Engaging and Crediting Utilities for Supporting Energy Code and Building Performance Standard Implementation

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ABSTRACT

The traditional role of energy utilities has been to provide reliable service at reasonable cost to consumers. With imperatives to conserve resources, utilities for decades have administered incentive programs to cost-effectively improve appliance and equipment efficiency over minimum state and federal requirements. More recently, a limited number of states have credited energy savings to utilities with programs that support energy code and standard implementation. What are the next steps in spreading and extending the utility's role in supporting its customers and policy goals of the states and cities in which they operate? With Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) funding coming online, state and local energy code implementation activities are being supercharged, there is an emerging structure to push well beyond the model energy codes, the term "code" itself is incorporating building performance standards (BPS) for existing buildings, and new networks for collaboration and capacity building are being established. This paper provides an overview of utility energy code implementation support programs and the different approaches some states have adopted to credit utilities for those efforts. It then discusses the potential opportunities and challenges for extending these programs to building performance standards. Lastly, as advanced energy codes and BPS will be pushing for deeper energy and emissions reductions in the coming years, the paper explores how states, jurisdictions, and utilities can better collaborate across the U.S. to replicate and expand successful models.

Introduction

The role of utilities in delivering energy efficiency programs has expanded through the adoption of energy efficiency resource standards (EERS) policies across the United States, which have established energy savings targets for utilities in 32 states (ACEEE 2022b). Additional utilities offer energy efficiency programs outside of an EERS framework (ACEEE 2022a). In addition to the host of incentive programs offered by utilities to customers, some utilities have developed codes and standards programs within their energy efficiency portfolios. While structured differently than traditional energy efficiency programs, codes and standards programs can result in significant energy savings for utilities towards EERS and other savings targets (Chase et al. 2021). An increasing number of states have permitted utilities to claim energy savings from codes and standards support efforts (Chase et al. 2021), incentivizing greater utility investment in these programs.

Utilities are well positioned to offer support for the processes of energy code adoption and implementation at the state and municipal level. In the process of building energy code adoption, utilities can offer technical support and advocate for the advancement of codes. In the

implementation of building energy codes, utilities are well positioned to transfer information and resources both to building officials and to customers to increase code compliance.

However, if states do not give utilities an incentive to participate in code adoption and compliance support activities, there could actually be a disincentive for utilities to support stronger codes: as existing codes and standards often serve as a baseline from which to measure utility program energy savings, more efficient codes and standards can result in less opportunities for utilities to meet savings targets from incentive programs (Lee and Stacey 2018). Therefore, by allowing utilities to claim energy savings from efforts to promote adoption and compliance with energy codes, states offer utilities an additional avenue for claiming energy savings and incentivize utilities to participate in these activities.

There are significant opportunities for expansion of utility efforts to support codes and standards and for expansion of savings attribution approaches to states without approaches in place. Some local jurisdictions across the U.S. are adopting stretch codes that go beyond their states' base codes (e.g. Massachusetts (MA DOER 2024)). Further, as more jurisdictions adopt building performance standards (BPS) policies aimed at today's existing buildings, which will represent a significant majority of total building square footage in 2050 (Nadel and Hinge 2023), there is a significant opportunity for expanded utility efforts to improve overall building energy performance. BPS are just beginning to come online in early adopter localities and states, meaning utilities can play an important role in supporting their customers' compliance with these policies (and avoiding the penalties for not doing so). Further, current federal funding from the Bipartisan Infrastructure Law (BIL) and Inflation Reduction Act (IRA) intended to support state and local energy code implementation activities provides a unique opportunity to increase utility efforts to support energy code and BPS implementation, as states have more resources at their disposal to effectively implement updated energy codes.

This paper provides an overview of attribution approaches for energy savings from utility energy code support programs and information on states with approaches in place or in development. It then discusses potential opportunities for expanding utility involvement in energy code adoption and implementation support to other states and to utility efforts to support BPS policies. Lastly, the paper explores how states, jurisdictions, and utilities can increase collaboration to advance energy code and BPS implementation efforts and to replicate successful savings attribution approaches.

Attribution Approaches for Energy Code Savings

The approaches taken by states to attribute energy savings from utility code support efforts are utilized in states where utilities' codes and standards programs are considered "resource programs," meaning the energy savings resulting from the programs are claimable under the state's EERS. However, in some states, utilities' codes and standards programs are considered "non-resource programs," meaning the state does not consider the programs to result in energy savings claimable under the state's EERS, and instead solely considers the programs to have other outcomes like education, training, or outreach for energy efficiency (Lee and Stacey 2018).

