

BERDO Emissions Compliance: Renewable Energy

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City of Boston staff



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Agenda

Today's webinar



- BERDO overview and requirements
- Renewable energy basics
- Renewable energy compliance mechanisms
- Resources and reminders
- Q&A session (30 min)

The background of the slide is a dark blue wireframe map of a city, showing the outlines of buildings, streets, and parks. The map is viewed from an elevated perspective, looking down at the city's layout.

BERDO overview and requirements

Obligations under BERDO

Reminder



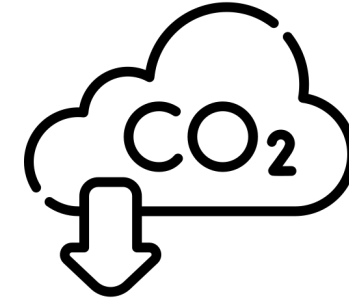
REPORTING

Annual reporting of total energy and water use from the previous calendar year



THIRD-PARTY VERIFICATION

Third-party verify reported data on their first year of reporting and every "Verification Year" thereafter.

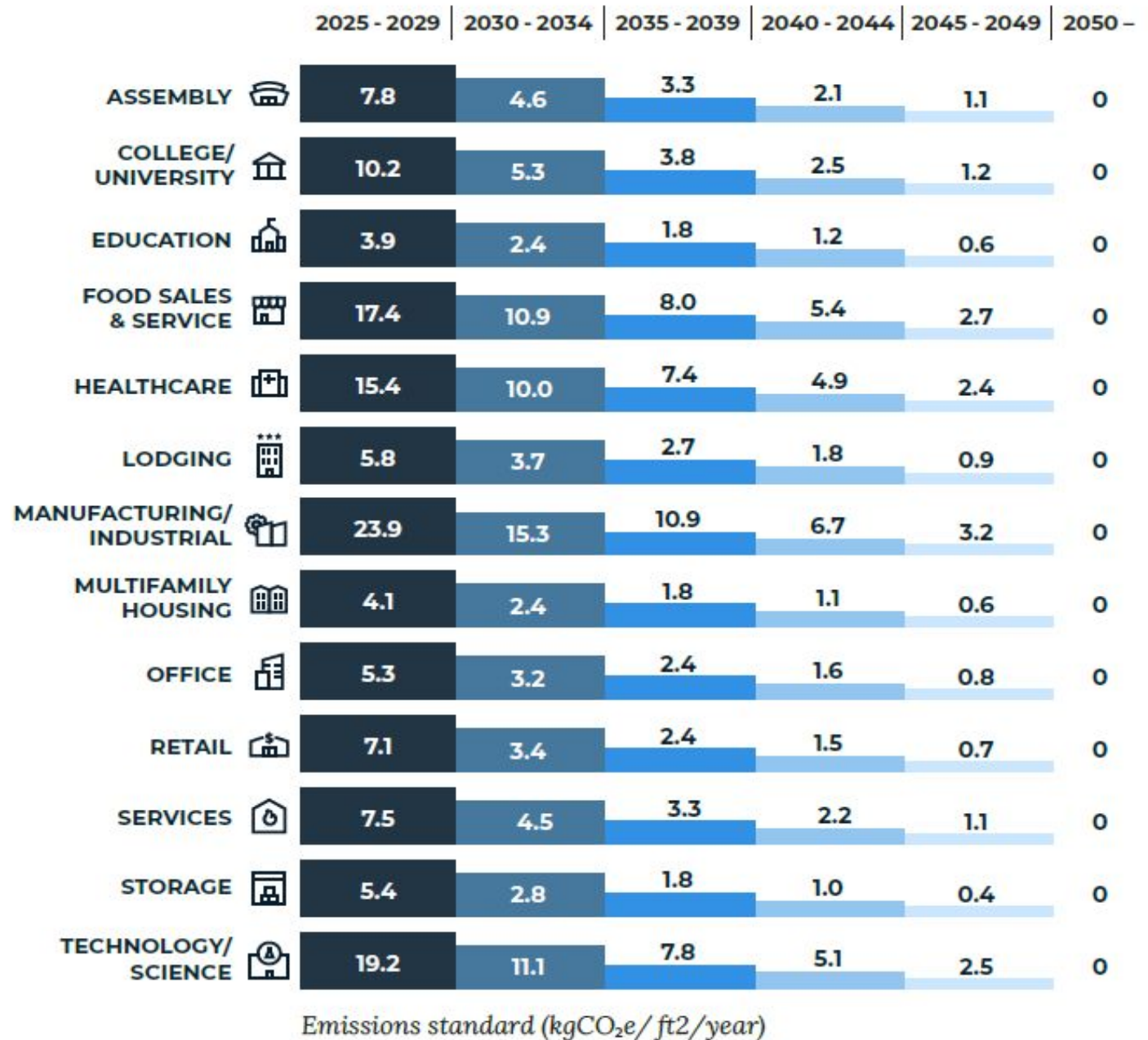


EMISSIONS REDUCTIONS

Reduce annual emissions below a default emissions standard (emissions limit).

Emissions standards

Emissions standards set annual emissions limits based on different types of building uses



When will buildings need to comply with an emissions standard?

RESIDENTIAL

NON-RESIDENTIAL

35+ units
Starting emissions compliance in 2025



35,000 ft²+
Starting emissions compliance in 2025



15 - 34 units
Starting emissions compliance in 2030



20,000 - 34,999 ft²
Starting emissions compliance in 2030



**Mixed-use buildings may adopt a blended emissions standard based on the area of each building use.*

How can I comply with my emissions standard?



Implement direct emissions reduction efforts in buildings

Implement building retrofits or improvements. Examples include upgrading to high efficiency electric appliances and lighting, upgrading systems for heating, cooling, water heating, and cooking, improving insulation, tightening window seals, etc.



