

BERDO 2.0 PHASE 2 REGULATIONS

WORKING SESSION #3

September 21, 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
Topic #1: Independent District Energy Systems	
<p>Goals for Emission Factors</p> <ul style="list-style-type: none"> • <i>Regulations set consistent, transparent methodology for district energy systems.</i> • <i>Emissions factors can be customized to reflect the plant's actual operations and are responsive to decarbonization actions.</i> • <i>Emissions factors reflect the entire system, including both electricity and thermal (steam, hot water) production.</i> • <i>Emissions factors for district systems are updated annually and will be available within first few months of the year.</i> 	<ul style="list-style-type: none"> • Who is expected to do the calculations to figure out what the factors are? Would it be the district system owner or the City? <ul style="list-style-type: none"> ○ <i>City Response: The goal is to establish a transparent methodology where all parties would understand how emissions are calculated. The specifics will be clarified in the regulations.</i> • The simpler the better to reduce likelihood for error. As someone who works with third-party verifiers, commenter would be hesitant to recommend the verification of several different district energy system factors, and believes the city taking that on would be beneficial. <ul style="list-style-type: none"> ○ <i>City Response: One of our goals includes having a published emissions factor that could be applied for anyone connected to that system.</i>

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	<ul style="list-style-type: none"> ● Setting these factors will drive action. If there is a building that has onsite gas usage and has the chance to connect to district steam, what push will there be positive or negative? Would BERDO encourage people with large gas fired plants to continue with onsite gas consumption or switch to district steam ● The method where the emissions are accounted for on the electricity side but, they are not attributed to thermal production because they're just being allocated somewhere else, not disappearing. <ul style="list-style-type: none"> ○ Follow up: Have to consider the NG emissions factors which doesn't include all losses from wellhead to Boston either while likely being a much larger source. ● Under additional considerations, for the efficiency method there would be double counting of emissions if it's already counted in the NE-ISO part of it, and then it'd be reallocated to thermal energy ● Units subject to carbon markets and article 25 EPA rule are greater than 25MW, so they have to participate in RGGI and have an assigned cost of carbon. Latest prices ~\$24/ton. Part 75 establishes a clear delineator under the Clean Air Act. If a unit is under part 75, the city could allow it to use the allocation method while those that are not part of it take on some kind of apportionment method.

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	<ul style="list-style-type: none"> ● The EPA default would not be appropriate because it does not take into account decarbonization planning for independent system operators and does not align with Boston’s decarbonization goal. ● Would the city require that ISOs report, on what frequency and with what mandate? City should make sure those reporting have accurate data by the May deadline. <ul style="list-style-type: none"> ○ <i>City Response: This is a conversation to be had with ISOs on data availability. Ideally we would have annual updated emissions factors available within the first 1-3 months of the year.</i> ● On methodology 4 “paying 100% of emissions to electricity”: For large plants where buildings are being supported by electricity and steam, would there be a disproportionate allocation of emissions across buildings? For example, where a building using electricity gets disproportionate emissions vs a building using steam with lower emissions. ● If there was a carbon content assigned to the thermal project it would cause an overallocation of the carbon on those buildings that are on the district energy systems vs those that are not because there would be double counting.

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	<ul style="list-style-type: none">• There is a big difference between solar and district energy. Solar is not meaningful in capacity in the Boston area so the impact is negligible.• Selecting one methodology to apply to all district systems is not the correct way to do things. District systems can operate differently. For example, you can have at one extreme a CHP serving one building that is producing steam and electricity for that facility. In that case it is cut and clear that the emissions should stay in the footprint. On the other hand you could have a CHP that is exporting energy being dispatched, that portion of the emissions for electricity allocated to the grid. The methodology should depend on how the district system operates and how it is dispatched to select which methodology applies to that system.• Has the city looked at the guidance on district energy systems from LEED?• What interactions has BERDO had with Vicinity and its decarbonization plans?• The incentive to use less district energy by allocating all emissions to electricity is unnecessary because there is already an economic incentive to use less.• Losses should be concentrated on the generation point rather than socialized to the buildings. Losses are fixed and don't change with overall volumes so they're difficult to tease apart vs the generator.

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	<ul style="list-style-type: none"> ● To meet the goal of air quality, the city should examine where the district energy plants are, what they're burning vs what combustion would be displaced at the building level. ● Big disadvantages in EPA PM numbers. EPA They do not incentivise going toward hot water which can reduce emissions. Emission factors for chilled water are also very high when one makes the conversion compared to what would actually be used. Also not responsive when making changes in an individual system.
Topic #2: Campus District Energy Systems	
<ol style="list-style-type: none"> 1. <i>Campus cogeneration plants can choose to use the same methodology as the independent district systems, or;</i> 2. <i>Campus cogen plants can apply an emissions factors to their central plant's fuel inputs and apportion the emissions across their campus.</i> <ul style="list-style-type: none"> ● <i>Buildings with metered or submetered energy must report the metered data at the building level.</i> ● <i>If energy is not separately metered:</i> <ul style="list-style-type: none"> ● <i>For buildings with the <u>same Building use</u>, the total shared Energy use should be</i> 	<ul style="list-style-type: none"> ● Rather than cogeneration plants, these should be termed as district energy plants to broaden the definition to include cooling plants ● For CHP: how would thermal capture off the engine/turbine be accounted for? <ul style="list-style-type: none"> ○ Other commenter: the benefit is that campus' overall emissions would be lower than if you'd taken it off the grid and produced your own product off boilers ● Is BERDO coordinating with DOER? <ul style="list-style-type: none"> ○ City Response: Yes, but we want to better understand what their existing regulatory

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<p><i>apportioned by the Gross Floor Area.</i></p> <ul style="list-style-type: none"> • <i>Buildings with <u>different Building Uses</u>, should be reported as a campus as defined in Portfolio Manager.</i> 	<p><i>requirements are for district energy reporting so we can better coordinate our standards.</i></p> <ul style="list-style-type: none"> • Advocating for a campus approach for wholly-owned district energy systems as it would be much simpler to report the power plant metered data and assign buildings to that campus. • BERDO should start looking at campuses looking to decarbonize big power plants, especially those looking at renewable natural gas and hydrogen systems for the future • UC campus brought RNG to apply it to their operations epa.gov
General Questions	
	<ul style="list-style-type: none"> • Grid emissions would include looking at forward looking emission factors, will the same goal apply to district energy systems where they would provide future potential emissions factors for planning purposes? • Multiple commenters had been reporting per campus rather than per building. <ul style="list-style-type: none"> ○ City Response: Under BERDO 2.0 all reporting must be done per building. If there is not specific metering by building, Phase 1 regulations should be followed. • How should emissions be reported this year?

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	<ul style="list-style-type: none">○ <i>City Response: Reporting on emissions this year is not required. Emissions will be calculated from reported energy.</i>● What is the difference between efficiency vs the energy content method?<ul style="list-style-type: none">○ <i>City: Efficiency method allocates emissions based on how efficiently each end product is produced. It is the standard approach for the GHG Protocol. The Energy Content method looks at the useful energy contained in each of the output streams. It looks at the end product and how useful it is from an energy perspective.</i>