

JANUARY 15TH 2025 - MEETING SUMMARY

Building Emissions Performance Standard (BEPS) Technical Rulemaking Working Group

Zoom Call 10AM-12PM

Present: Alistair Jackson, Edmée Knight, Evan Cobb, Gabriella Henkels, Luke Howard, Ian Brown, Irina Rasputnis, Joe Malaspino, Mel Knox, Nina Olivier, Rebecca Becker, Srin Pendikarla, Steve Abercrombie, Steve Schmidt.

Regrets: Caroline Traube, Mark DiPaolo.

City of Seattle BEPS and Facilitation Staff: Gemma Holt and Nicole Ballinger (OSE), Anna Kelly, Catherine Ozols, and Faith DeBolt (SBW), Kirstin Pulles and Sepideh Rezaia (Unrooz)

Additional City of Seattle Staff (Observing): Ashley McCulley (OSE), Kyle Berbel (OSE), and Mike Roos (OSE).

Meeting slides are posted at: <https://www.seattle.gov/environment/climate-change/buildings-and-energy/building-emissions-performance-standard/beps-rulemaking>

Agenda:

Topic	Time
Welcome + Introductions • Quick Recap of Meeting #6	10 mins
Discussion: Overview of Decarbonization Plans	20 mins
Discussion: Eligibility Criteria for Net-zero and Low Emissions Decarbonization Plans	35 mins
Break	5 mins
Continued: Eligibility Criteria for Net-zero and Low Emissions Decarbonization Plans	30 mins
Discussion: Research Updates	10 mins
Wrap-Up & Next Steps	10 mins

Working Group Discussions Summary:

1. Overview of Decarbonization Plans

Topic: The ordinance (SMC 22.925.100) explains that “Building owners with extenuating circumstances that make complying with the compliance schedule or meeting the GHGITS a significant hardship for an individual building may apply to use a decarbonization compliance plan for achieving net-zero greenhouse gas emissions or an approved low emissions GHGIT by 2041-2050.”

Decarbonization plans are a customizable and flexible option for individual buildings who meet specific criteria. Using a decarbonization plan requires building owners to demonstrate eligibility, submit an application, and conduct an energy & emissions audit. Building portfolios cannot use the decarbonization plan, except for a building portfolio whose primary purpose is to provide education at no cost.

Per BEPS (SMC 22.925.100), all decarbonization plans must include:

- Building energy and greenhouse gas emissions audit
- Analysis of energy efficiency greenhouse gas emissions reduction actions
- Incremental and final GHGITS and actions at each compliance interval
- Any applicable content specified by decarbonization plan provisions in the Seattle Energy Code
- Cost analysis for achieving the incremental and final GHGITS for each compliance interval covered by the plan, including:
 - Incremental cost of any equipment or other upgrades needed to meet the GHGIT above standard asset replacement costs or business-as-usual conditions
 - The analysis must include the social cost of carbon, utility cost savings, available grants, incentives, tax deductions or other financial incentives

“Low emissions” is not defined in the ordinance. The working group discussed possible ways to define “low emissions” at the [last meeting](#). Working group members reviewed the low emissions definition discussion from the last meeting and added additional questions and comments.

Discussion: A working group member asked if exempt loads would be counted towards a building’s emissions, if a % limit was chosen to define low emissions. OSE clarified that exempt loads would not be counted. Another question was about when exemptions expired, and OSE clarified that some do not expire, such as fossil fuel backup generators and backup heat for hospitals and labs. There are more details about exemptions in the summary and slides from [meeting #6](#).

Another question asked whether exemptions could be adjusted to allow specific classes

of technology in decarbonization plans. For example, there may be a future pathway to hydrogen boilers and that technology might require an intermediate step using natural gas, so emissions would step down over time. There are concerns that setting an arbitrary target may discourage people from pursuing new technologies, and favor those who have consulting resources to support them to develop plans.

