# Utility Energy Code Programs and Their Potential Extension to Building Performance Standards

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July 2024

White Paper

ACEEE

# About ACEEE

The **American Council for an Energy-Efficient Economy** (ACEEE), a nonprofit research organization, develops policies to reduce energy waste and combat climate change. Its independent analysis advances investments, programs, and behaviors that use energy more effectively and help build an equitable clean energy future.

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# Acknowledgments

The authors gratefully acknowledge the support of external reviewers, internal reviewers, colleagues, and our sponsor. Expert external reviewers included Rosemarie Bartlett, Ian Blanding, Billierae Engelman, and Chris Perry of EERE. External review and support do not imply affiliation or endorsement. Internal reviewers included Nora Esram, Steve Nadel, and Mike Specian. Last, we would like to thank the following members of ACEEE's editorial and communications team: Mary Robert Carter, Kate Doughty, Mark Rodeffer, Nick Roper, Ben Somberg, Ethan Taylor, Phoebe Spanier, and Mariel Wolfson.

# Suggested Citation

Garfunkel, Emily, and Michael Waite. 2024. *Utility Energy Codes Programs and Their Potential Extension to Building Performance Standards.* Washington, DC: ACEEE. www.aceee.org/white-paper/2024/07/utility-energy-codes-programs-and-their-potential-extension-building.

# Data and Licensing Information

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# Executive summary

## Key findings

- Allowing utilities to claim energy savings from their energy code support programs is essential to incentivize utility involvement in advancing building energy codes and increasing code compliance.
- Currently, 14 states and DC have attribution approaches for energy savings from utilities' codes programs, and 5 additional states are considering or developing such models.
- Utilities in at least five states have codes and standards programs but cannot claim energy savings from those efforts. Utilities and regulators in these states could develop and approve attribution approaches to strengthen these efforts.
- There are early efforts to incorporate building performance standard (BPS) adoption and implementation support into utility codes programs. Energy code savings attribution approaches can be used as a framework for claiming energy savings from BPS adoption and implementation support efforts; however, a new program model (or models) specific to BPS is needed.
- Utilities are well positioned to support customers in complying with BPS; by incentivizing greater utility involvement in BPS implementation, communities can more readily access the benefits of energy efficiency and emissions reduction in existing buildings.

Many utilities have programs that support the adoption of energy codes and appliance standards, or improve compliance with energy codes, or both. Codes programs often focus specifically on either residential or commercial building energy codes, and many utilities run both residential and commercial code support programs. Such programs yield considerable energy savings, for which utilities are able to claim credit under energy efficiency resource standards (EERS) policies in about one-third of U.S. states. Currently, early efforts are underway to extend these programs to more recent whole building energy performance improvement policies, such as building performance standards (BPS) or stretch codes.

This white paper provides an overview of states with utility energy codes programs and models for crediting utilities for the associated energy savings. Although many utility programs and attribution approaches include both building energy codes and appliance standards adoption support efforts, this paper focuses on programs supporting building energy codes. Additionally, this paper highlights opportunities for expanding utility energy codes programs to support emerging BPS policies and steps that may be required to do so effectively.

### *The list of states crediting utilities for energy codes programs continues to expand*

The majority of states that credit utilities for energy savings from code implementation support efforts use a formal attribution approach. California was the first state to develop a formal attribution approach

in 2005, which became a model for other states that have since developed programs of their own. The typical formal attribution approach involves calculating net program savings by determining potential energy savings, gross energy savings, and net savings. If multiple utilities are involved in the codes program efforts, utility-specific savings are calculated as a proportion of the net program savings, based on each utility's share of program costs.