Use local renewable energy generation or purchase renewable energy

Use on-site or off-site local renewable generation (rooftop solar, community solar, etc.), enroll into Boston Community Choice Electricity, purchase and retire eligible Renewable Energy Certificates (RECs), or enter into eligible Power Purchase Agreements (PPAs)



Invest in your community through Alternative Compliance Payments

Mitigate emissions from electricity and fossil fuel use by making Alternative Compliance Payments (ACPs). ACPs are collected into the new Equitable Emissions Investment Fund to support building decarbonization projects that prioritize benefits to Environmental Justice communities in Boston.

BERDO enables owners to apply for additional flexibility



Building Portfolios

Allow owners of multiple BERDO Buildings to comply with a single **portfolio-level emissions standard** instead of a building-by-building approach. This allows owners to align capital planning with BERDO compliance and get more flexibility to achieve emissions reductions.



Individual Compliance Schedules

Allows owners to comply with an alternative **absolute emissions reduction schedule** that is based on a **baseline year**. This allows owners to take advantage of emissions reductions that they have achieved prior to 2021 and adjust their emissions obligations based on their building operations.



Hardship Compliance Plans

Allows owners facing an **eligible technical or financial hardship** to request an **alternative emissions reduction target and/or schedule**.

The background of the slide is a dark blue wireframe illustration of a cityscape, viewed from an elevated perspective. The buildings are represented by white and light blue lines, creating a complex, geometric pattern. The overall aesthetic is modern and technical.

Renewable energy basics

How can building owners use renewable energy to comply with BERDO?

Building owners can reduce or mitigate emissions from electricity use by:

- 1 Enrolling into Boston Community Choice Electricity (BCCE) and choosing the “Standard” or “Green 100” services.**
- 2 Buying and retiring Mass Class I RECs, either unbundled or bundled as part of a Power Purchase Agreement (PPA) inside ISO New England**
- 3 Entering a Power Purchase Agreement (PPA) outside ISO New England**
- 4 Using local renewable energy generation (e.g., rooftop solar)**

* Renewable energy may not be used to mitigate emissions from fossil fuel use.

What is renewable energy?

- **Renewable energy** refers to energy produced through naturally replenished resources such as the sun and wind. In contrast, non-renewable energy comes from finite sources, such as coal, natural gas, and oil.
- Under BERDO, building owners may only use **non-emitting renewable energy** as a compliance mechanism.
- Emitting renewable energy involving combustion or burning of fuels (e.g., biomass, biofuels) will have an emissions factor associated with it and count towards a building's emissions.

Examples of non-emitting renewable energy sources that can be used in BERDO:



Solar



Onshore and offshore wind

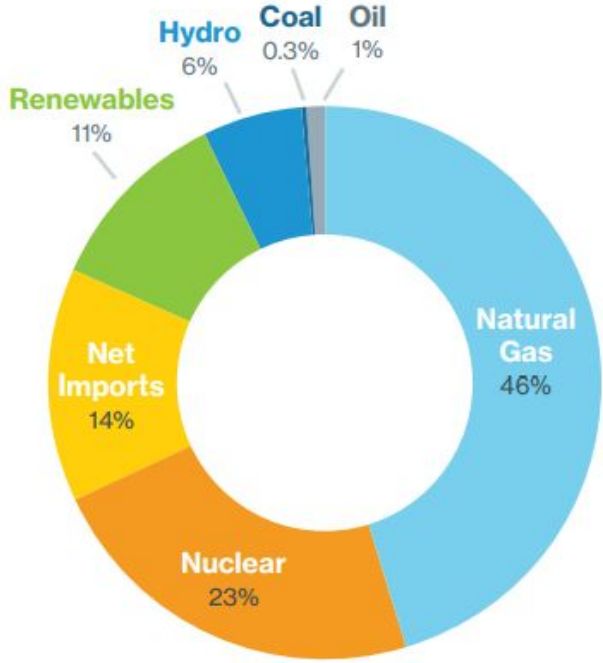


Geothermal

Renewable energy in New England grid

- Boston is located within the **New England regional grid**.
- **ISO New England (ISO NE)** is the entity that operates this regional grid, manages wholesale electricity markets, and engages in long-term power system planning.
- Our grid is transition to large-scale clean and renewable energy

2022 ENERGY RESOURCES



LOOKING TO THE FUTURE



Wind power dominates new resource proposals: nearly 16,000 MW



Solar power is growing rapidly: ISO-NE forecasts nearly 12,000 MW within a decade

