

The Next Step in Building Benchmarking Policies

IS YOUR JURISDICTION ADOPTING A PERFORMANCE STANDARD? HERE'S WHAT TO DO

Calculating the cost-effectiveness of a building project doesn't end when the ribbon is cut and the last contractor truck leaves the job site. Today more than ever, conscientious owners look at the lifetime costs of a building instead of just the short-term construction outlay when choosing materials and reviewing design options. These decisions have significance for a building's long-term operation and maintenance costs.

In similar fashion, conscientious owners of older buildings strive to improve energy performance through a continuous process of benchmarking, improved operations and maintenance, energy audits and upgrades to building systems and components. All of these measures are now well-developed and accepted by a broad cross section of building owners, operators and energy professionals.

A new policy tool – the building energy performance standard (BEPS) – leverages these well-established measures and allows states and cities to address the “existing building” side of the building energy-efficiency equation in a comprehensive fashion. Here's what you need to know about building energy performance standards.

What is a Building Energy Performance Standard?

According to the Institute for Market Transformation, a BEPS “is a forward-thinking policy commitment in which a city [or other jurisdiction] establishes the long-term, high-performance standard, with interim targets that ratchet up over time. The combination of short- and long-term goals assures that building performance improves consistently over time and also sends appropriate market signals to discourage investments in long-lived, inefficient and environmentally damaging technology.”

In general, these performance standards work by setting targets based on energy use intensity (EUI) or carbon emissions intensity (i.e., energy use or carbon emissions per square foot) and requiring buildings that fail to meet these targets by a

certain date to implement a number of performance and/or prescriptive measures to lower energy use.

Another shared characteristic is the use of multiple compliance periods lasting five or six years. From one compliance period to the next, the performance standards become stricter and building owners repeat many of the same compliance steps taken during the first period if their buildings exceed the new, more stringent goals. Targets are specific to building type/use and, in many instances, the calculation methods are similar to those used under EPA's ENERGY STAR Portfolio Manager.

The ultimate goal of a BEPS is to increase building safety, resilience and energy efficiency over time in a cost-effective manner. Also, conscious of regional differences in construction, climate and energy demands, the jurisdiction adopting a BEPS can tailor the requirements to local conditions.

How Policies Drive Efficiency Improvements

In 2019, Washington State, New York City and the District of Columbia enacted BEPS policies that require building owners to address energy waste in existing buildings. While some program specifics are still being developed and each law takes a somewhat different approach, the primary intent of these initiatives is to upgrade components and improve operations in underperforming buildings.

BEPS are a natural outgrowth of energy benchmarking requirements that are increasingly popular in large urban areas. The table below provides an overview of the BEPS requirements for New York City, District of Columbia and Washington State.

In addition to the three jurisdictions listed in the table, St. Louis, Missouri adopted a BEPS ordinance in April 2020 that will require buildings larger than 50,000 square feet to meet an ENERGY STAR score of 65 (i.e., performing better than 65% of its use group peers) based on site EUI by May 2025. The action by the City of St. Louis demonstrates that BEPS policies have

broad appeal from coast to coast, including Midwest cities.

BEPS Requirements and Impacts

Since traditional energy efficiency programs for existing buildings—such as green building labeling, utility incentives and tax incentives—have had limited reach and building energy codes apply only when an alteration is already underway and are difficult to enforce, governments are looking for new ideas to incentivize better building performance. Based on initial information, BEPS may play a significant role in bringing about these changes. For instance, the Urban Green Council estimates that the NYC standards will grow the energy efficiency retrofit market from the current annual level of \$235 million to \$3 billion by 2030.

In the initial compliance periods, most buildings may not be affected and, for those that are affected, the energy efficiency improvements mandated may not be overly burdensome. But over time (i.e., in subsequent compliance periods), the requirements become more stringent in support of jurisdictions' overall climate goals. For instance, the NYC emissions limits become much stricter (in the range of 40-60%) between the first and second compliance periods. Such a large increase in stringency has not yet been proposed for Washington State and the District of Columbia, but the overall intent is certainly aligned with the NYC policy.

