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Maine Public Utilities Commission



Annual Report on New Renewable Resource Portfolio Requirement

Report for 2021 Activity

**Presented to the
Joint Standing Committee on
Energy, Utilities and Technology
March 31, 2023**

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I. INTRODUCTION

During its 2007 session, the Legislature enacted an Act to Stimulate Demand for Renewable Energy (2007 Act).¹ The Act added a mandate that specified percentages of electricity that supply Maine’s consumers come from “new” renewable resources. Generally, new renewable resources are renewable facilities that have an in-service date, resumed operation or were refurbished after September 1, 2005. The percentage requirement began at one percent in 2008 and increased in annual one percentage point increments to ten percent in 2017 and remains at ten percent, unless the Commission suspends the requirement pursuant to the provisions of the 2007 Act.

The 2007 Act contains an annual reporting requirement on the status of Class I renewable resource development and compliance with the portfolio requirement. The reporting provision specifies:

Annual Reports. No later than March 31, 2008 and annually thereafter, the Commission shall submit a report regarding the status of Class I resources in the State and compliance with the portfolio requirement under paragraph A to the joint standing committee of the Legislature having jurisdiction over utilities and energy matters. The report must include, but is not limited to, a description of Class I resources available to meet the portfolio requirement under paragraph A, documentation of the loss of any existing renewable generation capacity in the State, the status of implementation of portfolio requirements under paragraph A, including any suspensions pursuant to paragraph B, and recommendations to stimulate investment in Class I resources.

Legislation enacted in 2019, (P.L. 2019, ch. 477), created two new classes of renewable energy credits (RECs), Class IA and Thermal RECs, each with its own increasing requirement schedule. For Class IA, in 2021, a competitive electricity provider must demonstrate that 5% of its supply is from Class IA resources and by 2030, 40% of its supply must come from Class IA. The Legislature required reporting on Class IA with identical wording to the existing Class I requirements. For Thermal RECs, competitive electricity providers must demonstrate compliance with 0.4% in 2021 and 4.0% in 2030 and thereafter.

The Commission hereby submits its report to the Joint Standing Commission on Energy, Utilities and Technology to describe the status of Maine’s renewable resource portfolio requirements. This report is based on the most recently filed Competitive Electricity Provider (CEP) annual compliance reports, which were filed in July 2022 for calendar year 2021. Therefore, this report generally presents information on implementation and compliance with the portfolio requirement for calendar year 2021.

¹ P.L. 2007, ch. 403 (codified at 35-A M.R.S. § 3210(3-A)).

II. BACKGROUND

A. New Renewable Resource Portfolio Requirement (Class I)

As stated above, the new renewable resource portfolio requirement, referred to as Class I requires that specified percentages of electricity that supply Maine’s consumers come from “new” renewable resources.² The percentage requirement began at one percent in 2008 and increased in annual one percentage point increments to ten percent in 2017 and remains at ten percent. The 2007 Act specifies the resource type, capacity limit and the vintage requirements for the new renewable resource requirement. As specified in the 2007 Act, a new renewable resource used to satisfy the Class I portfolio requirement must be of the following types:

- fuel cells;
- tidal power;
- solar arrays and installations;
- wind power installations;
- geothermal installations;
- hydroelectric generators that meet all state and federal fish passage requirement; or
- biomass generators, including generators fueled by landfill gas.

In addition, except for wind and solar power installations, the generating resource must not have a nameplate capacity that exceeds 100 MW. Moreover, the resource must satisfy one of four vintage requirements. These are:

- 1) Renewable capacity with an in-service date after September 1, 2005;
- 2) Renewable capacity that has been added to an existing facility after September 1, 2005;
- 3) Renewable capacity that has not operated for two years or was not recognized as a capacity resource by the New England Independent System Operator (ISO-NE) or the Northern Maine Independent System Administrator (NMISA) and has resumed operation or has been recognized by the ISO-NE or NMISA after September 1, 2005; and
- 4) Renewable capacity that has been refurbished after September 1, 2005 and is operating beyond its useful life or employing an alternate technology that significantly increases the efficiency of the generation process.

² Contracts or standard offer arrangements that pre-date the effective date of the Act, 35-A M.R.S. § 3210(3-A)(D), and sales to qualified Pine Tree Development Zone businesses, 35-A M.R.S. § 3210-B(4), are exempt from the portfolio requirement.