As shown in Figure 1, fourteen states and the District of Columbia (D.C) have approaches in place to attribute energy code savings, and five states are currently developing or considering attribution approaches.

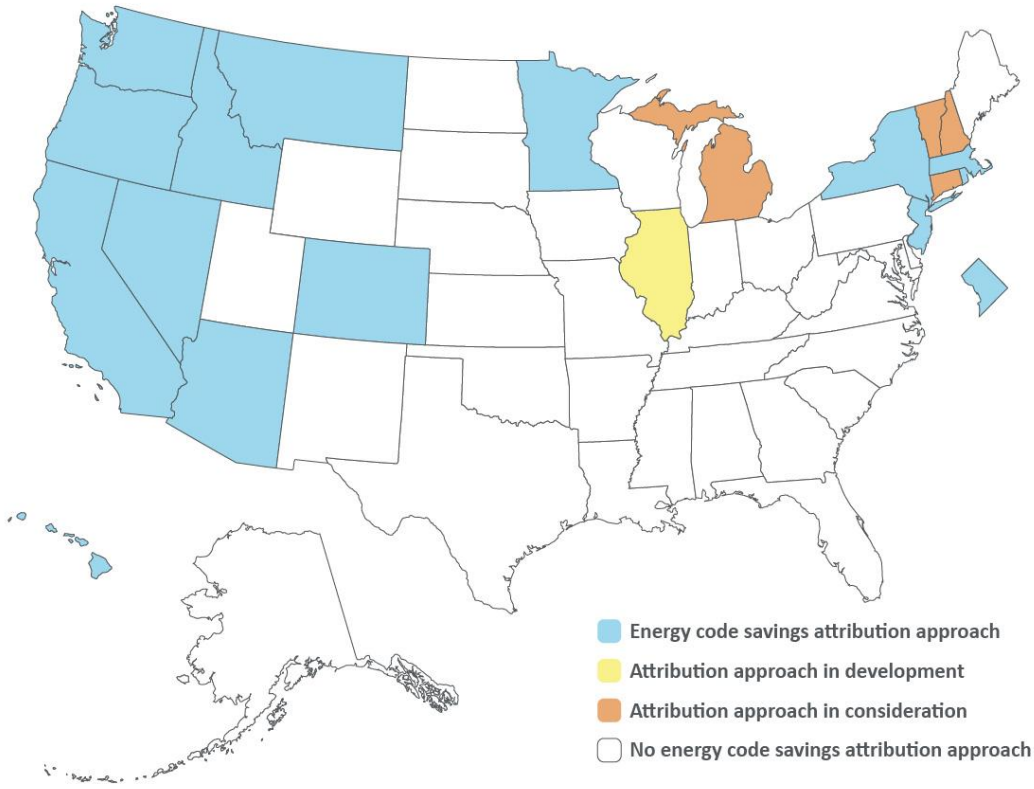

Figure 1. States with energy code savings attribution approaches in place, in development or in consideration.

Formal Attribution Approaches

Of the fifteen states with approaches in place, seven states and D.C. utilize a formal attribution approach as summarized below. While there is variation across states, such approaches generally involve evaluation, expert and stakeholder interviews, and documentation (Chase et al. 2021). The standard formal attribution approach for energy savings from utility codes and standards programs is based on California's Codes and Standards Advocacy Program Evaluation Protocol model. In 2005, California became the first state to develop an attribution approach (Mahone et al. 2005) and it has served as a model for other states in developing attribution approaches (Chase et al. 2021).

The components of a typical formal attribution approach include a stepped process to determining the following (Lee and Stacey 2018; Chase et al. 2021):

1. *Potential energy savings* calculated from the energy savings estimated per building code measure and the size of the market.
2. *Gross energy savings* determined from applying the compliance rate to the potential energy savings.
3. *Net energy savings* calculated by subtracting the savings associated with naturally occurring market adoption (NOMAD) from the gross energy savings.

4. *Net program savings* determined by applying an "attribution factor" for the proportion of savings derived from the codes and standards program efforts. Attribution factors are often determined by an expert panel through examination of the documented contributions of utilities and other market actors to codes and standards implementation.
5. *Utility-specific savings*: If multiple utilities are involved in the codes and standards program efforts, the utility-specific savings are estimated as a proportion of the net program savings, based on each utility's share of program costs.

