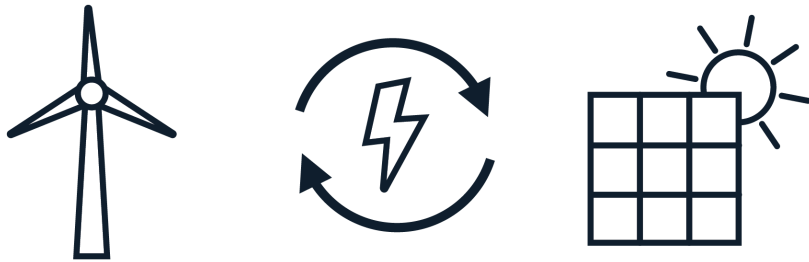




# RENEWABLE ENERGY AND EMISSIONS COMPLIANCE UNDER BERDO



*A guide to use renewable energy  
to meet BERDO emissions standards*

*Last updated April 2024*



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## HOW CAN BUILDING OWNERS USE RENEWABLE ENERGY TO COMPLY WITH BERDO?

BERDO requires building owners to meet annual emissions standards (i.e., emissions limits) corresponding to the building use(s) of their buildings.

To comply with these emissions standards, building owners may choose to reduce or mitigate emissions from their electricity consumption through **non-emitting renewable energy**. This includes solar, offshore wind, onshore wind, geothermal, small hydropower, and marine or hydrokinetic energy.

Any emitting renewable energy involving the combustion or burning of fuels (e.g., biomass, landfill methane, biofuels) has an emissions factor under BERDO and counts towards a building's emissions.

**There are four main ways in which non-emitting renewable energy can be used for compliance under BERDO:**

- 1 Enrolling into the Boston Community Choice Electricity and choosing the “Standard” or “Green 100” service
- 2 Buying and retiring Mass Class I Renewable Energy Certificates, either unbundled or bundled as part of a Power Purchase Agreement inside ISO New England
- 3 Signing a Power Purchase Agreement outside ISO New England
- 4 Using local renewable energy generation

**In all cases, renewable energy can only be used to mitigate emissions from electricity consumption. Renewable energy cannot be used to mitigate emissions from fossil fuel consumption.**

The following sections describe the requirements for each of these compliance mechanisms. **For more information, please refer to Section (m) of the [Ordinance](#) and Section X of the [Regulations](#).**

# B



## ENROLLING INTO THE BOSTON COMMUNITY CHOICE ELECTRICITY (BCCE) “STANDARD” OR “GREEN 100” SERVICES

BCCE offers two electricity services that exceed the [Massachusetts Renewable Energy Portfolio Standard](#) (RPS) Class I annual requirements. The RPS establishes minimum renewable energy requirements for electricity suppliers in Massachusetts, including Eversource. By exceeding the RPS, BCCE enables building owners to reduce their emissions from electricity compared to Eversource’s Basic Service:

- **BCCE Standard** offers customers 39% renewable electricity (15% more than the 2024 RPS Class I requirement).
- **BCCE Green 100** offers customers 100% renewable electricity (76% more than the 2024 RPS Class I requirement).

Eversource Basic Service customers are automatically enrolled into the BCCE Standard service on a quarterly basis, unless a customer has a supply block on their account or has a contract with a competitive supplier. Owners can enroll their electric accounts or opt-up to the “Green 100” service using this [online form](#).



