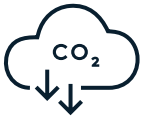
RENEWABLE ENERGY

What is it, and how can it help you comply with BERDO?

WHAT IS RENEWABLE ENERGY?

Renewable energy is energy that comes from sources that won't run out and don't create pollution. These sources include the sun, wind, and water.

BENEFITS OF RENEWABLE ENERGY INCLUDE:



REDUCES GREENHOUSE GAS EMISSIONS

REDUCES AIR POLLUTION

CREATES GREEN JOBS

INCREASES ENERGY RESILIENCE

Fossil fuels such as coal, oil, natural gas, kerosene, and propane are **not renewable energy sources.**

RENEWABLE ENERGY SOURCES THAT CAN BE USED FOR BERDO COMPLIANCE*:

SOLAR POWER

WIND POWER

SMALL HYDROPOWER

GEOTHERMAL ENERGY

** BERDO does not consider biomass and landfill methane as renewable energy*

HOW RENEWABLE ENERGY RELATES TO BERDO

When non-renewable energy sources are burned to power our buildings, they release emissions. These emissions include air-polluting chemicals that harm human health and greenhouse gases (GHGs) that trap heat in the atmosphere, making the Earth warmer.

BERDO supports the increase of renewable energy to lower the emissions released from a building's electricity use and reach net-zero emissions by 2050. Working towards becoming a zero emissions building will help you achieve compliance with BERDO.

WHAT IS ZERO EMISSIONS?

Zero emissions means no harmful gases, like carbon dioxide, are released into the air from things like buildings, cars, or power plants. A zero emissions building is one that uses energy efficiently, does not produce any pollution on-site, and gets all its power from renewable energy sources.

THE MASSACHUSETTS RENEWABLE ENERGY PORTFOLIO STANDARD (RPS)

The Commonwealth of Massachusetts has a goal to be net-zero by 2050, planning to cut emissions by 85% compared to 1990 levels. A key part of this plan is reducing emissions from the electric power grid. One way Massachusetts is doing this is through the Renewable Energy Portfolio Standard (RPS), which requires electricity suppliers to add more renewable energy, like solar and wind power, to their supply every year.

HERE'S HOW IT WORKS:

- **Goal:** Increase renewable energy to reduce emissions from electricity generation.
- **Requirements:** Every year, electricity suppliers must get a certain percentage of the power they sell from renewable sources. This percentage increases over time.
- **Renewable Energy Certificates (RECs):** When renewable energy is generated, RECs are produced to certify that said electricity came from a renewable energy source. Electricity suppliers buy and "retire" these RECs to show compliance with the RPS.
- **Compliance:** If companies do not meet the RPS requirements, they have to pay a fine.
- **Benefits:** The RPS helps increase local clean energy production, create green jobs, reduce pollution, and promote energy independence.

HOW THE RPS HELPS BUILDING OWNERS

Because the RPS requires the electric power grid to use more renewable energy each year:

- The electricity your building uses is getting cleaner over time
- Emissions from your building's electricity use are lower
- It brings your building closer to reaching net-zero emissions sooner

BERDO accounts for the RPS in emissions calculations, so every year, your building's electricity emissions will decrease as the RPS increases.

RPS MA CLASS I CRITERIA AND REQUIREMENTS ↗

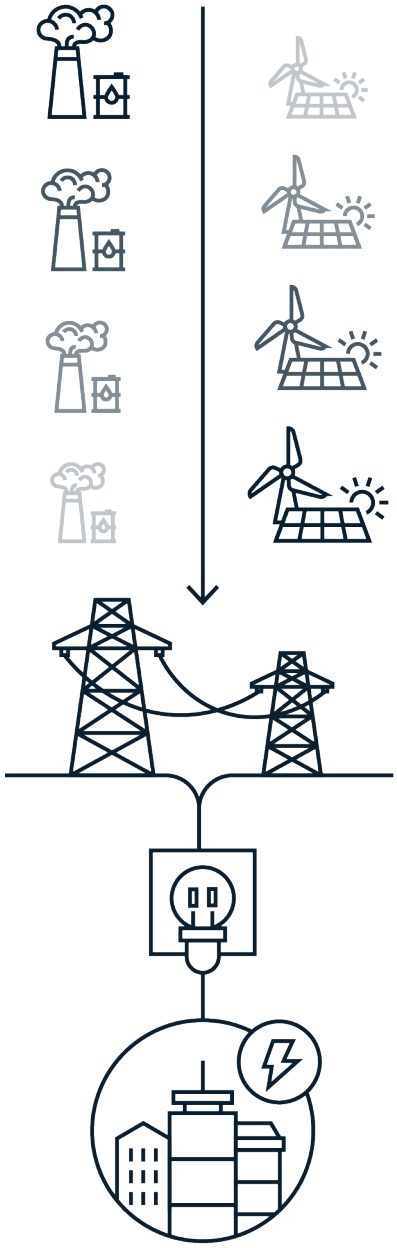
Thanks to the RPS, a portion of your electricity usage is already renewable and considered to have zero emissions under BERDO. This example shows how electricity emissions for a building that uses 100,000 kWh a year change over time.