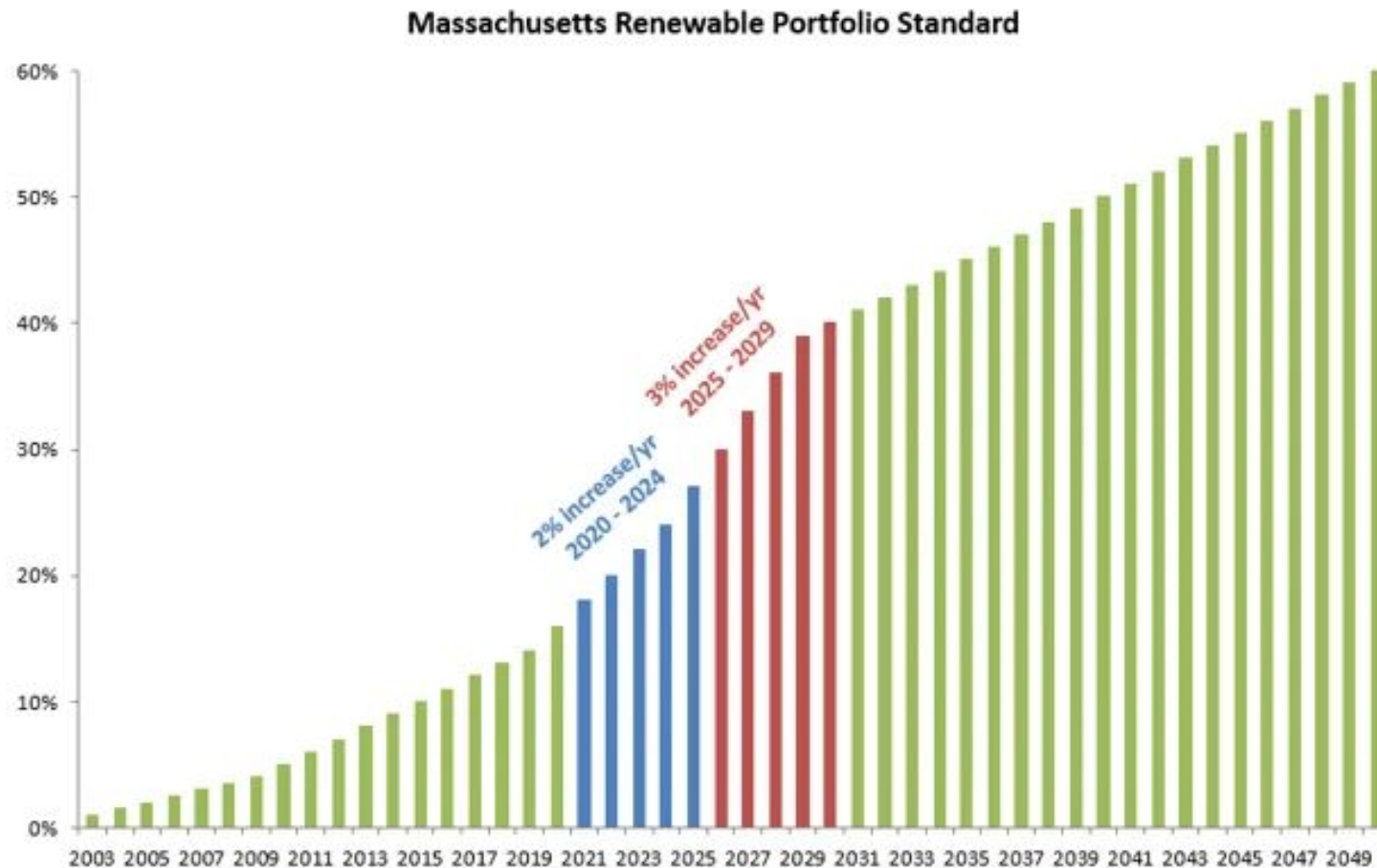


Battery storage technologies are emerging at the customer and grid level: more than 11,000 MW proposed

Source: ISO New England

Renewable energy in Massachusetts

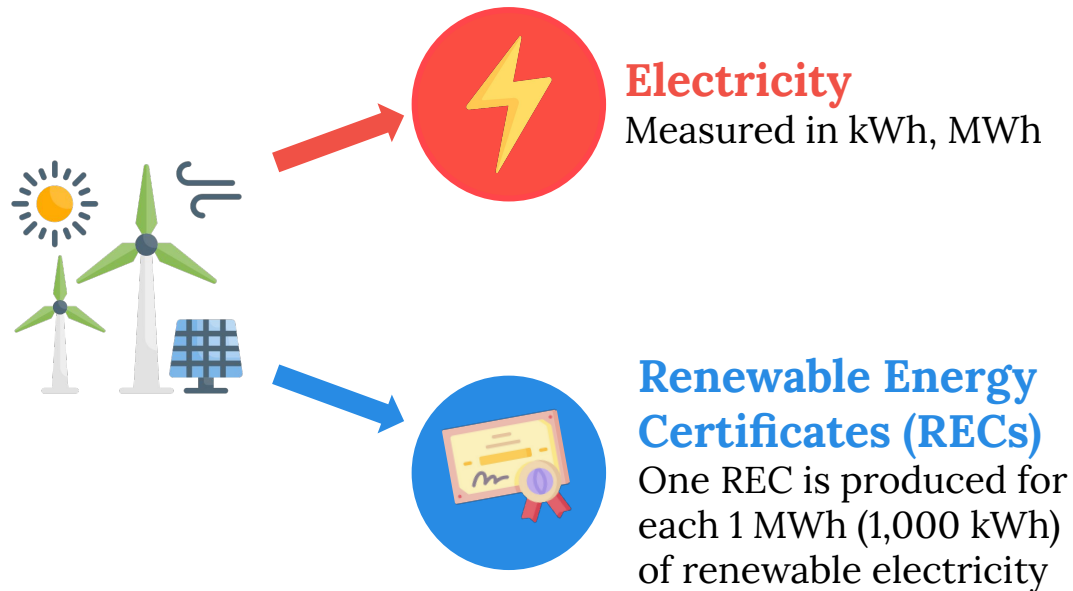
- Massachusetts annually increases the amount of renewable energy electricity in our state through the [Renewable Energy Portfolio Standard \(RPS\)](#).
- The RPS requires retail electricity suppliers (e.g., Eversource) to obtain a percentage of their electricity from qualifying renewable energy facilities.
- Suppliers meet their annual RPS obligations by acquiring and “retiring” [Renewable Energy Certificates \(RECs\)](#).