B. Class I Implementing Rules

As required by the 2007 Act, the Commission modified its portfolio requirement rule (Chapter 311) to implement the “new” renewable resource requirement.³ The implementing rules establish a certification process that requires generators to pre-certify facilities as a new renewable resource under the requirements of the rule and provide for a Commission determination of resource eligibility on a case-by-case basis.⁴ The rule also specifies that the Commission may revoke a certification if there is a material change in circumstance that renders the generation facility ineligible as a new renewable resource. Under the rules, a generator does not have to be located in Maine to be eligible as long as its power is used to serve load in New England.

The 2007 Act also includes an “alternative compliance mechanism” (ACM) that allows suppliers to pay specified amounts into the Energy Efficiency and Renewable Resource Fund in lieu of compliance with the new renewable resource portfolio requirement. As required by the 2007 Act, the rules establish an ACM that allows suppliers to make a payment in lieu of compliance with the new renewable resource portfolio requirement.⁵ The alternative compliance payment rate in 2021 is \$50.00 per MWh.

Finally, the implementing rules allow suppliers to satisfy or “cure” a compliance deficiency in one calendar year during the following calendar year. This cure provision only applies if the supplier has satisfied at least two-thirds of its calendar year requirement. In addition, a supplier may “bank” any excess renewable credits in a calendar year for use in the next calendar year. However, a supplier may not use banked credits to satisfy more than one-third of the requirement in any year.⁶

C. Class IA and Thermal RECs Implementing Rules.

In 2019, the Legislature passed “An Act to Reform Maine’s Renewable Portfolio Standard” (2019 ACT),⁷ which set new state goals for the consumption of electricity from renewable resources, created two new classes of renewable resources (Class IA and Thermal RECs), and required reporting on Class IA RECs. The 2019 Act sets out the schedule of requirements for Class IA resources as follows:

- (1) Two and one-half percent for the period from January 1, 2020, to December 31, 2020;
- (2) Five percent for the period from January 1, 2021, to December 31, 2021;
- (3) Eight percent for the period from January 1, 2022, to December 31, 2022;
- (4) Eleven percent for the period from January 1, 2023, to December 31, 2023;
- (5) Fifteen percent for the period from January 1, 2024, to December 31, 2024;
- (6) Nineteen percent for the period from January 1, 2025, to December 31, 2025;

³ Order Adopting Rule and Statement of Factual and Policy Basis, Docket No. 2007-391 (Oct. 22, 2007).

⁴ Chapter 311, § 3(B)(4).

⁵ Chapter 311, § 3(C).

⁶ Chapter 311, § 7(A) and (B).

⁷ P.L.2019, Ch 477, (codified at 35-A MRSA §3210)

- (7) Twenty-three percent for the period from January 1, 2026, to December 31, 2026;
- (8) Twenty-seven percent for the period from January 1, 2027, to December 31, 2027;
- (9) Thirty-one percent for the period from January 1, 2028, to December 31, 2028;
- (10) Thirty-five percent for the period from January 1, 2029, to December 31, 2028; and
- (11) Forty percent from the period from January 1, 2030, to December 31, 2030 and each year thereafter.

The 2019 Act further sets out the schedule of requirements for Thermal RECs (TRECs) as follows:

- A. For calendar year 2021, 0.4%;
- B. For calendar year 2022, 0.8%;
- C. For calendar year 2023, 1.2%;
- D. For calendar year 2024, 1.6%;
- E. For calendar year 2025, 2%;
- F. For calendar year 2026, 2.4%;
- G. For calendar year 2027, 2.8%;
- H. For calendar year 2028, 3.2%;
- I. For calendar year 2029, 3.6%; and
- J. For calendar year 2030, and each year thereafter, 4%.

As required by the 2019 Act, the rules establish an ACM that allows suppliers to make a payment in lieu of compliance with the new renewable resource portfolio requirement. The alternative compliance payment rate in 2021 is \$50⁸ and \$25⁹ per MWh for Class I/IA and TRECs, respectively.

D. Maine’s Eligible Resource Portfolio Requirement (Class II)

Maine’s original restructuring legislation, which became effective in March 2000, included a 30% eligible resource portfolio requirement.¹⁰ The eligible resource portfolio requirement, now referred to as Class II, mandated that each retail competitive electricity supplier meet at least 30% of its retail load in Maine from “eligible resources.” Eligible resources are defined in statute as either renewable resources or efficient resources. Renewable resources are defined in statute as fuel cells, tidal power, solar arrays, wind power, geothermal installations, hydroelectric generators, biomass generators, and municipal solid waste facilities. Renewable resources may not exceed a production capacity of 100 megawatts. “Efficient” resources are cogeneration facilities that were constructed prior to 1997, meet a statutory efficient standard and may be fueled by fossil fuels. There is no ACM option for Class II resources.

E. Renewable Energy Credits

⁸ Chapter 311, § 3(D).

⁹ Chapter 311, § 5(C).

¹⁰ 35-A M.R.S. § 3210(3).

Most of the compliance with Maine’s portfolio requirements occurs through the purchase of RECs. The New England Power Pool (NEPOOL) has established a REC trading and tracking mechanism referred to as the Generation Information System (GIS). This system allows for the trading of the renewable attribute of a MWh separately from the energy value of the MWh. The GIS serves to significantly simplify compliance by suppliers and verification by regulatory commissions and avoids double counting. Consistent with statutory direction,¹¹ the Commission requires suppliers in ISO-NE to verify compliance with the portfolio requirement through the GIS. In Docket No. 2017-00050, the NMISA requested and was granted permission to use a tracking and verification system in northern Maine (Docket No. 2017-00050).

III. IMPLEMENTATION AND COMPLIANCE

A. Certified Generators

The implementing rules require generation facilities to be certified by the Commission as a Class I/IA renewable resource before such facilities can be used to satisfy Maine’s renewable resource portfolio requirement. As of March 1, 2023, there are more than 300 certified facilities, with a total capacity of approximately 4,500 MW.¹² Not all of the facilities that have been certified are in service and many of the facilities are also eligible for portfolio requirements in other New England states. Additionally, there are Class I/IA facilities physically located in Maine that are not certified as Class I/IA facilities in Maine.¹³

B. Total Retail Sales, Exemptions, and Obligations

For 2021, CEPs reported a total of 11,652,504 MWh of retail sales, or 12,423,163 MWh including line losses. Pursuant to certain statutory provisions, some sales are exempt from the renewable portfolio standard (RPS). During 2021, the total amount of sales that were exempt from Class I was 353,608 MWh, from Class IA, 3,361,899 MWh, and from the Thermal REC, 2,809,115 MWh. Of those exempt sales, 125,218 MWh were due to sales serving qualified Pine Tree Development Zone businesses established under Title 30-A. The balance were sales under contracts entered into prior to September 2007 for Class I and prior to September 2019 for Class IA and Thermal RECs.

After exemptions, there was a total REC obligation of 1,207,159 for Class I, 453,091, for Class IA, 3,691,157 for Class II, and 38,458 for Thermal.

Customers that participate in the State’s Net Energy Billing kWh Credit program have their usage offset through subscriptions with renewable project sponsors. The usage that is offset by the subscriptions is not subject to and is essentially exempt from the RPS requirements. This is

¹¹ The portfolio requirement statute states that the Commission shall allow competitive electricity providers to satisfy the portfolio requirements through the use of RECs if it determines that a reliable system of electrical attribute trading exists. 35-A M.R.S. § 3210(8). The Commission has determined that the GIS is a reliable system.

