-balance than previous years, partly because of the increase in the Minimum Standard from 3.2056% in 2020 to 3.5634% in 2021. Also, only 1,328,717 Class II RECs were used for compliance whereas 1,513,517 Class II RECs were generated in 2021. ACP credits increased from \$4,037,699 in 2020 to \$6,377,865 in 2021.

RPS Class II Waste-to-Energy

The RPS Class II Waste-to-Energy program remained mostly in balance. By regulations adopted in 2021, the RPS Class II waste-to-energy Minimum Standard rose from 3.5% in 2020 to 3.7% in 2021, where it will remain fixed for five years.¹⁵ In addition, the RPS Class II Waste-to-Energy ACP was raised to be equal to the RPS Class II Renewable Minimum Standard for the same period.¹⁶

¹⁴ A list of CES-E qualified units is posted in the FAQ document on MassDEP's CES webpage at: <https://www.mass.gov/doc/frequently-asked-questions-massdep-clean-energy-standard/download>.

¹⁵ See 225 CMR 15.07(2)

¹⁶ See 225 CMR 15.08(4)

Alternative Portfolio Standard (APS)

The APS market remained slightly over-supplied. In 2021, 6,370 ACP credits were utilized for compliance which totaled \$151,670 in ACP payments. Suppliers banked 350,809 AECs, down from the current record of 477,619 in 2020.

Clean Peak Energy Standard (CPS)

The CPS program was under-supplied. However, the load obligation was reduced by 36% of exempt load. ACP credits amounted to 780,923 MWh totaling \$35,141,535 in ACP receipts.

Clean Energy Standard (CES)

The CES Minimum Standard was 22% in 2021. All CECs used to meet the CES obligation were eligible RPS Class I RECs. Because the ACP was \$30/MWh, most suppliers opted to pay the ACP as opposed to paying market rates, which generally were higher, for RPS Class I RECs (whose ACP was \$60/MWh). For 2021, \$51,902,820 ACP payments were received by MassDEP on 1,730,094 ACP credits.

Clean Energy Standard for Existing Clean Generation Units (CES-E)

The CES-E launched in 2021 with a Minimum Standard of 20%. That portion of electrical energy sales that were subject to a contract executed or extended prior to October 4, 2019, was exempt (applicable for CY 2021 and CY 2022). No banking is allowed.

In 2021, 6,295,220 ECECs were used to meet the obligation of 6,471,826 MWh. The remaining 90,738 of obligation was met with ACP credits and resulted in \$544,428 of ACP payments.

Supplier Compliance

Sixty-two (62) Retail Electricity Suppliers (including the three state-regulated investor-owned utilities) served Massachusetts retail customers in 2021 (see Tab 13. Suppliers), the same number as in 2020. Fifty-nine (59) suppliers fully discharged their compliance obligations through the purchase of the required number of renewable certificates or by making ACPs. Three suppliers were non-compliant as noted below (see Tab 14. Non-Compliance).

Supplier Non-Compliance

Three Retail Electricity Suppliers, Agera, Liberty, and Sunwave, failed to meet their 2021 compliance requirements (see Tab 15. Non-Compliance). The obligations of the non-compliant suppliers accounted for approximately 1% of the total net obligation of RPS Class I. All three non-compliant suppliers are no longer licensed in Massachusetts as a retail electricity supplier.

In 2021, DOER incorporated financial security provision into its regulations as a protection mechanism for rate payers should retail electricity suppliers fall into non-compliance. Implementation of the financial security regulations began with Compliance Year 2021.¹⁷ However, none of the three non-compliant suppliers filed financial security instruments in 2021 with DOER. Agera and Liberty were eventually adjudicated through bankruptcy court and DOER received a settlement for each. DOER processed Sunwave through its normal non-compliant procedures.

¹⁷ See 225 CMR 14.08(4)

Summary of Compliance, 2021

A summary of how compliance was met in 2021 is shown in the table below.

Summary of Compliance, 2021

Class	Net Minimum Standard ***	Net Total Obligation (Less Exempt Load, if any)(MWh)	Certificates Used to Meet Obligation (MWh)	ACP Credits Used to Meet Obligation (MWh)	Alternative Compliance Payments (\$)
RPS CLASS I (NET)	12.08%	5,360,105	5,977,031	2,272	\$136,320
RPS SCO *	1.66%	737,857	764,342	533	\$194,545
RPS SCO II *	3.91%	1,735,557	1,601,799	123,159	\$36,947,700
RPS CLASS II Renewable	3.56%	1,581,267	1,368,761	214,382	\$6,377,865
RPS CLASS II Waste-to-Energy	3.70%	1,641,881	1,665,884	11,484	\$341,649
APS	5.25%	2,329,684	2,653,013	6,370	\$151,670
CPS	1.92%	853,961	60,305	780,923	\$35,141,535
TOTAL DOER					\$79,291,283
CES **	4.35%	1,928,841	184,329	1,730,094	\$51,902,820
CES-E	14.58%	6,471,826	6,381,488	90,738	\$544,428
TOTAL DEP					\$52,447,248
TOTAL					\$131,738,531

* Solar carve out requirements are carve-outs of the overall RPS Class I requirement of 18%

** CES total obligation is 22%. The RPS Class I obligation counts towards meeting the overall obligation. Results reflect Net Minimum Standard.

*** Total number of certificates and ACP credits may not exactly match total obligation due to 1) rounding of individual obligations, and 2) the non-compliance of three suppliers (See Tab 14). Certificates Used to Meet Obligations includes banked certificates from prior compliance years.