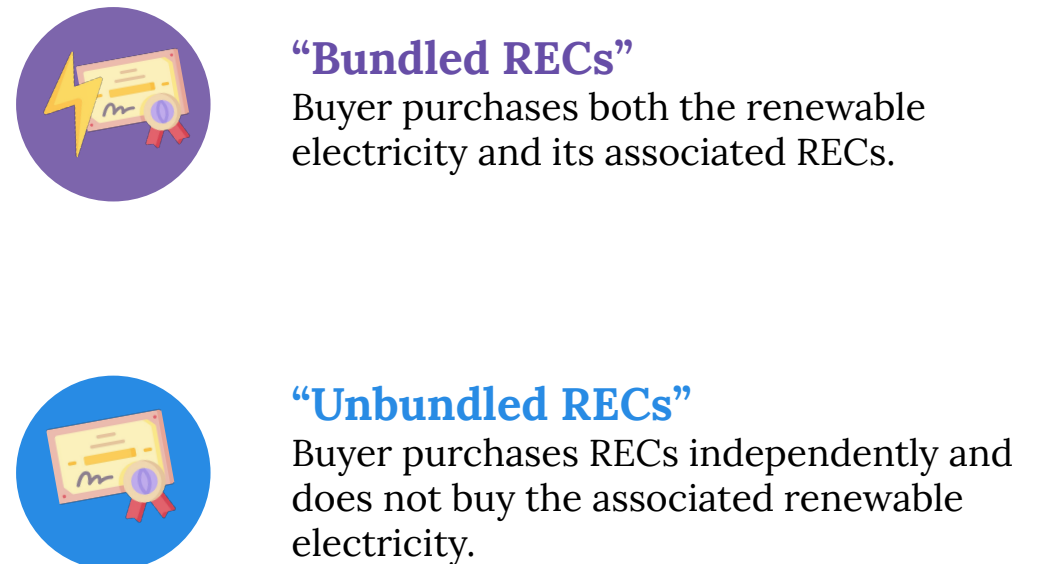
Source: [Green Energy Consumers Alliance](#)

How is renewable energy bought and sold in the market?

When renewable electricity is generated, two products are created:



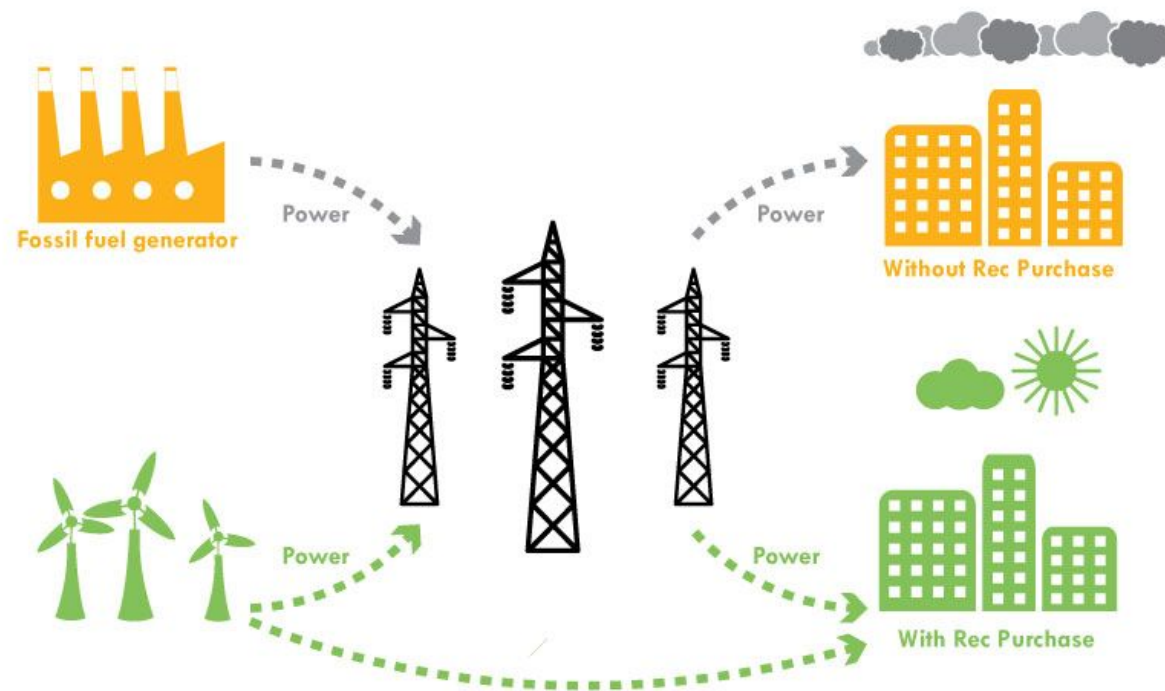
These products can be sold and bought in two ways:



- You must purchase and retire a REC in order to claim to have used the associated MWh of renewable energy.
- When you “retire” a REC, you consume the REC. This means the REC is taken out of circulation and can no longer be sold.

Why are RECs important?

- RECs are the way we measure and track the production of renewable energy.
- Each REC is uniquely identified, and includes data such as where it was generated, when it was generated, and by what source.
- RECs are classified based on different types of renewable energy facilities and their date of commercial operation. For example:
 - **Mass Class I RECs:** RECs generated by qualified renewable energy facilities that began commercial operation after 1997 and are located anywhere in the ISO New England control area, as well as in the adjacent control areas.
- Building owners can comply with BERDO by **buying and retiring** bundled or unbundled **Mass Class I RECs** generated by **non-emitting renewable energy sources**.



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Renewable energy compliance mechanisms



How can building owners use renewable energy to comply with BERDO?