A final question asked about what might happen for equipment that is not at the end of its useful life and would not need to be replaced by 2040. OSE explained if the building has equipment that was vested prior to 1/12/24 and is not yet at the end of its useful life but the equipment would need to be replaced with lower emission equipment for the building to achieve its GHGIT, the building qualifies for the net zero decarbonization pathway. This offers flexibility – equipment that is not yet at the end of its useful life can be replaced when the building owner chooses, as long as the overall plan for the building leads to net zero or low emissions by 2050.

2. Most Straightforward Eligibility Criteria for Net-zero and Low Emissions Decarbonization Plans

Topic:

Net-zero plan eligibility requirements:

Eligibility Criteria in BEPS Ordinance	Proposed Acceptable Documentation
<p>1. A substantial alteration under Section 307* of the Seattle Existing Building Code will be undertaken concurrently with building upgrades necessary to meet a covered building's GHGIT.</p> <p><i>Note: HVAC and/or lighting alone should not trigger sub-alt per SDCI. SDCI currently weighing other triggers.</i></p>	<p>If current, building permit that shows work meets code requirements.</p> <p>If pre-permit, an audit / feasibility study shows substantial alteration would be triggered by work to meet <u>current compliance interval target</u>.</p>
<p>2. Seismic upgrades for a covered building with unreinforced masonry will be undertaken concurrently with building upgrades necessary to meet the covered building's GHGIT.</p>	<p>If currently ongoing, building permit that shows seismic upgrades.</p> <p>If pre-permit, owner can attest by showing scope of work or plans that a seismic retrofit is planned within <u>current compliance interval</u>.</p>
<p>3. When a covered building has a tenant lease in place by Jan 12, 2024* that specifically precludes owner access to equipment on which work would be required to meet the GHGIT. This extenuating circumstance is only available for the 2031-2035 compliance interval.</p>	<p>Copy of lease that was signed prior to 1/12/24 highlighting relevant clause in the lease that precludes owner access.</p> <p>A signed letter from the tenant verifying the lease.</p> <p><i>Note: any financial or confidential language in the lease may be redacted.</i></p>

Low emissions plan eligibility requirements:

Eligibility Criteria in BEPS Ordinance	Proposed Acceptable Documentation
<p>4. When building upgrades necessary to meet net-zero emissions would adversely affect the special features or characteristics of a landmark identified in the designating ordinance or designation report or would compromise the historic integrity of a building within a historic district, as determined by either the City's Historic Preservation Officer, or historic board or commission, whichever has authority to grant or deny a Certificate of Approval for the building upgrades.</p>	<ol style="list-style-type: none"> 1. Building must be listed as a landmark / in a district 2. Audit / feasibility study shows work would compromise historic integrity (<i>majority likely cases this is just the exterior, so may not impact many buildings</i>) 3. Signed letter from City's Historic Preservation Officer attesting that the building upgrades required for BEPS compliance would be denied Certificate of Approval.

Discussion: The working group was asked, using Mentimeter, whether the above eligibility criteria were clear and made sense, or if they required further discussion.

The criteria received the following scores, with 1 meaning the eligibility criteria were unclear and needed more explanation, while 5 meant it was very clear and well understood:

- (3.7) - A substantial alteration under Section 307 of the Seattle Existing Building Code must be undertaken concurrently with building upgrades.
- (4.1) - Seismic upgrades for a covered building with unreinforced masonry must be undertaken concurrently with building upgrades.
- (4.6) - When a covered building has a tenant lease in place by Jan 12, 2024* that specifically precludes owners' necessary access to equipment.
- (4.8) - When building upgrades necessary to meet net-zero emissions would adversely affect the special features or characteristics of a landmark.