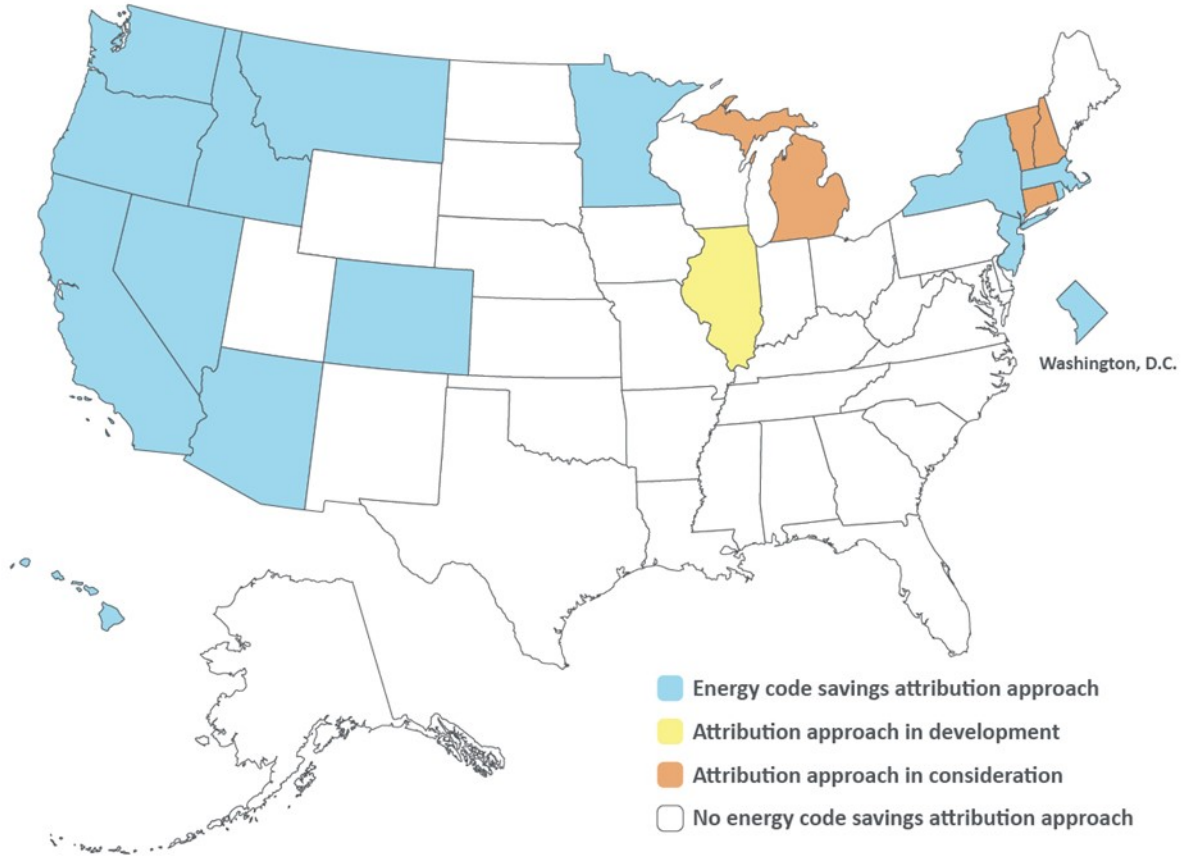


Figure ES1. States with energy code savings attribution approaches in place or in development

As shown in Figure ES1, 14 states and the District of Columbia (DC) currently credit utilities for energy savings from their code support programs: Arizona, California, Colorado, Hawaii, Idaho, Massachusetts, Minnesota, Montana, Nevada, New Jersey, New York, Oregon, Rhode Island, and Washington. While most of these states use a largely standardized formal attribution approach, a few differ. Arizona uses a deemed attribution approach, in which investor-owned utilities (IOUs) claim up to one-third of the energy savings that result from energy codes (Arizona Administrative Code 2022). In New Jersey, utilities or state agencies do not administer codes and standards programs, but the state permits the savings from building energy codes and appliance standards adoption to count toward overall energy reduction goals, meaning less energy savings are needed from other state- and utility-administered programs to meet energy savings targets. The New York State Energy Research and Development Authority (NYSERDA) attributes and claims energy savings from its codes and standards initiative. Utilities in Idaho, Montana, Oregon, and Washington fund codes and standards programs run by the Northwest Energy Efficiency Alliance (NEEA); NEEA reports energy savings from these programs, which are claimed by funders in the four member states.

In addition to the existing programs, five states are currently considering or developing models to attribute energy savings to utility codes and standards programs: Connecticut, Illinois, Michigan, New Hampshire, and Vermont. There are further opportunities to expand attribution approaches to states where utilities are not able to claim energy savings from existing codes and standards programs under EERS policies, such as Missouri and Iowa.

## *Building performance standards provide a new opportunity*

While our research shows utility energy codes programs have had a significant impact, emerging BPS policies focused on existing buildings have the potential for much deeper energy and emissions reductions. Today's buildings constitute a greater percentage of the overall building stock than new construction and will be the dominant users of energy for decades to come. Current energy codes programs and attribution frameworks could be extended to BPS support programs—and there are early efforts to do so in California, Illinois, and New York—but new program models will be required to support BPS compliance support efforts. In particular, BPS-specific approaches will be required to calculate net savings (the total energy or emissions reductions that can be attributed to the BPS rather than other policy and market forces) and net program savings (the portion of the net savings that can be attributed to utility BPS support programs).

Where multiple utilities contribute to or administer programs in the same BPS coverage area (e.g., where there is a state-level BPS), a direct relationship between utility contribution to program costs and utility-specific energy savings cannot be assumed, so new methods to evaluate the effectiveness of individual utility BPS programs may be required. Attribution of savings from BPS programs will also need to ensure that savings are not "double counted" with other utility incentive programs; an effective, holistic program design could even realize more benefits than a BPS or equipment/appliance incentives on their own.

There is currently no program or attribution model for utilities in BPS coverage areas. Given the success of the formal attribution model for energy codes programs, such a model—or individual state approaches—for BPS programs could significantly benefit jurisdictions' existing building energy usage goals, building owners facing penalties for non-compliance, and utility customers who could benefit from smaller energy bills.

# Introduction

Over the past three decades, many utilities have developed building energy codes, mainly targeted to new construction, as well as appliance standards programs as part of their energy efficiency program portfolios. Most utility codes and standards (C&S) programs focus on supporting the adoption of energy codes and appliance standards at the state or local level, improving compliance with energy codes, or both adoption and compliance support. Through C&S programs, utilities offer technical support, advocate for the advancement of codes and standards, and offer training and resources to building code officials and other stakeholders to help increase code compliance. Although utilities play an effective role in supporting energy codes and appliance standards adoption and implementation, there are opportunities to expand C&S programs and incentives for utility participation, as not all states allow utilities to claim energy savings associated with such programs. Further, current approaches do not generally apply to emerging building performance standards (BPS) aimed at reducing existing building energy usage.

While codes and standards are often discussed in tandem, they are distinct in that energy codes set standards for building-level energy efficiency and appliance standards set requirements for equipment energy efficiency. Although many utility programs and attribution approaches include both building codes and appliance standards adoption support efforts, this paper focuses primarily on building codes–related efforts. Energy codes may be a more relevant model than appliance standards in considering opportunities to extend programs and attribution models to include BPS, which target building-level energy efficiency or emissions; however, this paper suggests that coordination between equipment- and appliance-focused incentives and whole building performance is likely necessary for BPS programs.