Roof Replacements: A BEPS Compliance Option

For most buildings, the roof is the largest single surface area and can account for 25% of a building's heat loss. Since roofs are replaced approximately every 15-25 years, it is especially important for building owners to take advantage of roof replacement projects to improve energy efficiency by adding insulative power with products like polyiso insulation. The increased thermal performance from investments in polyiso insulation can result in significant



Building Energy Performance Standards: Three Locations

	New York City	District of Columbia	Washington State
Scope	Commercial and multifamily buildings 25,000 SF and larger.	Commercial and multifamily buildings 10,000 SF and larger.	Commercial buildings larger than 50,000 SF, but not multifamily.
Targets	Annual CO ₂ (equivalent) emissions/SF. Initial targets set in ordinance. For example, targets for office buildings are: 8.46 kg/SF in 2024-2029; and 4.53 kg/SF in 2030-2034.	Annual <u>Source</u> kBtu/SF ≥ District of Columbia's <u>Median EUI</u> . Initial targets set by Jan. 1, 2021 and revised every 5 or 6 years.	Annual <u>Site</u> kBtu/SF ≥ <u>Mean EUI</u> . Department can set stricter standard for recent vintage buildings. Initial standards set by Nov. 1, 2020 and revised in 2029 and every 5 years
Compliance Deadlines	First deadline for meeting CO ₂ emissions level is May 2025 (effecting about 25% of covered buildings). Annual measurement and reporting required thereafter. Emission limits become stricter in 2030 (effecting 75% of covered buildings) and again in 2035.	First deadline for meeting EUI target depends on building size. The compliance deadlines (and compliance periods) are: 50,000 SF and larger: January 2026 (2021-2025 period). 25,000-49,999 SF: January 2028 (2023-2027 period). 10,000-24,999 SF: January 2030 (2025-2029 period).	First deadline for meeting EUI target based on building size: 2026: Greater than 220,000 SF 2027: 90,001 to 220,000 SF 2028: 50,001 to 90,000 SF Measurement and reporting on compliance with BEPS required every 5 years thereafter. Voluntary compliance in 2021-2026 with strong financial incentives.
Compliance Options & Exceptions	<ul style="list-style-type: none"> • Meet emission target; or • One of the following: High emitters (2018 emissions 40% or more above initial emissions target) can achieve compliance by reducing emissions 30% below 2018 levels (and 50% starting in 2030); Not-for-profit hospitals and healthcare facilities are held to a smaller percentage reduction; Public and rent controlled housing and houses of worship can comply with simple list of prescriptive measures. 	<ul style="list-style-type: none"> • Meet EUI target; • 20% reduction in site EUI; • Implement from list of efficiency measures that equal 20% reduction in site EUI; or • Other options to be determined, such as case-by-case application that takes into consideration unique building challenges; and a "deep retrofit" option that would provide compliance over multiple compliance periods. 	<ul style="list-style-type: none"> • Meet EUI target; or • Implement the following: <ul style="list-style-type: none"> • Level 2 & 3 energy audit; • Begin implementing measures identified in audit that are life-cycle cost effective and necessary to meet EUI targets using <i>ASHRAE Standard 211</i>; and • Implement an O&M program
Penalties	Annual penalty = \$268/metric ton of CO ₂ emitted over targets. Penalties of non-reporting as well.	To be determined.	Annual penalties of up to \$5,000 + \$1/SF


energy savings and can serve as effective compliance strategy for BEPS requirements now or in the future.

This is one of the reasons that roof replacements that incorporate insulation like polyiso have become such a popular retrofit. In addition to serving as a compliance strategy, building envelope improvements offer a wide range of benefits, including reduced heating and cooling loads that can allow building owners to reduce the size of HVAC systems, leading to further energy savings.

My Jurisdiction Adopted a BEPS. Now What?

The requirements of a BEPS may seem daunting at first glance; however, effective planning on the part of a building owner can align compliance with a building's normal maintenance and replacement cycle. Owners that operate buildings in a jurisdiction with a BEPS should consider the following:

1. A BEPS does not create one-time requirements; the standards serve as a mechanism to encourage long-term planning and execution of improvements over time to achieve the goal of net-zero energy.
2. Review the BEPS compliance periods to determine how the stringency of the requirements increase over time. This timeline should be compared and aligned with the owner's capital improvement schedule to ensure planned maintenance or component replacement projects maximize energy savings.
3. Don't overlook projects like roof replacements that can improve building energy efficiency performance today and minimize compliance difficulty in the future. Even if a building is not currently subject to BEPS requirements, completing an energy-efficient roof replacement project will lower building energy use, making future compliance more achievable (and less expensive).

Keep in mind that since 2018 businesses have been allowed to expense the full cost of replacing non-residential roofs and HVAC equipment instead of depreciating those costs as a capital expenditure over 39 years. This deduction, allowed under section 179 of the Internal Revenue Code for purchases of "qualified property," is capped at \$1.04 million in 2020 (indexed to inflation) and begins to phase out if the annual cost of section 179 property exceed \$2.59 million (indexed to inflation). The ability to deduct these costs in the first year vs. depreciating them over 39 years significantly reduces their true cost and makes additional financial resources available when it really counts – when energy efficiency measures are being implemented. 

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