Attendees explained that the language in the substantial alteration criteria was complicated, and that having specific examples would make it easier to understand. Another group member expressed that costs vary for the criteria explained in this section, and so building owners may still be able to pursue emissions reductions even if they meet the above criteria. OSE agreed, and explained that following the decarbonization pathway can provide some additional flexibility for managing spending. A working group member also asked if a building needs to be on the City of Seattle's unreinforced masonry list to qualify for the seismic upgrades exemption. OSE explained that the ordinance does not require being on the URM list to qualify for the decarbonization plan, but that it's unlikely that many non-URM buildings would pursue costly seismic upgrades unless they were key to life/safety like a hospital. In other words, the seismic upgrade isn't a likely loophole due to cost.

3. More Complex Eligibility Criteria for Net-zero and Low Emissions Decarbonization Plans

Topic #5 - Replacement of equipment prior to end of life: The ordinance (SMC 22.925.100) explains that building owners qualify to pursue the net-zero decarbonization plan pathway “When building upgrades necessary to meet the GHGIT would require the replacement of HVAC heating system equipment or service hot water equipment already vested under the Seattle Energy Code by January 12, 2024 and that equipment has not yet reached a defined percentage of life expectancy. Standardized equipment life expectancy and defined percentage of life expectancy shall be established by rule.”

Research by the Lawrence Berkeley National Laboratory did not find substantial savings in cumulative emissions by requiring replacement at 65-75% of ASHRAE expected life. The data also showed a lot of equipment is already beyond 100% of expected life (using ASHRAE standards).

OSE proposes that the defined percentage for end-of-life expectancy should be standardized to 100%. OSE is considering ASHRAE standards, BOMA standards, or unit energy savings (UES) standards from Regional Technical Forum to standardize the life expectancy for equipment. The working group was asked if there are any other standards for life expectancy of equipment that OSE should consider, and also whether they support a standard of 100% of life expectancy of equipment.

Discussion: One working group member shared that Denver used ASHRAE's standard for standard equipment life but used the standard of more than 100% of useful life because many building owners keep equipment as long as it runs, rather than replacing it exactly at the recommended time. One member asked if the BEPS rule would require replacement of equipment at specific times, and OSE explained that the rule being discussed is an eligibility criteria for the decarbonization pathway. If a key piece of equipment in the building is not at its end of life (per a standard), and the only way to meet the target is to upgrade the equipment to one that will produce less emissions, the building owner can qualify for the decarbonization plan and have a different timeline for meeting emissions targets. In other words, BEPS doesn't mandate timelines for equipment replacement – it's the owner's choice to determine a compliance path for their building to lower emissions.

One attendee asked about the wording of the ordinance which specifies that this criteria only applies to HVAC heating system equipment and service hot water equipment. They provided an example of steam boilers used for commercial laundry which wouldn't typically be defined as service hot water but is fundamental to a hotel's function. OSE explained that there is also an end use deduction which could apply to that equipment through 2040, but that they will look into this further. A final comment shared that some equipment is not lasting as long as ASHRAE standards estimate to be the useful life expectancy for equipment, and they are getting closer to only 60% of the useful life of equipment. The standard may need to catch up to present day realities for equipment life, especially in some building types. OSE suggested that the Rule could require that

subsequent Rule updates reference more current EUL guidance documents, should they become available.

4. More Complex Eligibility Criteria for Net-zero and Low Emissions Decarbonization Plans:

Topics 6 & 7 - Structural or electrical capacity upgrades: Eligibility criteria for decarbonization plans for structure or electrical capacity upgrades:

Eligibility Criteria in BEPS Ordinance	Proposed Acceptable Documentation
6. NET-ZERO: When building upgrades necessary to meet the GHGIT include the installation of significant electrical infrastructure upgrades to increase electric capacity in the building, such as adding a new transformer vault.	<ul style="list-style-type: none"> • Owners required to submit audit/feasibility study • Must follow same requirements as current Seattle Energy Code (Section 503.4.6; exception 4) to define a "significant electrical infrastructure upgrade"
7. LOW EMISSIONS: When structural or electrical capacity upgrades necessary to meet net-zero emissions are infeasible due to distinct technical and/or physical limitations of the covered building.	<ul style="list-style-type: none"> • Owners required to submit audit/feasibility study demonstrating infeasibility (e.g., major space constraint in the building, roof can't handle weight) • Follow #6 above for electrical capacity