California's codes and standards (C&S) programs include subprograms related to advocacy, education, compliance improvement, and technical support for jurisdictions' reach codes (Chase et al. 2021; PG&E 2022). Only the codes and standards advocacy subprograms are considered resource programs for which utilities are allowed by the California Public Utilities Commission (CPUC) to claim energy savings (Lee and Stacey 2018; Chase et al. 2021); however, because California's attribution model adjusts energy savings based on the energy code compliance rate, increased compliance from the compliance improvement subprogram indirectly increases the energy savings derived from the advocacy subprogram attribution (Chase et al. 2021). While all of California's investor-owned utilities are all involved in statewide C&S programs, the state's largest utility, Pacific Gas & Electric Company (PG&E), is charged by the CPUC as the lead program administrator for appliance standards and building codes advocacy subprograms (Chase et al. 2021; PG&E 2022). Energy savings from C&S consistently constitute a high percentage of overall utility energy efficiency portfolio savings (Chase et al. 2021); for example, 86% of PG&E's total 2021 program savings were attributed to C&S programs (CEDARS 2024).

Colorado's Xcel Energy, d/b/a Public Service Company of Colorado, the larger of the state's two investor-owned utilities, has developed an attribution method for determining energy savings that result from their code compliance activities (Xcel Energy 2023b). Xcel's algorithm for determining code compliance savings first calculates the program net annual kWh savings by multiplying the program gross potential annual kWh savings by a construction adjustment factor, to account for the difference in assumed and actual construction volume, then multiplies that sum by the compliance rate and annual utility attribution factor (Xcel Energy 2022). For the 2021 and 2022 program years, Xcel utilized an attribution factor of 19% to account for construction impacted by trainings Xcel conducted prior to 2021 (Xcel Energy 2023a). For new construction impacted by their new code compliance program launched in 2021, Xcel utilized an attribution factor of 46% (Xcel Energy 2022), indicating the growth of this relatively new program's impacts.

In 2019, the **District of Columbia** Sustainable Energy Utility (DCSEU) began claiming energy savings that resulted from its Code Compliance Support Initiative program (NMR Group et al. 2020). Energy savings from the Code Compliance Support Initiative are calculated by taking the difference in code compliance rates before and after DCSEU began its code compliance activities, attributing to DCSEU the portion of the change in compliance rate that resulted from its efforts, and estimating the gross potential savings, or the change in energy savings related to the change in code compliance rate (B. Plotzker, EM&V manager, DCSEU, pers. comm., January 5, 2024). The documented savings attributed to the DCSEU Code

Compliance Support Initiative were then evaluated and verified by an evaluation team, which determined a 100% realization rate for the energy savings from the Code Compliance Support Initiative, meaning the DCSEU was able to claim 100% of the documented savings from code compliance-related efforts (NMR Group et al. 2020).

Hawai'i's energy efficiency program administrator, Hawai'i Energy, was permitted by the Hawai'i Public Utilities Commission (PUC) to claim energy savings from some of their code adoption support and code compliance enhancement activities conducted between program year (PY) 2014 and PY2018. Energy savings were determined by estimating the full savings from the appliance standard and code compliance activities, then applying attribution factors to represent the portion of the savings attributed to Hawai'i Energy's efforts. The PUC's third-party evaluation, measurement and verification (EM&V) contractor conducted an ex-ante review of Hawai'i Energy's estimates and reviewed the documentation supporting their attribution factors. The EM&V contractor adjusted the claimed energy savings based on their review. (J. Barnes, associate director, 2050 Partners, pers. comm., February 8, 2024.)

Massachusetts's Code Compliance Support Initiative (CCSI) was established by Massachusetts utility efficiency program administrators in 2014, and utilities developed a methodology for attributing energy savings resulting from CCSI efforts in 2015 (Lee and Stacey 2018; Nadel 2020). The evaluation methodology for energy savings from the CCSI includes estimation of gross energy savings from increased code compliance, multiplied by an attribution factor representing the percentage of increased compliance that resulted from CCSI efforts rather than from naturally occurring market adoption (NOMAD) (Lee and Stacey 2018; Nadel 2020). The resulting value is the net energy savings from the CCSI efforts (Lee and Stacey 2018; Nadel 2020).

Minnesota's five investor-owned utilities coordinate to offer residential and commercial code compliance support programs (CenterPoint Energy 2024). The energy savings estimation methodology for Minnesota's residential and commercial code support programs was informed by attribution methodologies used for other utility codes and standards programs, including that of Xcel Energy's residential and commercial codes program in Colorado (Xcel is also Minnesota's largest utility), as well as methodologies used in Massachusetts, Rhode Island, Arizona, California, and other states (Effinger 2023). The methodology involves calculating gross potential savings, adjusting based on compliance rate, and attributing claimable savings to the utility programs (Effinger 2023). Energy savings are attributed to each utility based on their share of program costs (CenterPoint Energy 2024; Effinger 2023).

In **Nevada**, NV Energy is the parent company of the state's two regulated electric utilities and runs a residential code and new construction program (NV Energy 2023). The methodology for attributing savings from the residential codes component of the program is informed by the California Evaluation Framework and other utility methods (NV Energy 2023). A 2022 Nevada compliance study by the U.S. Department of Energy will be used for determining the baseline energy usage for estimating savings (NV Energy 2023). As the residential codes program activities began in 2023, NV Energy has not yet claimed energy savings resulting from the activities (ADM Associates 2023).

Rhode Island established a Code Compliance Enhancement Initiative (CCEI) in 2014 with National Grid, the state's main investor-owned utility at the time (prior to the sale of their Rhode Island subsidiary to PPL in 2022) (Chase et al. 2021; Nadel 2020). The attribution

approach for CCEI energy savings is similar to that of California and Massachusetts, in that it uses an attribution factor informed by compliance studies, documented impacts, and a NOMAD factor (Lee and Stacey 2018; Nadel 2020). While in the California and Massachusetts approaches, the attribution factor is determined using a Delphi panel, a formal method of surveying an expert panel, in the Rhode Island approach the attribution factor is assessed by an evaluation team (Lee and Stacey 2018).

Other Attribution Approaches

Arizona investor-owned utilities are allowed to claim energy savings from code implementation efforts utilizing a deemed attribution approach, rather than the formal process for attribution in other states (Lee and Stacey 2018). In a deemed approach, the state determines an attribution factor for the percentage of energy savings attributable to utility codes and standards programs (Lee and Stacey 2018; Chase et al. 2021). Arizona's deemed attribution approach allows investor-owned utilities to claim up to one-third of the energy savings that result from energy codes and up to one-third of energy savings that result from appliance standards (Arizona Administrative Code 2022).The energy savings must be quantified in a measurement and evaluation study by the utility, and in Arizona are estimated using field data and market baselines (Arizona Administrative Code 2022; Lee and Stacey 2018).

In **New Jersey**, both the Board of Public Utilities (BPU) and utilities themselves administer energy efficiency programs (Lee and Stacey 2018). A 2023 BPU order permitted energy savings attributed from building energy codes to be claimed as energy savings from state programs towards energy savings targets (NJBPU 2023). An analysis was conducted to attribute energy savings from the state's adoption of updated energy codes in 2023 (NJBPU 2023; Center for Urban Policy and Research 2023). The attribution approach involved the calculation of potential savings, gross savings, and net savings (Center for Urban Policy and Research 2023). The analysis determined that the additional energy savings from the energy code adoption, as well as from other additional initiatives, could be applied towards the overall New Jersey Clean Energy Act energy reduction goals, so less savings are needed from other state-administered and utility-administered programs as the baseline energy performance set by codes ratchets up (NJBPU 2023).

The **New York** State Energy Research and Development Authority (NYSERDA) is administrator of the state's codes and standards programs, including the Codes and Standards for Carbon Neutral Buildings initiative (NYSERDA 2023). The savings estimation methodology used in the first few years of the initiative involved calculating savings from stretch code adoption efforts and savings from increased base energy code compliance resulting from training efforts (Eckstein and Horkitz 2022). As the initiative efforts have been updated to focus on all-electric new construction, the savings estimation methodology will be reviewed and updated as well (NYSERDA 2023).

Codes and standards programs in **Idaho, Montana, Oregon, and Washington** are run by the Northwest Energy Efficiency Alliance (NEEA), an alliance of utilities and energy efficiency organizations in these four states (NEEA 2024). NEEA reports the energy savings associated with advances to building codes and product standards to funders so that they can include these savings in their regulatory reporting and planning. The method used by NEEA to quantify energy savings from code advancement and adoption efforts involves the calculation of incremental

savings between the previous code and newly adopted code, as well as the calculation of a compliance rate that is assessed with each code cycle. NEEA funders either report the savings using a Power Plan baseline approach, which counts savings from codes adopted after the development of the plan, or a Market Transformation approach, which counts savings for 10 years (M. Rehley, director of emerging technology, product management, codes, standards & new construction, NEEA, pers. comm., May 7, 2024). The attribution of savings for funders is based on their portion of NEEA funding (Lee and Stacey 2018).

Attribution Approaches in Development

In addition to the states with attribution approaches in place, several states are currently considering or developing attribution approaches for energy savings from utility code support programs. Under **Illinois** statute, utilities can claim energy savings from energy code programs, which fall under the category of their market transformation initiatives. The method for attributing energy savings from utility code programs is still under development. The proposed methodology for attributing energy savings is based on the number of units, the difference between the energy use intensity (EUI) of the base code and the EUI of the stretch code, and the amount of new construction growth. As Illinois residential and commercial stretch codes will be in place for adoption on July 1st, 2024, utility efforts to consider potential energy savings related to stretch code adoption support programs are underway. (E. Horne, policy analyst, Illinois Commerce Commission, pers. comm., December 12, 2023.)