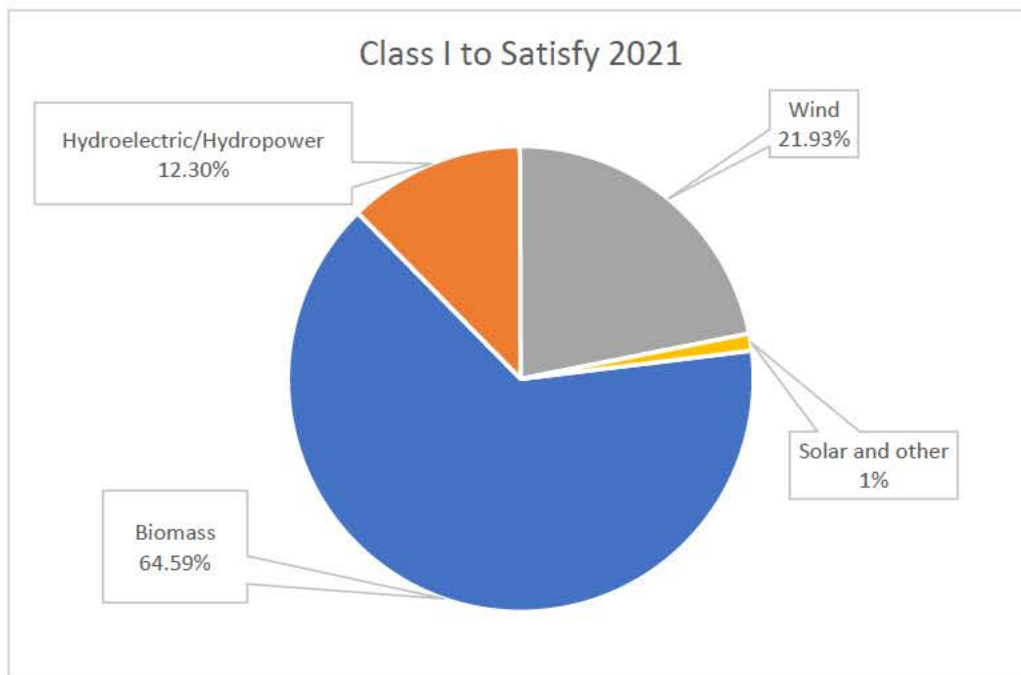
¹² Information on the RPS Class I Renewable Resource Applications can be found at <https://www.maine.gov/mpuc/regulated-utilities/electricity/renewable-programs/rps>

¹³ Based on data from NEPOOL-GIS Regulator Reports, 64% of the NEW (since 1/1/2019) solar generation physically located in Maine that registered with NEPOOL GIS only registered their RECs for sale outside the State of Maine.

because project sponsors are not required to retire REC's and are free to sell these REC's into the market.

C. New Renewable Portfolio Requirement (Class I): Resources and Cost Impacts

The following chart shows the mix of resources used to satisfy Maine's Class I resource portfolio requirement during 2021.



As the table below shows, REC's from 45 facilities were used by suppliers to comply with the 2021 Class I resource requirement. Eighteen of the facilities are biomass, 17 are hydroelectric, one is landfill gas, eight are solar and one is wind. Forty-one of the facilities are located in Maine, one is located in New Hampshire, one is located in Quebec, and one is located in Rhode Island. Of the 1,048,309 REC's purchased to meet the 2021 portfolio requirement, approximately 78% came from facilities located in Maine.

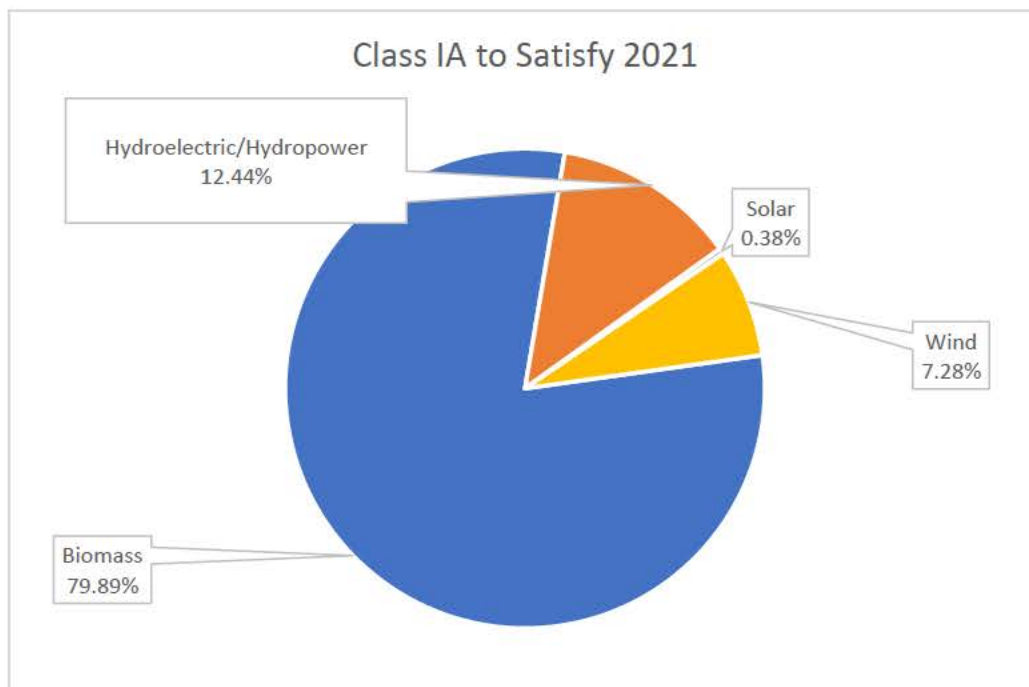
	Number of Generators	GIS Certificates as % of total	
Biomass			
MAINE	16	676,347	64.52%
NEW HAMPSHIRE	1	656	0.06%
QUEBEC	1	83	0.01%
Hydroelectric/Hydropower			
MAINE	17	128,942	12.30%
Landfill gas			
RHODE ISLAND	1	698	0.07%
Solar Photovoltaic			
MAINE	8	11,642	1.11%
Wind			
NEW BRUNSWICK	1	229,941	21.93%
Grand Total	45	1,048,309	100.00%