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1 Enrolling into BCCE and choosing the “Standard” or “Green 100” services

- [BCCE](#) offers two electricity services that exceed the Massachusetts RPS, enabling owners to reduce their emissions from electricity compared to the Eversource Basic Service:

STANDARD <i>(default)</i>	OPTIONAL GREEN 100
\$0.14805 / kWh December 2023- December 2025	\$0.17195 / kWh December 2023- December 2025
39% Renewable Energy	100% Renewable Energy

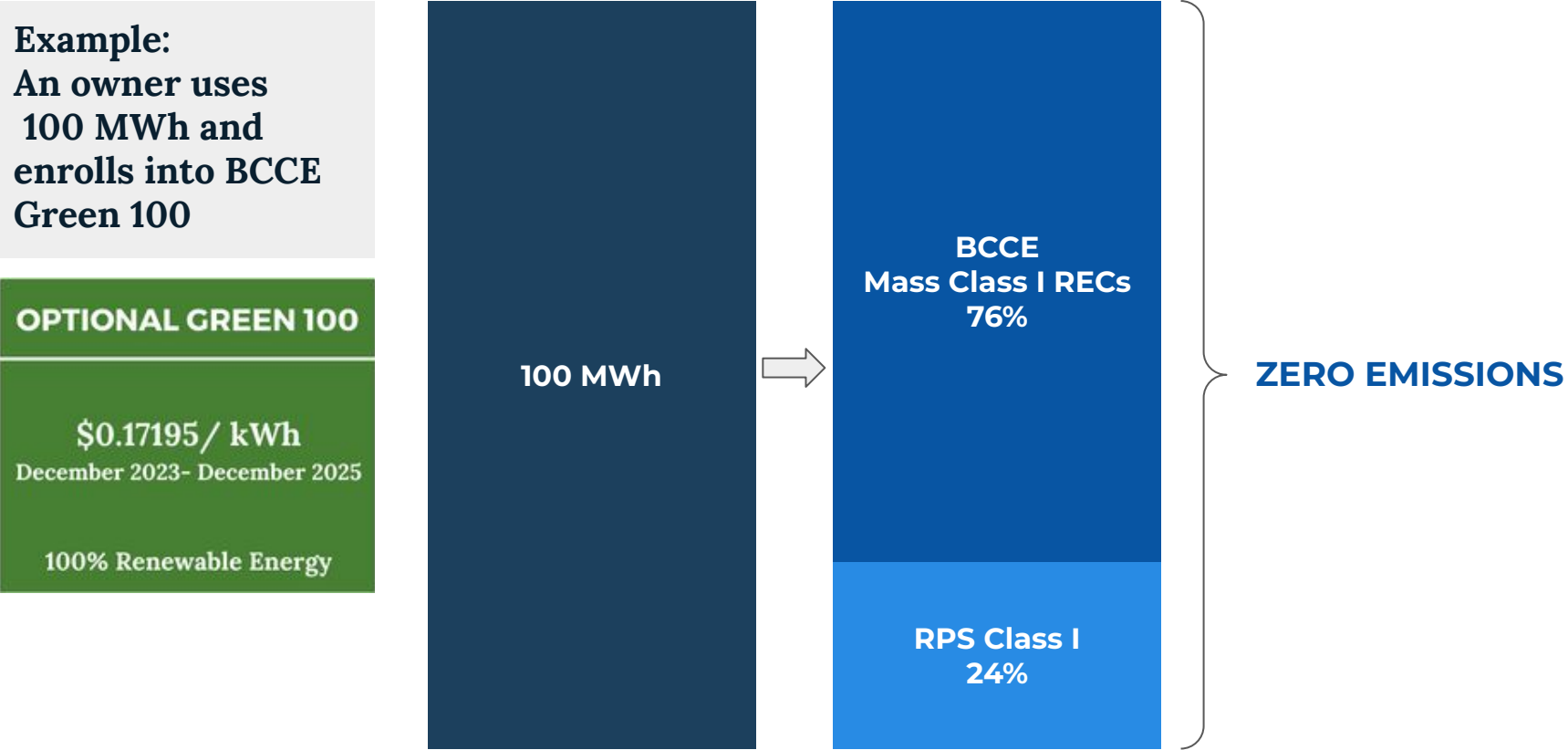
Eversource Basic Service customers are automatically enrolled into the BCCE “standard” plan on a quarterly basis (unless customer has a supply block on their account or has a contract with a competitive supplier)

- Owners can enroll their electric accounts or opt-up to the “Green 100” service using this [online form](#).



How emissions are calculated under BCCE

Under BCCE, the City of Boston buys and retires Mass Class I RECs on behalf of customers. Any electricity matched with Mass Class I RECs has zero emissions.



Example:
An owner uses
100 MWh and
enrolls into BCCE
Green 100

OPTIONAL GREEN 100

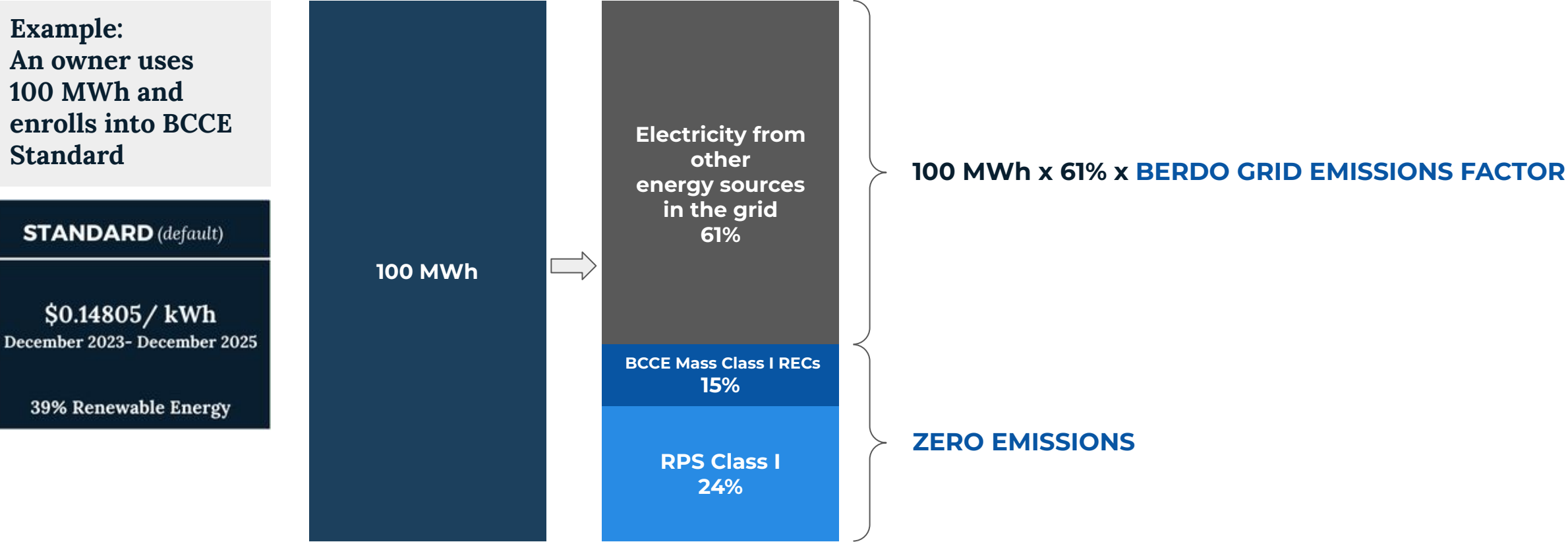
\$0.17195 / kWh
December 2023- December 2025