## BUYING AND RETIRING MASS CLASS I RENEWABLE ENERGY CERTIFICATES (RECS)

Building owners may mitigate emissions from their electricity consumption by buying and retiring Mass Class I RECs generated by non-emitting renewable energy sources. This can be done in two ways:

- **Buying and retiring unbundled Mass Class I RECs.**
- **Buying and retiring bundled Mass Class I RECs as part of a Power Purchase Agreement inside the ISO New England grid.**

In both cases, building owners must meet the following requirements:

- 1. RECs must be generated either within the compliance year or within the 12 months prior.**

*For example, to use a REC to comply in 2025, the REC must have been generated any time between January 2024 and December 2025.*

- 2. RECs must be retired no later than 6 months after the end of the compliance year.**

*For example, to use a REC to comply in 2025, the REC must be retired by June 30, 2026.*

## 3

### **SIGNING A POWER PURCHASE AGREEMENT (PPA) OUTSIDE ISO NEW ENGLAND**

Building owners may mitigate emissions from their electricity consumption by signing a PPA for a non-emitting renewable energy project located outside the ISO New England grid. This includes virtual PPAs.

PPAs are long-term energy contracts between a customer and an energy generator. Building owners may sign their own PPA or join an existing PPA executed by or on behalf of another BERDO building owner.

In either case, the PPA must meet the following requirements:

- 1. PPA must include both the purchase of electricity and the purchase and retirement of its associated RECs.**

*This includes virtual PPAs where the customer does not physically receive electricity.*

- 2. PPA must be for non-emitting renewable energy generation facilities connected to any grid in the jurisdiction of the North American Electric Reliability Corporation (NERC).**

*The jurisdiction of NERC includes the contiguous United States, Canada, and certain locations in Mexico.*

- 3. PPA must meet “additionality” criterion, i.e. it must be executed by or on behalf of the building owner prior to the commercial operation of the generation facility.**

*This timing requirement does not apply to building owners that join an existing eligible PPA that was executed by a different BERDO building owner in accordance with this provision.*

*Based on extenuating circumstances, owners may request the Review Board to approve a PPA that does not meet the additionality criterion.*

- 4. Electricity must be generated in the compliance year in which it is used.**

*For example, to comply in 2025, the electricity must have been generated between January and December 2025.*

- 5. RECs must meet the RPS Class I RECs requirements, except for location and metering.**

- 6. RECs must be retired no later than 6 months after the end of the compliance year for which they are used.**

*For example, to comply in 2025, RECs must be retired by June 30, 2026.*



Please note that PPAs that satisfy the BERDO requirements at the time of execution may be used for compliance for the length of the contract term, including extensions to the original term, and for any quantity or price of electricity purchased from the original generating source(s) identified in the PPA.



## **USING LOCAL RENEWABLE ENERGY GENERATION**

Building owners may reduce emissions from their electricity consumption by using local, non-emitting renewable energy generation. This can be done in two ways:

- **On-site non-emitting renewable energy generation systems (e.g., rooftop solar, geothermal located in BERDO building)**
- **Off-site non-emitting renewable energy generation systems (e.g., community solar, solar in rooftop leases, Power Purchase Agreements with local generation facilities).**

Retirement of Mass Class I RECs is not required for local renewable energy generation if:

- **Purchasing electricity or net-metering credits from any type of non-emitting renewable energy system located inside the City of Boston.**
- **Purchasing electricity or net-metering credits from a solar system located in the Eversource Eastern Massachusetts territory and that began operation before 2024**

If these criteria are not met, Mass Class I REC retirement is needed to comply with BERDO.