This white paper provides an overview of existing approaches to quantifying and attributing energy savings from utility codes programs, including states with existing attribution approaches for codes-related savings and states considering or developing these approaches. Additionally, the paper highlights the limited areas where utility codes programs include support for BPS and stretch code implementation. It concludes with a discussion of opportunities for utilities to expand BPS support programs and the potential for states to account for such efforts in energy savings attribution approaches. For states and utilities looking to adopt attribution approaches, this white paper aims to offer learnings from successful and replicable models, as well as providing insight into how such models could be extended to support BPS implementation.

## Background

A key factor incentivizing utilities to invest in energy efficiency programs, state energy efficiency resource standards (EERS) policies establish energy savings targets for utilities (ACEEE 2024). Since EERS policies have been in place, many utilities have encountered diminishing savings from long-standing energy efficiency programs such as efficient lighting programs. Utilities have begun exploring new ways to achieve energy savings for portfolio-wide savings targets established by EERS policies.

Codes programs provide one avenue for additional energy savings for utilities. However, two interconnected considerations must be addressed:

1. Existing energy codes often serve as a baseline from which to measure utility program energy savings, so more stringent codes can result in fewer opportunities for utilities to meet savings

targets from incentive programs (Lee and Stacey 2018). Consequently, utilities may have a disincentive to support more advanced codes.

2. Utilities cannot claim energy savings from codes programs toward EERS targets in all states. Utility codes programs can result in significant energy savings (Chase et al. 2021), but the incentive of claimed energy savings is likely necessary to motivate utilities to develop and administer effective programs.

The critical mechanism to unlock these potential energy savings is a policy to credit utilities with the energy savings resulting from code support efforts.

Implementing more advanced energy codes is an important strategy to reduce greenhouse gas (GHG) emissions in the building sector. In analyzing the results of pilot residential code field studies in seven states beginning in 2014, the U.S. Department of Energy (DOE) found that code compliance support activities, including education, training, and outreach, resulted in a cumulative 30-year energy savings potential of 398 million MMBtu (equivalent to 5 million average households' energy consumption in 2015), with an energy cost savings potential of $8.6 billion over that period (Blanding et al. 2022; EIA 2023). At the household level, improved code compliance has been estimated to save residential utility customers $48 –384 annually (Perry, Misuriello, and Amman 2019). Current federal funding to advance state and local implementation of updated energy codes—including BPS—provides a unique opportunity to expand the support role of utilities, especially if they are able to claim energy savings for their contribution.

## Codes programs and savings attribution models

In the majority of states where attribution of energy savings from codes programs is permitted, the following general framework applies. Each of these elements is discussed in the subsections below:

- Overarching policies setting energy savings targets: Energy Efficiency Resource Standards (EERS)
- Codes programs
    - Program administrators: utilities, state agencies, regional organizations
    - Program types: commercial and/or residential codes
    - Program types: adoption support and/or compliance support
- Program savings eligible to be claimed
- Attribution approach
    - Savings estimation methods
    - Documentation and expert panel review
- Evaluation process
    - Generally, savings are realized two years after program activities are conducted

## EERS policies

EERS policies establish energy savings targets for utilities' energy efficiency program portfolios. In order for utilities to claim energy savings from codes programs toward portfolio savings targets, EERS statute must permit utilities to claim energy savings from programs that support codes.

Illinois provides an illustrative example of the overall policy approach: The 2017 Future Energy Jobs Act (FEJA) established energy savings goals for electric utilities (Lee and Stacey 2018). Under Illinois statute, utilities submitting proposed energy efficiency and demand-response plans to meet the energy savings goals must "present specific proposals to implement new building and appliance standards that have been placed into effect" (Illinois Compiled Statutes 2024). The utilities are required to document consideration of programs for both advancement of new building codes and appliance standards and for compliance support for new building codes and appliance standards "as potentially cost-effective means of acquiring energy savings to count toward savings goals" (Illinois Compiled Statutes 2024). Under this statute, Illinois utilities are allowed to claim energy savings from codes programs, and an Illinois utility is currently developing a methodology for attributing energy savings.

## Codes programs

Codes programs are administered by utilities in most states with attribution models. In most cases, investor-owned utilities administer codes programs and claim related savings through their state utilities commission; however, some municipal utilities also administer codes programs and claim savings. For municipal or cooperative utilities not regulated by state utilities commissions, the utility's board or overseeing body would need to permit the utility to claim codes-related savings. One example is the Salt River Project, a public utility in Arizona, discussed in more detail in the case studies section of this report.

In addition, codes programs in states with attribution models are run by a state agency (e.g., New York State Research and Development Authority, or NYSERDA), a third-party program administrator (e.g., in DC, Hawaii, and Vermont), or a regional energy efficiency organization (e.g., the Northwest Energy Efficiency Alliance, or NEEA). Codes programs often focus specifically on either residential or commercial building energy codes, but many utilities run both residential and commercial code support programs.

Energy code support programs largely fall into two categories: adoption and compliance.

### *Code adoption programs*

Code adoption support programs generally focus on advocating for the adoption of new energy codes and offering technical support to states and municipalities. Similar programs are also termed code advancement or code advocacy programs, such as in the case of the California IOU's code advocacy program. As California develops its own energy code, rather than adopting a model code, utilities can engage in advocacy related to code development through the program.