100% Renewable Energy



How emissions are calculated under BCCE

Under BCCE, the City of Boston buys and retires Mass Class I RECs on behalf of customers. Any electricity matched with Mass Class I RECs has zero emissions.



2 Buying and retiring Mass Class I RECs

A



Buy and retire **unbundled Mass Class I RECs** generated by non-emitting renewable energy sources directly from the market.

B



Buy and retire **bundled Mass Class I RECs** generated by non-emitting renewable energy sources as part of **Power Purchase Agreement inside ISO New England**.

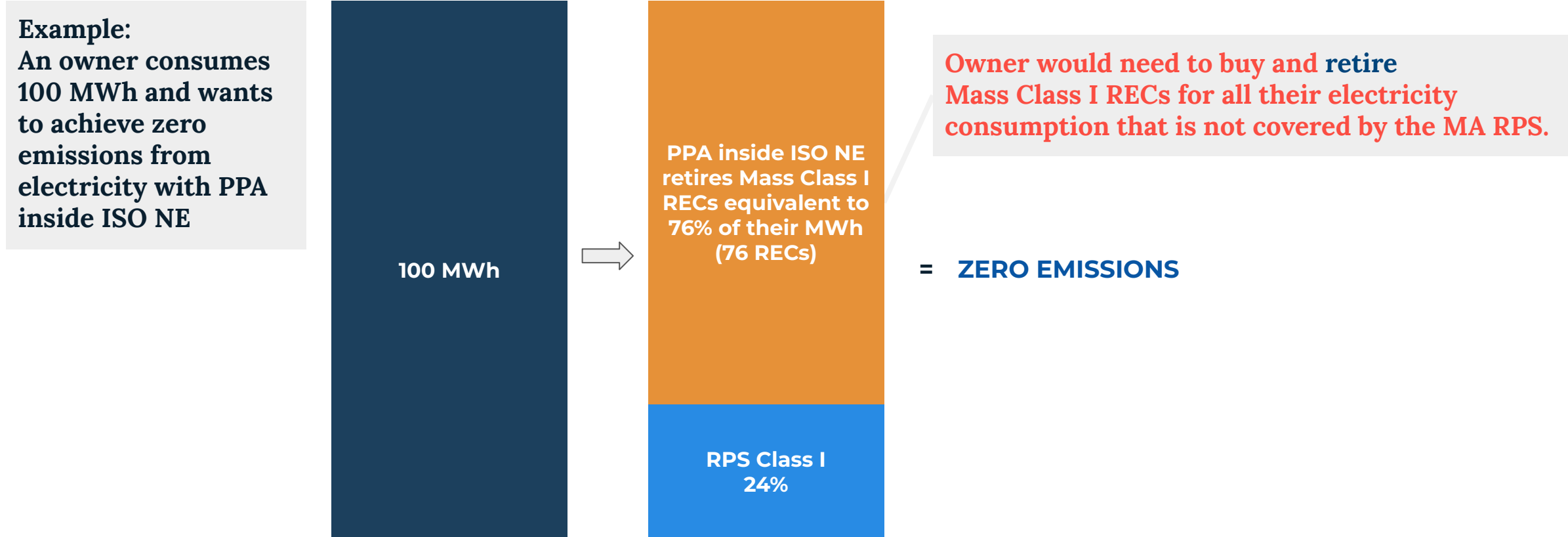
Requirements for both cases:

- RECs must be generated **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 Jan 2024 and Dec 2025.
- RECs must be retired within **6 months of the end of the compliance year**.
 - For example, to use a REC to comply in 2025, the REC must have been retired by June 30, 2026.

