Building Performance Standards: The Next Frontier in Utility Program Evaluation and Attribution

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ABSTRACT

As municipalities adopt benchmarking and building performance standards (BPS) to meet energy and climate goals, they face challenges in both policy adoption and implementation. While these policies can reduce energy and operational costs for building owners, concerns about costs to comply often generate resistance. Municipal staff are also faced with limited resources, competing priorities, and a lack of implementation tools.

Although federal and private sector support exists, utilities may offer a more sustainable and impactful source of technical and financial assistance. Many utilities already provide incentives for energy improvements, support research on advanced building systems, and offer workforce development programs. These resources can be directly aligned with the success of municipal BPS policies.

Utilities have long supported energy code programs in new construction and claimed associated energy savings. However, few utilities have applied similar support strategies or claimed savings for BPS-related programs in existing buildings. With support from the Department of Energy's Resilient and Efficient Codes Implementation grant, the authors have developed a framework based on market transformation principles that enable utilities to support and claim savings for BPS initiatives.

This paper describes the development of evaluation approaches adapted from energy code programs to address the unique features of BPS. It details a national utility working group that gave feedback on the framework and offers examples of utilities beginning to implement it within their efficiency portfolios. Lastly, the paper addresses analytic challenges, especially the complexities of assessing BPS impacts in the context of overlapping efficiency programs.

Introduction

Building Performance Standard (BPS) policies are evolving as an essential tool to reduce emissions and achieve climate targets. Enacted by states or municipalities, these laws set performance levels for improving existing commercial and multifamily buildings over a designated timeframe. BPS policies reduce a building's energy use, water use, and/or greenhouse gas emissions, typically applying to public and private buildings exceeding a specified size threshold. A BPS policy may address a single purpose or multiple objectives, such as energy efficiency, greenhouse gas reduction, electrification, renewables, water efficiency, indoor air quality, and resilience. Typically, jurisdictions have mechanisms in place to impose penalties for noncompliance. Many BPS policies also include flexible compliance pathways to accommodate affordable housing and other buildings needing assistance (Institute for Market Transformation n.d.).

As seen in Figure 1, fifteen jurisdictions and states have BPS policies that require buildings to meet an energy or carbon emissions target by a specific deadline. Additionally, several local governments and states have committed to implementing a BPS policy in their jurisdictions. The progress varies on policy adoption across those committed localities. Examples of policies that are nearing adoption include Reno, NV, which currently has a benchmarking requirement in place but expects to add additional performance

reporting requirements in 2026 (City of Reno n.d.), and the State of Hawai'i, which plans to advance legislation or regulation for a BPS policy by April 2026 (Laney 2025).