For calendar year 2021 approximately 28% of the Class 1 RPS requirement was satisfied using RECs obtained in 2020. The balance, approximately 72%, was met through the purchase of RECs during 2021. Finally, 136,816 RECs were purchased in 2021 and identified as banked for future use. One hundred and seven RECs purchased in 2021 were used to satisfy the requirements for the 2020 Class 1 RECs purchased during the cure period.

The cost to ratepayers of Maine’s Class I resource portfolio requirement is estimated by the cost of compliance reported by suppliers, primarily through their purchase of RECs. During 2021, the cost of RECs used for compliance ranged from \$0.00¹⁴ per MWh to approximately \$41.75 per MWh, with a weighted average cost of \$13.52 per MWh and a total cost of approximately \$18.8 million. Additionally, there was a total of \$77,100 paid in as Alternative Compliance Payments (ACP), which brings the total cost of compliance to approximately \$18.9 million. This is equivalent to about 82 cents per month for a typical residential customer who uses 500 kwh per month; about \$81.80 per month for a medium commercial customer that uses 50,000 kWh per month; and about \$817.99 per month for a large commercial/industrial customer that uses 500,000 kWh per month.

D. New Renewable Portfolio Requirement (Class IA); Resources and Cost Impacts

The following chart shows the mix of resources used to satisfy Maine’s Class 1A resource portfolio requirement during 2021.



¹⁴ CEPs sometimes procure energy and RECs as a bundle and report the REC cost as zero.

As the table below shows, RECs from 35 facilities were used by suppliers to comply with the 2021 Class IA resource requirement. Twelve of the facilities are biomass, sixteen of the facilities are hydroelectric, five are solar and two are wind. Thirty-two of the facilities used to generate Class IA RECs in 2021 are located in Maine.

	Number of Generators	GIS Certificates as % of total	
Biomass			
MAINE	10	322,949	78.15%
NEW BRUNSWICK	1	7,105	1.72%
QUEBEC	1	83	0.02%
Hydroelectric/Hydropower			
MAINE	16	51,425	12.44%
Solar Photovoltaic			
MAINE	5	1,577	0.38%
Wind			
MAINE	1	29,746	7.20%
NEW YORK	1	349	0.08%
Grand Total	35	413,234	100.00%