In **Connecticut**, the investor-owned utilities jointly offer code compliance support programs and are considering possible attribution approaches for energy savings from these programs, including Massachusetts and Rhode Island's approaches (Eversource Energy et al. 2022). **New Hampshire**'s investor-owned utilities have planned to expand their joint residential programs to include building code compliance activities and they are considering attribution approaches such as Massachusetts' approach to cover savings resulting from increased codes and standards compliance and code trainings (Liberty Utilities et al. 2020).

In **Michigan**, utility DTE launched a residential Codes and Standards pilot and is able to claim a deemed amount of energy savings from pilot programs (DTE Energy 2023; MI PSC 2008). **Vermont**'s energy efficiency administrator, Efficiency Vermont, offers a Codes and Standards Support program for residential and commercial buildings (VEIC 2023); Vermont will review the potential for utilities to claim energy savings from codes and standards support efforts in a proceeding in 2024 (K. Launder, assistant director of efficiency and energy resources division, Vermont Department of Public Service, pers. comm., November 30, 2023).

Opportunities to Expand Utility Involvement

Utilities have a crucial role to play in driving greater reduction of building energy usage and associated greenhouse gas emissions through advancing energy codes. In the United States, there is a wide range in the level of efficiency of state energy codes in place (DOE 2023b). Figure 2 shows the strength of states' residential energy codes relative to the most recent model energy code, the 2021 IECC. The metric used in Figure 2 to demonstrate the relative strength of a state's residential energy code is computed as the normalization of DOE's site energy index data. DOE's site energy index (SEI) represents the ratio between the modeled site EUI of the

current state residential energy code to the EUI of the 2006 IECC. For Figure 2, we have normalized this data as the SEI values are dependent on climate zones. The normalized energy code stringency metric is computed with the following equation:

$$Energy\ Code\ Stringency = \frac{SEI_{statecode} - SEI_{2006IECC}}{SEI_{2021IECC} - SEI_{2006IECC}}$$

With this normalized metric, higher values represent greater energy efficiency of the state code, with the value 100 representing an efficiency level equal to the 2021 IECC efficiency level. Figure 2 groups states by their residential code efficiency category within the DOE (2023b) database, with <IECC 2009 as the least efficient category and IECC 2021 as the most recent and most efficient category. Figure 2 also highlights the involvement of utilities in energy code adoption and compliance efforts in each state.

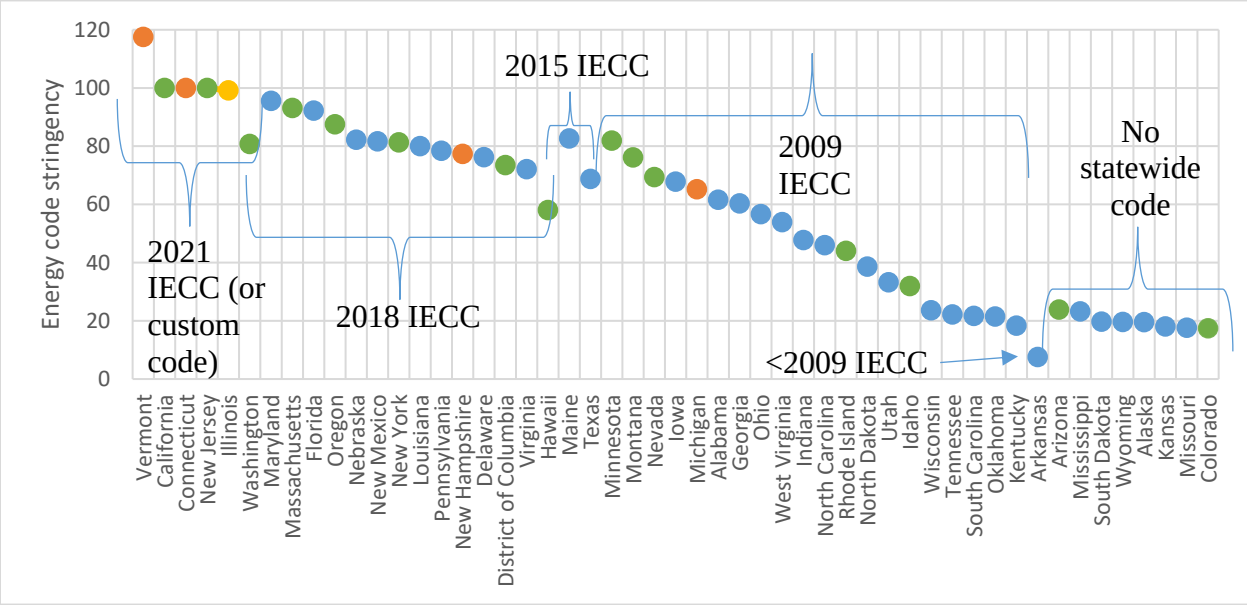

Figure 2: Efficiency of state residential energy code (utility involvement highlighted). Green state markers represent states with existing energy code savings attribution approaches, yellow markers represent states developing energy code savings attribution approaches, and orange markers represent states considering energy code savings attribution approaches. Blue markers represent states without an attribution approach. *Source*: DOE 2023b.

As seen in Figure 2, the states with statewide codes (42 states and D.C) are evenly divided into higher energy efficiency categories of the 2015 IECC to 2021 IECC (21 states and D.C.), and lower energy efficiency categories of the 2009 IECC and earlier (21 states). In both the higher and lower efficiency halves, states with attribution approaches are clustered at the top of each half. The five states with the highest energy efficiency metric values (in the 2021 IECC category or with a custom code) either have an energy code savings attribution approach (California and New Jersey) or are developing or considering an attribution approach (Connecticut, Illinois and Vermont). In the lower half of Figure 2, of the 20 states in the 2009 IECC category, the three states with the highest efficiency metric value within the category have an energy code savings attribution approach (Minnesota, Montana, and Nevada). Among the 17 other states in the 2009 IECC category, only two states (Rhode Island and Idaho) have energy

code savings attribution approaches and one state (Michigan) is developing an attribution approach.

This pattern of clusters of states with attribution approaches at the top of their respective categories implies that utilities play a more significant role in states with more stringent energy codes. While we cannot make causal inferences, the correlation here suggests utility involvement in energy code adoption and implementation in states with less efficient energy codes could provide broader support for advancing energy codes. By allowing utilities to claim energy savings from code support programs, regulators can incentivize greater utility involvement in energy code adoption and implementation and increase the energy efficiency of buildings in their states.

Among the states without statewide codes in Figure 2, two home rule states (where local jurisdictions alone adopt codes), Arizona and Colorado have energy code savings attribution approaches. Utility programs supporting energy code compliance in home rule states can be effective mechanisms in improving energy efficiency of buildings in local jurisdictions where statewide codes do not exist. Program successes in home rule states may also provide insight into potential opportunities for utility programs to support BPS, since BPS are generally adopted at the local level.

Extending Attribution to Building Performance Standards

Opportunities

Under BPS policies, existing buildings are required to reach a certain level of energy use or emissions; they are generally limited to buildings over some threshold square footage, such as New York City's BPS applying to buildings over 25,000 square feet. Utilities are well positioned to support BPS adoption and effective implementation at the state and local level. Before a BPS policy goes into effect, utility programs and incentives can support early compliance with the policy, and after it is in effect, utilities can offer technical assistance and workforce development programs (Nadel 2020; Nadel and Hinge 2023).

As of the end of 2023, four states – Colorado, Maryland, Oregon, and Washington – and D.C. had passed BPS policies (DOE 2023a). In addition, some cities and other local jurisdictions have passed BPS policies, including individual jurisdictions in the four states with statewide BPS policies, as well as jurisdictions in California (Chula Vista), Massachusetts (Boston, Cambridge), Missouri (St. Louis) and New York (New York City) (DOE 2023a). Many other jurisdictions are currently developing or considering BPS policies as well (DOE 2023a; Nadel and Hinge 2023).

There are nascent utility efforts in California and New York underway to expand their support for BPS adoption and implementation. California utilities' Reach Code program is extending to include BPS adoption support, and NYSERDA also plans to develop policy programs to promote decarbonization through BPS (A. Chase, principal, 2050 Partners, pers. comm., January 8, 2024; NYSERDA 2023). Additionally, ComEd in Illinois plans to launch an initiative to promote the adoption of a BPS in at least one municipality in their service territory (ComEd 2021).

Of the states with statewide BPS policies, all except for Maryland have energy code savings attribution approaches in place. Additionally, California, Massachusetts, and New York, where jurisdictions have adopted BPS policies, also have energy code savings attribution

approaches in place. States with existing approaches to attributing code-related energy savings could extend the approach to include BPS-related energy savings (though codes programs would not necessarily translate directly to BPS, as discussed below). For states without existing attribution approaches for energy code savings, there is an opportunity to adopt an approach to attributing energy code and BPS savings to incentivize further utility activity in supporting both of these standards.