YEAR	ELECTRICITY USAGE (kWh)	RPS RENEWABLE ENERGY REQUIREMENTS	ELECTRICITY EMISSIONS UNDER BERDO ($kgCO_2e$)
2025	100,000	27%	18,177
2030	100,000	40%	12,780
2035	100,000	45%	9,790
2040	100,000	50%	7,100
2045	100,000	55%	4,815
2050	100,000	60%	2,840

* Electricity Emissions were calculated using the methodology shown in the BERDO Compliance Guide, using the projected grid emissions factors.

THE RPS HELPS REDUCE EMISSIONS FROM A BUILDING'S ELECTRICITY USE

Getting more renewable energy into the electric power grid means the emissions from your building's electricity use will be lower.



HOW ELSE CAN I REDUCE MY BUILDINGS EMISSIONS?

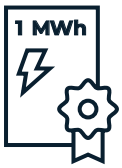
Building owners can refer to the Building Decarbonization guide for tips on how to address emissions from sources other than electricity.

HOW CAN RENEWABLE ENERGY BE USED FOR COMPLIANCE UNDER BERDO?

BERDO gives you different ways to use renewable energy to comply with emissions standards. Depending on your building's energy use, you can choose any option below to lower your electricity emissions. However, renewable energy can't lower emissions from fossil fuels.

ENROLL IN THE "GREEN 100" PLAN OFFERED BY BOSTON COMMUNITY CHOICE ELECTRICITY (BCCE)

Electric account(s) enrolled into the Green 100 plan receive 100% local renewable electricity.



BUY AND RETIRE MA CLASS I RENEWABLE ENERGY CERTIFICATES (RECS)

Each REC is equal to 1 MWh (1,000 kWh) of renewable electricity, which can lower your building's electricity emissions under BERDO.

ENTER A POWER PURCHASE AGREEMENT (PPA) TO BUY POWER AND/OR RECS

A PPA is a contract to buy renewable energy and/or its associated RECs. You can either sign a PPA inside New England or outside New England.

USE LOCAL RENEWABLE ENERGY GENERATION

Examples include installing solar panels on your building or purchasing solar net-metering credits

Read on to learn about key eligibility requirements for each of these options. For more administrative guidance, please see our BERDO Compliance Guide.

ENROLL IN THE "GREEN 100" PLAN OFFERED BY BOSTON COMMUNITY CHOICE ELECTRICITY (BCCE)

Boston Community Choice Electricity (BCCE) is the largest municipal aggregation program in Massachusetts, where the City of Boston combines the buying power of residents and businesses to secure competitive prices for affordable renewable electricity. **BCCE offers 3 plans: Optional Basic, Standard (default), and Optional Green 100.**

BCCE PLANS IN 2024

Eversource Basic Service customers are automatically* enrolled into BCCE's Standard (default) plan quarterly. Customers are able to opt-up to Optional Green 100, opt-down to Optional Basic, or opt-out of BCCE at anytime by simply visiting boston.gov/bcce.

Electricity accounts that use more than 1.5 million kWh/year are not eligible for BCCE. If a building has multiple accounts for EV charging, this limit also applies to each individual account. Contact the BCCE Team for more information at calendly.com/bcce.

This example shows how electricity emissions change across the different BCCE plans for a building that uses 100,000 kWh for the 2025 calendar year**

PLAN	ELECTRICITY USAGE (kWh)	% RENEWABLE ENERGY	ELECTRICITY EMISSIONS UNDER BERDO ($kgCO_2e$)
BASIC (Opt-down)	**100,000**	**27%**	**18,177**
STANDARD (Default)	**100,000**	**42%**	**14,442**
GREEN 100 (Opt-up)	**100,000**	**100%**	**0**

** Electricity Emissions were calculated using the methodology shown in the BERDO Compliance Guide, using the 2025 projected grid emissions factor of 0.249 kgCO2e/kWh and the 2025 Renewable Energy Portfolio Standard (RPS) of 27%.