## FAQs

### EMISSIONS COMPLIANCE

#### 1. How are emissions from electricity calculated under BERDO?

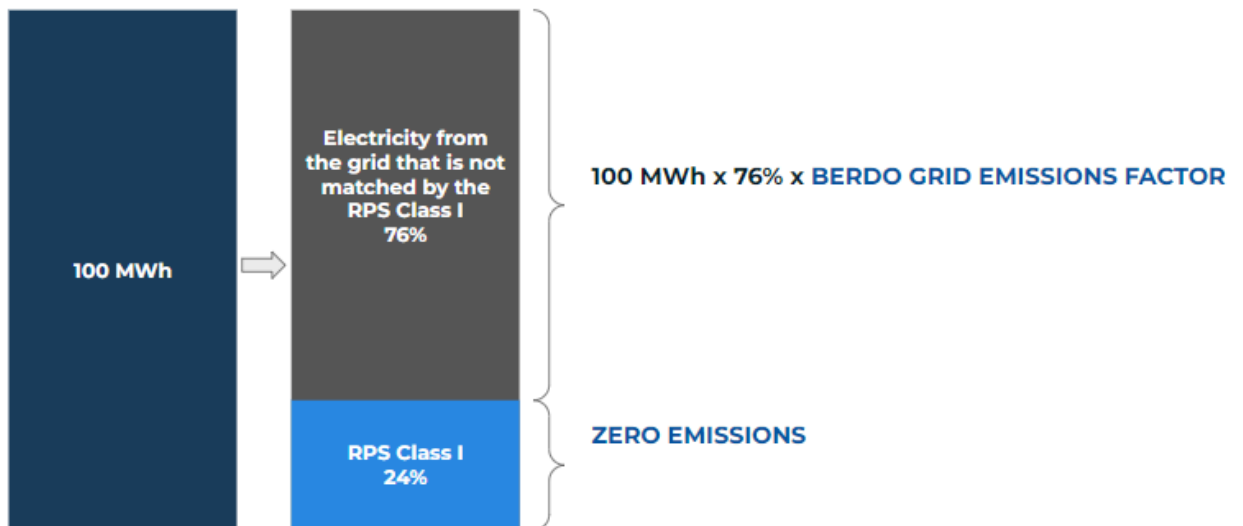
Emissions from electricity consumed from the ISO New England grid are calculated by multiplying (i) the reported annual amount of grid electricity consumed by a building by (ii) the percentage of said grid electricity that is not matched by the Massachusetts RPS Class I minimum annual requirement, and (iii) the annual BERDO grid emissions factor:

$$\text{Emissions} = \text{Electricity consumed from ISO New England grid} \times (100\% - \text{RPS Class I}) \times \text{BERDO grid emissions factor}$$

This means that any amount of grid electricity that is matched by the Massachusetts RPS Class I annual minimum requirement has zero emissions.

For example, if a building owner consumes 100 MWh of electricity from the grid in 2024, their emissions would be calculated as follows:

$$\begin{aligned} \text{Emissions} &= 100 \text{ MWh} \times (100\% - 24\%) \times \text{BERDO grid emissions factor} \\ &= 100 \text{ MWh} \times 76\% \times \text{BERDO grid emissions factor} \end{aligned}$$





The annual BERDO grid emissions factors will be provided by the Environment Department every year by April 1st. In the event that the BERDO annual grid emissions factor is higher than the Environment Department’s projected electric grid emissions factor published in [Appendix A of the BERDO Policies and Procedures](#), the projected grid emissions Factor will be used for calculating emissions from grid electricity.

## BOSTON COMMUNITY CHOICE ELECTRICITY

### 2. BERDO allows Buildings to use electricity obtained through the Boston Community Choice Electricity program. How can I sign-up for the option that provides 100% renewable electricity?

You can use this [form](#) to either enroll a new account or, if you already have an account enrolled in [Boston Community Choice Electricity](#) (BCCE), change your product selection to Optional Green 100. If you have more than 5 accounts, you can either (i) complete the form for each account or (ii) download and complete this [google sheet](#) with the account details and email it to [bcce@boston.gov](mailto:bcce@boston.gov); the City will then provide the form to Direct Energy to process. Enrollments and account changes can take two billing cycles to go into effect. Accounts that use more than 1.5 million kWh/year are not eligible for BCCE.

### 3. How are emissions calculated under BCCE?

Under BCCE, the City of Boston buys and retires Mass Class I Renewable Energy Certificates (RECs) on behalf of customers to match their electricity consumption with additional renewable energy on top of the RPS Class I annual requirement.

For example, **BCCE Green 100** matches 100% of a customer’s electricity consumption with renewable energy by purchasing and retiring enough Mass Class I RECs to cover any electricity not already matched by the RPS Class I requirements.

