

## BERDO 2.0 PHASE 2 REGULATIONS

### WORKING SESSION #2

September 14, 2022

This document presents a summary of the preliminary regulations proposals presented by the City of Boston during the second public working session for BERDO 2.0 Phase 2 regulations. This meeting focused on regulations related to grid emission factors, renewable energy purchases (RECs), and fossil fuel emissions factors.

Preliminary regulations proposals	Feedback and questions from the public
<b>Topic #1: Grid Emissions Factors</b>	
<ul style="list-style-type: none"><li>• The City of Boston will provide <i>estimated forward-looking grid emissions factors for planning purposes</i>.<ul style="list-style-type: none"><li>◦ Forward-looking emissions factors will be based on ISO NE projections.</li><li>◦ These emissions factors <u>shall not</u> be used for compliance.</li></ul></li><li>• Each year, the City of Boston will release an annual grid emissions factor for compliance with BERDO 2.0.<ul style="list-style-type: none"><li>◦ This <u>annual</u> grid EF will be based on <u>real data</u> published by ISO NE and any other relevant governmental sources for the compliance year.</li><li>◦ We expect this EF would become available during the first 1-3 months of each year, before the compliance deadline of May 15.</li><li>◦ This will be the <u>default</u> emissions factor used for compliance.</li></ul></li></ul>	<ul style="list-style-type: none"><li>• How far in advance and how often would the forward looking factors be provided?</li><li>• Forward looking projections that would not be used for compliance do not give enough notice to the owner. Alternatively the City could use the forward-looking projections as the thresholds for some period in advance, then use the actual factors to figure out where emissions land but not where the violation is drawn.</li><li>• When the City sets/establishes annual emissions factors based on ISO-NE data, is it anticipated that the city will reconcile the factors when ISO-NE does eventually publish its own emissions factor?<ul style="list-style-type: none"><li>◦ City Response: We would publish an annual emissions rate and wouldn't revisit it; we think it would be very close to the official ISO-NE emissions rate, but we know it can take a couple</li></ul></li></ul>

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<ul style="list-style-type: none"> <li>• <i>Subject to approval by the Environment Department, building owners may opt-in to use time-of-use emissions rates for compliance with BERDO 2.0.</i> <ul style="list-style-type: none"> <li>◦ <i>Time-of-use emissions data would need to be aggregated into a custom annual emissions factor.</i></li> <li>◦ <i>Owners may opt-in or opt-out from using time-of-use emissions factors every "Verification Year" (i.e., starting in 2026 and every 5 years thereafter).</i></li> <li>◦ <i>Owners will need to demonstrate that the time-of-use emissions data and methodology they used is accurate and provide third-party verification (this will require specific verification in addition to the typical third-party data verification under BERDO).</i></li> <li>◦ <i>Owners would need to publish their time-of-use emissions data publicly and make data available for audit.</i></li> </ul> </li> </ul>	<p style="text-align: center;"><i>of years for ISO-NE to release the official emissions rates.</i></p> <ul style="list-style-type: none"> <li>• <i>Do you still plan to use the emissions factors calculated by Synapse, or will you use some other values? Do you plan to revise your "estimated" emissions factors every so often if the grid is not "decarbonizing" at the rate expected?</i> <ul style="list-style-type: none"> <li>◦ <i>City Response: The proposal would be to set a new emissions standard for grid emissions rather than those used in the setting of the emissions standards during the Ordinance drafting process. And the projected emissions factors would be updated periodically.</i></li> </ul> </li> <li>• <i>It seems like the balance the City is striking between certainty and accuracy is unclear. How can there be certainty when you are going off of an estimate?</i></li> <li>• <i>Under this proposed framework the forward-looking emissions factor would likely not be too useful for planning purposes for owners. It might be worth considering a buffer of sorts, that the final annual emissions factor for compliance cannot exceed the posted forward looking grid emissions factor by a certain percentage (say 10%). This would give the forward looking emissions factor some better weight for planning purposes.</i></li> <li>• <i>Seconded- A buffer or limit on the difference between predicted and actual emissions factors would be extremely helpful for planning.</i></li> </ul>

