A Building Performance Strategy for California

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ABSTRACT

For more than 50 years, California has successfully developed and implemented energy and environmental policies that lead the nation and the world. California has set ambitious 2045 goals for buildings to be net-zero carbon and for all the state's electricity to come from renewable and zero-carbon resources. Today, residential and commercial buildings in California consume more than 70 percent of the total electricity and more than 50 percent of the total gas used in the state, generating over 25 percent of the state's greenhouse gas emissions. Because of this, California cannot achieve its ambitious midcentury goals without addressing building performance and ensuring affordable energy services. This paper draws on lessons learned from building performance policies around the country, analyzes how policy approaches align with California's existing goals, and recommends how a building performance standard (BPS) could be adapted to help the state achieve its goals at least cost. The authors find that by promoting clear and achievable long term building performance targets through a flexible BPS, California could encourage cost effective and proactive investments in energy efficiency, building electrification, and load flexibility to support state goals.

Introduction

California has already set an ambitious target for all the state's electricity to come from renewable and zero-carbon resources by 2045 and has met or surpassed all previous renewable energy generation goals (CEC 2026b). The California Climate Crisis Act, passed by the Legislature in 2022, declares the state's goal to achieve and maintain net-zero greenhouse gas (GHG) emissions no later than 2045, and to achieve and maintain net negative greenhouse gas emissions thereafter (HSC 38562.2). Reducing emissions from the existing building stock in California is critical to meeting the state's long-term climate and energy goals. However, California cannot achieve these goals at the expense of its most vulnerable residents and must implement policies that simultaneously respond to the affordability, climate, and housing crises. Building on the lessons learned from cities, counties, and other states, this paper considers how the design of a statewide building performance standard (BPS) in California could provide both building owners and the state with the most cost-effective path to long-term building decarbonization. While other jurisdictions have successfully implemented BPS policies, based on current law, a BPS in California would cover almost 50,000 buildings and impact millions of residential tenants, making it the largest policy enacted to date. California is also navigating housing shortages and record energy cost increases and must balance affordability with environmental policy.

A Building Performance Standard for California

Residential and commercial buildings in California consume more than 70 percent of the total electricity and more than 50 percent of the total gas used in the state, generating over 25 percent of the state's GHG emissions (CEC 2026a and CARB 2026a, 2026b). This means that achieving California's ambitious midcentury climate and energy goals will require improving the energy performance of existing buildings and enacting strong steps to ensure all Californians have fair access to safe and affordable homes and businesses.

California law already requires owners of buildings larger than 50,000 square feet[1] to submit annual energy use to the California Energy Commission (CEC) using the U.S. EPA's ENERGY STAR Portfolio Manager tool (Portfolio Manager) in a process known as energy benchmarking (PRC 25402.10). The law also requires utility companies to provide monthly building-level data to owners, or their representatives, upon request to ensure complete, whole-building reporting. Benchmarking allows building owners to analyze how the performance of their building changes over time and identify opportunities to reduce building energy consumption and operating costs (U.S. EPA 2021a). Benchmarking can also encourage energy efficiency upgrades, lower building GHG emissions, increase occupancy rates, and enhance occupant health and comfort (Hart 2015). Benchmarking alone does not mandate improved energy efficiency, but it is foundational to designing an effective BPS that drives energy savings and emissions reductions because it is impossible to effectively regulate what is not measured.

California also implements some of the most progressive building standards in the world, but once a building is completed there are few requirements in place for how that building is maintained and operated. Many local jurisdictions in California have implemented or are considering BPS policies to address this gap (National BPS Coalition 2026) but building owner groups have suggested that a patchwork of local requirements are more difficult and costly to comply with than a uniform requirement at the state or national level (Desiderio 2024). A statewide BPS would complement the existing California Building Standards Code by both confirming modeled performance after the building goes into operation and enforcing minimum performance over the life of the building.