How emissions are calculated with Mass Class I REC purchases



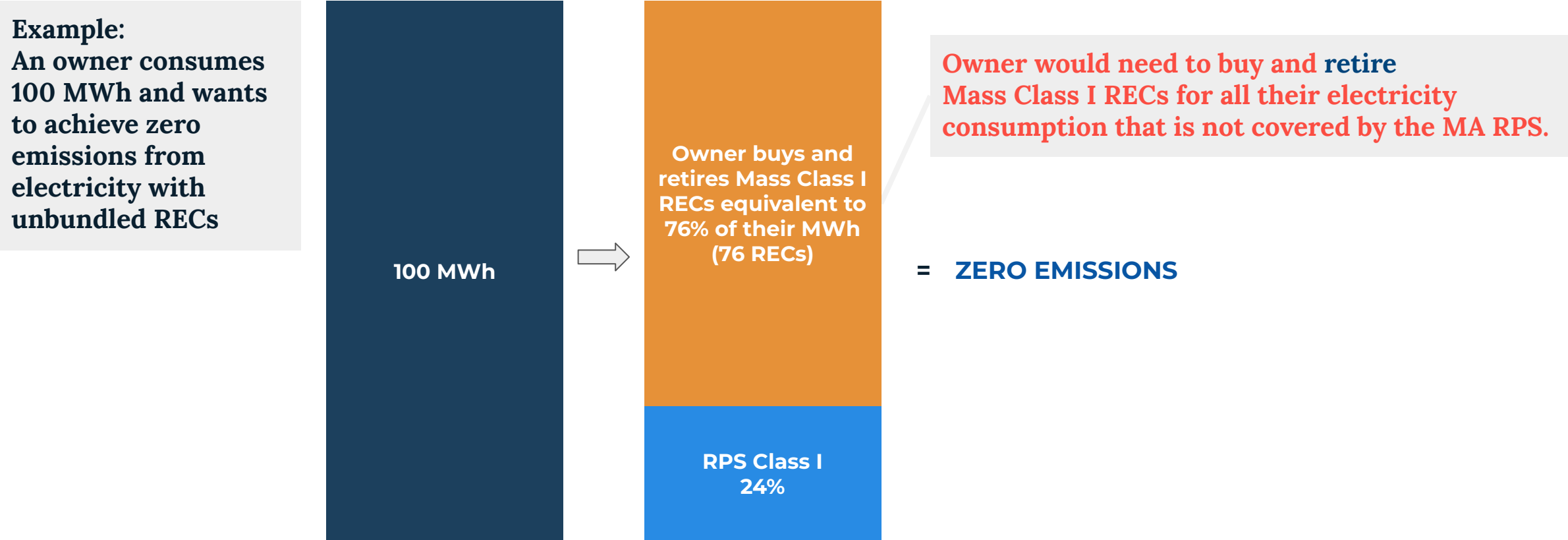
Any electricity matched with Mass Class I RECs has zero emissions.



How emissions are calculated with Mass Class I REC purchases

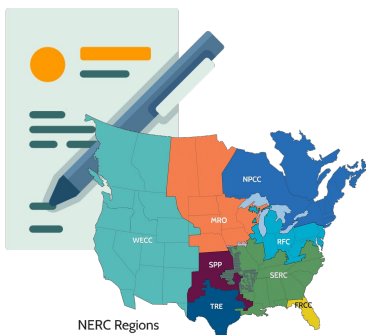


Any electricity matched with Mass Class I RECs has zero emissions.



3

Entering a Power Purchase Agreement (PPA) outside ISO New England



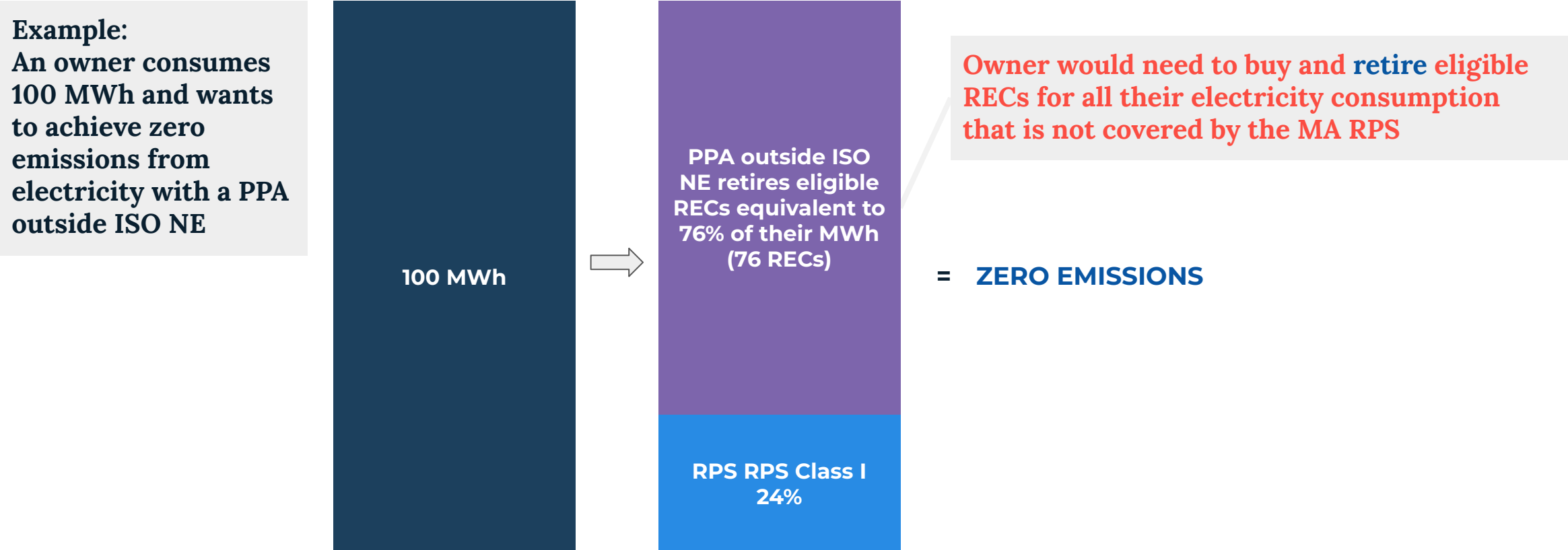
- PPAs are long-term energy contracts between a building owner and a generator of non-emitting renewable energy. Building owners must purchase both **the electricity and its associated RECs**.
 - This includes virtual PPAs where the owner does not physically receive the electricity.
- Owners may sign their own PPA or join an existing PPA executed by or on behalf of another BERDO building owner.