Emissions from electricity consumed under BCCE will be calculated by multiplying (i) the reported amount of electricity consumed by a building under BCCE, (ii) the percentage of said grid electricity that is not matched by Mass Class I RECs and (iii) the BERDO annual grid emissions factor:

$$\begin{aligned} \text{Emissions} &= \text{Electricity consumed under BCCE} \times \\ &\quad (100\% - \text{RPS Class I} - \text{Mass Class I RECs}) \times \\ &\quad \text{BERDO annual grid emissions factor} \end{aligned}$$

Any electricity matched by the Massachusetts RPS Class I or Mass Class I RECs procured on behalf of the customer has zero emissions under BERDO. Therefore, all electricity consumed under BCCE Green 100 has zero emissions.





## MASS CLASS I UNBUNDLED RENEWABLE ENERGY CERTIFICATES AND POWER PURCHASE AGREEMENTS INSIDE ISO NEW ENGLAND

**4. Would the purchase of unbundled RECs from new renewable sources that do not meet the RPS Class I eligibility criteria qualify for use in BERDO?**

*No, RECs that do not meet the RPS Class I eligibility criteria cannot be used for compliance with BERDO unless the RECs are bought as part of a BERDO-compliant Power Purchase Agreement (PPA) or virtual PPA outside ISO New England.*

*Section 7-2.2(m)(b)(i) of BERDO provides that RECs used for BERDO compliance must be generated by non-CO<sub>2</sub>e emitting renewable sources that meet the RPS Class I eligibility criteria outlined in 225 CMR 14.05, as may be amended from time to time. RECs that do not meet this requirement may be used for BERDO compliance if purchased as part of a PPA or virtual PPA for Energy generated by renewable non-emitting fuel sources that meet the requirements in Section 7-2.2(m)(c) of the [Ordinance](#) and Section X of the [Regulations](#).*

**5. BERDO allows Buildings to mitigate CO<sub>2</sub>e Emissions from electricity use by purchasing unbundled Renewable Energy Certificates (RECs). Would RECs generated by wind turbines in Quebec qualify for use in BERDO?**

*RECs from wind generation in Quebec **might** qualify for use in BERDO. Section 7-2.2(m)(b)(i) of BERDO provides that RECs used for BERDO compliance must be generated by non-CO<sub>2</sub>e emitting renewable sources that meet the RPS Class I eligibility criteria outlined in 225 CMR 14.05, as may be amended from time to time. The Renewable Energy Portfolio Standard (RPS) is a state program and the Department of Energy Resources (DOER) determines whether an electric generation facility qualifies for the RPS Class I. According to the state's list of [Qualified Class I Renewable Generation Units](#), output from specific generation units in Quebec will qualify for RPS Class I if the conditions in 225 CMR 14.05(5) are met. Building owners should confirm that a wind generation project in Quebec is on the state's list of Qualified Class I Renewable Generation Units and meets the state requirements for RPS Class I.*