When sufficient data collection exists, as is the case in California with the existing benchmarking requirements, performance-based regulations can drive overall cost savings due to the inherent flexibility that allows regulated building owners to seek solutions that best fit the unique circumstances of their properties (Coglianese, Nash, and Olmstead 2003). The flexibility of a BPS also allows building owners to consider other value streams beyond strict first and lifetime costs, which should result in lower overall cost to comply with state goals. Compared to the obligations imposed on a building owner by a prescriptive requirement, a performance requirement, such as a BPS, should result in lower compliance costs (Rhodes 2021). Both approaches have the objective of encouraging building owners to maintain and improve their property, but a prescriptive approach attempts to anticipate the appropriate measures in a building based on benchmarking and other data inputs. By instead promoting clear and

[1] California Public Resources Code (PRC) section 25402.10 requires the owners of commercial buildings with more than 50,000 square feet and the owners of multifamily residential buildings with more than 50,000 square feet and 17 or more utility accounts to report benchmarking information annually to the state.

achievable performance targets based on existing state law, a BPS could encourage proactive investments and give building owners clear expectations for their contributions to state decarbonization and sustainability goals (U.S. EPA 2022c).

More than a dozen jurisdictions across the country, including four states (Colorado, Maryland, Oregon, and Washington), have deployed BPS policies as the primary mechanism to drive energy efficiency and GHG reductions in existing buildings. Implementing a BPS in California could be the most extensive policy of its kind to date, covering approximately 50,000 commercial and residential buildings across the state, representing roughly 60 percent of the total statewide building floor area (Policy Studio 2026).

Setting a BPS Building Size Threshold

The state's existing building energy benchmarking law covers buildings greater than 50,000 square feet (PRC 25402.10(d)(1)). The buildings subject to a BPS in California should mirror those subject to the existing benchmarking law to ensure necessary data is available to implement the policy effectively. This would result in roughly 50,000 covered buildings, nearly 20,000 more than the next largest existing BPS policy in the country. Buildings more than 50,000 square feet represent 60 percent of the total building square footage in California and cover over 6 billion square feet in total (Policy Studio 2026). Figure 1 below shows the total count and cumulative building gross floor area of buildings covered by the largest BPS policies across the country compared to the potential coverage of a California BPS.