Requirements:

- Generation facility must be connected to **any grid in the contiguous U.S. or Canada** (NERC).
- PPA must meet **“additionality”**, i.e. it must be signed prior to the commercial operation of the generation facility.
- Electricity must be generated for the compliance year in which it is used.
- RECs must meet Mass Class I RECs requirements except for location and metering.
- RECs must be retired within 6 months end of the compliance year for which they are used.

How emissions are calculated with a PPA outside ISO NE

Any electricity matched with Mass Class I RECs has zero emissions.



How can I verify that my PPA complies with BERDO?

- We are working on creating a process for building owners to request the approval of a signed PPA and confirm that it meets all BERDO requirements.
- For now, you can reach out to retrofit@boston.gov if you have questions about PPAs.

Please note that:

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

4 Using local renewable energy generation

A



On-site non-emitting renewable energy generation systems (e.g., rooftop solar in BERDO building, geothermal)

B



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

Requirements for both cases:

- Mass Class I REC retirement is not required 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 **solar system located in Eversource Eastern Massachusetts territory** and that began operation before 2024
- Otherwise, Mass Class I REC retirement is needed, according to the requirements explained in Option 2.

Reporting net-metering to BERDO

- We are working on creating guidance on how to report solar production and net-metering according to Eversource billing practices and data reporting.
- Send us your (redacted) bill at energyreporting@boston.gov if you have a questions of how solar generation and/or net-metering is reported in your bill and reported to BERDO.
- If you have solar behind-the-meter and net electricity usage is reported, please add a note in Portfolio Manager.

Summary

In all cases, only non-emitting renewable energy can be used for compliance

Renewable Energy Options	Key Requirements	Geographic scope or requirements
Boston Community Choice Electricity (BCCE)	MA Class I RECs purchased on behalf of residents and businesses enrolled in either the standard or Green 100 options of the BCCE program.	ISO New England grid
MA Class I Renewable Energy Certificates (RECs)	Unbundled MA Class I RECs bought and retired independently OR bundled MA Class I RECs bought and retired as part of a Power Purchase Agreement.	ISO New England grid
Power Purchase Agreement (PPA) outside the ISO New England grid	Energy contract requiring the purchase of both electricity and its associated RECs. This includes virtual PPAs. PPAs need to be signed prior to the commercial operation of the renewable energy project (additionality requirement)	Any grid in the contiguous U.S. or Canada
Local renewable generation	Non-emitting renewable energy generation systems, either located on-site (e.g., rooftop solar in BERDO building) or off-site (e.g., community solar, solar in rooftop leases, Power Purchase Agreements) REC retirement is not required if: (a) purchasing from solar system in Eastern MA that began operation before 2024; or (b) purchasing from any type of non-emitting renewable energy system located inside the City of Boston.	Eastern Massachusetts for solar installed before 2024 City of Boston for any system installed in or after 2024 Otherwise, MA Class I REC retirement is required.

An aerial, wireframe-style illustration of a cityscape, rendered in a light blue color against a darker blue background. The buildings are represented by simple geometric shapes and lines, creating a sense of depth and perspective. The city is dense, with many buildings of varying heights and shapes. A prominent feature is a large, curved building in the center, possibly a stadium or a large public building. The overall style is clean and modern, with a focus on architectural forms.

Reminders and resources

Poll



What topics would you like to see covered in future webinars?

- Funding and incentive opportunities from utilities (Mass Save)
- Equitable Emissions Investment Fund
- Compliance for condominium owners
- BERDO Reporting
- Other: _____

Reminder: 2024 BERDO reporting is due May 15

- **May 15, 2024:** Deadline to complete reporting of 2023 data.
- Building owners must report their energy and water data into [Energy Star Portfolio Manager](#) and the [BERDO Reporting Form](#).
- Please review our [How to Report Guide](#) and other resources available at boston.gov/berdo.

Take advantage of new resources

- [Apply to receive free assistance to complete BERDO reporting and third-party verification](#)

We are offering free data reporting and verification services to BERDO building owners who need extra assistance to complete their BERDO reporting. Funding is limited and will only be provided to building owners who are self-managed residential buildings, small non-profit owners, or commercial buildings with small business tenants. **NEXT ROUND OF APPLICATIONS DUE BY MARCH 31, 2024!**

- [Understand your emissions with the new BERDO Emissions Calculator](#)

- [Schedule a one-on-one BERDO Building Consultation](#)

A member of the BERDO team will help you understand your current emissions and compliance options.

- [Register for weekly BERDO Emissions Planning Office Hours](#)

Office hours are held weekly on Fridays at 10:00 am on Zoom.

Members of the BERDO team will be available to answer questions about BERDO emissions estimates and potential compliance strategies. Catch up with or rewatch past BERDO webinars

Reminder: application deadlines for flexibility measures

Building Portfolios, Individual Compliance Schedules, and Hardship Compliance Plans



Deadlines for Flexibility Measure Applications

July 1, 2024*	Long-term Hardship Compliance Plan application deadline.
September 1	Building Portfolio application deadline (to be in effect the following year).
	Individual Compliance Schedule application deadline (to be in effect the following year).
October 1**	Short-term Hardship Compliance Plan application deadline.

*After July 1, 2024, long-term Hardship Compliance Plan applications are due **9 months before** the first year the HCP would be used.

Short-term Hardship Compliance Plan applications are due **3 months before the first year the HCP would be used.

Other resources

- BERDO website: boston.gov/berdo
- [Ordinance](#)
- [Adopted Regulations](#)
- [Adopted Policies](#)
- Review Board website: boston.gov/berdo-review-board
- Retrofit Resource Hub website: boston.gov/retrofithub
- No-cost Mass Save energy audits, engineering studies, rebates and incentives:
 - Non-residential: MassSave.com/business
 - Residential: MassSave.com/Multi-Family
 - Rebates: MassSave.com/Rebates

Q&A

Thank You!

Please visit boston.gov/berdo and boston.gov/berdo-review-board for more information and updates.