WHAT MAKES BCCE A RENEWABLE ENERGY OPTION UNDER BERDO?

Under BCCE, the City of Boston buys Renewable Energy Certificates (RECs) that prove the electricity comes from renewable sources like wind or solar power. Only RECs classified as MA Class I can be used towards BERDO compliance.

BERDO buildings that show BCCE Green 100 enrollment for a full calendar year for all electric accounts, would be considered to have zero emissions from their electricity usage.

When completing your annual BERDO Reporting Form, you can report that you have enrolled in BCCE, and the BERDO team will connect BCCE enrollment data for a building, including tenant accounts, directly with a building's BERDO data.

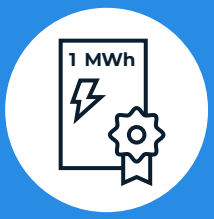
BCCE IS FLEXIBLE: OPT-IN/OUT AT ANYTIME WITH NO COST

Building owners can simply enroll anytime via the Opt In/Opt Out Form at boston.gov/bcce.

As a BCCE customer, Eversource continues to handle electricity delivery. They also handle customer billing and service, meter reads, and power outages. Enrollments and account changes can take up to two billing cycles to go into effect.

* *Eversource Basic Service customers are notified by mail that they will be 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.*

BUY AND RETIRE MA CLASS I RENEWABLE ENERGY CERTIFICATES (RECS)



WHAT IS A REC?

A Renewable Energy Certificate, or REC (pronounced like 'wreck'), is proof that 1 megawatt-hour (MWh) of electricity was made from a renewable energy source and added to the electric power grid. A REC is not physical like a paper or card; instead, it is a digital record that certifies renewable energy was produced. Buying MA Class I RECs is one way to reduce emissions from your building's electricity use.

QUICK LINKS

- MA Class I REC Criteria
- FAQs on RECs

WHAT ARE THE BERDO REQUIREMENTS FOR RECS?

While there are different types of RECs you can buy, only a MA Class I REC counts for BERDO compliance when bought on its own, not bundled with Power Purchase Agreements*****. MA Class I RECs certify high-quality, local renewable energy. They are made from renewable sources in New England that started operating after 1997 and meet specific program requirements. BERDO only accepts non-emitting MA Class I RECs, which means the energy must come from sources that don't produce emissions, like wind or solar power.

IF YOU ARE CONSIDERING BUYING MA CLASS I RECS FOR BERDO COMPLIANCE, MAKE SURE YOU FOLLOW THESE REQUIREMENTS:

- **RECs bought must be generated 12 months before the emissions compliance year or within the compliance year they are used in.** For example, to use a REC to comply in 2025, the REC must have been generated any time between January 2024 and December 2025.
- **RECs must be retired within 6 months after the end of the emissions compliance year in the New England Power Pool Generation Information System (NEPOOL GIS)**.** By retiring a REC, you are claiming you have used the renewable energy and the REC cannot be used again.

** MA Class I RECs may be purchased on their own or as part of a Power Purchase Agreement.*

*** NEPOOL (New England Power Pool) is a regional organization involved in the generation, transmission, and trading of Renewable Energy Certificates (RECs) across New England.*