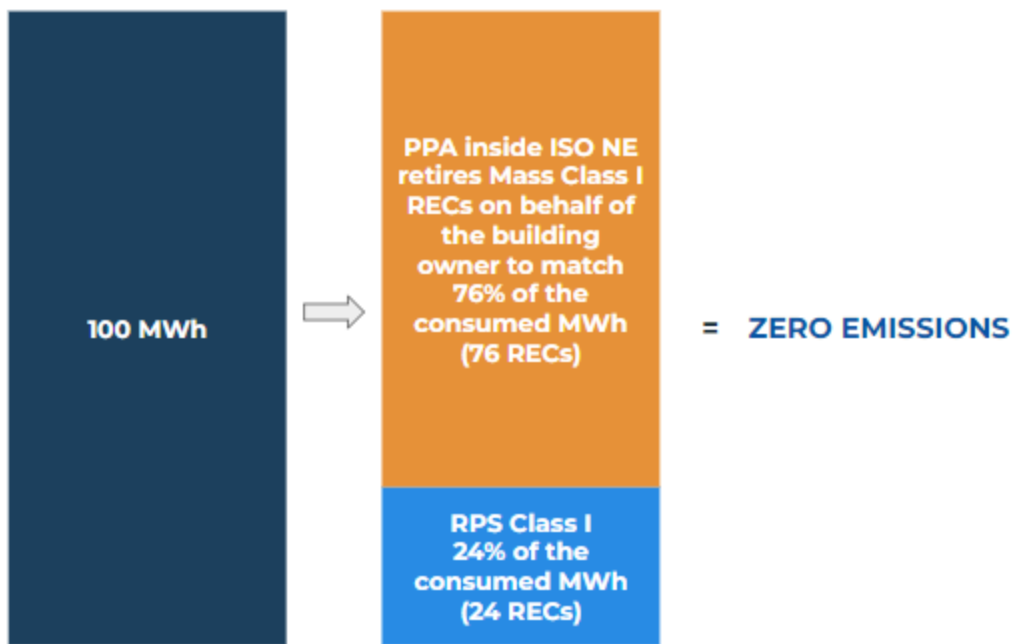
**6. I signed a Power Purchase Agreement (PPA) inside ISO New England and the energy generator is retaining and retiring a percentage of the Mass Class I RECs associated with my electricity consumption to meet their obligations under the RPS Class I. Do I need to retire additional Mass Class I RECs to make up for the RECs the energy generator used to meet the RPS Class I requirements?**

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**No**, any electricity matched by the Massachusetts RPS Class I and/or Mass Class I RECs procured on behalf of the customer has zero emissions under BERDO.

For example, if a building owner with an eligible PPA inside ISO New England consumes 100 MWh in 2024, to achieve zero emissions from electricity, the building owner would only need to retire enough Mass Class I RECs to cover the percentage of their electricity that is not already matched by the RPS Class I.

Since the RPS Class I requirement in 2024 is 24%, to achieve zero emissions from electricity, the building owner would only need to retire enough Mass Class I RECs to match 76% of their electricity, or 76 MWh. Therefore, the building owner would only need to retire 76 Mass Class I RECs under their name to achieve zero emissions from electricity. As part of the PPA, the energy generator must also retain and retire 24 RECs to meet their RPS Class I requirements (see **Fig. 1**).



**Fig. 1.** To achieve zero emissions from electricity, a building owner that consumes 100 MWh must retire enough Mass Class I RECs under their name to match the percentage of their electricity consumption that is not already covered by the RPS Class I requirements.



## POWER PURCHASE AGREEMENTS OUTSIDE ISO NEW ENGLAND

### **7. Are there specific regions or states that can be used to source non-emitting renewable energy through PPAs outside ISO New England?**

*Yes, as stated in Section X(c)(i)(b) of the [Regulations](#), PPAs must be signed with electricity generators connected to an electric grid in the jurisdiction of the North American Electric Reliability Corporation (NERC). The jurisdiction of NERC includes the contiguous United States, Canada, and certain locations in Mexico.*

### **8. Are there specific requirements for the RECs retired as part of a PPA outside ISO New England?**

*Yes, as stated in Section X(c)(i)(b) of the [Regulations](#):*

- *The electricity associated with the retired RECs must be generated in the compliance year in which it is used. For example, to comply in 2025, the electricity must have been generated between January and December 2025.*
- *RECs must meet the RPS Class I RECs requirements, except for location and metering.*
- *RECs must be retired no later than 6 months after the end of the compliance year for which they are used.*

### **9. Does the building owner have to be party to a PPA, or can the building owner have an arrangement through a retail supplier that is tied back to a VPPA?**