State code adoption support activities include submitting code enhancement proposals based on research and analysis in the code development process, offering technical support through participation in advisory groups and public code hearings, and submitting comments on code proposals (Chase et al. 2021). Additionally, utilities may assist with developing code manuals (Chase et al. 2021). Utilities may also support the advancement of national model energy codes, through participating in the ASHRAE 90.1 or IECC code development processes as voting committee members, attending public meetings, conducting research for code proposals, and engaging stakeholders (Chase et al. 2021).

### *Code compliance programs*

Code compliance support programs focus on assisting building code officials and other stakeholders with the implementation of energy codes to increase the rate of code compliance. Activities under code compliance support programs include providing training to code officials and industry stakeholders on specific topics, developing educational materials on energy codes, and outreach to enhance understanding of the energy code (Chase et al. 2021). Utilities also provide other means of technical assistance for code compliance such as tool development support for builders, contractors, architects, and building enforcement officials (Eversource et al. 2022a).

Additionally, some utilities support and sponsor field studies to assess code compliance rates in their states. Utilities often also fund energy code circuit riders, experts that travel to various jurisdictions to offer support and resources for code compliance.

## Energy codes program savings attribution approaches

### *Claimable codes program savings*

Attribution approaches are used in states where utilities' codes programs are considered *resource programs*, meaning the energy savings resulting from the programs are claimable under the state's EERS (Lee and Stacey 2018). In some states, utilities' codes programs are categorized as *non-resource programs*, meaning the state does not consider the programs to result in energy savings claimable under the state's EERS, and instead considers the programs to have other outcomes like education, training, or outreach for energy efficiency (Lee and Stacey 2018). Some states allow utilities to claim energy savings from either code adoption or code compliance support programs, while other states allow utilities to claim energy savings from both types of programs.

### *Formal attribution approach*

The majority of states that credit utilities for energy savings from code implementation support efforts use a formal attribution approach. While variation occurs across states, such approaches generally involve evaluation, expert and stakeholder interviews, and documentation. The most commonly used formal attribution approach 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), which has served as a model for other states (Chase et al. 2021).

The components of a typical formal attribution approach include the following steps to evaluate and attribute energy savings from codes programs (Lee and Stacey 2018; Chase et al. 2021):

1. *Potential energy savings* are calculated from the energy savings estimated per building code measure and the size of the market.
2. *Gross energy savings* are determined from applying the compliance rate to the potential energy savings. The compliance rate is an estimation of the percentage of buildings in compliance with the energy code, derived from compliance studies.
3. *Net energy savings* are calculated by subtracting the savings associated with naturally occurring market adoption (NOMAD) from the gross energy savings. NOMAD savings are estimated as the savings that would have occurred regardless of whether the energy code was in place.

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

In the California Codes and Standards Advocacy Program Evaluation Protocol model, the attribution process is conducted by an independent panel of C&S experts, and involves reviewing information from documents and stakeholder interviews regarding the utility program's efforts for the adoption of a code or standard (Lee and Stacey 2018). This "Delphi panel" approach—a formal method of surveying an expert panel—is used to determine the attribution factor for the proportion of net energy savings attributable to utility C&S program efforts. The attribution factor is assessed by three measures of the utility contribution to the adoption of an energy code: efforts to develop compliance assessment methods, efforts to develop technical information, and stakeholder engagement efforts (Lee and Stacey 2018).

## *Savings evaluation*

Typically a third-party evaluator assesses the energy savings resulting from utility codes programs. The third-party evaluator determines the realized savings, which utilities can then claim. For example, the energy savings documented by the District of Columbia Sustainable Energy Utility (DCSEU) from their Code Compliance Support Initiative in 2019 were evaluated and verified by an evaluation team of NMR Group, an independent evaluator, and other third-party evaluators (NMR Group et al. 2020). The NMR Group team 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).

Generally, there is a two-year gap between the program year when utility code support activities are conducted and the program year when savings from those activities are realized, due to the nature of the code adoption and compliance process and the time required to construct buildings. Therefore, the savings estimated from program activities are often projected two years into the future, at which time they are evaluated, verified, and claimed.

# Summary of state programs

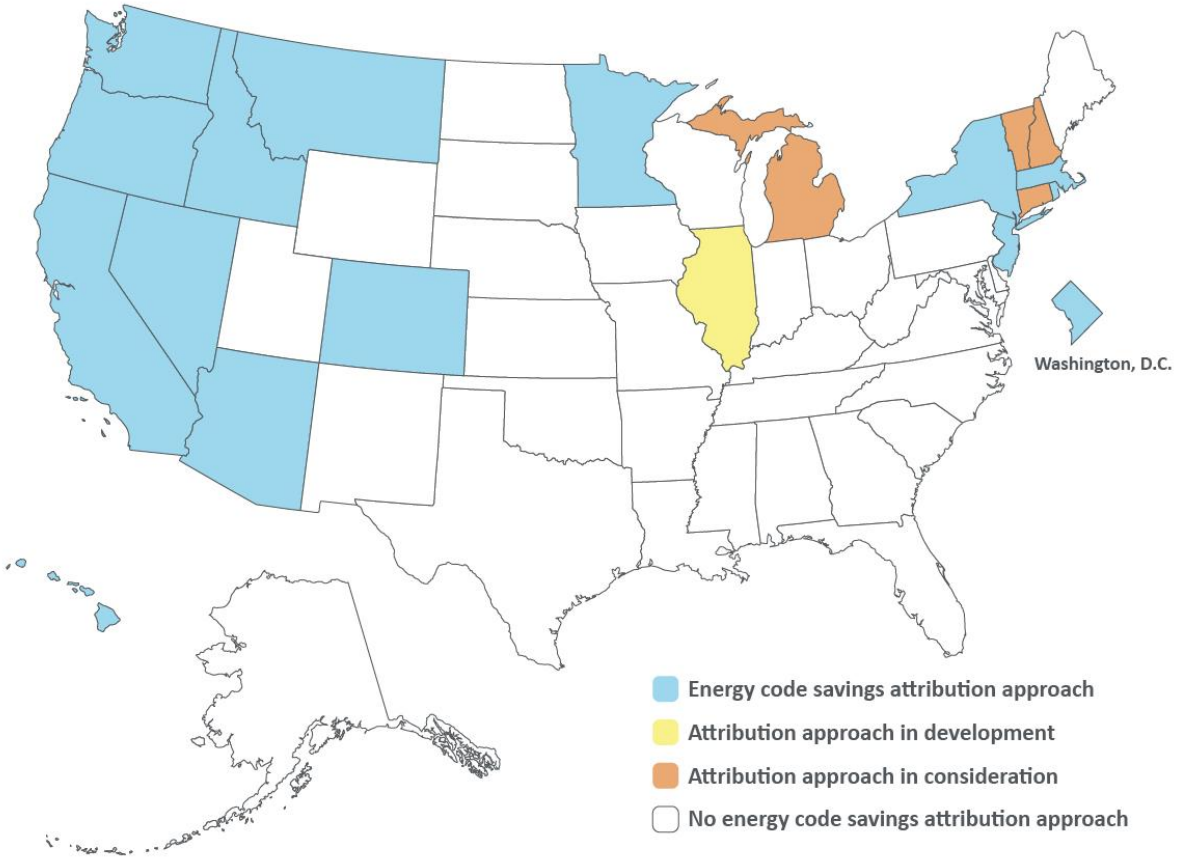


Figure 1. States with energy code savings attribution approaches in place or in development

As shown in figure 1 and summarized in table 1, 14 states (including four through NEEA) and DC currently have in place attribution approaches for energy savings from codes programs. Since the last ACEEE survey of attribution approaches in 2020 identified active approaches in Arizona, California, Massachusetts, Minnesota, Rhode Island, and the NEEA region (Nadel 2020), then-emerging efforts in DC, Colorado, and New York have materialized into formal attribution approaches. In addition, attribution approaches for energy savings from codes programs are active in Hawaii, Nevada, and New Jersey. Further, this paper identified five states considering or developing attribution approaches at the time of publication: Connecticut, Illinois, Michigan, New Hampshire, and Vermont. Additional information on codes programs and savings attributions in these 19 states and DC can be found in the detailed case studies section.

**Table 1. Summary of state energy code support programs and energy savings attribution approaches**

| State | Program administrator | Program type: commercial or residential code | Program type: adoption or compliance | Attribution approach | Claimable savings: adoption or compliance programs | Stretch code or BPS-related efforts in code programs |
|---|---|---|---|---|---|---|
| **Arizona** | Investor-owned utility (and public utility with separate attribution approach) | Commercial and residential | Compliance | Deemed attribution approach | Compliance | None identified |
| **California** | Investor-owned utilities | Commercial and residential | Advocacy,* compliance | Standard formal attribution approach | Adoption (compliance program considered non-resource) | Reach Code program considered non-resource; extending to include BPS |
| **Colorado** | Investor-owned utilities | Commercial and residential | Compliance | Standard formal attribution approach | Compliance | Consideration of stretch code |
| **Connecticut** | Investor-owned utilities | Commercial and residential | Compliance | In development | N/A | None identified |
| **District of Columbia** | Third-party program administrator** (DCSEU) | Commercial and multifamily | Compliance | Standard formal attribution approach, using gross savings estimation method | Compliance | Consideration of stretch code if adopted |
| **Hawaii** | Third-party program administrator (Hawaii Energy) | Commercial and residential | Adoption, compliance | Standard formal attribution approach | Both | Stretch code |
| **Idaho** | Regional energy efficiency organization (NEEA) | Commercial and residential | Adoption, compliance | Attribution of NEEA-administered codes program savings; standard formal attribution approach | Both | None identified |

| State | Program administrator | Program type: commercial or residential code | Program type: adoption or compliance | Attribution approach | Claimable savings: adoption or compliance programs | Stretch code or BPS-related efforts in code programs |
|---|---|---|---|---|---|---|
| **Illinois** | Investor-owned utilities | In development | In development (adoption and compliance programs in consideration) | Methodology in development | Both | Consideration of stretch code when in effect in 2024 |
| **Massachusetts** | Investor-owned utilities | Commercial and residential | Adoption, compliance | Standard formal attribution approach | Both | BPS and stretch code support |
| **Michigan** | Investor-owned utility | Residential | Adoption, compliance | In development | N/A | None identified |
| **Minnesota** | Investor-owned utilities | Commercial and residential | Compliance | Standard formal attribution approach | Compliance | None identified |
| **Montana** | Regional energy efficiency organization (NEEA) | Commercial and residential | Adoption, compliance | Attribution of NEEA-administered codes program savings; standard formal attribution approach | Both | None identified |
| **Nevada** | Investor-owned utilities | Residential | Adoption, compliance | Standard formal attribution approach | Both | None identified |
| **New Hampshire** | Investor-owned utilities | Residential | Compliance | In development | N/A | None identified |
| **New Jersey** | No C&S programs; savings from codes and standards adoption claimed toward energy savings goals | N/A | N/A | Attribution of code adoption savings to state and utility program savings goals | Adoption | None identified |
| **New York** | State agency (NYSERDA) | Commercial and residential | Adoption, compliance | Attribution of NYSERDA-administered codes | Both | Formal attribution of savings from stretch code adoption efforts |

| State | Program administrator | Program type: commercial or residential code | Program type: adoption or compliance | Attribution approach | Claimable savings: adoption or compliance programs | Stretch code or BPS-related efforts in code programs |
|---|---|---|---|---|---|---|
| | | | | program savings; standard formal attribution approach | | |
| **Oregon** | Regional energy efficiency organization (NEEA) | Commercial and residential | Adoption, compliance | Attribution of NEEA-administered codes program savings; standard formal attribution approach | Both | None identified |
| **Rhode Island** | Investor-owned utilities | Commercial and residential | Adoption, compliance | Standard formal attribution approach | Both | Expanding stretch code adoption support |
| **Vermont** | Third-party program administrator (Efficiency Vermont) | Commercial and residential | Compliance | In development | N/A | None identified |
| **Washington** | Regional energy efficiency organization (NEEA) | Commercial and residential | Adoption, compliance | Attribution of NEEA-administered codes program savings; standard formal attribution approach | Both | None identified |

*Advocacy is the term used for adoption support activities in the California utility programs.

**The term "third-party program administrator" is used to distinguish these organizations from energy utilities or government agencies, but the terminology for these organizations may differ.

## Codes program activities

Code compliance support programs are the most commonly offered type of codes program, either by utilities, third-party administrators, state agencies, or regional energy efficiency organizations. Twelve states (including four through NEEA) have both code adoption and code compliance support programs. Six states and DC have only code compliance support programs. None of the states identified in this paper have only code adoption support programs. Typically, program administrators first establish a code compliance support program and expand to code adoption support efforts, such as in Massachusetts. However, in California, the initial codes program established by Pacific Gas & Electric (PG&E) was focused on code advancement (Chase et al. 2021).

Code compliance support programs are generally similar across states; the 19 code compliance support programs identified in this paper share many similar program activities. Therefore, program administrators establishing compliance support programs have a clear program model to follow, facilitating an easier process than for code adoption support programs. On the other hand, code adoption support program activities tend to vary across states, which is consistent with the fact that code adoption and code update processes differ by state. Establishing code adoption support programs may therefore be challenging in some states. Another consideration is "home rules" states where codes are adopted at the local level: The two home rule states discussed in this paper, Arizona and Colorado, both only run code compliance support programs.

The most popular compliance improvement program activity is offering training, largely for the building design community and building code enforcement officials.[1] Some programs specifically target certain groups for training, such as Hawaii Energy's program, which offers training for the architecture, design, and construction community and permit office plan reviewers. Programs also target specific topics for training, such as NV Energy in Nevada, which focuses training on elements of the energy code that have been identified as having low compliance rates.

A number of code compliance support programs also develop educational resources.[2] Such resources aim to increase awareness and knowledge about energy codes and to assist building stakeholders with compliance. Additionally, utility compliance support programs in four states (Connecticut, Minnesota, Nevada, and Rhode Island) support circuit riders in their territories. Other forms of compliance assistance offered by programs include a C&S hotline offering immediate support, from Massachusetts utilities, and support for tool development for builders, contractors, architects, and building enforcement officials to improve compliance, offered by Connecticut utilities.

Among the 12 code adoption support programs identified, the variety of activities that program administrators offer to support energy code development and adoption generally fall under three areas: technical assistance, advocacy, and education. Technical assistance activities, such as those provided by Massachusetts utilities, involve conducting analyses and developing policy proposals for updates to the energy code. Advocacy for code updates is another focus of code adoption support, undertaken in programs including the Hawaii Energy program. As with compliance support programs, adoption support programs involve educational activities, such as offering workshops (Hawaii Energy) and conducting stakeholder outreach (Minnesota utilities).

[1] Offered in DC and 12 states: Colorado, Connecticut, Hawaii, Massachusetts, Nevada, New York, Rhode Island, Vermont, and the four NEEA states (Idaho, Montana, Oregon, and Washington)

[2] We have identified such programs in Colorado, DC, Massachusetts, Nevada, New York, Vermont, and the NEEA region (Idaho, Montana, Oregon, and Washington)

While most code adoption support programs focus on advancing the base code, NYSERDA's code adoption support program targets stretch code adoption by jurisdictions in New York. A stretch code is an optional energy code available for jurisdictions to adopt that generally has stronger energy efficiency provisions than the statewide code and may have specific provisions aimed at decarbonization (such as encouraging the use of electric heat pumps or requiring the installation of renewable energy on site). As discussed further in later sections of this paper, stretch code adoption is a key emerging area for code support programs, and there are opportunities for program administrators in other states to expand programs to include stretch code adoption support activities.

Code compliance support programs in fourteen states and DC include both commercial and residential programs. In DC, the DCSEU compliance support program focuses specifically on commercial and multifamily buildings. Three program administrators—DTE in Michigan, NV Energy in Nevada, and the New Hampshire utilities—only offer residential code compliance support programs. Nine of the 12 code adoption support programs include both commercial and residential programs, while Michigan's DTE and NV Energy only offer residential code adoption support programs. As Illinois utilities are still developing code compliance and adoption support programs, information on the building sector focus is not yet available.

## Utilities credited for adoption and compliance support programs

Of the 12 states that run both code adoption and code compliance support programs, all except Michigan currently have attribution approaches in place to claim energy savings. Ten of those states allow energy savings attribution from both code adoption and compliance support efforts. The exception is California, where code compliance support programs are considered non-resource programs, and only energy savings from code adoption efforts are claimed.