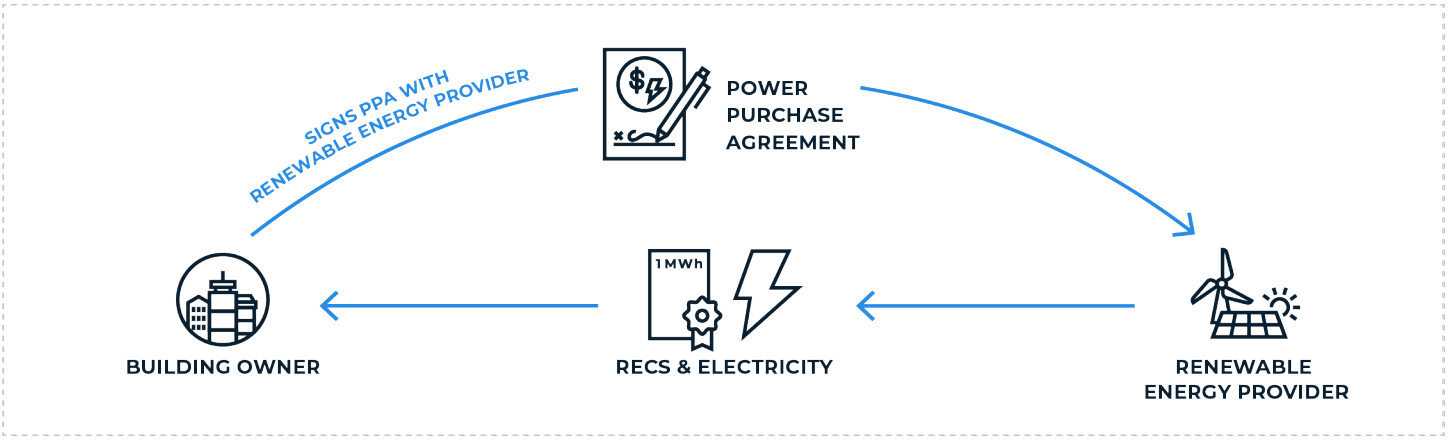
HOW TO BUY MA CLASS I RECS

You can purchase RECs through the City of Boston's **MA Class I REC Connector Program** or independently through REC brokers.

Learn more at boston.gov/berdo-recs

AN OWNER BUYS AND RETIRES MASS CLASS I RECS

ENTER A POWER PURCHASE AGREEMENT (PPA)



WHAT ARE PPAS?

Buildings that use a lot of electricity can buy renewable energy by signing a PPA. A PPA is a contract between the electricity buyer and the company that makes the electricity. These agreements explain how the buyer will get electricity, usually from renewable sources like solar or wind, for a certain amount of time. PPAs help building owners get renewable energy at stable prices without needing to own or run the energy equipment themselves.

A PPA with bundled RECs means the buyer pays for both the electricity and the certificates that prove it comes from a renewable source. Since PPAs are usually big and complex contracts that need a lot of buying power, they are more common for larger electricity users, like big businesses or institutions. Many building owners use energy brokers to help them get renewable energy through PPAs.

PPAS INSIDE NEW ENGLAND

PPAs in New England only need to meet the requirements for MA Class I RECs. This means the PPAs can be for RECs only and don't have to be signed before the energy facility starts operating. Buying MA Class I RECs through a PPA is a good way to get stable prices for local renewable energy for a certain amount of time. Please check the requirements for MA Class I RECs on the previous page.

** This includes electric power grids under the authority of the North American Electric Reliability Corporation (NERC)*

*** This timing requirement does not apply to building owners that join an existing BERDO compliant PPA*

PPAS OUTSIDE OF NEW ENGLAND

PPAs outside of New England need to meet the following requirements to be eligible under BERDO:

- Building owners must buy both the electricity and its associated RECs.
- The electricity from the PPA must come from renewable sources that do not produce emissions and meet the RPS Class I criteria, except for location and metering.
- The generation facility must be connected to any electric power grid in the United States or Canada*.
- PPA must be executed by or on behalf of the building owner(s)** **before** the commercial operation of the generation facility.
- RECs must be generated 12 months before the emissions compliance year or within the compliance year they are used in. For example, to use a REC to comply in 2025, the REC must have been generated any time between January 2024 and December 2025.
- Bundled RECs must be retired no later than 6 months after the end of the compliance year for which they are used.

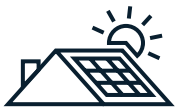
All BERDO building owners using a PPA outside New Englad must submit an approval form to receive a unique PPA ID. Owners must use this PPA ID in annual reporting.

QUICK LINKS

- ↗ PPA Approval Form
- ↗ Frequently Asked Questions: PPAs

USE LOCAL RENEWABLE ENERGY GENERATION

Locally produced renewable energy can be used for BERDO compliance, often without the need to retire MA Class I RECs. Currently, the most common form of local renewable energy is solar. Solar can be installed on your building or can be purchased from other local solar installations via net-metering agreements.



On-site solar energy connected to your building and located "behind-the-meter".
(e.g., rooftop solar)

Solar net-metering credits from a solar array that is not connected to your building.

(e.g., solar from rooftop leases, net-metering agreements, on-site "front-of-the-meter" solar)

LEARN MORE ABOUT SOLAR ENERGY

SOLAR REPORTING HOW-TO GUIDE

THE DIFFERENT SET UPS OF SOLAR POWER

There are two types of solar arrangements that you can use for BERDO compliance.

