

## BEUDO REGULATIONS

Regulatory language pertaining to Ordinance entitled “Building Energy Use,” Chapter 8.67 of the Municipal Code of the City of Cambridge. Text in gray will be developed in Phase III.

### Table of Contents

- I. Definitions
- II. Reporting Process [this section intentionally left blank]
- III. Third Party Verification
- IV. Property Ownership and Configuration
- V. Baselines
- VI. Campus Compliance [this section intentionally left blank]
- VII. Emission Factors
- VIII. Renewable Energy Procurement
- IX. Verified Carbon Credits [this section intentionally left blank]
- X. Hardship and Deferral Compliance Plan Requests [this section intentionally left blank]
- XI. Review Board [this section intentionally left blank]
- XII. Enforcement [this section intentionally left blank]

### BEUDO Regulations – Phases I and II

#### I. Definitions

- A. BEUDO Procedures - The published document containing information related to any Emission Factors for each compliance period, as well as other relevant information. Said document can be downloaded from the City’s BEUDO webpage, or a requested from BEUDOregs@cambridgema.gov.
- B. Generation Facility - one or more central plants producing hot water, steam, electricity, and/or chilled water for use in powering, heating or cooling more than one building in Cambridge
- C. Massachusetts Class I Renewable Portfolio Standard (RPS) - The program administrated by the Commonwealth of Massachusetts described on its website and referenced in 225 CMR 14.07.
- D. Multi-Use Covered Property - If a Covered Property contains one or more non-residential buildings with more than one residential unit, but less than or equal to 75% of the Covered Square Feet being used for residential or dwelling purposes, that Covered Property may apply to the city to be considered as a Multi-Use Covered Property. Approved Multi-Use Covered Properties will benchmark and reduce emissions as Non-Residential Properties, with the option to exclude the energy used to power Residential areas from benchmarking, baseline calculations, and emission reduction calculations. Notwithstanding the above, Covered Properties containing 50 or more Dwelling Units shall be required to benchmark the residential energy usage. Covered

Properties which are unable to separate the energy use from Residential and Non-Residential areas may not comply as a Multi-Use Covered Property and must comply as a Non-Residential Covered Property. The City may request proof or attestation as to the building usage as needed.

- E. Substantial Rehabilitation – Without regard to other laws, statutes or regulations as to the use of the term “substantial rehabilitation,” for purposes of Chapter 8.67.010(22) only, a building existing on a BEUDO Covered Property which undergoes renovations, additions or alterations that result in a Change of Occupancy Classification group under Massachusetts Building Code 302 shall be considered a “Substantial Rehabilitation.”
- F. All definitions contained in Chapter 8.67 of the Cambridge Municipal Code are applicable to these regulations.

II. Reporting Process - [this section intentionally left blank]

III. Third Party Verification

A. Requirements for Third-Party Data Verification

- i. Owners shall submit proof of Third-Party Data Verification of reported data per the schedule in § 8.67.110. This submittal process is described in BEUDO Procedures.
- ii. The individual submitting Third-Party Data Verification for a Covered Property’s submitted data may not be employed by the Owner or the designated property management company for the property.
- iii. The individual submitting Third-Party Data Verification for a Covered Property may not be the same individual submitting Benchmarking Information for that Covered Property.

B. Approved Verification Bodies

- i. Data must be verified by an individual certified by an Approved Verification Body. Organizations qualified as Approved Verification Bodies, and acceptable certifications, are listed in BEUDO Procedures.
- ii. Owners shall submit the credential, verifier name, and organization name of the Approved Verification Body when submitting Third-Party Data Verification.

#### **IV. Property Ownership and Configuration**

##### **A. Defining an Owner**

- i. The default Owner for any given Covered Property (and all buildings contained on that property) will be the person or entity listed in Massachusetts Registry of Deeds.
- ii. The Owner of a Covered Property receives annual notifications of obligation to comply, and warning or violation notices. The Owner of a Covered Property (or of a Campus comprised of multiple Covered Properties) is legally responsible for ensuring compliance with all aspects of BEUDO.
- iii. Covered Properties may apply to designate an approved alternate Owner (per § 8.67.010 (23)) for certain purposes, including communications and submission of data and compliance information. Covered Properties that elect to designate an alternate Owner must annually attest the approved alternate. Nothing herein will prevent any enforcement against the default Owner. The process and deadlines to submit a change of Owner are found in BEUDO Procedures.

##### **B. Defining a Property**

- i. All buildings on a parcel of land classified as a Covered Property per § 8.67.010 (11) are subject to and must comply with the BEUDO ordinance.
- ii. Default Configuration
  1. By default, the Covered Property definition (§ 8.67.010 (11)) applies at the parcel (also referred to as tax lot or map lot) level. Owners are required to benchmark, assign baselines, and reduce emissions collectively for all buildings on a parcel as one compliant entity, unless the Owner requests an Alternative Configuration.
- iii. Alternative Configuration
  1. Owners may request to report and reduce emissions by individual buildings, or subsets of buildings, on a parcel. If approved, this configuration election will be referred to as the Covered Property, and must comply with all BEUDO requirements. The following conditions must be met for this configuration to be granted:

- a. Requests to report at the building level must be submitted by December 31 of the first year of the first Compliance Period for the parcel. Information regarding deadlines and processes to request can be found in BEUDO Procedures.
  - b. The building(s) which request to report as a subset of the default Covered Property must be defined structures per the Cambridge GIS Building ID database, available at the City of Cambridge's GIS Department website.
  - c. Each non-Municipal Covered Property, regardless of configuration, must meet the minimum requirement of 25,000 total Covered Square Feet. Municipal Covered Properties must meet the minimum requirement of 10,000 total Covered Square Feet.
  - d. The Energy used and reported for each building or group of buildings under an Alternative Configuration must be fully contained within Portfolio Manager report(s) specific to those buildings.
  - e. The Owner must be able to provide complete and accurate data for the baseline years of all buildings under the Alternative Configuration.
- 2. A default Covered Property which has been approved to report and reduce in an Alternative Configuration may then submit applications, if desired, for the resulting Covered Properties to comply as a Multi-Use Covered Property if they meet the requirements in Section I.D. The process and timelines for these applications are found in BEUDO Procedures.
  - 3. The timeline for reducing emissions will be based on the Covered Square Feet of the selected configuration.

**iv. New Buildings**

- 1. As defined in the Ordinance, a New Covered Property has either, in 2018 or later, received a Certificate of Occupancy, or has undergone a Substantial Rehabilitation as defined herein. New Covered Properties have distinct requirements for compliance in § 8.67.100(3).

2. In the event that a singular building is newly constructed or Significantly Rehabilitated on a parcel with existing buildings,
  - a. The buildings may comply together under the Default Configuration (see Section IV.B.ii), with all buildings using the same baseline years as the newly constructed or Significantly Rehabilitated building.
  - b. The buildings may comply under an Alternative Configuration as long as requirements in Section IV.B.iii are met. The New building will use baseline years comprising the first two complete years in operation after Certificate of Occupancy or completion of the Significant Rehabilitation, and existing buildings will continue to use previously selected baselines.
3. New Covered Properties will reduce their emissions based on the guidance tables in BEUDO Procedures.

**v. Sale or Transfer of a Property**

1. If a Covered Property is sold, the previous Owner is obligated per § 8.67.110 (7) to provide the new Owner all energy and water information necessary to report complete Benchmarking Information for the entire year. The previous Owner is required to share building energy and water use data needed for benchmarking within 30 days of documented request by the new Owner.
2. The Owner purchasing the building or Covered Property is required to meet the annual emission reduction requirements of the property for the compliance year in which the sale occurred, and going forward.
3. A Covered Property which is sold to a new Owner may, within 60 days of the transaction, apply for changes in the following, so long as other requirements are met in accordance with these regulations and the Ordinance:
  - a. Covered Property Configuration - See Section IV.B  
The property configuration will go into effect the compliance year after the year of the sale.
  - b. Baseline selection – See Section V.  
The new Baseline selection will go into effect the compliance year after the year of the sale.
  - c. Other compliance option as approved by the City of Cambridge.

**vi. Demolition of a Property**

1. A Covered Property which is fully demolished, in that every building on the Parcel is no longer standing or using energy, will be exempted from all BEUDO requirements in the year in which the demolition occurs. Submission of this exemption is due to the City by May 1 of the year following the demolition year.