The attribution approaches used for claiming energy savings from codes and standards programs provide a framework that utilities could modify to claim energy savings from BPS implementation support efforts (Nadel 2020). Utilities could offer a suite of incentive programs that help buildings comply with the required energy or emissions performance, and claim credit for the resulting energy or emissions reductions. Further, engaging utilities in BPS implementation could have a compounding effect on energy and emissions reductions by incentivizing buildings to go even further than the BPS-required performance level and to make use of specific incentives before they disappear when the required performance level is ratcheted down.

BPS-Specific Considerations

While utility energy codes programs could serve as a starting point for utility BPS programs, there are special considerations that will need to be addressed in developing a new model for utility BPS programs and attribution. In developing an attribution approach to credit utilities for BPS support efforts, utilities would need to consider key differences between energy codes and BPS policies. As BPS policies set levels for site energy use or emissions for existing buildings, utility credit for BPS implementation support efforts would need to be quantified in total site energy or emissions, rather than in electric and gas savings, as is done to quantify utility credit for energy code savings. In modifying the formal attribution model for energy code savings, utilities and regulators would need to account for these differences in quantifying and attributing savings from utility BPS implementation support efforts.

Nevertheless, the components of the formal attribution approach can all be adapted to account for the contributions of utilities to site energy or emissions reduction for BPS compliance. The availability of actual performance data could also provide opportunities for more accurate assessment of BPS support programs. As BPS policies often build upon benchmarking policies, jurisdictions will be able to estimate the potential savings from a BPS policy through comparing historical benchmarking data to the target level of building performance under the BPS. Further, gross savings from a BPS policy can be measured as actual savings from building energy use data. Similarly to calculating net savings from energy codes, net savings from a BPS policy can be calculated by factoring in naturally occurring market adoption (NOAD) savings, which in the BPS context would be the savings from buildings that would have upgraded regardless of whether a BPS policy was in place. Attribution of net program savings would likely require experts to determine an attribution factor through documentation of utility and other market actor efforts for BPS implementation, as is done for energy code net program savings. Determining utility-specific savings from BPS program efforts would be complicated by the fact that BPS compliance is quantified in site energy or emissions reduction, requiring innovative methods developed by utilities and regulators to fit their jurisdictions.

There are opportunities to credit utilities for contributions to BPS implementation through multiple types of programs. Utilities could receive credit for incentives that assist affordable housing and other underserved buildings in complying with BPS policies (Nadel 2020). In doing so, utilities could play an important role in ensuring that BPS policies are implemented equitably and that the benefits of BPS policies are distributed equitably. Additionally, utilities could pair explicit BPS support programs to more traditional incentive programs that push building performance beyond base code and standard requirements. However, program design will need to ensure that savings associated with meeting a building's required BPS level are not double counted (i.e. in both a BPS implementation support program and a utilities efficiency incentive program), but that the utility also gets credit for its efforts to improve building energy performance even beyond the requirements of a BPS. Attribution approaches for utility BPS programs will thus need to carefully differentiate between activities that achieve minimum performance requirements and incentives for exceeding those performance levels. If done correctly, building energy performance could push further than BPS policies anticipated.

Collaboration to Advance Energy Codes and BPS

With the push to advance energy efficiency and decarbonization policies and significant federal funding to support such efforts, utilities should not stand alone in administering programs, but rather need to be engaged into the broader codes community in states and jurisdictions. The structure under which to do this from the local to the national level is becoming more robust: the strength of existing state and regional energy codes collaboratives, the expansion of the Department of Energy Building Energy Codes Program's Technical Assistance Networks and the establishment of a National Energy Codes Collaborative. For both energy codes and BPS policies, it is crucial that the engagement between states, jurisdictions, and utilities is not a one-way process, but that the engagement is conducted as a feedback loop, with utilities supporting adoption and effective implementation of energy codes and BPS policies, and states incentivizing utilities to do so. With reciprocal engagement and sharing of best practices across the country, greater benefits to communities can be realized from energy codes and BPS policies. While all stakeholders need to coordinate for successful program implementation, specific roles of utilities, states and local jurisdictions in that collaboration can be delineated.

Role of Utilities

Utilities without current codes and standards programs can propose potential programs suited to their service territory, with code adoption support activities, code compliance support activities, or both. Utilities can play a key role in offering technical assistance and training to building officials and contractors in smaller jurisdictions or jurisdictions with limited capacity. Utilities can also support third-party compliance studies to develop a compliance baseline from which to measure future savings from their activities.

Before and after BPS policies go into effect, utilities can support compliance through incentive programs, technical assistance and workforce development programs (Nadel 2020).