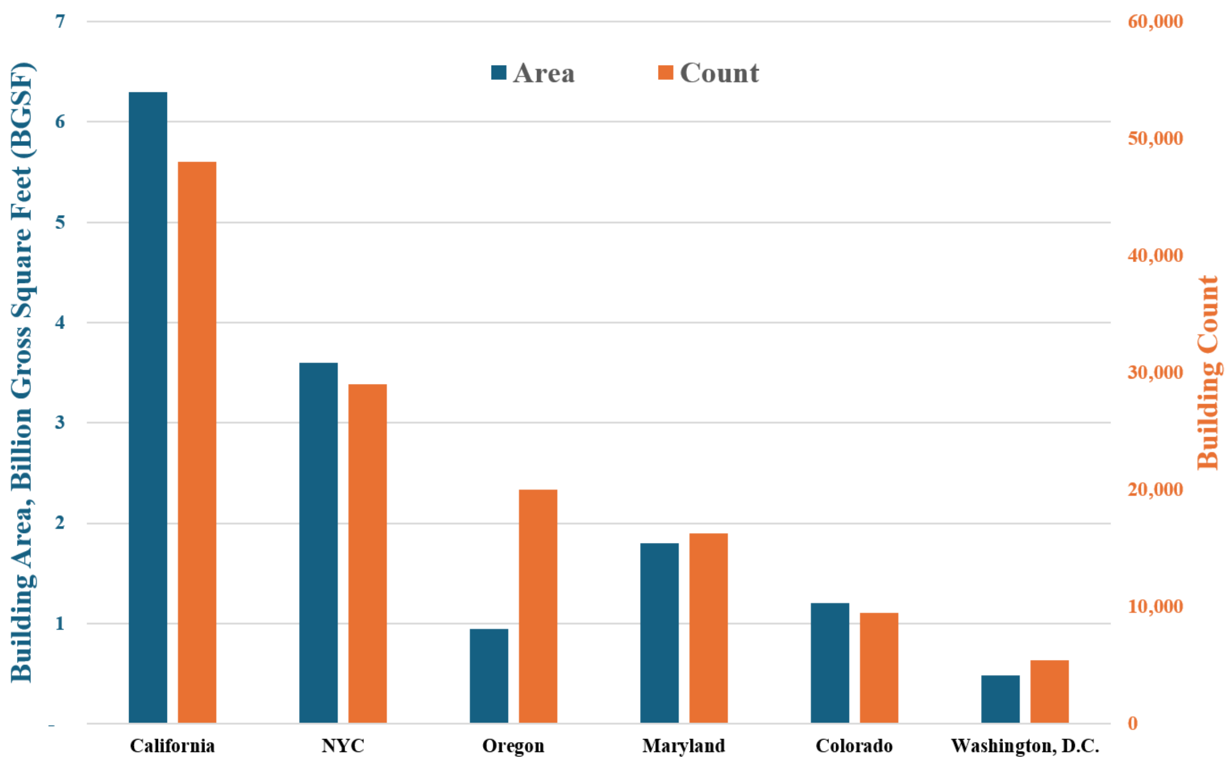

Figure 1. Comparison of BPS building area and count by jurisdiction.
Sources: Johnson, A. Building Performance Standards Program Analyst, Oregon Department of Energy, pers. comms., June 2026; MDE 2026; NYC DOB 2026; Perbohner, J, Program Manager, Colorado Energy Office, pers. comms., June 2026; Policy Studio 2026; and DOEE 2026.

Nearly all jurisdictions that have implemented BPS policies have set a size threshold lower than 50,000 square feet, but California's size could make it infeasible to regulate the performance of smaller buildings through a BPS (IMT 2025). If a BPS in California covered buildings down to 25,000 square feet, for example, the number of buildings would double from approximately 50,000 to nearly 100,000, but the total building square footage covered would only increase from 60 percent to 72 percent (Policy Studio 2026). Additionally, smaller buildings may face disproportionately high transaction costs when implementing energy efficiency measures, potentially making BPS compliance more financially prohibitive (Langner, Hendron, and Bonnema 2014). Local jurisdictions in California and across the country also report that smaller buildings (10,000 square feet to 50,000 square feet) need more personalized support and more administrative time from the implementing agency to complete energy benchmarking and BPS requirements (K. Bergfeld, Associate Director, DC Department of Energy and Environment, pers. comm., 2024).

Metric Objectives

California already has many energy and climate targets in law, so a BPS could simply develop timelines, metrics, and targets based on those existing laws. This would introduce a framework that defines the steps necessary to achieve existing policy goals within the state, such as the statewide GHG reduction targets set by the California Climate Crisis Act (HSC 38562.2). Metrics based on those laws would be the quantitative elements of building operations that allow tracking of building performance and comparison of building performance to established goals. The first step in selecting metrics for a BPS is to identify the objectives of the existing and relevant policy goals. Building energy efficiency, reduced environmental impact and energy costs, and energy system resiliency are examples of underlying outcomes that a BPS could support. California's goals can be supported by building performance metrics in three general categories:

- Metric Objectives for Energy
- Metric Objectives for Environmental Impact
- Other Metric Objectives

Metric Objectives for Energy

Cost-effective energy efficiency measures (measures with a positive return on investment) should be the first step toward reducing the cost and environmental impact of energy services. Energy efficiency is especially important because efficient buildings and appliances not only reduce utility bills but also help reduce stress on the electric grid (Specian and Bell-Pasht 2023). For decades, California policy makers have acknowledged that energy efficiency is often less expensive than building new power generation and power lines (Frick et al. 2021). A BPS that rewards investment in basic efficiency supports multiple state policy goals including reducing utility costs and environmental impacts, improving building and energy system reliability, and maintaining occupant comfort.