Of the six states and DC that only run code compliance support programs, three states (Arizona, Colorado, and Minnesota) and DC currently have attribution approaches in place to claim energy savings from the code compliance support programs. The other three states (Connecticut, New Hampshire, and Vermont) are currently developing attribution approaches.

## Codes program attribution approaches

Twelve states and DC use the standard formal attribution approach, following the California model. In most of these states, investor-owned utilities, third-party program administrators, or independent consultants estimate the energy savings attributable to the programs. Following evaluation by regulators or independent consultants, the savings are claimed by the investor-owned utilities or third-party program administrators. In New York, energy savings are claimed by NYSERDA, the program administrator for code support programs. In the NEEA region, NEEA reports the energy savings associated with advances to building codes, and its funders in Idaho, Montana, Oregon, and Washington claim the energy savings.

The only notable deviation from the standard model in formal attribution approaches is the use of a gross savings estimation method by DC. Unlike the net savings estimation method in the California model, a gross savings method does not adjust for NOMAD savings, or savings that would have occurred regardless of whether the energy code was in place.

Instead of the formal attribution model, Arizona uses a *deemed* attribution approach: The state determines a set percentage of net energy savings claimable by utility C&S programs, rather than an

expert panel determining an attribution factor. 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, but energy savings must be quantified in a measurement and evaluation study by the utility (Arizona Administrative Code 2022). New Jersey is the only state that attributes energy code and appliance standards savings but does not have C&S programs. In New Jersey, the overall savings from building energy codes and appliance standards adoption can be claimed as energy savings from state programs toward energy savings targets.

In all attribution approaches, a compliance rate is used to estimate gross energy savings from potential energy savings. The main method used to assess compliance rates is field compliance studies, which are often sponsored by utilities. Some states conduct compliance studies at the beginning and end of their program cycles to assess change in compliance rates over the program period (Effinger 2023). Utilities in states including California, Illinois, Massachusetts, Michigan, Minnesota, Oregon, and Rhode Island have recently supported field code compliance studies (Cadmus and DNV GL 2017; Chase et al. 2021; Effinger 2023; Larson et al. 2019; MEEA and Resource Innovations 2020; Navigant 2016; NMR Group 2017).

Of the 31 states without energy code savings attribution approaches, 29 states have at least some utility energy efficiency programs (ACEEE 2022b), yet we identified only 8 states (26%) where utilities are involved in code support efforts. As evidenced by the low rate of utility code support involvement in these states, energy code savings attribution is likely an important mechanism to incentivize utility support for energy code adoption and compliance. Without a framework for claiming energy savings, utilities may not be motivated to participate in these efforts.

## Energy savings from utility codes programs

Across the states with attribution approaches identified in this paper, we found data on estimated or realized energy savings from energy code support programs in nine states. Figure 2 presents these data from a representative utility, third-party administrator, or state agency in each of the nine states as a percentage of overall portfolio savings goals. In eight of the nine states in figure 2, utilities claim energy savings from code support programs, the exception being energy savings claimed by NYSERDA in New York. Utilities that deliver both electricity and gas have separate savings goals for each energy type and quantify electric and gas program savings separately.