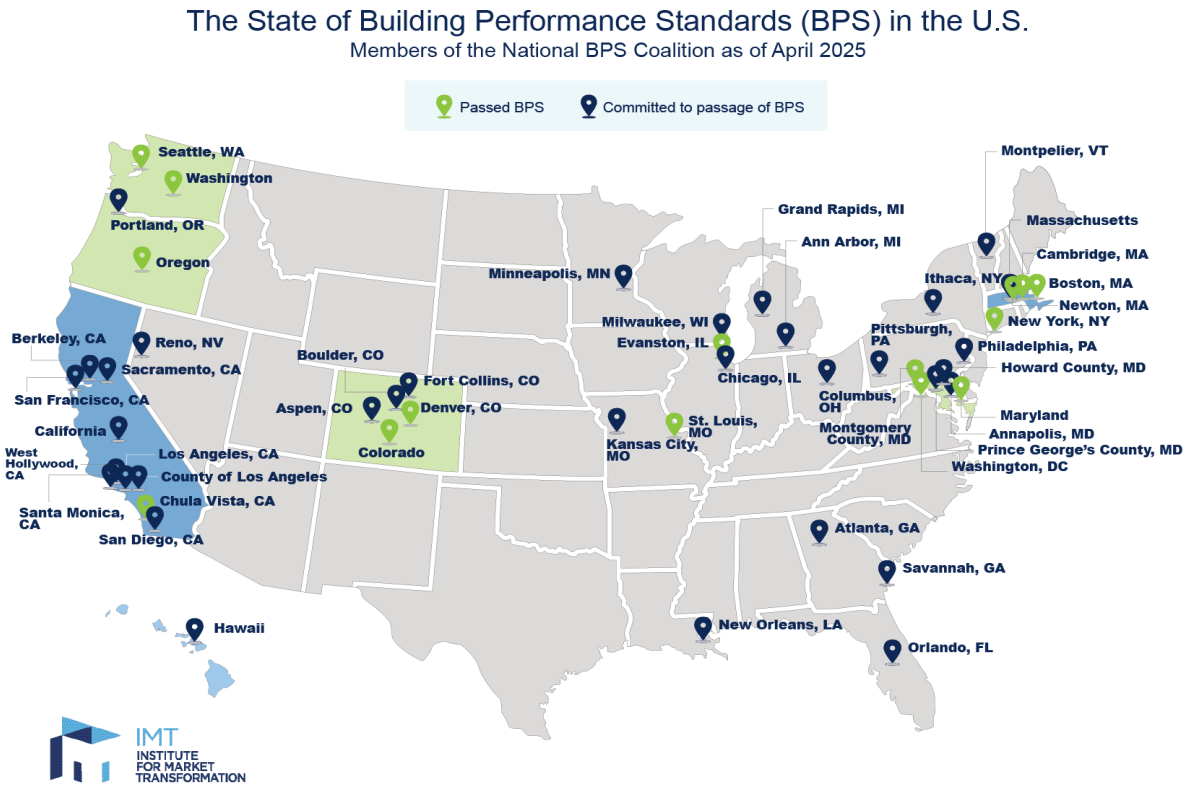

Figure 1: Map of BPS policies that have been passed or are committed to BPS policy passage. *Source:* Institute for Market Transformation 2025.

Benchmarking as a Precursor to BPS

Energy benchmarking policies require building owners, often of medium—to large-sized commercial and multifamily buildings, to track their buildings' energy use over time and report this data to the jurisdiction on an annual basis (Institute for Market Transformation n.d.). This data-driven approach helps building owners, operators, and policymakers understand how a building performs relative to similar buildings and identify opportunities to reduce energy use and lower operating costs.

Jurisdictions typically adopt a benchmarking policy before moving forward with a BPS. Benchmarking builds the administrative capacity, data foundation (e.g., establishing performance baselines for covered buildings), and stakeholder awareness needed for successful BPS implementation. Consistently tracking energy use can also prompt building owners to take actions to improve their buildings' efficiency, leaving them in a strong position to meet future performance targets. Additionally, while empirical data on BPS compliance is still limited, given that most jurisdictions remain in the early years of performance periods, early benchmarking results offer insight into potential compliance rates that may inform a municipality's decision to move forward with BPS adoption. For example, a recent ACEEE paper (Duer-Balkind et al. 2024) found that, based on publicly available data, between 30% and 80% of buildings in five cities (Washington, DC; New York City; St. Louis; Boston; and Denver) already meet their city's first BPS compliance standard, and 24% to 25% of those with established 2030 targets meet those

standards. These early findings demonstrate how benchmarking supports BPS infrastructure and awareness, although further research may be necessary to determine the appropriate assumptions of BPS compliance for jurisdictions of interest.

For utilities, there is significant crossover between the types of activities needed to support both the adoption and compliance aspects of benchmarking and BPS policies, which will be discussed in further detail below. When considering attribution, utilities may consider the possibility of claiming energy savings for benchmarking-related activities, recognizing the value of data access and transparency as precursors to deeper energy savings. However, to date, no utility has implemented attribution mechanisms specifically for benchmarking support. The approaches to calculating energy savings differ between utility support for benchmarking and BPS policies, and the remainder of this paper will focus on BPS policies.

Gathering Stakeholder Feedback

In 2024, the authors established a Utility Working Group convening key stakeholders (e.g., utility program administrators, evaluators, nonprofits, State Energy Office program administrators, DOE National Laboratory experts) to provide input and feedback throughout the framework development process.

The working group held six meetings spanning from June 2024 to June 2025. The three meetings in 2024 primarily focused on sharing foundational information about utility attribution models and gathering stakeholder input regarding potential areas of alignment with BPS program support. Discussions also covered anticipated challenges and opportunities in implementing a BPS attribution program. During 2025 meetings, working group sessions provided a platform for the project team to present iterative drafts of the attribution framework to participants and facilitate discussions to gather feedback and clarify questions.