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	<ul style="list-style-type: none"> <li>● Affirm support for the use of ISO-NE emission factors, especially if trying to do real-time emissions factor.</li> <li>● ISO-NE takes sometimes over a year to release its emissions factor, even though changes are rare, they do happen. How will the City address this? Would the calculations be the default? <ul style="list-style-type: none"> <li>○ <i>City Response: We would be doing some of the calculations ISO-NE would be doing based on the data they release regularly already, using the 5-minute interval data. This would allow us to publish an annual emissions rate soon after the end of the year. This would not be the official rate from ISO-NE, which potentially wouldn't come out until 1-2 years later. The emissions factor released by the City would be used to assess compliance unless using a time-of-use emissions factor.</i></li> </ul> </li> <li>● In regard to the time-of-use issue, where the data is collected, and how it would be collected, is the City considering methods like WattTime and Singularity? <ul style="list-style-type: none"> <li>○ <i>City Response: Yes, we want to hear from the public on what they've used.</i></li> </ul> </li> <li>● Is the intention that annual emissions factors will align with those to be adopted for statewide building emissions reporting under the recent climate bill (H.5060)? <ul style="list-style-type: none"> <li>○ <i>City Response: We'll be watching the development state programs closely and will attempt to align where possible.</i></li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>● The time of use rules look really good and provide a really fantastic framework for this.</li> <li>● The City could consider a date by which time-of-use becomes mandatory, assuming utility coordination (say 2035+).</li> <li>● Ideas on appropriate timelines for projected emissions factors: <ul style="list-style-type: none"> <li>○ Set buffer at 0 so planning can be done with certainty</li> <li>○ 3-4 years in advance as this is how long it is taking to plan and contract for a VPPA</li> <li>○ A 5-year starting point would be helpful because capital projects typically are planned 5 years out.</li> <li>○ Looking out toward 2050 while highlighting uncertainty</li> </ul> </li> <li>● Emphasizing the need for planning timelines, but emissions factors need to be set at the time of contract for PPAs, emissions factors are not looked at on an annual basis.</li> <li>● Has there been conversation with utilities about what goes into time of use in terms of metering and data management? <ul style="list-style-type: none"> <li>○ <i>City Response: We recognize smart metering isn't widely available and most people don't have access to time-of-use data. The TOU option</i></li> </ul> </li> </ul>

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	<p>would be for a building or institution that is already engaging in this and has that infrastructure set up. We would be asking more of the building owners opting into this to collect and crunch the data and to get it verified. In the long term we hope this option would be available to others.</p>
Topic #2: Regulations for Power Purchase Agreements	
<ul style="list-style-type: none"> <li>• All PPAs used for BERDO 2.0 compliance must meet the requirements set by the Ordinance as well as any additionality requirements set by regulations.</li> <li>• Additionality requirements may include: <ul style="list-style-type: none"> <li>◦ The commercial operation date for the contracted project is set after the PPA contract execution.</li> </ul> </li> <li>• Energy purchased through PPAs that meet the criteria in the Ordinance and Regulations will be assigned an emissions factor of zero.</li> <li>• Are there other additionality criteria we should consider?</li> </ul>	<ul style="list-style-type: none"> <li>• Questions on definitions: <ul style="list-style-type: none"> <li>◦ What is a virtual PPA? <ul style="list-style-type: none"> <li>■ City Response: A power purchase agreement that does not involve the physical delivery of energy; most often an agreement to purchase power from an out-of-grid energy generator.</li> </ul> </li> <li>◦ What does it mean to “retire” a REC? What does this represent? <ul style="list-style-type: none"> <li>■ City Response: The Renewable Energy Certificate (REC) has been used and can no longer be sold or traded.</li> </ul> </li> <li>◦ How long does the REC “last”, 5 years? <ul style="list-style-type: none"> <li>■ City Response: One REC is equal to 1 megawatt hour of renewable electricity.</li> </ul> </li> <li>◦ Does the term “non-emitting” preclude energy generated by biomass?</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>■ <i>City Response: MA Class I RECs can come from eligible biomass facility, however BERDO limits RECs to “non-CO2e emitting renewable sources that meet the RPS Class I eligibility criteria.” The burning of biomass releases greenhouse gasses (measured in units of CO2e) and therefore would not qualify under BERDO.</i></li> </ul> </li> </ul> </li> <li>● The GSG Protocols, because of lag in releasing RECs and reliability of resources, allows RECs from an 18-month window to be applied to one specific period for compliance; Is BERDO in line with GSG protocols on this?</li> <li>● In regard to additionality criterion - how do you treat projects that are not fully subscribed? If you elect to contract with one of the wind farms, we would be procuring energy that is decarbonized, but it may not meet additionality criteria. How do you reconcile that with an unbundled REC? <ul style="list-style-type: none"> <li>○ <i>City Response: A PPA would not have to be Mass Class I but does have to include bundled RECs, but we could consider additional requirements based on feedback from the public.</i></li> </ul> </li> <li>● For the Community Choice option - if you have a condo building with, say, 25 units, all individually</li> </ul>