OSE explained that it was considering referencing the bullets in the SEC as potential criteria to align with SEC criteria to define significant electrical upgrades, not necessarily the SEC as a reference. They will discuss further with SDCI. Those bullets are as follows:

- a. A new utility transformer vault located in the existing building or on the site, or an enlargement of the floor area of such a vault.
- b. Trenching across the vehicle lanes of a public way.
- c. The estimated construction cost for the required electrical service enlargement exceeds 50 percent of the project valuation for the remainder of the work, as determined in accordance with the fee subtitle. Construction cost shall be documented by an AACE Level 3 or equivalent cost estimate, including required demolition, construction, site work, and utility fees.

From:

<https://www.seattle.gov/documents/Departments/SDCI/Codes/SeattleEnergyCode/2021SECChapter5.pdf> (Page 10 of PDF)

The working group was asked if anyone had experience with these situations, and if the proposed acceptable documentation seemed reasonable.

Discussion: One question from the group asked if a feasibility study would be all that is needed as acceptable documentation. OSE shared that a feasibility study may be enough to qualify for the decarbonization plan pathway, but that additional information including an energy and emissions audit is required to develop and submit a compliant

decarbonization plan. Otherwise, the working group generally agreed with the proposal and one additional comment supported aligning with what is already in the SEC.

5. Most Complicated Eligibility Criteria for Net-zero and Low Emissions Decarbonization Plans: Breakout rooms to discuss definitions

OSE introduced four final qualifying criteria and sought input into defining parts of these criteria.

Topic 8 - Non-interruptible operations in laboratory or healthcare: The ordinance (SMC 22.925.100) explains that “Extenuating circumstances for which an owner can use a decarbonization compliance plan include... when the building upgrades necessary to meet the GHGIT would require access to a laboratory, or an in-patient or emergency healthcare facility, that must maintain non-interruptible operations.”

Topic 9 - Business financial analysis can demonstrate meeting net-zero would create Financial Distress: If business financial analysis can demonstrate meeting net-zero would create Financial Distress, they can qualify instead for a low emissions decarbonization plan.

Financial Distress is defined in the ordinance as when:

- Building has had arrears of property taxes or water or wastewater charges that resulted in the building’s inclusion, within the prior two years, on a King County annual tax lien sale list;
- Building has a court-appointed receiver in control of the asset;
- Building is owned by a financial institution through default by a borrower;
- Building has been acquired by a deed in lieu of foreclosure within the previous 24 months;
- Building has a senior mortgage subject to a notice of default; or
- Other conditions determined by rule.

Topic 10 - Defining “no practicable low and/or zero GHG alternatives on market for a necessary function”: Building owners can also qualify for a decarbonization plan if no practicable low and/or zero GHG alternatives on market for a necessary function. The building owner can pursue a net-zero plan if the technology is not fully standard or widely available now but will be by 2050 or sooner. The building owner can pursue a low-emissions plan if the technology is only in R&D now, or very new/untested, and might not be standard/ widely available by 2041-2050.

Topic 11 - Defining “Net-zero infeasible in low income multifamily”: Multifamily housing can pursue a low emissions decarbonization plan if they demonstrate that net-zero is infeasible in low-income multifamily.

To support rulemaking for these criteria, the working group was put into two breakout

rooms to help define the following terms or criteria:

- Non-interruptible operations in laboratory or healthcare
- No practicable low and/or zero GHG alternatives on market for a necessary function
- How to demonstrate financial distress
- Net-zero infeasible in low income multifamily

Discussion:

Room A: Defining “non-interruptible operations in laboratory or healthcare” and defining “no practicable low and/or zero GHG alternatives on market for a necessary function”

The first room only had time to discuss definitions for non-interruptible. Working group members in this room discussed how in commercial labs, non-interruptible equipment is usually archival equipment support like cryogenic storage systems. The biggest challenge is figuring out alternative energy sources if maintenance or upgrades are needed. It can be very expensive to find alternative power sources and takes time to plan. Each situation is unique. Some things can stay on standby with generators, but sometimes not. This applies primarily to electrical process load equipment. Other loads may also be on the standby power and be impacted. Another member echoed these sentiments, saying that most services can be interrupted, it just requires extensive planning. This planning is usually part of 5-year capital planning. The time of year also matters, as spring and fall are the easiest times of year for managing the risks associated with disrupting normal lab operations or impacts to archived cold storage material.