**V. Baselines**

**A. Alternative Baselines**

- i. A property may choose to use the average emissions of two consecutive years dating back to 2010 as the Alternative Baseline emissions for that property, so long as the following conditions are met:
  1. Requests to reduce a Covered Property's emissions using an Alternative Baseline must be submitted to the City prior to the Covered Property's first compliance period, and any request for an alternative configuration of the default Covered Property (see Section IV.B.iii) must be approved by the City prior to approval of an Alternative Baseline request.
  2. If an Alternative Baseline is approved, § 8.67.100(4) requires that such Covered Property's emission reduction requirements include an additional 2.5% reduction for every year between the start of its Baseline and 2018. A table detailing this may be found in BEUDO Procedures.

**B. Obtaining Baseline Year Data**

- i. If verifiable data is not obtainable for Alternative Baseline years, the Owner must use default Baseline years for the Covered Property.
- ii. If verifiable data is not available for the default Baseline years, due to one of the below circumstances, the Owner must inform the City and the two most recent years of data for the Covered Property will be used as the Baseline.
  1. Changes in ownership
  2. Inability to obtain data from energy provider
  3. Other circumstances approved by the City

VI. Campus Compliance [this section intentionally left blank]

VII. Emission Factors

- A. Pursuant to § 8.67.010 (15), by January 1 of each year prior to each standard Compliance Period, Emission Factors to be used by all Covered Property Owners in the determination of Greenhouse Gas emissions of their Covered Properties will be published. Emission Factors to be used for each period, along with any alterations to methodology used in determining them, will be public by:
- January 1, 2025 (for Compliance Period 1: 2026 to 2029)
  - January 1, 2029 (for Compliance Period 2: 2030 to 2034)
  - January 1, 2034 (for Compliance Period 3: 2035 to 2039)
  - January 1, 2039 (for Compliance Period 4: 2040 to 2044)
  - January 1, 2044 (for Compliance Period 5: 2045 to 2049)

Emission Factors for years 2010-2025 will be published by January 1, 2025 in the BEUDO Procedures for use in calculating Baseline emissions.

- B. All Emission Factors for Energy use, along with additional information on the methodology used in determining them, will be published for each Compliance Period in the BEUDO Procedures by their required deadlines.
- C. Emission Factors for natural gas, propane, fuel oil, diesel oil, and kerosene will be based on the standard scientific values utilized by the Environmental Protection Agency’s Energy Star Portfolio Manager.
- D. Emission Factors for electricity purchased from the grid will be calculated using a residual factor methodology, taking into account the Massachusetts Class I Renewable Portfolio Standard (RPS).
- i. The emissions of a Covered Property’s electricity use shall be calculated using the following equation:

$$\text{Electric Grid Emissions [kg CO2e]} = \left[ \left( \frac{\text{Electricity consumed by Covered Property [kWh]}}{\text{Electricity consumed by Covered Property [kWh]}} \times \frac{\text{(100\% - Annual RPS Class I Minimum Requirement [\%])}}{\text{(100\% - Annual RPS Class I Minimum Requirement [\%])}} \right) - \frac{\text{voluntary qualified purchases of Renewable Energy [kWh]}}{\text{voluntary qualified purchases of Renewable Energy [kWh]}} \right] \times \text{Residual ISO New England Electric Grid Factor [kg CO2e/kWh]}$$

- ii. A Time of Use methodology will be available for Covered Property Owners who are able to provide hourly profiles for the use of grid electricity. The emission factor for each hour shall be determined using a time-of-use residual factor methodology as outlined in the BEUDO Procedures. Building data and the calculation of emissions must be provided in hourly intervals.
  - 1. A Covered Property that uses a Time of Use methodology shall also use such methodology for its Baseline years.
- iii. Annually, the City may choose to publish an Emission Factor for grid electricity which is calculated with the above equation, using up to date data from Massachusetts portfolio standards. If published, this Emission Factor will be available by April 1. In the event that the annually published factor is lower than the projected factor for that Compliance year, the City will apply the lower of the two calculated factors unless the Covered Property Owner elects to use the higher number. The process for submitting a request to use the higher emission factor is found in BEUDO Procedures.

#### E. Generation Facilities

- i. Emission Factors for steam, hot water, chilled water, and electricity produced by a Generation Facility will be calculated using the efficiency methodology of the World Resources Institute Greenhouse Gas Protocol.
  - 1. All Generation Facility owners are required to submit complete verified data needed to calculate the Emission Factor of every energy output of their facility for the previous calendar year, as well as the final calculated Emission Factors, by April 1 of each year beginning in 2025.
    - a. Data and the resulting emission factors submitted in 2025 and 2026 (for energy produced in years 2024 and 2025, respectively) are not required to be verified.
    - b. Verification by an Approved Verification Body (§ 8.67.010 (3)) is required for annual submission of data and factor calculations beginning in 2027 (for energy outputs produced in 2026 and onwards). See Section III for more information regarding verification requirements.
    - c. In the event that a Generation Facility, which is owned by a Covered Property Owner and connected to the Owner's Covered Property/Properties, does not provide complete and verified data to the city by the required date of a given



compliance year, Emission Factors published in the BEUDO Procedures will be applied to the energy inputs for the Generation Facility, and the resulting emissions will be apportioned across the connected buildings by the Gross Floor Area of the building.

- d. For a Generating Facility which is not owned by a Covered Property Owner and connected to the Owner’s Covered Property/Properties, failure to provide complete and accurate data by the above date will result in application of standard scientific values utilized by Energy Star Portfolio Manager, or other similar values published by state or federal agencies, for generated products (electricity, steam, chilled or hot water, or otherwise) utilized by the Owner’s Covered Property/Properties.

- 2. Data submitted from Generation Facility owners will be used to calculate Emission Factors for each output of the facility, using the formula below:

**Allocate the total emissions to each output stream**

Use the following formula:

$$E_i = \frac{\frac{Q_i}{e_i}}{\sum_{i=1}^n \frac{Q_i}{e_i}} \times E_T$$

where:

- $E_i$  = emissions allocated to output stream  $i$
- $Q_i$  = energy content of output stream  $i$
- $e_i$  = efficiency of the production of output stream  $i$
- $E_T$  = total emissions of the district energy system
- $n$  = number of output streams

Further information to calculate Emission Factors of outputs will be included in the BEUDO Procedures as needed.

- 3. Generation Facility owners requiring an alternate methodology to be used in calculating the output Emission Factors of their plants may request the Energy Content method, endorsed by the World Resources Institute for use in Cogeneration/CHP plants, provided that:
  - a. The Generation Facility owner agrees to use the alternate methodology for the remainder of the Compliance Periods in which connected Covered Property/Properties receive the outputs of said Generation Facility.
  - b. The request is submitted one year prior to the first Compliance Period.

- c. Emission Factors for the Generation Facility's outputs for the Baseline years of connected Covered Property/Properties must be calculated using the same methodology.
- 4. Any thermal output of a Generation Facility that is produced using Renewable Electricity shall have an Emission Factor of zero (0) kgCO<sub>2</sub>e/MMBTU, provided that:
  - a. The Renewable Electricity is procured, and resulting Renewable Energy Certificates are retired, in accordance with § 8.67.010 (25) and the requirements in Section IX, except:
    - i. The requirements for the Covered Property Owner in Section IX are fulfilled by the Generation Facility owner
    - ii. Renewable Energy Certificates from a qualifying Renewable Electricity procurement shall be transferred to the Generation Facility owner for retirement.

**VIII. Renewable Electricity Procurement**

- A. The use of electricity from onsite renewable electricity generation, such as solar panels, shall be reported in the Covered Property's Energy Star Portfolio Manager account.
  - i. To qualify as Renewable Electricity, this electricity must be generated onsite by photovoltaic systems, solar thermal power plants, wind turbines, geothermal power plants, or other renewable energy generating sources that may be submitted to and certified by the Department.
  - ii. To qualify as on-site energy (§ 8.67.010 (25)), the electricity generation source must be located either on the same Covered Property which will use the resulting RECs or on another property in Cambridge which is owned by the same Owner that will use the resulting RECs for compliance.
  - iii. Pursuant to § 8.67.010 (25), this electricity shall qualify as Renewable Electricity and be subtracted from a building's electric BEUDO emissions if either:
    - 1. The Renewable Energy Certificates (RECs) resulting from the onsite renewable electricity generation are assigned to the Covered Property and retired, OR
    - 2. If the Covered Property Owner has surrendered the RECs resulting from the system to a clean energy incentive program, such as the Massachusetts SMART program, the Covered Property Owner may

purchase an equivalent quantity of MA Class 1 Renewable Energy Certificates to be used in BEUDO compliance.

- B. Off-site purchases of Renewable Electricity, as defined in § 8.67.010 (25), must meet specific criteria in order to be subtracted from the electric emissions of a Covered Property in calculating Greenhouse Gas Emissions pursuant to § 8.67.010 (19).
- i. A Covered Property Owner must submit information regarding their Renewable Electricity purchases (proposed or completed) to the City for review and approval. Renewable Electricity resulting from purchases that have not been approved by the City may not be subtracted from the electric emissions of a Covered Property.
  - ii. All procurement contracts must be for Renewable Electricity from a newly built generating source. The following types of contracts shall qualify as newly built:
    1. Contracts which are signed by the Covered Property Owner prior to a generating facility's Commercial Operation Date.
    2. Contracts which support an expansion of capacity at an existing renewable energy generating source, of which the expanded capacity was not operational at the time of contract execution.
    3. Facilities that were in existence or operation prior to the contract execution, but that are undergoing a repowering as defined by the United States Internal Revenue Service (Notice 2016-31) and will be considered to be again fully operational after the date which the Covered Property Owner signs the contract to repower.
    4. Renewable Electricity resulting from the extension of an existing contract which was initially approved by the City per Section IX.B.1. The signing organization of the original contract must match the organization, or its successor, signing the extension contract.
  - iii. The following types of renewable energy purchases are acceptable, provided that they meet eligibility criteria for new projects utilizing acceptable technologies as outlined in § 8.67.100 (25) and all other criteria established in these BEUDO Regulations Section VIII:
    1. Power Purchase Agreements, including virtual Power Purchase Agreements, for electricity and bundled RECs, from renewable electricity generators connected to an electric grid in the jurisdiction of the North American Electric Reliability Corporation.

2. RECs not resulting from a Power Purchase Agreement or Virtual Power Purchase Agreement, provided that they meet the qualifications of RPS Class I eligibility, outlined in 225 CMR 14.05, as those criteria may be amended from time to time, and that they are from a new project.
  3. Other types of procurements and contracts which may be submitted by a Covered Property Owner for review by the City and, upon approval, may be listed as an approved project type in the BEUDO Procedures.
- iv. In the event that a Covered Property Owner is unable to complete their Renewable Electricity purchase due to breach of contract or a Force Majeure event without cause or fault of the Covered Property Owner, the owner may apply for a deferral compliance plan. Applications for a deferral must follow guidelines and deadlines as per Section XI.
- C. Renewable Energy Certificates (RECs) and other environmental attributes produced by on or off-site renewable energy which are intended for use in compliance with BEUDO shall be assigned to a Covered Property or Campus in Cambridge and retired.
- i. RECs to be used for BEUDO compliance shall be assigned to a Covered Property Owner, and the quantity of RECs assigned by the Owner to reach compliance of each Covered Property or Campus must be submitted to the City by the annual deadline of May 1.
  - ii. Assignment and tracking will be carried out pursuant to a tracking system recognized by the United States Environmental Protection Agency. Documentation attesting to REC assignment and retirement, as described in the BEUDO Procedures, of RECs used in Covered Properties must be annually reported the May 1 reporting deadline. Further proof of retirement must be made available for inspection to the City of Cambridge upon request.
  - iii. In calculating Greenhouse Gas Emissions, a REC may only be subtracted from a Covered Property's electricity use a given compliance year if the REC was generated either within (1) the twelve (12) months before the compliance year or (2) within the compliance year in which they are applied. Pursuant to 8.67.100(7), the REC must be obtained in the year in which it is applied.

- IX. Verified Carbon Credits [this section intentionally left blank]
- X. Hardship and Deferral Compliance Plan Requests [this section intentionally left blank]
- XI. Review Board [this section intentionally left blank]
- XII. Enforcement [this section intentionally left blank]

Adopted:

Effective Date: \_\_\_\_\_

\_\_\_\_\_

Melissa Peters  
Assistant City Manager for Community Development