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	<p>metered, would all units have to participate to qualify? What about for PPAs and REC purchases?</p> <ul style="list-style-type: none"> <li>○ <i>City Response: Not all the units would have to be signed up. There is a need to work through some reporting protocols for PPAs and RECs on how to do that and how to collect info where different tenants might be using different suppliers.</i></li> <li>● PPAs are a challenge for many large companies, they are more intensive and usually cost more. The RPS I REC is roughly \$38, whereas it's \$3-4 outside of the New England grid. There's been a slowdown in supply. If it's acceptable to a PPA, it would be helpful to see what else might be acceptable other than a Mass Class I REC. The ACP does potentially put a cap on that, but could also be changed in the future.</li> <li>● All energy users in Boston are already buying supply from those subject to Class 1 RPS requirements and so a portion of their electricity is already covered and they're paying for through their supply contract with the supplier or to the utility so the city should consider how those would be accounted for.</li> <li>● The City needs to assure itself that the basic requirements for preventing double counting and verifiability of certificates apply to PPAs.</li> </ul>
<b>Topic #3: Regulations for Local Solar Generation and SMART Program</b>	

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<ul style="list-style-type: none"> <li>• <i>Up until a specified sunset date, energy off-takers from on-site solar systems or energy off-takers from PPAs for PV systems located in the City of Boston, may use the systems' annual energy generation for compliance with BERDO 2.0, regardless of whether the corresponding RECs are retired by or on behalf of the energy off-taker.</i> <ul style="list-style-type: none"> <li>◦ <i>The building owner shall report the PV system's annual generation, as measured in kWh.</i></li> <li>◦ <i>The PV systems' annual generation will be assigned an emissions factor of zero.</i></li> </ul> </li> <li>• <i>What would this mean for community solar projects? Are there other considerations for community solar?</i></li> <li>• <i>What is a reasonable sunset date?</i></li> </ul>	<ul style="list-style-type: none"> <li>• Multiple affirmations of support of the language of the proposed regulations due to the financial burden of Solar in Boston and the need to incentivise it. Even if double counting occurs it is still beneficial.</li> <li>• Opportunities for solar that go outside City limits would be complementary to increasing the scale of solar projects.</li> <li>• It would be difficult to adopt a sunset date unless policy makers separate RECs to utilities as opposed to RECs to the entity responsible for the renewable energy projects.</li> <li>• Any BERDO-covered buildings that acquired solar panels under the previous program, where the owner of the panels was awarded RECs for the power generated for their corresponding building should be required to retire (not sell) the RECs.</li> <li>• The definition of "Community Solar" should be more specific. It should speak to group projects within MA or within New England and that has the same benefits as community solar.</li> </ul>
<b>Topic #4: Fossil Fuel Emission Factor</b>	
<ul style="list-style-type: none"> <li>• <i>Emissions factors from ENERGY STAR Portfolio Manager shall be used for natural gas, fuel oil no. 1, fuel oil no. 2, fuel oil no. 4, and diesel oil.</i></li> <li>• <i>Emissions from fuel consumption shall be calculated by</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>What happens if someone is using a fuel that's less carbon intensive and not on this list such as biogenic fuels?</i></li> </ul>



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<p><i>multiplying the total amount of fuel used by the appropriate emissions factor for each fuel type.</i></p>	<ul style="list-style-type: none"><li>• These factors understate the true emissions of these fuels because it doesn't take into account distribution losses.</li><li>• It would be very difficult to not use any emission factors or fuels not in Portfolio Manager.</li><li>• Would there be considerations for new technologies such as a rear injection to keep emissions down in a cogeneration system?</li></ul>