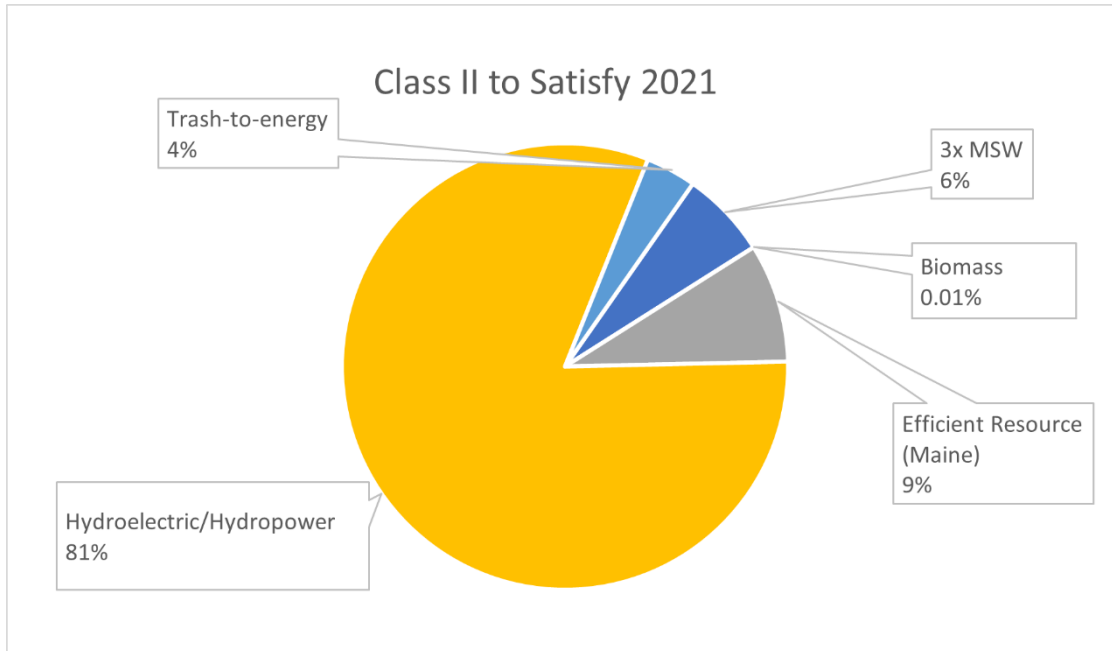
For calendar year 2021, approximately 5% of the Class IA RPS requirement was satisfied using RECs obtained in 2020. The balance, approximately 95% was met through the purchase of RECs during 2021. Of the 413,234 RECs purchased in 2021, 67,082, or 16%, were identified as banked for future use.

The cost to ratepayers of Maine’s Class IA resource portfolio requirement is estimated by the cost of compliance reported by suppliers, primarily through their purchase of RECs. During 2021, the cost of Class IA RECs used for compliance ranged from \$0.00¹⁵ per MWh to approximately \$40.50 per MWh, with a weighted average cost of \$17.05 per MWh and a total cost of \$9,039,654. This is equivalent to about 39 cents per month for a typical residential customer using 500 kWh; about \$39.22 per month for a medium commercial customer that uses 50,000 kWh per month; and about \$392.19 per month for a large commercial/industrial customer that uses 500,000 kWh per month.

¹⁵ CEPs sometimes procure energy and RECs as a bundle and report the REC cost as zero.

E. Eligible Resources Portfolio Requirement (Class II); Resources and Cost Impacts

The following chart shows the mix of resources used to satisfy Maine’s Class II renewable resource portfolio requirement during 2021.¹⁶



“3x MSW” represents the 300% multiplier applied to generation fueled by municipal solid waste as contemplated in section 4(B) of Chapter 311.

During 2021 the costs of RECs used to satisfy the Class II eligible resource portfolio requirement ranged from \$0.00 per MWh (some RECs were provided for free as part of an energy transaction) to \$10.25 per MWh, with a weighted average cost of \$3.77 per MWh and a total cost of \$15,652,331. This is equivalent to about 68 cents per month for a typical residential customer, \$67.70 for a medium commercial customer and \$677.02 per month for a large commercial/industrial customer with the usage levels described above, respectively.

F. Thermal Resource Renewable Energy Credit (REC); Resources and Cost Impacts

Calendar Year 2021 was the first year with a requirement for Thermal RECs. The market for the RECs is still forming. There were two certified facilities able to generate and sell Thermal RECs in 2021. As of March 1, 2023, there are six certified facilities.

The total Thermal REC obligation was 38,458 in 2021, of which 7,401 was fulfilled by purchasing Thermal RECs and 28,383 was fulfilled by paying the ACP. The balance was deferred to 2022. Additionally, contracts entered into before September 19, 2019, and certain

¹⁶ In the 2019 Act, 35-A MRS §3210 (2)(D)(3), “300% multiplier is applied to the output of a generator fueled by municipal solid waste in conjunction with recycling that has obtained a solid waste facility license from the Department of Environmental Protection. “

large class customers are exempt from the thermal REC requirement. The total amount of Thermal REC exemptions was about 2.8 million MWh or approximately 20% of total load.

In 2021, the average cost of a Thermal REC was \$23.98 for a cost of compliance of \$177,505. Additionally, as per statute, the Commission collected \$709,575 in alternative compliance payments, which accounted for about 74% of the Thermal REC obligation. Per statutory requirements, these payments were transferred to Efficiency Maine Trust for funding incentives for thermal energy derived projects.