Group members suggested some equipment outside of healthcare which may be uninterruptible, such as police precincts, 911 call centers, fire departments, and community resiliency centers. OSE explained that these would not qualify per the ordinance language, but many are public buildings and so can use the public building portfolio pathway for additional flexibility in planning.

A final concern was shared that hospital campuses as a whole cannot qualify for the decarbonization pathway (only individual buildings as the ordinance is written). A full campus, longer term approach may be the best pathway to decarbonization for these types of buildings.

Room B: Determining how to demonstrate “Financial Distress” and defining “net-zero infeasible in low income multifamily”

The second room only had time to discuss how to demonstrate that complying with the ordinance would cause financial distress. If a building owner can demonstrate this, they are eligible to use a decarbonization plan to attain low emissions by 2025, rather than being required to meet net-zero by 2050. Attendees shared some concerns about the ordinance definition of financial distress. For example, financial health is often related to

building valuations. One example was shared about electrical feasibility; based on tax records, an electrical upgrade may seem feasible. However, it could exceed the value of the building and jeopardize the future sale value of the asset. Attendees also wanted to know what “other conditions determined by rule” might encompass for the ordinance definition. Attendees were concerned about buildings which might not already be in financial distress, but may be put into financial distress by the costs of BEPS compliance – for example, if the cost of upgrades exceeds the value of the building. Financial Analysts used by brokers could be involved to determine the impact of upgrades on the property value. Fines may also impact property values. Building owners may need support to know how to incorporate fines and the cost of compliance into balance sheets for the building. Should they be included in the Broker Estimation of Value?

6. Research Update: Multifamily Normalization Factor

Topic: In the first meeting, the working group was presented with data from Pacific Northwest National Laboratory (PNNL) which analyzed existing benchmarking data to identify possible normalization factors for multifamily housing. They could not identify a statistically reliable factor for an adjustment based on unit density that worked across the multifamily buildings, but did see some difference in GHGIs of buildings flagged as subsidized low-income housing versus unsubsidized housing.

SBW conducted additional research on multifamily normalization factors. They identified differences in mean GHGI between low-, mid-, and high-rise buildings for buildings that had a mix of fuels (excluded all-electric). Results showed that mid-rise had the lowest mean GHGIs.

Mid-rise multifamily buildings may have a lower mean GHGI because:

- High rises include more luxury buildings with higher gas use (e.g., stoves, pools, fireplaces), central HVAC and DHW systems, and conveyance.
- Low rises tend to be older buildings and less energy efficient;
- Mid rises tend to be newer and more efficient

The working group was asked for feedback on this topic.

Discussion: SBW shared that they also found that the majority of low-income subsidized buildings which are not all electric tend to be mid-rise. Within this category, subsidized buildings tend to have higher GHGIs than unsubsidized, but as a category, mid-rise buildings have lower GHGIs than low- and high-rise.

One attendee expressed that this might explain why there's not a clear normalization factor for multifamily buildings. They also expressed concern that the analysis and the BEPS rules might not be appropriately taking an equity lens by considering things like housing size and suggested a separate multifamily focused conversation. Another comment said that while this is outside of their expertise, it doesn't seem fair to apply a normalization factor to a sub type of a certain building type just accounting for current

emissions without considering other variables (income, size, location, etc.). A final comment shared that it would be interesting to see the percentage of low-income buildings expressed in the table on slide 47.

Organized by:



Facilitated by:



Technical analysis by:

