Split Systems: Coordinating Energy Policies for New and Existing Buildings

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This brief provides case studies and recommendations to help states and cities improve coordination between energy codes for new construction and building performance standards (BPS) requiring upgrades in existing buildings.

While achieving full alignment between BPS and energy codes will be an ongoing process, key recommendations of policy integration include:

- Strong energy codes are essential. Energy code requirements—both performance-based and prescriptive—should ensure that new buildings are designed to anticipate BPS performance requirements in future compliance cycles without costly retrofits early in the building's operational life.
- Energy codes and BPS should use consistent performance metrics. If this is not possible, policy implementers and partners may need to develop resources to translate energy code performance metrics to those used to demonstrate BPS compliance.
- The different local—and, where applicable, state—agencies responsible for energy code and BPS compliance and enforcement should be coordinated to avoid duplication of efforts and to provide clear guidelines for buildings as they transition from "new construction" to an "existing building."
- Compliance timelines, code updates, and BPS targets must be informed by operational data and building performance modeling to ensure achievable and cost-effective implementation.

For decades, energy codes have been the primary approach used by states and local jurisdictions across the U.S. to drive energy efficiency in buildings while lowering costs for consumers. However, energy codes apply primarily to new buildings and major renovations, overlooking substantial opportunities to improve the energy performance of existing buildings. In recent years, building performance standards (BPS) have emerged to fill that gap, first at the local level (e.g., Washington, DC, and New York City) and more recently at the state level (e.g., Washington and Colorado). When policies are aligned, energy codes establish efficiency standards that set buildings up for long-term success, while BPS aim for improved performance for buildings of all types and ages.

If implementation of energy codes and BPS is not coordinated, however, it presents potential problems for both individual buildings and the collective goals of the policies. The disconnect is that as soon as a new building is occupied, it becomes an existing building, potentially subject to a BPS, which may lead to unforeseen compliance challenges (Institute for Market Transformation 2024a). For instance, a building owner with a code-compliant property may discover that their building will not meet BPS requirements in just a few years.

How does this happen? There are two primary overall drivers for this disconnect:

Fundamental differences between the two policies: Energy codes typically set efficiency standards for new construction based on specific heating, cooling, and water-heating systems, building envelopes, and other energy-impacting design decisions. By contrast, a BPS sets whole-building performance requirements. The resulting differences in metrics and compliance requirements are outlined in table 1.

Separate implementation processes: The two policies are often siloed, with different performance metrics, governing authorities, compliance pathways, and enforcement structures. This separation has led to misalignment in objectives, requirements, and oversight, as well as insufficient guidance on how newly designed buildings could best meet BPS performance levels. The different agencies responsible for implementation of each policy are not generally coordinated.

The following table outlines key differences between energy codes and BPS, highlighting the challenges stakeholders face when navigating these policies.

Table 1. Key differences between codes and BPS

	Codes	BPS
Goal	Ensure a baseline standard for energy-efficient design and construction	Reduce energy usage and/or emissions from existing buildings
Covered buildings	New construction, additions, major renovations; some provisions for existing building alterations	Existing buildings meeting parameters specified in the policy (e.g., square footage and building type)
Scope	Governs design and construction standards, pre-occupancy; enforcement ends with certificate of occupancy Emphasizes cost-effective increases in energy efficiency.	Whole-building performance, post-occupancy; compliance evaluated periodically throughout a building's lifetime Emphasizes whole-building energy usage and greenhouse gas reductions.
Development and adoption	Developed primarily at the national level; adoption (often with amendments) is at the state and/or local level	Development and adoption are typically local (though based on increasingly standardized models); state-level BPS have more recently been adopted
Compliance verification	Permit drawing/specification review and/or energy model review, and periodic inspections during construction	Based on actual utility meter data
Compliance responsibility	Design and construction teams	Building owners

Metrics	***Prescriptive path***: Specific requirements for individual systems and equipment. ***Performance path:*** Simulated whole-building energy performance compared to a prescriptive path-compliant baseline. Typically based on energy costs.	Whole-building performance. Most BPS set a maximum site energy usage (EUI); others set a limit on energy-related greenhouse gas emissions (GHGI).
Target updates	Every 3 years (development cycle)	Every 4–6 years (compliance cycle)
Enforcement responsibility	Building departments; sometimes utilizing third-party reviewers, inspectors and/or raters	Energy, sustainability, or other City department (typically separate from buildings department)
Penalties for non-compliance	Delayed/denied permit, fines or fees, required corrections, potential legal action	Fines based on how far the building exceeds the energy/GHG limit, public disclosure of non-compliance

The goal of alignment should be to build more energy-efficient buildings from the start while supporting continuous improvement in existing buildings. It is likely not feasible to bring the entire existing building stock fully up to new construction standards; however, orienting energy code implementation toward performance requirements over a building's lifetime will prepare it to meet achievable standards set by the BPS that increase in stringency over time. This should not be limited to new buildings alone: efforts should be made to identify opportunities to enhance existing building provisions in energy codes such that higher levels of efficiency are achieved during alterations when upgrades are generally far more economical than as later standalone projects.

The Disconnect: Why Coordinating Policies Is Challenging

We have outlined the overarching need for coordination between energy codes and BPS. However, as jurisdictions begin to implement BPS, designers, building owners, policymakers, and others are identifying particular challenges:

Energy codes and building performance standards may use different performance metrics

Codes and BPS that evaluate building performance based on different criteria can make it difficult to comply with both policies. This can undermine policy goals by making implementation complex, confusing, and potentially costly.

Energy codes typically evaluate energy efficiency based on the cost-effectiveness of measures incorporated into the code during each update cycle. They generally set prescriptive requirements for individual systems (e.g., insulation levels and lighting power densities); the most recent model energy codes have also introduced "energy credits" systems, which allow projects to choose from a menu of measures to achieve greater levels of efficiency. The energy codes then allow for performance-based compliance pathways that compare modeled whole-building energy cost to a baseline.

In comparison, BPS compliance is based on actual measured whole-building operational performance, using metrics such as energy use intensity (EUI) and greenhouse gas intensity (GHGI), which rely on energy meter data and emissions associated with the electricity and fuel supplies rather than models or component- or system-level performance.

Buildings designed to comply with a cost-based energy code may not necessarily meet the operational metrics of a BPS. An energy code based on energy cost is designed to be fuel-neutral and does not distinguish between fuel sources or systems based on site energy use or carbon intensity. In contrast, a BPS that limits EUI or GHGI—though not directly regulating fuel type—may incentivize a shift to high-efficiency electric space- and water-heating systems (e.g., heat pumps) over fossil fuel-fired systems. As a result, a code-compliant building design that uses gas for heating may struggle to comply with a BPS. On the other hand, a building replacing gas heating with electric heating to prioritize EUI or GHGI goals may reduce on-site emissions and comply with the BPS but fail to comply with some energy codes' cost-based performance path due to higher operating costs.[1]

A lack of feedback between energy codes and BPS leads to misaligned performance targets and missed opportunities for improved building performance

Energy codes establish design-based efficiency standards, but the actual energy performance of code-compliant buildings can vary significantly, particularly when following the prescriptive path. Research from the Pacific Northwest National Laboratory (PNNL) has shown that buildings following this path can have as much as 60% variation in EUI, depending on design choices (Rosenberg et al. 2024). This unpredictability makes it challenging to predict whether code-compliant buildings will meet BPS targets.

One reason for this wide variation is that energy codes do not consistently incorporate all factors that drive real-world performance. In addition to the differences among energy costs, site energy, and emissions discussed above, energy codes typically do not account for operational factors impacting performance, such as occupant behavior, unregulated plug loads, and HVAC sizing (Rosenberg et al. 2024). Lastly, performance data collected through benchmarking, audits, and BPS are not consistently used to inform future code development. While data privacy needs to be protected, this data could identify and support future cost-effective energy code updates.

BPS targets, on the other hand, are often set without considering the expected outcomes for buildings designed to meet energy code. Without sufficient guidance as to how variation in energy code-compliant performance could translate to actual building performance, buildings could see avoidable and costly upgrades early in their operational life. Conversely, an overcorrection to address this potential issue could result in BPS targets that are too lenient, failing to drive progress toward performance goals and limiting policy impact. Coordinated feedback between energy codes and BPS—using consistent metrics, integrating operational performance, and leveraging actual performance data to inform both policies—is critical to effective implementation.

Cities with older or outdated codes are likely to struggle to bridge the gap

If a BPS is not phased in alongside a historically strong energy code, it may face significant problems. This is particularly challenging for cities with ambitious energy efficiency goals that surpass state-adopted energy code, especially if BPS targets do not ramp up gradually as codes improve. A weak building code combined with a strict BPS means that even newly constructed buildings may not be able to meet performance standards, making long-term compliance more difficult and costly. St. Louis, for example, has set high performance targets for its BPS that may not align with minimum code

[1] While IECC and ASHRAE 90.1 default to energy cost in their performance paths, they allow jurisdictions to substitute site energy instead. ASHRAE also allows for the use of emissions. However, even when jurisdictions opt to use these alternative metrics, the grid emissions factors used for compliance models may not align with those used for a BPS. In all cases, the same models can be used to compute whole-building energy costs, site energy, or emissions.

requirements, meaning newly constructed buildings may face costly upgrades within a few years of occupancy.

Jurisdictions undergoing a lot of new development risk widening the gap between code and BPS if their energy codes do not keep pace with new construction. If a city fails to update its codes regularly, it not only misses out on potential energy savings but increases the likelihood of new buildings falling short of BPS targets.

Codes and BPS have separate local compliance and enforcement structures, creating disconnects in oversight and accountability

Energy codes are implemented and enforced by local building departments, which verify code compliance through plan reviews and inspections (and sometimes through third parties). However, the responsibility of meeting the standards falls primary on the design and construction teams, and once the building is occupied, the role of the design, construction, and enforcement teams ends.

In contrast, BPS compliance is overseen by a separate agency, often the energy or sustainability department, with compliance sometimes verified through third-party providers. Unlike energy codes, BPS compliance is an ongoing responsibility, requiring building owners to submit regular reports based on metered utility data to demonstrate performance.

Additionally, energy codes and BPS compliance cycles are often out of sync, further compounding alignment challenges. BPS targets may change while a building is still undergoing design and construction, creating uncertainty and leading to potential compliance challenges.

This division of responsibilities means that policies impacting the same building may be overseen and enforced by separate entities, many times with different priorities, processes, and timelines. Without alignment at the local level, jurisdictions risk introducing challenges such as conflicting requirements, gaps in accountability, and a lack of clarity around requirements and compliance pathways, making it more difficult to ensure that new buildings are designed for long-term BPS compliance.

Conflicts between state and local authority can create challenges for aligning codes and BPS

The energy code relationship between a state and its local jurisdictions can vary significantly across the United States. “Home rule” states do not have statewide building codes; energy codes are adopted and enforced at the local level. “Mandatory minimum” states have statewide energy codes, but local jurisdictions can adopt amendments that improve energy efficiency. “Min/max” states have statewide energy codes that must be enforced at the local level without modification.

In states where local jurisdictions are restricted from adopting more stringent energy codes—and where project teams do not use proven energy-efficient practices that go beyond minimum state requirements—cities may face further challenges implementing a BPS. Without the option to strengthen local codes to help bridge this compliance gap, cities may need to look for alternative policy mechanisms—such as zoning measures, ordinances, and supplemental requirements—and provide educational, financial, or other resources for stakeholders.

Navigating Challenges: Insights from Three Case Studies

The potential challenges described above may materialize in varying ways in any jurisdiction with a BPS. Here we look at three select cases that highlight the combination of challenges a locality might face, as well as how effective policy implementation can overcome them.[2]

A Built-In Disconnect: Atlanta, GA

Atlanta is a fast-growing city experiencing a surge in development, yet its energy codes have not kept pace with regular revisions to the model code. The city's current energy code, adopted in 2020, is based on the 2015 International Energy Conservation Code (IECC), with amendments that make its commercial building requirements at least as strong as ASHRAE 90.1-2016. While Georgia is a "mandatory minimum" state, where local jurisdictions have the authority to adopt codes that are more stringent than the statewide energy code, Atlanta remains three model code cycles behind the IECC.

Atlanta does not have a BPS, but it has adopted policies, such as the 2015 Climate Action Plan, and the 2024 Priority Climate Action Plan, that identify immediate, high-impact measures to reduce greenhouse gas emissions (Atlanta Regional Commission 2024a). Atlanta also introduced the Atlanta Commercial Buildings Energy Efficiency Ordinance in 2015, requiring benchmarking for all commercial and multifamily buildings over 25,000 sq. ft., coupled with requirements for periodic auditing and retrocommissioning. Because Atlanta has adopted policies that often serve as precursors to BPS development but has not yet begun developing a BPS, it serves as a useful case study for the challenges and opportunities other jurisdictions may face when implementing these policies.

Atlanta's continued growth presents a clear need to align its energy codes with a future BPS should it develop one. The city has significant plans for commercial development in the coming decade, especially in the multifamily sector. The Atlanta Regional Commission (2024b) estimates the city will need to add over 294,000 new units and update over 40,000 existing units to meet the demand of the expected population growth.

Though buildings built under the current code will be more efficient than those built prior to 2020, they are still projected to use approximately 14% more site energy and produce over 10% more greenhouse gas emissions compared to buildings built to 2021 IECC standards (International Code Council 2020; International Code Council 2022). The 2024 IECC is expected to push efficiency gains even further (International Code Council 2022). If Atlanta's development continues to outpace energy code updates, the gap between construction standards and the more stringent standards required for a BPS will widen.

Coordinating across multiple agencies and stakeholders is another challenge for Atlanta. Alignment between the energy code and BPS will require coordination between Atlanta's Office of Buildings and the Mayor's Office of Sustainability, as well as other local agencies involved in the compliance and enforcement of energy code and a potential BPS. Additionally, because Atlanta's building policies may differ from those of surrounding areas, builders and designers working across Atlanta's city lines may need to navigate different sets of standards, adding to confusion and costs. Education and coordination among local agencies and stakeholders are critical to avoiding these potential obstacles. Creating

[2] These case studies primarily reference commercial building energy codes that apply to all buildings other than residential buildings three stories or less; most buildings covered by a BPS will therefore fall under the commercial code. While specific referenced codes may be different for low-rise residential buildings, this does not affect our overall findings presented here.

processes early on to facilitate this coordination will ensure more efficient and effective policy implementation.

Despite these challenges, Atlanta has a window of opportunity to prepare for alignment between codes and BPS if it develops a policy during this period of growth. Strategic planning and proactive energy code updates can help the city prepare while ensuring that the buildings constructed today are able to meet the goals of the future.

From Disconnect to Conflict: St. Louis, MO

Many of St. Louis's buildings were built before 1980, predating modern energy codes, making energy efficiency improvements in buildings a critical component of the city's goal to reduce greenhouse gas emissions by 80% by 2050 (City of St. Louis 2013).

Missouri does not have a statewide energy code, but St. Louis independently adopted the 2018 IECC, with amendments, in 2018 (City of St. Louis n.d.-a), a positive step toward advancing energy efficiency in new construction. To address existing buildings, the city adopted a BPS, the St. Louis Building Energy Performance Standards in 2021 (City of St. Louis n.d.-b). The policy covers commercial, multifamily, institutional, and municipal buildings over 50,000 sq. ft. and sets EUI targets at the 35th percentile of performance for each property type based on benchmarking data submitted between 2017 and 2018 (Building Energy Exchange St. Louis 2025).

St. Louis must now navigate the challenges of aligning new construction standards with BPS requirements for existing buildings, likely with a particular focus on multifamily buildings.

St. Louis saw an increase in its benchmarking reporting compliance rate, rising from 45% in 2018 to 91% in 2022 (Duer-Balkind et al. 2024). Unfortunately, this means that a large portion of the city's buildings were not included in the 2018 benchmarking baseline. As a result, a substantial amount of data was missing when establishing the BPS targets.

The newer data show that later-reporting buildings were lower-performing, a trend consistent with data from other cities, where early adopters tend to be higher-performing than average (Duer-Balkind et al. 2024). As a result, St. Louis's BPS targets are based on its highest-performing buildings and may not reflect what typical buildings can realistically achieve. While BPS should drive improvement, they must also be feasible, particularly in early compliance cycles. Basing the targets on data that better represent the full range of the building stock supports a more sustainable BPS policy.

As in Atlanta, St. Louis's energy code lags behind the model codes. While adopting the 2018 IECC is a step forward, it does not ensure that new buildings are prepared to meet the future BPS requirements. According to recent studies, the stringency of the city's code may fall short of the BPS targets for some building types (see table 2) (Boyce et al. 2022). As a result, even new, code-compliant buildings may not be energy efficient enough to meet the BPS, especially as targets become more stringent over time.

Table 2. Comparison of St. Louis code to BPS targets (site EUI)

Building type	Subtype	2018 IECC	St. Louis BPS target
Education	Primary	48.8	63.5
	Secondary	40.2	63.5
Healthcare	Outpatient	115.7	105.9
	Hospital	124.3	259.9
Lodging	Large hotel	85.4	89.4
Multifamily	Mid-rise	43	42.5
	High-rise	46.6	42.5
Office	Large	67.9	71.7
Retail	Stand-alone	40.9	79.3
	Strip mall	51.5	101.1
Warehouse	Non-refrigerated	14.4	17.6

Code is within 5 points of BPS target

Code exceeds BPS target

Source: Boyce et al. 2022

Based on this comparison, multifamily buildings are a significant area of concern, as their maximum EUI under energy code exceeds the BPS target, indicating weaker energy performance. Office and retail are also problematic because they make up a large share of new development by square footage (Boyce et al. 2022). Even building types that fall within range of the targets face uncertainty, since PNNL's data show up to 60% variation in energy use outcomes among new code-compliant buildings. Moreover, new buildings that do meet the BPS in the first cycle will likely need to make improvements to stay compliant in the second cycle. Compounding all of this, code updates have been less frequent than BPS compliance cycles will be, so this compliance gap could widen over time if energy code updates do not keep pace with the increasing stringency of the BPS.

To bridge the compliance gap between energy codes and the BPS, St. Louis offers alternative compliance pathways that focus on actual performance improvements (rather than more administrative options like fees or extended deadlines). For example, the "Narrow the Gap" pathway allows buildings to catch up by reducing their EUI to halfway between their 2018 baseline and their BPS target (Building Energy Exchange St. Louis 2025). This option is limited to the first two compliance cycles to help buildings transition to full compliance.

To further align with BPS targets long term, the city can use new benchmarking data, audits, energy modeling based on current and future codes, and data from similar jurisdictions to reevaluate and adjust targets, ramping up to the more aggressive targets over time.

When Policies Align: Seattle, WA

Seattle's building stock includes a range of commercial and residential building types and vintages. While development has slowed in recent years, a proposal to add 330,000 new housing units by 2044 will require significant new construction over the next 20 years (Seattle City Council 2025). Washington is a mandatory minimum state, and Seattle has historically prioritized energy efficiency through local policy and the adoption of strong codes. The city's 2013 Climate Action Plan (CAP) commits to achieving net zero emissions by 2050 across all sectors, including buildings (Seattle 2013). In 2021, Seattle adopted the 2018 Seattle Energy Code (SEC), estimated to improve energy efficiency by 5% compared to the previous code (Hart et al. 2018). In 2024, the 2021 SEC was introduced, further increasing energy efficiency by more than 10% (International Code Council 2022).

Seattle began benchmarking its largest buildings in 2012 with the Seattle Energy Benchmarking and Reporting Ordinance. In 2023, the Building Emissions Performance Standard—Seattle's BPS—was signed into law. Its first compliance deadline is in 2031. Greenhouse gas intensity (GHGI) targets were established based on benchmarking data from 2019 (City of Seattle 2023). The city's buildings are also required to comply with the Washington State Building Performance Standard (WA BPS), which was signed into law in 2023. The EUI targets for the WA BPS for each building type have been set to approximately the 60th percentile of benchmarked energy use for that building type (Jonlin 2024).

These three energy efficiency policies have key differences that may need to be reconciled, beginning with their metrics—Seattle's BPS is based on GHG emissions, while both the WA BPS and the SEC use EUI. Just as significant is the timing: Washington State's BPS takes effect much earlier, with compliance beginning in 2026. Seattle's BPS compliance doesn't start until 2031—five years later. Both policies phase in compliance deadlines by building size, from largest to smallest, but on different schedules: Washington over three years and Seattle's over five.

By 2031, Seattle's BPS aims to reduce emissions from its largest buildings by 27% compared to a 2008 baseline (Harrell, B. 2023). With the deadline still far off, it is too early to assess how Seattle's energy code will align with Seattle's BPS in the first cycle. The energy code does not directly regulate emissions, and benchmarking data on building emissions are still being reported. However, the policies already in place, including recent code updates, will play a significant role in driving emissions reductions.

Seattle's Climate Action Plan established a broad goal to reduce building-sector emissions by 39% by 2030 (City of Seattle 2025). To support this, the city adopted the 2021 SEC, which is more stringent than both the 2018 SEC and the 2021 WA State Code, improving energy efficiency by an estimated 5–10% (Boileau 2023). The updated code includes provisions for metering, plug load controls, and performance-based metrics that support BPS alignment. It also introduced energy use requirements that are difficult to meet without efficient electric equipment like heat pumps, building upon the 2018 SEC which discouraged fossil fuel without mandating electrification.

More clarity is expected after the first Seattle BPS reporting deadline in 2027, though the city's emphasis on electrification and low-carbon electricity supply suggests that Seattle is on the right track to meet emissions goals.

The WA BPS, however, has an earlier compliance deadline and uses EUI as its performance metric. It is therefore possible to assess how Seattle's buildings might perform against the state BPS. As shown in table 3, buildings built under the 2018 SEC are already projected to meet or exceed many of the WA BPS targets. Buildings built under later codes are expected to perform yet more efficiently. According to benchmarking data, some existing high-performance buildings are even outperforming code minimum and CAP targets. For example, sample mid-rise multifamily buildings have EUIs of 17 and 19, compared to a 2030 CAP target of 20 (Jonlin 2023).

Table 3. Comparison of EUIs

Building type	2018 SEC (est[3])	2021 SEC (est)	Existing high-performing Seattle buildings[4]	2030 Seattle CAP target	WA BPS target
High-rise office	38	34	37	28	63–69
Mid-rise office	34	31	16, 21	22	63–69
Mid-rise multifamily	32	29	17, 19	20	32
Elementary school	28	25	16, 18–20	19	49
Warehouse, conditioned	18	16	--	12	36

Sources: 2018 SEC EUI estimates, high-performing Seattle buildings, and 2030 CAP target EUIs: Jonlin 2023; 2021 SEC EUI estimates (10% improvement over 2018): Boileau 2023; 2030 WA BPS Targets: Washington State Department of Commerce 2022

While these benchmarking data suggest the CAP targets are feasible, meeting them is not guaranteed. Seattle appears to be in a strong position to bridge the gap between code-compliance and BPS-compliance, but implementation challenges remain. The 2030 CAP sets targets for new construction, and while future code updates will support meeting these goals, achieving them across the existing buildings stock will require robust support.

Seattle had several advantages when developing its BPS. The city benefits from energy efficiency-focused state and local governments, access to clean, affordable electricity to support electrification efforts, a relatively efficient building stock, and the ability to adopt codes that exceed Washington's already strong state code. These factors put Seattle in a favorable position to align its energy code and BPS. However, it wasn't all luck; Seattle took deliberate steps to bridge the gap between the SEC and the city's BPS.

Seattle consistently updates its energy code, keeping pace with the IECC cycle but amending the model code to improve efficiency, support electrification, and advance the city's emissions goals. The city's energy policies work together, with the Energy Benchmarking Ordinance establishing a foundation for performance-based compliance. The city uses benchmarking data to set BPS targets, refine future policy updates, define compliance pathways, and develop targeted assistance for buildings that need the most support, helping to bridge the gaps between code compliance and operational performance.

Furthermore, Seattle's Office of Sustainability and Environment, which administers the BPS, collaborates closely with the Seattle Department of Construction and Inspections, which oversees energy code compliance. Such coordination can streamline compliance, avoid redundancy, and coordinate guidance and support for stakeholders.

Finally, Seattle recognizes that buildings have unique characteristics, such as age, occupancy type, and system types, that may require tailored approaches to meet energy performance standards. To support all buildings, the city developed custom metrics and compliance pathways to ensure effective and equitable compliance (Institute for Market Transformation 2021). For example, the Seattle BPS sets

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[3] Estimated based on limited benchmarking data (D. Jonlin, energy code and energy conservation advisor, City of Seattle Department of Construction and Inspections, pers. comm., March 13, 2025)

[4] Sample of Seattle's highest-performing buildings based on benchmarking data (D. Jonlin, energy code and energy conservation advisor, City of Seattle Department of Construction and Inspections, pers. comm., March 13, 2025, March 13, 2025)

different targets based on vintage, recognizing that weakening targets for new buildings to align with those of older buildings limits potential energy performance improvements in newer construction. (Boyce et al. 2022).

Strategies for Alignment: How States and Cities Can Bridge the Gap

To effectively implement and align codes and BPS in a way that delivers cost-effective, energy-efficient buildings, states and cities need a bidirectional feedback loop that connects policy intent with operational outcomes. While additional guidance and resources are still needed—an effort we have been co-leading with the Institute for Market Transformation (IMT) under the ACEEE-led National Energy Codes Collaborative—this section outlines a framework that can support robust policy implementation and promote continuous improvements in building energy performance.

While consistent challenges have emerged, strategies will vary based on local authority and conditions unique to each jurisdiction. A jurisdiction's challenges may be technical or may arise from a lack of coordination between the distinct agencies responsible for each policy. Overcoming these issues will require solutions that account for these differences, as well as overall strategies that integrate the two policies. In some cases, coordination may need to extend beyond the city itself; for example, a city with a BPS in a "min/max" state where local government cannot modify the statewide energy code may need to work with state-level agencies or pursue other policies to improve the energy performance of new construction.

The following subsections examine alignment from multiple perspectives. Since the earliest BPS policies are still in their first enforcement periods, new challenges and strategies will continue to emerge. However, these early experiences can offer important insights to help guide future efforts. These recommendations are intended to support policymakers, program implementers, and other stakeholders as they navigate alignment between policies.

Aligning Codes to BPS

Strengthening energy codes is a key step toward ensuring long-term building performance. To support alignment with BPS, codes should incorporate provisions for new construction, major renovations, and ongoing performance that strengthen the link between design intent and operational outcomes.

Regularly update energy codes at the state or local level to reduce energy usage and emissions in new buildings, including establishing a regular cycle of code updates aligned with model energy codes.

Incorporate strengthening amendments for new construction such as better thermal envelopes and more optional energy efficiency credits to exceed the base prescriptive requirements. Consider requiring new buildings to meet performance targets and/or demonstrate future compliance with the BPS as part of the energy code compliance process.

Support ongoing performance by requiring commissioning, post-occupancy energy monitoring, and an operations and maintenance (O&M) plan that includes post-occupancy equipment evaluation.

Revise existing building provisions so that alterations and additions trigger more comprehensive energy upgrades, helping buildings meet future BPS requirements through planned capital improvements. For major renovations, consider an "outcome-based code" approach or encourage the use of high-efficiency, low-emissions systems by setting performance targets that reflect differences in energy use between available HVAC replacement options (NEEP 2023).

Aligning BPS to Codes

To ensure all buildings—new and existing—can consistently meet performance targets without costly or unnecessary retrofits, BPS policies must align with local energy codes through coordinated metrics, processes, and compliance pathways. The following strategies support near-term implementation while driving continuous improvement through progressively more stringent standards.

Establish BPS metrics and initial targets that reflect the performance levels of local energy codes. Setting early performance targets that buildings designed to meet the current code can reasonably meet ensures feasibility in the first compliance cycle. Refining targets using local building data and performance projections for future energy codes keeps them achievable while maintaining flexibility to increase stringency over time.

Coordinate BPS target updates with energy code cycles. Advancing BPS targets alongside energy code updates keeps BPS targets ambitious yet attainable as the baseline for new construction improves. Intentional coordination ensures BPS targets become more stringent over time without outpacing what newly constructed buildings can reasonably achieve.

Engage with code officials and code developers during BPS development. Collaborating with those involved in writing and enforcing codes ensures that BPS targets are technically feasible and compatible with code requirements, helping to coordinate compliance tools, processes, and training.

Prioritize BPS compliance pathways that bridge the gap between older and newer codes. In jurisdictions with historically weak or outdated codes, BPS policies can help buildings catch up with current standards by promoting performance-based compliance pathways that drive real energy and emissions reductions—unlike administrative workarounds like fees or carbon trading which do not improve building performance (Duer-Balkind et al. 2024).

Ongoing Bidirectional Alignment

Actions within the individual silos of energy codes and BPS are likely insufficient to ensure successful BPS compliance. Two-way coordination between the responsible agencies is essential to integrate implementation across new and existing building policies.

Improve coordination across policies and agencies. Strengthen collaboration between the authorities responsible for energy codes and BPS to streamline implementation and ensure a smooth transition from construction to building operation. This is especially important in jurisdictions where energy code and BPS authorities are separate, and in those where local governments have code adoption authority and therefore greater ability to facilitate alignment.

Support a streamlined compliance process. Use a shared reporting system, standardized guidance documents, and clearly defined authority throughout design, construction, and occupancy—especially at transition points where oversight responsibilities shift. Joint training and coordinated deadlines can help prevent administrative bottlenecks.

Extend code oversight beyond construction. Create a smoother transition from codes to BPS by extending code compliance and enforcement into post-occupancy. Create a period of overlapping compliance with BPS by evaluating code compliance based on actual performance and incorporating occupant behavior and O&M into code enforcement (Boyce et al. 2022).

Create a feedback loop between BPS and codes. Use data from code compliance, benchmarking, and BPS outcomes to identify gaps and inform continuous improvement of both policies through code amendments and BPS updates.

Promote energy performance improvements between policy deadlines. Encourage energy upgrades throughout a building's lifecycle—not just when mandated by the code or BPS—by using non-construction related events such as refinancing, changes in occupancy, and property sales to trigger energy performance improvements (NEEP 2023).

Improve education and communication. Ensure all stakeholders—building owners, design professionals, code officials, and policymakers—understand the relationship between codes and BPS. Develop training and guidance resources to support long-term building performance improvements in a landscape of evolving policy requirements.

Conclusions

Coordinating energy code and BPS development and implementation will likely be necessary to achieve state and local climate goals while avoiding costly upgrades for building owners early in a new building's life. This topic brief provides an overview of potential barriers and an outline of an integrated approach in which energy codes prepare buildings for future BPS compliance and a feedback loop informs the ongoing development of both codes and BPS. Aligned performance levels and collaboration between the agencies responsible for implementing codes and BPS will help streamline compliance processes.

The three case studies presented here underscore potential challenges if there is a gap between energy codes and BPS, as well as strategies to overcome these challenges. Ultimately, strategic collaboration and ongoing policy updates that coordinate resources and goals between codes and BPS will enable cities to adapt to future needs. By ensuring that new buildings are prepared for the future while upgrading the existing building stock, cities can cultivate a more energy-efficient, resilient, and economically stable built environment.

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