Energy use intensity. The most common way to normalize the measured energy efficiency of a building is by calculating energy use intensity (EUI), which expresses building energy use normalized by its size (U.S. EPA 2022a). EUI is calculated by dividing the total energy consumption of a building by the total floor area over a specified period, typically a year. There are two primary methods for measuring EUI, site EUI and source EUI. Site EUI measures the amount of energy consumed by a building on-site, or the site energy, divided by floor area. Site energy use includes energy purchased from the grid and renewable energy generated and consumed on-site but does not include energy lost during generation, transmission, or distribution, or excess renewable energy exported back to the grid. Source EUI is site EUI *plus* any losses during the generation, transmission, and distribution of the energy. It is the source energy use of the building divided by floor area (U.S. EPA 2026a).

ENERGY STAR score. The ENERGY STAR score is an external benchmark used to assess the performance of buildings on a 1-100 scale (U.S. EPA 2026b, 2026c). The ENERGY STAR score measures how a building is performing relative to similar buildings when normalized for climate and operations characteristics (U.S. EPA 2021b). The 1-100 scale rates building performance based on percentile. The ENERGY STAR score is calculated primarily using source EUI (U.S. EPA 2026a).

Load flexibility and coincident peak demand. The California electricity grid has adapted to the growth of renewable energy by providing price signals and utility programs that help customers respond to grid needs. Strategies and technologies that enable adjusted energy use in response to energy price or a signal from the electric grid are known as load flexibility (CEC 2021). Support for load flexibility and demand response have been part of California energy policy for more than 50 years (PRC 25403.5, codified in 1974). Both support grid reliability, may reduce the cost of energy services, and are increasingly important when the least-cost electric generation resources are intermittent renewables. Encouraging load flexibility offers significant advantages for building owners as well, including lower energy costs, decreased carbon emissions, and enhanced resilience.

One metric to track building demand on the grid is coincident peak demand. Coincident peak demand refers to building electric demand when total demand on the supplying utility system is highest, causing the greatest strain on that system (IMT 2022). The highest demand on the utility system may occur at different times of the day at different locations in the system. Peak demand is an available metric that is used to calculate electric bills for large buildings (U.S. EPA 2022a). A coincident peak demand metric could encourage building owners to install batteries or other load shifting technologies to reduce their electric demand during peak times, which would reduce stress on the grid.

Metric Objectives for Environmental Impact

Environmental impact metrics could address building GHGs, criteria pollutants, or toxic emissions. In recent decades, the environmental impact of electricity from the grid in California has fallen significantly compared to the impact of burning fossil fuels within a building (CEC 2026b). The California electric grid currently averages over two thirds clean energy annually and continues to improve (CEC 2026b). While an energy metric will drive more efficient building energy use, emissions from on-site fossil fuel equipment will make up a larger portion of statewide emissions as California moves toward a 100 percent clean electric grid. For this reason, the state has adopted goals to reduce emissions from buildings, standards to minimize emissions from new buildings, and policies to shift building space and water heating to efficient electrical heat pumps (Kenney 2022).

Greenhouse gas emissions intensity. Greenhouse gas emissions intensity (GHGI) is defined as the annual GHG emissions of a building divided by the building gross area. The GHG emissions of a building are calculated by adding the carbon dioxide equivalent (CO_2e) of the GHG emissions of all the energy and fuel used in the building (for example, electricity and gas). The GHG emissions are divided by the building floor area to determine the normalized GHGI of the building, which is expressed as kilograms of CO_2e per square foot per year ($kgCO_2e/ft^2/yr$). GHGI can be measured as site emissions intensity or source emissions intensity. Site GHGI includes the scope 1 emissions associated directly with energy consumed in the building, for example the emissions from fuel combustion of a gas-powered boiler. Source GHGI includes scope 1 emissions plus scope 2 emissions from energy consumed onsite and associated emissions from the generation, transmission, and distribution of electricity (U.S. EPA 2026d).

Other Metric Objectives

While energy and greenhouse gas emissions metrics are common among existing policies, a BPS in California could include additional metrics that address broader state policy goals. For example, occupant impact metrics that regulate the socioeconomic, occupant health, or public safety impacts of buildings on the safety and comfort of occupants. A BPS could support state goals associated with occupant impacts, ensuring the requirements are environmentally beneficial, equitable, and supportive of occupant needs. Once the regulatory structure is in place, additional metrics could be added as deemed necessary by the legislature. Below are examples of occupant impacts that could be included in a BPS:

- Cooling services
- Indoor air quality
- Energy service resiliency (how likely is the building to lose critical energy services)
- Water heating performance (do occupants have sufficient hot water)
- Wildfire hardening (how resistant the building is to wildfire damage)
- Energy costs

A BPS could address occupant well-being directly or indirectly. A direct occupant impact metric would be a quantifiable measure as a separate compliance criterion, such as a limit on the concentration of indoor air pollutants. An indirect metric expresses and, where possible, quantifies the co-benefits of an energy or environmental metric. For example, an energy use intensity metric encourages energy efficiency, which also reduces energy costs for occupants.

Some energy and environmental metrics could have unintended negative impacts on building occupants, so it is important to consider occupant impacts. For example, if a building that lacks air conditioning is retrofitted to include air conditioning, the total energy use of the building will increase. Although providing cooling services by installing air conditioning would be an improvement for occupant comfort and habitability, it would also increase energy consumption, conflicting with an energy use intensity metric. An energy metric for a BPS could consider the benefits of cooling services and offset the increased energy use with a baseline or target adjustment.

Metric Selection Criteria

For a BPS to be successful in practice, the building performance metrics used must be fair, clear, rigorous, repeatable, and objective (IMT 2022). In California, any selected metrics for a BPS must be universally applicable and feasible to collect from nearly 50,000 buildings. The metric selection criteria are organized into three topic categories and outlined in Table 1 below:

- Metrics that are simple, predictable, and understandable by most building owners
- Metrics based on building operations that are within the building owner’s control
- Metrics based on data that can be physically measured and verified

Table 1: Evaluation of Building Performance Metrics Based on Selection Criteria

Metric	Simple	Within Owner Control	Measurable and Quantifiable	Type of Metric	Jurisdictional Examples
Site EUI	Yes	Yes	Yes	Energy	State of Colorado Montgomery County, Maryland
Source EUI	No	No	Yes	Energy	Washington, DC
ENERGY STAR Score	Yes	No	Yes	Energy	Washington, DC Chula Vista, California
Coincident Peak Demand	No	Yes	Yes	Energy	None
Site GHGI	Yes	Yes	Yes	Environmental	State of Maryland
Source GHGI	No	No	Yes	Environmental	Boston, Massachusetts New York, New York
Occupant Impact	No	Yes	Maybe	Occupant Impact	None

Sources: DOEE 2022; IMT 2025; and U.S. EPA 2022a, 2026a

Metric Simplicity

Simplicity in this context means metrics must communicate information in an easily understandable format and terminology so building owners understand the policy objectives and can successfully comply with the desired regulatory outcomes. For example, EUI is a common BPS metric because it normalizes energy consumption to building size, can be easily calculated by the building owner, represents a clear numerical target, and is therefore straightforward for building owners to interpret and respond to.

Metrics should be recorded, tracked, and analyzed through existing tools that building owners are familiar with, such as Portfolio Manager or similar software that may become commercially available. Standardizing the reporting and analysis of building data and the associated regulated metrics reduces the administrative burden for building owners and the state. For example, California is already collecting EUI from all large buildings through the existing benchmarking program so an EUI metric would not require a separate reporting element.

Predictable, long-term BPS targets benefit building owners by connecting California's long-term policy goals to fixed and quantifiable building performance targets that owners can use to plan investments. Predictable performance targets allow building owners to plan maintenance and upgrade investments to align with equipment useful lifetimes and their individual business cycles, ensuring that equipment does not need to be replaced before the end of its useful life, and maximizing investment flexibility.

Simplified compliance pathways ensure that energy use is tracked consistently, which improves building owner awareness of building operations and fosters adoption of the best building operations practices across the market. Moreover, uniform metrics across jurisdictions benefit the owners of multiple properties by allowing them to coordinate upgrades between their properties and reduce administrative overhead for regulators and owners (Desiderio 2024).

Within the Building Owner's Control

Metrics for BPS should be based on aspects of a building that a building owner can control, such as building envelope, mechanical equipment, and control systems. Metrics should not rely on factors outside the building that change unpredictably over time, such as the weather or grid pollution emissions, which could complicate long-term planning for the building owner. California is already making strong progress towards 100 percent of electricity retail sales and state loads coming from zero-carbon resources, so a metric that is outside of building owner control, such as grid emissions, would likely be less impactful than in jurisdictions with higher electricity carbon emissions or less aggressive grid decarbonization goals (CEC 2026b). Metrics should be understandable and actionable and motivate building owners to support the desired policy outcome. Examples of factors within a building owner's control include:

- Building envelope (walls, windows, and doors).
- Mechanical equipment (space heating, space cooling, or water heating equipment).
- Operational controls (thermostats, lighting controls, and other automatic systems).
- Energy supply in an open market (where the building owner has the option to purchase low- or zero-pollution electricity).

Measurable and Quantifiable

Metrics must be based on objective data, such as utility billing or documented on-site measurements. To ensure requirements are applied consistently between buildings, metrics should incorporate normalization factors for variables like weather conditions, occupancy levels, and building size. Metrics must also use data that is readily available to the building owner, and the data should be available to the building owner by force of law.

Metric Advantages and Disadvantages

By identifying appropriate BPS metrics for each state policy priority and then applying the above metric selection criteria, the authors identified advantages and disadvantages for each approach. Given California's size, around 50,000 buildings would be subject to a BPS in the state, so simplicity is paramount to both minimize administrative costs and to be generally applicable to such a diverse building stock. In addition, California has existing policies that do not need to be duplicated in a BPS, such as California's goal of 100% clean electricity sales by 2045 and building energy codes that require solar PV and battery storage readiness (CA RPS 2026 and CCR 150.1(c)14).

Numerous jurisdictions, standards organizations, and expert stakeholders have built an extensive body of knowledge and recommendations about BPS metric selection that California can leverage (ASHRAE 100 2024, Desiderio 2024, DOEE 2022, Energize Denver 2026, IMT 2021b, Montgomery County 2020, and U.S. EPA 2022c). The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), in collaboration with the American National Standards Institute (ANSI) and Illuminating Engineering Society (IES), maintains *Standard 100 Energy and Emissions Building Performance Standards for Existing Buildings*, which recommends a GHG and an energy consumption performance metric (ASHRAE 100 2024). The Institute for Market Transformation (IMT) *Model Law for Building Performance Standards* offers a menu of potential metrics including site EUI, site GHGI, and coincident peak electricity demand (IMT 2021a). U.S. EPA recommends a combination of a site EUI and site GHGI (U.S. EPA 2022b). Table 2 below summarizes the advantages and disadvantages of the major metric options.

Table 2: Metric Advantages and Disadvantages

Metric	Advantages	Disadvantages
Site EUI	• Simple to calculate • Aligns with utility bills • Easy to understand • Focus on building efficiency that is within building owner control • Lower reporting complexity • Favors electrification	• Ignores upstream energy losses from generation, transmission, and distribution • Does not account for grid efficiency • Does not account for green electricity procurement

Metric	Advantages	Disadvantages
Source EUI	• Accounts for upstream energy losses from generation, transmission, and distribution of electricity • Incentivizes buildings to procure clean electricity	• Difficult to calculate and understand • May not favor electrification • Varies greatly due to the region or utility grid fuel mix • Difficult to verify • Some input factors are out of building owner’s control
ENERGY STAR Score	• Nationally recognized standard • Simple to understand (1-100 scale and the higher the score the better) • Well documented methodology for correcting for variations between buildings of the same type (such as hours of operation, number of workers, and annual climate variations).	• Does not clearly identify why a building is high/low performing • Uses national source energy factors and does not account for regional or utility specific grid fuel mix • Compares to buildings nationwide which may not be representative of CA building performance • Does not always favor electrification • Not all building types are eligible
Coincident Peak Demand	• Encourages reduction of energy use during peak periods • Directly related to utility bills and may drive greater utility bill savings	• Difficult to understand • Not in ENERGY STAR Portfolio Manager
Site GHGI	• Simple to calculate and understand • Unaffected by changes in grid fuel mix • Favors electrification • Reduces health and safety impacts from fossil fuel combustion on-site • Does not penalize buildings without current access to 100% clean electricity procurement options, which is outside building owner control	• Does not account for emissions from fossil fuels used to generate electricity used in the building • Does not give credit to buildings who optionally procure 100% clean electricity
Source GHGI	• Incentivizes procurement of 100% clean electricity	• Dependent on the electric grid fuel mix, which is not in the building owner’s control • Difficult to calculate and verify • May discourage electrification in short term
Occupant Impact	• Direct occupant benefits like improved indoor air quality, reduced energy costs, and improved health and safety	• No current direct measurement in benchmarking • Difficult to measure and verify

Source: ASHRAE 100 2024, U.S. EPA 2022a, and IMT 2022

Policy Approaches and Setting Baselines

The policy structure of a BPS refers to the framework used to measure building performance improvements over time. The most common BPS policy structures are “cycle-based,” “fixed limits,” and “trajectory,” defined below per IMT 2025:

- **“Cycle-based”** policy structures establish a performance standard for a set period, or “cycle,” which jurisdictions recalculate every few years based on changes to the overall

performance of the covered building stock over time. This policy approach evaluates building performance at the end of each cycle and then develops new standards based on the efficiency gains or emissions reductions from the previous cycle. Jurisdictions using this approach include Washington, DC and the state of Washington (IMT 2025).
- **"Fixed limits"** policy structures set a cap on the chosen performance metric for each covered building that become more stringent over time to require increasingly deeper energy or emissions savings. Typically, this approach requires buildings to stay below the set limit for the entire compliance period rather than just during a single evaluation year, like in the cycle-based and trajectory structures. Jurisdictions using this approach include New York, New York and Boston, Massachusetts (IMT 2025).
- **"Trajectory"** policy structures identify end-point performance targets for every building based on the primary property type and then assign interim performance targets based on the starting level of performance for the building, or baseline. This approach requires buildings to "step down" over time by realizing efficiency gains or emissions reductions in the short and long terms. Jurisdictions using this approach include Denver, Colorado and Montgomery County, Maryland (IMT 2025).

While jurisdictions across the country have adopted different policy approaches for building performance standards, building owners are increasingly seeking uniformity and consistency in future BPS policies (Desiderio 2024). This concern is especially relevant in California because of the large number of cities and counties within the state currently considering new BPS policies (National BPS Coalition 2026). In addition, a statewide California BPS would be the largest of its kind, short a federal BPS, and the chosen policy approach could influence future BPS policy development in other states and nationally.

The trajectory policy approach has been the most widely adopted policy structure in jurisdictions that have recently passed a BPS. This widespread acceptance could be in part because IMT developed a model law for jurisdictions to adopt, which recommends the trajectory approach (IMT 2021a). Jurisdictions that developed trajectory-based BPS policies also received public support for this approach. Montgomery County, Maryland, solicited stakeholder feedback during development of its local BPS and found that stakeholders favored a policy model that sets a long-term performance standard with five-year interim performance targets to make sure buildings are on track to meet the final standard (Montgomery County 2020). The City of Denver Energize Denver Task Force also recommended a trajectory policy structure with final and interim BPS targets (Energize Denver 2021). Washington, DC's Building Energy Performance Task Force ranked simplicity and maximizing certainty as the top two priorities when designing a BPS program (DOEE 2022). Based on this feedback and an evaluation of the GHG savings potential of various policy approaches, the District of Columbia (DC) DOEE formally recommended changing its current cycle-based BPS approach to a trajectory approach (DOEE 2022).

The trajectory policy structure is favorable as an option for a statewide BPS in California since it aligns with the state's long-term climate commitments and ensures consistent performance improvements through the interim target "check points." BPS policies that provide flexible compliance plans, such as delayed upgrades for major retrofits or alternative pathways for cases of financial hardship, help ensure that building owners have practical options for compliance that are within their control. A trajectory structure can easily build in flexibility for building owners to account for capital planning cycles, building life cycles, and leasing cycles, which will be different for each building.

Establishing BPS Baselines

Baseline data mark the starting level of performance for a covered building and become the benchmark for evaluating compliance with a BPS. Establishing fair and representative baselines for all covered buildings is especially important when implementing a trajectory-based BPS. While most buildings of the same property type will work toward the same end performance target, each building owner will have their own path to compliance based on how their building is performing at the start of the program. Because every building will have a unique trajectory, setting a fair and representative baseline period of performance is critical to building success and the success of the overall BPS program.

Several factors should be considered when selecting the baseline year or years used for a BPS – most importantly, the availability of high-quality benchmarking data. IMT recommends that jurisdictions should wait until they have collected at least two, preferably three, years of benchmarking data from building owners before determining baseline performance (IMT 2022). Similarly, the Real Estate Roundtable, a nonprofit representing the interests of the commercial real estate industry, recommends that "jurisdictions should possess at least 3–5 years of high-quality benchmarking data as the basis for realistic and attainable performance levels on buildings" (Desiderio 2024). The chosen baseline year, or years, will ideally have the highest level of compliance. The appropriate year or years will likely be between Calendar Years 2025 and 2028, as California is increasing engagement with and enforcement on owners of buildings subject to benchmarking and expects to see higher rates of compliance in the next few years.

Building baseline performance could be a single year or an average of multiple years. The benefit of a single-year baseline is that it is simple to calculate and communicate with building owners. The drawbacks are that a single year does not account for changes in weather or changes in building operations year over year. The benefit of using an average of two or three years is the ability to normalize building performance metrics for changes in weather and building operations to provide a more realistic average starting point of performance. The drawbacks of a baseline using an average of multiple years are the need for multiple years in a row of high-quality data and the need to calculate the average performance of each building over the baseline period, which in California would be nearly 50,000 unique baseline calculations.

Baselines will need to be assigned to buildings that have not submitted benchmarking data for the baseline years selected. If a building owner has not submitted their required benchmarking data than a baseline cannot be established based on the performance of their building, and the building baseline may need to be set based on the performance of similar buildings. The city of Denver's BPS policy uses a trajectory approach, and in cases where a building did not have necessary baseline data, the program used the 2019 local median EUI for that building type (Energize Denver 2026). Montgomery County, Maryland, also has a provision in its regulations allowing the Department of Environment to assign a baseline based on property type (E. Curly, Building Energy Performance Programs Manager, Montgomery County Dept. of Environmental Protection, pers. comm., 2025).

Using local median or modeled data may disadvantage building owners who need to meet targets that conflict with operations and performance of their building. Because insufficient data can lead to setting inaccurate baselines, the best way to set building owners up for success with a BPS is to focus first on collecting complete and accurate benchmarking data as outlined earlier.

Conclusions

While over a dozen jurisdictions have implemented building performance standards, California is positioned to implement the largest BPS policy to date, potentially covering nearly 50,000 buildings and over 6 billion square feet of space. Given this potential scale, California must carefully balance progress towards the state's midcentury climate goals with the cost of compliance. Based on the benchmarking data available and California's climate, energy, economic, and social goals, a flexible statewide BPS that aligns with affordability goals and existing programs for energy efficiency would be the most cost-effective way to improve the performance of existing buildings. By promoting clear and achievable performance targets, a BPS would encourage proactive and cost-effective investments in energy efficiency, building electrification, building decarbonization, and load flexibility for the state's largest buildings.

A BPS holds building owners accountable through a mandatory regulatory framework that includes long-term performance targets, flexible compliance options, and enforceable penalties. A BPS protects consumers by requiring the current owner or operator of a building to maintain and improve energy performance, which can reduce energy costs and better serve occupants. While building codes impose regulatory oversight on the design and construction of buildings, a BPS provides regulatory certainty for building owners from the time construction is complete through the end of the useful life of a building. A BPS is a unique policy solution that can address energy use and GHG emissions in existing buildings to help California meet its ambitious midcentury goals.

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