*A PPA can be executed by or on behalf of the building owner, provided that all requirements of the [Ordinance](#) and [Regulations](#) are met. Where the owner of record as set forth in the Boston Assessing Department's records is different from the entity signing the contract, the contract should clearly state that the signing entity is buying RECs as the owner of, or on behalf of, the BERDO building(s) identified in the contract. When identifying properties for purposes of BERDO, you should use the BERDO ID #, when applicable, as well as the address and parcel ID.*

### **10. a) BERDO allows Buildings to mitigate CO<sub>2</sub>e Emissions from electricity use by entering PPAs that meet the requirements in the Ordinance and Regulations. Could PPAs entered into by a third party qualify for use in BERDO?**

*Yes, a PPA, or virtual PPA, entered by a third party could qualify for use in BERDO if (i) all other requirements for PPAs in Section 7-2.2(m)(c) of the [Ordinance](#) and Section X of the [Regulations](#) are met and (ii) the third party has a separate agreement with a BERDO Building Owner to resell RECs or bundled RECs with energy from the PPA.*



Many individual buyers do not have sufficient demand, i.e., are not buying enough bundled electricity, or do not have sufficient in-house resources, to negotiate and enter a PPA directly with the developer/owner of a renewable energy generation project. It is, therefore, common for third parties to execute PPAs and then contract separately with buyers that will use the RECs. Such use of third parties is permissible under BERDO, provided that any PPA executed by a third party meets the requirements in the [Ordinance](#) and [Regulations](#). For example, the third party must execute a PPA before the relevant renewable energy generation project begins commercial operation.

**b) If yes, does the contract between the third party and the Building Owner need to mirror the PPA between the third party and developer/owner of the renewable energy generation project?**

**No**, a contract between the third party that executed a PPA or virtual PPA and a Building Owner that will use the RECs for BERDO compliance does not need to mirror the terms of the PPA.

If a third party executes a PPA or virtual PPA and then sells the relevant RECs or bundled RECs with energy from the PPA to a Building Owner, there will usually be a separate contract between the third party and the Building Owner. These contracts can take several forms, including (i) a contract that “mirrors” the PPA, whereby the third party resells all or a portion of exactly what it purchased from the generation project to a buyer, or (ii) a multi-year contract whereby the third party resells the RECs from the PPA to a buyer. In either scenario, the original PPA or virtual PPA must meet all the requirements of the [Ordinance](#) and [Regulations](#), including the “additionality” requirement that the PPA is executed before the relevant renewable energy generation project begins commercial operation. However, the “mirror” contract may be less accessible, or inaccessible, to some Building Owners because it may require buyers to have additional funds and/or credit and may involve greater exposure to financial risk. Based on current market conditions and the difficulty that smaller entities have in accessing PPAs, mirror contracts are not required for BERDO compliance. The Environment Department will reassess market conditions periodically and may update this guidance; any change will not affect pre-existing contracts.



**11. If a project tied to a PPA has a commercial operation date of 2026 or 2027, how likely is it that the building owner would be considered for penalty waiver or reduction in 2025?**

*Building owners can explore other compliance options or flexibility measures provided by the [Ordinance](#) and [Regulations](#) in the interim.*

*If compliance with the emissions standard still demonstrates a significant financial/technical difficulty even after evaluating all compliance options and flexibility measures, the building owner could then seek to apply for a short term Hardship Compliance Plan that may adjust their emissions limits and/or timeline. All applications are subject to approval by the BERDO Review Board.*

**12. The BERDO Regulations provide that the term of a PPA that satisfies the criteria in the BERDO Ordinance and Regulations at the time of execution may be extended for continued use in BERDO. Would the amount of Energy and associated RECs purchased in the extended term need to be the same as in the original term for the PPA to remain BERDO compliant?**

*No, the quantity and price of energy and associated RECs purchased from a BERDO compliant PPA can change from the original contract term to a multi-year extension of the contract. However, a Building Owner cannot change the amount of Energy and/or associated RECs purchased during a contract's original or extended term.*