G. Portfolio Requirement Percentage Suspension

Both Acts allow the Commission to suspend scheduled percentage increases in the Class I and Class IA portfolio requirements if it finds that investment in new renewable resources has not been sufficient for suppliers to satisfy the requirement, the requirement has burdened electricity customers without providing the benefits from new renewable resources or that there has been an over reliance on the ACM. As specified above, the vast majority of the compliance with the Class I and Class IA portfolio requirements occurred through the purchase of RECs at an average REC cost that is substantially less than the alternative compliance payment. Thus, it is clear that renewable resource development and operation has been sufficient for suppliers to satisfy the Class I and IA portfolio requirement without reliance on the ACM. Accordingly, the Commission did not act to suspend percentage increases in the portfolio requirement in 2021.

While there is no statutory allowance for the Commission to suspend the scheduled percentage increase for Thermal RECs, there does appear to be a substantial shortage of them on the market, which may be driving the high percentage of the Thermal REC requirement being met by the ACM. Other New England states' RPS statutes do not have requirements for useful thermal energy (Rhode Island¹⁷) or include useful thermal energy in other classes of renewable energy which prevents them from being used to satisfy Maine's thermal energy requirement (Connecticut,¹⁸ Massachusetts,¹⁹ New Hampshire,²⁰ Vermont²¹).

H. Status of Renewable Resource Development

Maine's portfolio requirement operates in conjunction with the portfolio requirements in the other New England states to promote the development of renewable resources in Maine and New England.²² The ISO-NE interconnection queue, which includes proposed generation projects that have initiated the review process for interconnection to the regional grid, includes a significant number of renewable projects. As of March 2023, the ISO-NE queue includes renewable projects totaling about 32,400 MW (wind-16,743 MW, biomass-0 MW, hydro- 33 MW, solar-3,529 MW, landfill gas-0 MW, battery-11,097 MW, fuel cell-2 MW, solar + battery-

¹⁷ <http://webserver.rilin.state.ri.us/Statutes/TITLE39/39-26/INDEX.HTM>

¹⁸ <https://portal.ct.gov/PURA/RPS/Renewable-Portfolio-Standards-Overview>

¹⁹ <https://www.mass.gov/files/documents/2019/07/01/225%20CMR%2016%20APS%20Regulation%20CLEAN%20FINAL%20%28060619%29.pdf>

²⁰ https://www.puc.nh.gov/Sustainable%20Energy/Renewable_Portfolio_Standard_Program.htm

²¹ <https://legislature.vermont.gov/statutes/fullchapter/30/089>

²² Generally, newly developed renewable resources located within or adjacent to New England can be used to satisfy the various New England state's portfolio requirements.

995 MW, and hydro + battery-15 MW). The proposed projects in Maine total 5,045 MW (wind-2,121 MW, biomass-0 MW, hydro-28 MW, solar 2,079-MW, battery-480 MW, and solar + battery-336 MW).²³ Although all of the projects in the queue may not be developed, there appears to be adequate renewable resource development in the region to meet the requirements of the RPS. As of early March 2023, there was a total of 1,390 MW for 447 distributed generation projects in CMP's interconnection queue and 463 MW for 190 projects in Versant Power's queue.

Because existing requirements and mechanisms in the region appear to be providing sufficient incentives for the continued operation and development of renewable resources sufficient to meet Maine's portfolio requirement, at this time, the Commission makes no recommendations regarding mechanisms to stimulate investment in renewable resources beyond those that already exist on the state, regional and federal levels.

IV. CONCLUSION

During 2021, Maine's electricity suppliers complied with the State's Class I/IA, Class II and Thermal portfolio requirements. The total cost of compliance was \$44,518,260. For the Class I requirement the cost was \$18,911,544, for Class IA, the cost of compliance was \$9,067,304, for Class II, the total cost of compliance was \$15,652,331, and for Thermal RECs the cost of compliance was \$887,080.

²³ MW values represent net generating capacity and are obtained from ISO New England Interconnection Request Tracking Tool at <https://www.iso-ne.com/system-planning/transmission-planning/interconnection-request-queue> In calculating these numbers, projects listed with an operational or withdrawn date before 3/1/2023 have been removed.