- **On-site solar located "behind-the-meter"**: A solar array is physically installed on your property and directly connected to your building's electric system. Your building uses solar power first, and only pulls power from the electric grid when needed. In this case, your Eversource bill shows your **net electricity use**.
- **Solar net-metering credits**: A solar array is physically installed outside of your property or it is located on-site but is not directly connected to your building's electric system. Your building does not actually use the solar power but you get "net-metering credits" credited on your bill. In this case, your Eversource bill shows your **total electricity use** without including the solar energy. To take credit, you will need to report your solar net-metering credits in the BERDO Reporting Form.

Under BERDO, using solar net-metering credits without MA Class I REC retirement is allowed if they comes from*:

1. Solar systems inside Boston or,
2. Solar systems in the Eversource Eastern MA area that began operation before 2024 and where the BERDO building owner began receiving credits prior to 2024.

WHEN DO I NEED TO RETIRE MA CLASS I RECS FOR MY SOLAR ENERGY?

1. WHERE ARE THE SOLAR PANELS LOCATED?	2. WHEN DID YOU START RECEIVING THE SOLAR ENERGY OR NET-METERING CREDITS?	
	BEFORE 2024	2024 AND AFTER*
INSIDE BOSTON	**MA Class I REC retirement NOT required** for use in BERDO	**MA Class I REC retirement NOT required** for use in BERDO
IN EVERSOURCE EASTERN MA	**MA Class I REC retirement NOT required** for use in BERDO	**MA Class I REC retirement is required** for use in BERDO

* These rules were set in place to encourage solar development in Boston and to enable the use of solar that was financed through the SMART Program. If you are getting solar net-metering credits from a solar array that began operation after 2024 due to unforeseen delays or circumstances AND you do not retire its associated MA Class I RECs, you may request an exemption from the BERDO Review Board.

SUMMARY OF RENEWABLE ENERGY OPTIONS UNDER BERDO

In all cases, renewable energy can only be used to reduce emissions from a building's electricity use.

BOSTON COMMUNITY CHOICE ELECTRICITY (BCCE)

Program Eligibility	Key Considerations
Electricity accounts that use more than 1.5 million kWh/year are not eligible for BCCE. If a building has multiple accounts for EV charging, this limit also applies to each individual account	Opt up to Green 100 to receive 100% emissions-free renewable energy

MA CLASS I RENEWABLE ENERGY CERTIFICATES (RECS)

Key Requirements	Key Considerations
• RECs must meet RPS Class I requirements • RECs must be tracked by NEPOOL • RECs must be generated and retired according to specific deadlines	MA Class I RECs must be bought and retired, either independently ("unbundled") or as part of a Power Purchase Agreement ("bundled")

POWER PURCHASE AGREEMENT (PPA)

Location	Key Requirements	Grid Requirements
Inside New England	• RECs must meet RPS Class I requirements • RECs must be tracked by NEPOOL • RECs must be generated and retired according to specific deadlines	Located within the ISO New England Grid
Outside New England	• Purchase of both electricity and its associated RECs • Meets the RPS Class I requirements • Signed by or on behalf of a BERDO building owner before commercial operation of the renewable energy project • RECs must be generated and retired according to specific deadlines	Any interconnected grid in the contiguous U.S. or Canada

LOCAL RENEWABLE GENERATION

Key Requirements	Key Considerations
Electricity from non-emitting renewable energy systems located in Boston; or Solar net-metering credits from solar systems located in Boston or Eastern Massachusetts.	• MA Class I REC retirement is not required for any system installed in the City of Boston and for some solar systems installed in Eastern Massachusetts.

ADDITIONAL RESOURCES

- MA Class I REC Connector Program
- Enroll into BCCE Green 100
- RPS Class I Criteria
- Learn about solar energy
- BERDO Compliance Guide
- Review your building's emissions with the BERDO Emissions Calculator
- How to comply with your BERDO Emissions Standard

CONTACT THE BERDO TEAM

Building Decarbonization:
retrofit@boston.gov

General BERDO questions:
energyreporting@boston.gov

Help with Flexibility Measure applications:
berdoreviewboard@boston.gov

Phone: 617-635-3850 x6

WEBSITES

About BERDO: boston.gov/berdo

Emission Reduction Resources:
boston.gov/retrofit-hub

CITY of BOSTON

City of Boston Environment