In addition to Utility Working Group meetings, the project team conducted several interviews with working group participants, particularly members representing utilities. Seven utilities were interviewed, representing a range of sizes and regions across the country. Interviews aimed to learn about what energy efficiency initiatives utilities support, where and how they claim savings for programs such as building energy codes and appliance standards and explore their involvement with supporting local BPS policies.

The information gathered during those interviews and through feedback from the broader working group helped inform the summary provided below about the benefits and challenges of BPS to utilities when considering BPS utility programs and the associated attribution of claimed savings.

BPS Benefits, Opportunities, and Challenges for Municipalities

States and municipalities have several opportunities to consider when deciding whether to implement a BPS. Often, their goals are shaped by constituent priorities and local policies, such as energy savings and emissions reduction targets. Municipalities and utilities are key partners in advancing BPS goals, sharing both the benefits of policy progress and the responsibility to address common challenges collaboratively. For municipalities, potential barriers to BPS adoption and successful implementation may include:

- Staffing bandwidth (staff time in general, lack of staff, lack of technical expertise)
- Funding limitations or lack of funding
- Access to utility data
- Property owner, builder, and contractor participation and pushback
- Competing policy prioritization

Opportunities for Utilities to Support Municipalities and Other Jurisdictions

Historically, utility programs have been categorized into two main types: resource acquisition (RA) and market transformation (MT) programs, with a clear distinction between the two. RA programs focus on actions or technologies that reduce electricity demand on the customer side of the meter, which has been the primary goal of most utility energy efficiency efforts. These programs serve resource adequacy needs by lowering peak load and overall energy use, thereby reducing the need for additional generation. RA programs, like traditional energy efficiency rebates (lighting retrofits or heat pump incentives), focus on short-term savings through specific actions by individual customers. MT programs aim to transform the market over time, creating lasting, structural improvements through ongoing efforts to advance energy policies and promote the broader adoption of energy-efficient products and practices. Given the potential for deeper savings, supporting BPS represents the evolution of utility efforts that include RA, market advancement, efficiency initiatives, support of codes and standards, stretch codes, and benchmarking programs.

Utility companies stand to gain substantial benefits through BPS program support by generating significant energy savings, reduced emissions, improved grid reliability, stronger customer relationships, and compliance with regulatory mandates. The potential for BPS initiatives to address utility grid management, such as demand response, time of use, islanding, and distributed energy resource provisions, offer compelling reasons for utility support of BPS. Utilities may also be well-suited to provide municipalities with support for BPS initiatives, as they already have mechanisms in place to provide incentives and training to building owners and can leverage partnerships with external organizations to supplement BPS adoption and compliance efforts.

Utilities are well-positioned to support building owners and municipalities before and after BPS policies take effect by expanding their current programs and initiatives, offering incentives, and providing technical assistance. A utility could support BPS by supplying:

- **Technical Assistance:** Utilities provide energy modeling, energy audits, and expertise in implementing efficiency upgrades (e.g., envelope and HVAC building science, product specifications, grid interconnection, and optimizing fuel switching).
- **Policy Support:** Utilities can leverage their legislative and policy experience to advocate for BPS legislation and encourage regulation at the state and local levels. Utilities possess data demonstrating the benefits of previous energy-related legislation to consumers and businesses. Refer to the TECH Clean California call-out box for an example of how data can guide policy.
- **Program Design:** Utilities can incorporate benchmarking and BPS compliance into existing program models by leveraging their experience designing efficiency and incentive programs.
- **Staffing Support:** Utilities can fund circuit rider or shared energy analyst positions to support staffing functions needed to administer BPS programs. These professionals assist government staff and building owners by providing technical guidance and answering questions. Similar to energy code circuit riders, utilities may be able to claim energy savings by funding these positions.
- **Education/Outreach/Workforce Development:** To support BPS, utilities can provide technical assistance, education, and outreach activities such as training, workshops, webinars, and printed and audiovisual media. Utilities can also establish relationships with local community colleges, technical schools, and trade associations to enhance certification and continuing education opportunities, essential for supporting the local energy workforce.
- **Data Access:** Incorporating services that connect to energy tracking platforms (e.g., ENERGY STAR Portfolio Manager) to provide building energy usage data to owners and jurisdictions, enabling performance measurement and tracking aligned with BPS goals.

- **Financial Incentives:** Offering rebates, grants, financing, and loan products for efficiency upgrades related to BPS compliance.

The BPS saving potential for utilities is not without its challenges, and each utility will have its own unique set of barriers. Utility challenges to supporting and claiming savings from BPS may include:

- **Limited alignment with state mandates**: Utility programs can be guided by state and commission-approved plans that may not include or incentivize support for BPS.
- **Timeline misalignment:** Utility planning cycles (e.g., 3-year plans) may not always match the multi-year timelines of BPS compliance, complicating savings attribution.
- **Competing priorities:** Focus on distributed energy resources (DERs), demand management, and time of use (TOU) initiatives may limit attention to BPS, despite potential synergies.
- **Scaling programs:** Shifting from technology-specific incentives to whole-building approaches adds complexity.
- **Cross-departmental coordination:** Difficulty aligning programs and resources across departments (e.g., existing buildings, new construction, renewables).
- **Fuel switching limitations:** Utilities may be unable to claim savings from electrification or fuel switching due to regulatory or methodological constraints.
- **Staffing constraints:** Limited staff capacity to develop and manage BPS support initiatives.
- **Data challenges:** Varying BPS data/reporting requirements create obstacles for consistent utility data sharing.

Depending on the regulatory environment governing utility actions, some utilities may be precluded from engaging in activities considered to be policy advocacy or support. In the case of energy codes, state public utility commissions generally determine whether utilities can claim savings from adoption activities, compliance activities, or both. For instance, several states, including Arizona, Colorado, Connecticut, the District of Columbia, Minnesota, New Hampshire, and Vermont, limit utilities to claiming savings from only compliance-focused energy codes and standards programs (Garfunkel and Waite 2024). Similar regulatory restrictions may apply to utility-led BPS programs. Each utility should determine which activities it is permitted to support; however, the remainder of this framework document assumes a utility role for both policy advancement and implementation.

Utility Feature: ComEd's Pathway to Supporting BPS

ComEd, the primary electric utility for most of Northern Illinois and the greater Chicago metropolitan area, has supported independent contractors in providing direct assistance to municipalities within its service territory that are considering advanced building policies such as BPS. This technical support includes policy adoption activities, such as providing guidance on policy development, conducting research on costs and impacts, and being available to respond to external questions during town halls or individual conversations with stakeholders. In addition, ComEd supports municipalities that have adopted benchmarking and BPS policies with policies such as BPS implementation tasks, including funds for responding to building owner inquiries and creating resources to educate stakeholders on policy and compliance requirements.

ComEd is currently exploring opportunities to develop plans for BPS attribution and claim savings for these activities in the future. ComEd has already established the MT framework for the stretch energy codes initiative, which includes the completion of an energy savings framework, a logic model and project plan, and an evaluation plan for stretch code attribution. These MT supporting documents have been

presented to and confirmed by the Illinois Energy Efficiency Stakeholder Advisory Group, a convening body of stakeholders that advises on utility energy efficiency programs and policies and supports transparency and education on energy efficiency issues in Illinois. ComEd plans to present similar MT supporting documents for BPS policies.

Utility Logic Model to Guide Utility Activities and Goals

A logic model is a visual representation that illustrates the relationship between a program's resources, activities, and intended effects, showing how particular actions lead to achieving goals. Typical logic models are composed of Barriers/Constraints, Utility Activities, Outputs, Short Term (1-2 years), Midterm (3-7 years), and Long Term (8-10 years) Outputs. The evaluation framework in Figure 2 relies on the program logic model as a first step to identify how the program structure leads to anticipated energy savings or market effects and to clarify the relationship between program components and their intended effects. The logic model for this evaluation framework was developed to illustrate what an individual utility may consider when assessing the viability of BPS support programs. The logic model describes the flow of how barriers and constraints are overcome by utility activities that create outputs informing short-, medium-, and long-term expected outcomes.

The evaluation of program impacts relies on several key market progress indicators. Market Progress Indicators (MPIs) are metrics used to track the effectiveness of the activities and key outcomes identified in the program logic model, providing a way to assess the progress of MT efforts. They can be used to evaluate the impact of both advancement and compliance support programs.

While the logic model is designed to address common needs and barriers across a wide range of utilities, individual utilities may need to customize a logic model to reflect their specific regional or regulatory contexts.

Evaluation Framework for Utility Attribution

The evaluation framework leans on the structure created and applied in other utility service territories related to energy codes. Several codes and standards (C&S) programs have allowed utilities to support aspects of the energy code and claim savings. While the framework below presents an option for assessing and evaluating utility impact on policy adoption and implementation, each utility must review whether this framework falls within its regulatory environment and purview. For example, some utilities may require public utility commission approval, while others need other levels of oversight. However, the framework presented below provides elements of standard methods of utility attribution and savings calculations.

Market Transformation or Resource Acquisition Program?

As described above, utility support for BPS can be wide-ranging and can include various market actors, such as municipal staff, building owners, and contractors/trades. Due to the broad spectrum of market actors, BPS programs can be considered MT initiatives. MT efforts address barriers across many market actors, have a long-term horizon, and may encompass multiple levels of engagement. This contrasts with RA programs that typically have shorter time horizons for program implementation and evaluation, a more limited scope, and a limited effect on multiple markets. While RA programs may also affect market changes over a longer time horizon, most planning and evaluation consider their impact on an annual basis. Since BPS programs affect multiple market actors, include structural changes that may occur over a more extended period, and may yield savings that are difficult to quantify on an annual basis, we consider BPS to be suitable for an MT initiative. However, each utility will ultimately need to decide whether the MT or RA framework best fits them.

Most of the framework below provides an evaluation context from an MT perspective; however, this paper also offers additional considerations for utilities adopting an RA approach.

Methods for Quantifying Savings from Utility Programs for BPS

Figure 2 provides a graphical overview of the information flow and outputs involved in calculating net energy savings from a BPS program. The method below reflects the project team's experience in energy code attribution development and builds upon prior research from others, such as Garfunkel and Waite (2024) and Lee and Stacey (2018).

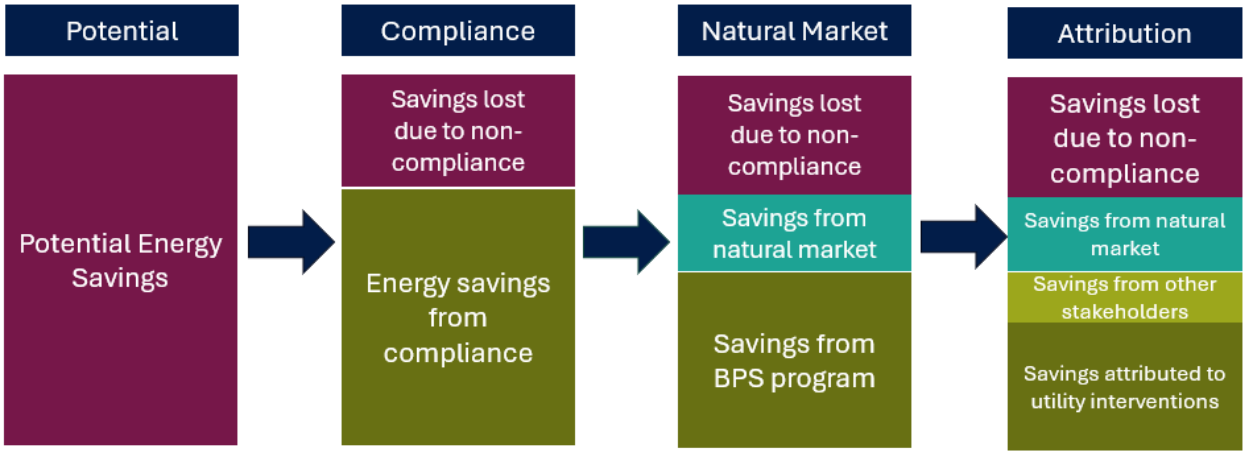

Figure 2: Overview of evaluation framework for BPS programs.

The evaluation begins with an estimate of overall potential savings. With BPS, the overall savings are directly related to the policy adopted by any given municipality. All BPS policies to date have relied on benchmarked building data from previous years to quantify the buildings covered by the BPS policy. Each of those buildings has energy use and/or emissions data, as well as short- and long-term performance targets. The difference between the energy or emissions data and a performance target represents the estimated potential savings that we expect to see from a BPS program in each performance period. While the performance period may vary, performance periods are likely longer than the annual cycle of typical RA programs. Most BPS policies have a ramp-up period or a specified timeframe for a building to comply and reach performance targets, typically ranging from 3 to 5 years. The evaluation period should align with the interim targets and iterative performance periods established by BPS policies. As noted above, due to the longer evaluation timeframes needed to account for savings, BPS programs may align better with MT initiatives than RA structures.

Gross savings: Savings Lost Due to Non-compliance

The gross savings value for energy savings lost due to non-compliance with BPS policies would include any buildings required to meet energy efficiency performance targets but could not do so within the performance period timeframe for policy compliance. Several jurisdictions also include alternative pathways for compliance, which may not lead to immediate energy savings or result in savings expected to extend beyond the typical compliance period. In such cases, the unrealized savings are generally treated as a deduction from total potential energy savings for the current evaluation period. However, if those savings are expected to occur in a future period, they may instead be tracked and credited in that

subsequent evaluation cycle. Using data collected at the municipal level, lost savings from non-compliance can be estimated and calculated.

Net Savings: Quantifying the Naturally Occurring Market Adoption

The Naturally Occurring Market Adoption (NOMAD) represents the state of the market that would occur in the absence of utility invention. This is sometimes referred to as the Natural Market Baseline (NMB) in MT initiatives. Based on our logic model, we expect that if the utility company completes the listed activities, the outputs will result in the outcomes outlined in the logic model. The reverse is true for the Natural Market Baseline; if the utility never undertook those activities, we would expect fewer results and outcomes. However, in the case of any MT initiative, we also need to estimate external market forces, outside of utility companies, that may also influence the market actors. Figure 3 provides a representation of the elements of the NMB and total market changes over time.

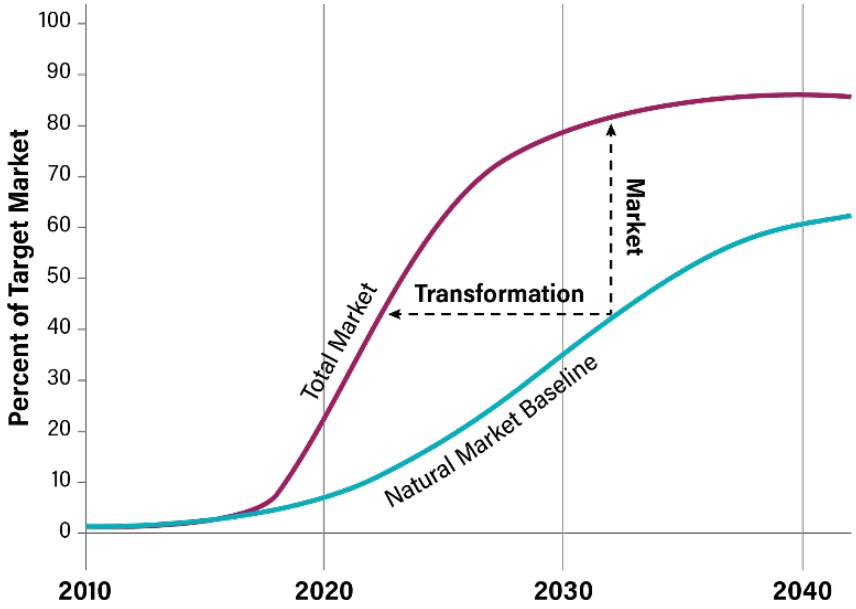

Figure 3: Representation of MT effects over time.

To estimate the NOMAD, we can use the historical energy consumption and apply an assumed energy savings over time that would be considerably smaller than the savings achieved through compliance with the BPS program. The utility or evaluation team could review prior participation levels in energy efficiency programs to use this value as an estimation for expected savings in the absence of a BPS program. The utilities may consider how federal funding or other external market factors play into overall changes in the market; if data are available for federal funding uptake for energy conservation measures, the evaluations should consider their impact on the natural market baseline in the absence of a BPS policy.

Net Program Savings: Assigning Utility Influence

This step involves reviewing several sources of information to understand the utility's influence on the program's success. These should reflect the Market Progress Indicators (MPI) that are developed and finalized as part of the logic model. Since this step aims to quantify a counterfactual of what might have happened without utility intervention, evaluating the utility effect may require considering more qualitative feedback and incorporating information from multiple sources. These sources of information could include:

- Participation data and compliance data from BPS databases
- Interviews and surveys of program implementors (city staff, typically) on the utility role in BPS adoption and implementation
- Interviews and surveys of building owners to understand the utility role in their support for BPS policy and reducing barriers to complying with the BPS
- Interviews and surveys with building contractors to understand the impact of training and/or technical materials on understanding and complying with the BPS
- Expert judgment panels to assess compliance levels, review surveys, and interview data, and understand external market actor effects

Allocating Savings to Multiple Utilities

In municipalities with different electric and gas utilities, the final step is to allocate and apportion the net program energy savings to each utility. These proportions can be determined by assuming a specific proportion of building savings for electricity and gas. If two utilities in a municipality have program elements that are significantly different, the proportion of allocation should reflect the scale of those differences, as determined through evaluations of net program savings research. This allocation should be based on the net program savings attributable to each utility's efforts in supporting BPS compliance, not simply allocating savings by fuel type. Because fuel switching is a key strategy building owners use to comply with BPS requirements, and electric utilities often drive these electrification measures, most of the impact may result in gas savings. These situations underscore the importance of considering fuel-neutral approaches to savings allocations during the evaluation process.

Emissions or Energy

For BPS programs where carbon emissions are the primary metric (as opposed to total energy saved) or where fuel switching is a key objective, additional layers of assessment may be necessary to determine where the energy savings should be allocated. Since specific actions taken to comply with the BPS may result in a reduction of gas use but an increase in electrical consumption (in the case of electrifying technologies), evaluators may need to assign a weighted factor based on the level of utility intervention and the associated overall reduction in energy savings.

Avoiding Double Counting

There are concerns that if a utility claims savings through an MT initiative, then there is the risk of double counting if the existing program savings were attributed to a RA program. Because BPS policies are typically established at the municipal level, clear geographic boundaries must be considered in program planning and evaluation. We recommend clearly delineating between buildings in a BPS-municipality and those outside a BPS-municipality. At the outset of the BPS program development, for those building owners who take advantage of RA program funding outside of the BPS community, those savings could continue to be attributed to RA savings.

Timeline Challenges for BPS Utility Attribution

The multi-year nature of BPS policies with defined compliance checkpoints (specific deadlines by which covered buildings must meet interim or final performance targets) introduces uncertainty around when energy savings will materialize, posing challenges for how to account for savings using a MT

approach while also trying to meet annual savings targets. Utilities may see surges in program participation and energy savings leading up to compliance years, followed by steep declines immediately after. Similarly, high rebate demand just before a compliance deadline may risk exceeding maximum budget caps, while the drop-off in participation afterward can make it difficult to meet required minimum spending levels. This volatility makes it difficult to maintain consistent program performance and creates a misalignment with utility planning cycles. Circumstances like this demonstrate the need for utilities to thoroughly plan out how to account for energy savings in ways that meet expected savings cycles, whether an MT or RA approach is being considered.

There may be opportunities to better align BPS and utility evaluation timelines. One opportunity could involve making assumptions about savings occurring incrementally over the performance period, rather than solely in the final compliance year. Since benchmarking data is reported annually, tracking and validating savings trends over time may be feasible, allowing for a more continuous accounting approach. Counting savings as they occur, rather than deferring all attribution to the year of compliance, could help adjust for this misalignment and provide the consistency needed to meet utility program planning timelines.

Claiming Savings Using a Resource Acquisition Model

For utilities that may not be able to move forward using the MT approach, a simplified approach is available that considers the savings achieved through BPS programs and existing retrofit programs. The evaluation would occur within a typical annual or biannual cycle and would be narrowly focused on the buildings in BPS municipalities that are utilizing utility funding. The evaluation would place less emphasis on MT program elements like training, educational materials, and technical assistance to overcome barriers. These savings would be inclusive of the energy and demand savings from building level retrofits and upgrades that were incentivized through the RA programs. The challenges in this evaluation method may come from misalignment of the performance period and typical utility evaluation cycles. Some claimed savings may be lost to the utility if a building owner/manager complies with the BPS but does not take advantage of utility incentives.

The RA model not only measures savings from incentive and rebate programs but also considers other savings factors. For example, RA model energy efficiency programs reduce overall energy demand, lowering energy costs for consumers and easing grid demand. Reduced grid demand, in turn, minimizes the need for new power plants, generating savings that are passed on to end users. Savings can be quantified and attributed in both the short and long term.

Conclusion

With this framework, the project team and authors will be working with several utility partners to offer technical assistance, including support in developing a roadmap for BPS engagement, creating a tailored logic model, and identifying regulatory barriers to claiming savings. These examples of utility attribution in practice can be used as a demonstration of for future program development and utility evaluation.

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