Utilities may develop whole building programs that can offer a suite of incentives for energy efficiency upgrades necessary for BPS compliance. Further, utility incentives and technical assistance programs can be important resources for reducing compliance challenges and can be targeted towards assisting affordable housing building owners with BPS compliance (Jarrah et al. 2024). Utilities can also offer jurisdictions data on BPS compliance from customer energy data while also establishing accurate baselines and potentially using data-driven "energy audits" to identify potential high impact energy conservation measures.

In proposing attribution methodologies for energy savings from energy code and BPS implementation support efforts, utilities can use existing approaches like the California model as a framework and make modifications. Utilities would be crucial actors in adapting attribution approaches for energy code-related efforts for their state-specific context. In adapting attribution approaches for BPS-related efforts, utilities can account for specific activities, develop appropriate savings calculations methods, and evaluate the optimal interplay between new BPS support programs and traditional incentive programs.

Role of States

States have an important role to play in incentivizing and enabling greater utility support for codes and standards efforts. In particular, states with EERS policies where codes and standards programs are considered non-resource programs can make policy changes to allow utilities to claim energy savings from these programs. This is an opportunity and an avenue for states to incentivize greater code compliance and to realize energy efficiency improvements.

Allowing utilities to claim savings from energy code support efforts in states with no existing code programs or attribution approaches stands to benefit jurisdictions and communities. In many states, utilities can provide key resources to support energy code adoption and implementation in smaller jurisdictions or jurisdictions with limited capacity, where it may be difficult for state level efforts to reach.

Additionally, states can allow utilities to claim energy savings from efforts to support BPS adoption and implementation at the state, county, and municipal level. As utilities are well positioned to assist state efforts through technical and financial support to building owners, utilities can be a key partner for states in encouraging and enforcing BPS policies.

Role of Local Jurisdictions

Jurisdictions can partner with utilities in the processes of adoption and implementation both for energy codes and BPS. As mentioned, utilities can be a source of technical assistance and stakeholder input in the process of implementing energy codes and developing BPS policies. Utilities can support capacity gaps that jurisdictions may face, and offer trainings for local staff.

In BPS compliance efforts, jurisdictions can benefit from utility relationships with customers and incentive programs as sources of technical and financial assistance for building owners. Jurisdictions can rely on utility information to better understand BPS compliance levels and challenge areas. Greater collaboration between jurisdictions and utilities in supporting BPS compliance stands to benefit building owners that may face financial hardship in compliance, like affordable housing providers. Communities will also reap greater benefits from energy codes and BPS policies through collaborative efforts by jurisdictions and utilities.

Conclusion

Attribution approaches for code support programs are important levers for states to utilize in driving towards energy use and emissions reduction goals. Utilities play a significant role in energy code adoption and implementation in many states, but there are many states with opportunities to incentivize utilities to develop and expand code-related programs. In particular, in states with the least efficient energy codes, utilities can help drive adoption of more advanced energy codes and help address compliance challenges. By offering an incentive for greater utility involvement through allowing utilities to claim energy savings from energy code support programs, states and jurisdictions can mutually benefit from utility capacity support and benefits to their residents and communities.

Increased utility support for energy code and BPS implementation can be targeted to benefit disadvantaged communities in particular. Utility technical assistance and compliance assistance can benefit jurisdictions with limited capacity for code implementation, especially rural or hard to reach jurisdictions. In BPS compliance, utility incentive programs can help reduce financial burdens of compliance for affordable housing building owners. States, jurisdictions, and utilities can collaborate to identify and develop targeted programs to support disadvantaged communities in energy code and BPS compliance.

Through greater collaboration among utilities, states, and jurisdictions to support the advancement and implementation of energy codes and BPS policies, greater impacts of energy savings, emissions reduction, and cost savings can be realized. Further, there are a range of non-energy benefits of more energy efficient new and existing buildings for residents and communities, such as health and resilience benefits. Through encouraging increased compliance with energy codes and BPS policies, buildings can become more energy efficient, comfortable, and resilient for residents, while delivering emissions reduction benefits to communities at large.

This study identifies the opportunity for expanded utility energy code programs and their extension to BPS. Further, we discuss considerations for crafting BPS programs given the differences in energy codes and BPS policies. Such programs need to be designed not only to allow attribution of some savings to utilities, but to also ensure that savings associated with meeting a building's required BPS level are not double counted by different utility programs and to ensure that the utility gets credit for its efforts to improve building energy performance beyond the requirements of a BPS. Additional work is needed in this area, but if done correctly, there is potential that utility programs and a BPS working together could be far more impactful than either could achieve on their own.

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