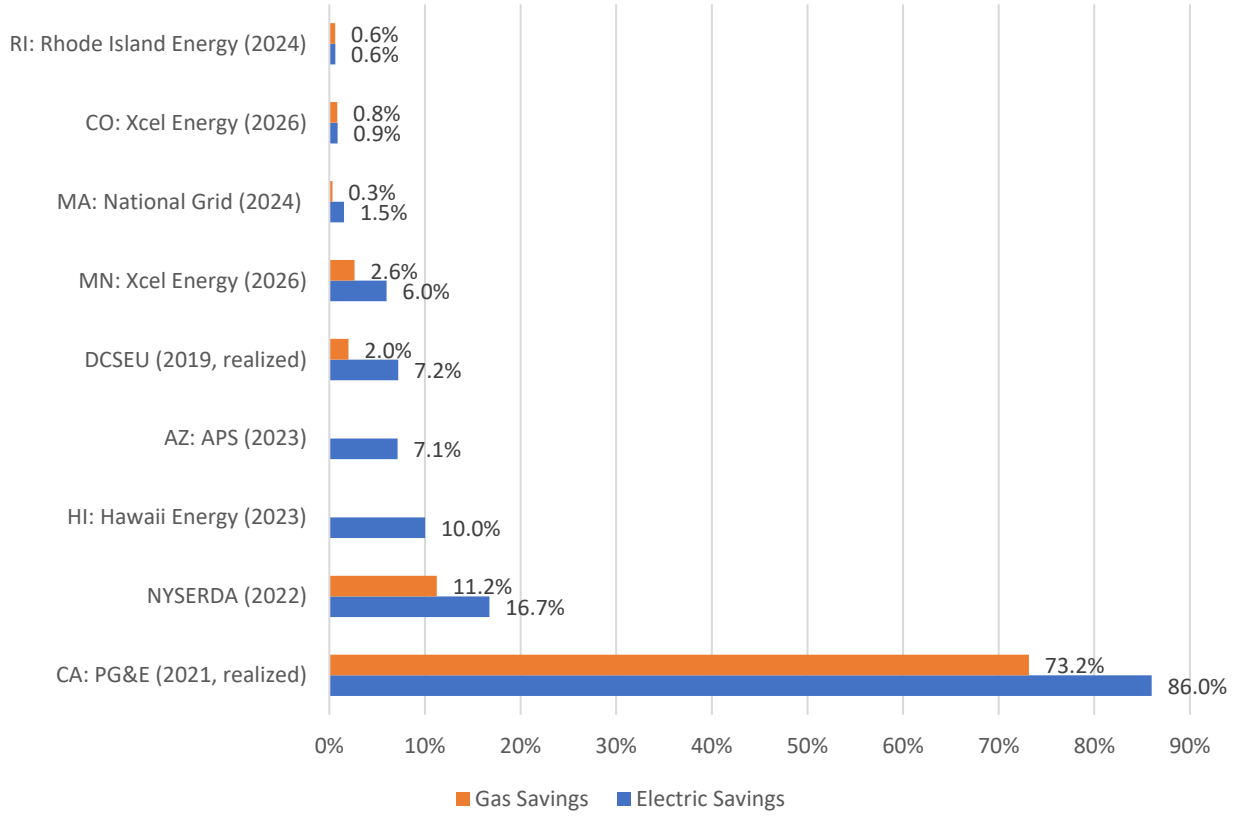


**Figure 2. Codes program savings as a percentage of portfolio savings goals. *Gas savings not relevant for Arizona Public Service Company (APS) and Hawaii Energy. *Sources*: APS 2022; CEDARS 2024; Eckstein and Horkitz 2022a; Hawaii Energy 2022; MA EEAC 2022a, 2022b; Minnesota Commerce Department 2023; NMR Group et al. 2020; NYSERDA 2022; PG&E 2022; Rhode Island Energy 2023b; Xcel Energy 2023b.**

Figure 2 shows a very wide range in the portion of portfolio energy savings goals that codes program savings are estimated to achieve or have achieved among utilities in the nine states. Energy codes program savings vary widely, falling in the range of 0.6 –16% of portfolio savings goals; even within that variability, PG&E in California is an outlier with 73.2% of its 2021 program gas savings and 86% of its 2021 program electric savings realized through its code support program (CEDARS 2024). The high percentage of savings from code advocacy subprograms is consistent among California IOUs: Code support programs accounted for 82% of both Southern California Edison's and San Diego Gas & Electric's 2021 program electric savings, and 61% of Southern California Gas's 2021 program gas savings (CEDARS 2024). This has been a trend for California utilities in recent years (Chase et al. 2021). The Total Resource Cost (TRC) test[3] found PG&E's C&S programs to be 1.65 times more cost effective than other energy efficiency program segments on average over the 2024–2031 period, and the Program Administrator Cost (PAC) test[4] found their C&S programs to be 15 times more cost effective than other program

[3] The Total Resource Cost (TRC) test is a cost-effectiveness test used in evaluating utility demand-side management programs. The TRC test measures both participant costs and utility costs when assessing total program costs. The TRC test measures benefits as avoided supply costs, calculated with net program savings (CPUC 2001).

[4] The Program Administrator Cost (PAC) test, another demand-side management program cost-effectiveness test, measures only program administrator costs, and does not include participant costs. The PAC test assesses similar benefits to the TRC test (CPUC 2001).

segments on average over the period (PG&E 2022). Utilities therefore see greater return on energy savings for their investment in C&S programs, which has led to the growth of C&S programs over time. As California utilities have been claiming energy savings from C&S programs for almost two decades, the increasing investment in these programs over the years has led to C&S programs constituting such a high percentage of their overall portfolio savings. The fact that California utilities have run C&S programs and attributed savings for longer than utilities in other states is reflected in the large gap between PG&E and other utilities in figure 2.

Nevertheless, the high return on investment in C&S programs can be seen in other utility programs as well. For example, Xcel Energy in Colorado has a 2024 program year budget for code compliance activities that is 0.36% of its overall energy efficiency program budget for the 2024 program year, while the percentage of overall savings goals (0.8% for electric savings, 0.9% for gas savings) estimated to result from code compliance activities in 2026 is a multiple higher (Xcel Energy 2023b), indicating an outsized impact from the codes program. In Minnesota, Xcel Energy has a 2024 program year budget for code compliance activities that is 0.25% of its overall program portfolio budget, with percentages of overall savings goals (2.6% for electric savings, 6% for gas savings) that are an even greater multiple higher. NYSERDA, the program administrator 2A3950with the second-highest percentage of codes program savings of portfolio savings goals (11.2% for electric savings, 16.7% for gas savings), has a codes program budget of only 2.1% of its market development portfolio budget, a further indication of the outsized impact of codes programs. As these dynamics are consistent across states, it is likely the trend of growth in the share of portfolio savings contributed by codes programs will extend to other states over time.

While the return on investment in Minnesota appears to be greater than in New York, it is unclear if the relationships are due to differences in codes program effectiveness or in the effectiveness of other energy efficiency programs. Other factors, such as the number and scope of energy efficiency programs run by a program administrator and territory-specific program costs, may impact the ratio of codes program budget to overall portfolio budget. Further, the relationship between a codes program budget and the savings resulting from the codes program may be impacted by variables such as the specific program activities, how long the program has been running, and the strength of the energy codes being enforced.

As the stringency of energy codes increases across the country and policies like BPS emerge for existing buildings, the potential savings from traditional energy efficiency programs may decrease, with less “above-code” savings available. Therefore, utilities and states will likely have increasing incentives to invest in C&S programs and claim related savings.

**Sidebar: Attribution Approaches for Appliance Standards Savings**
Many of the states that allow utilities to claim savings from energy code support activities also allow utilities to claim savings from efforts to support appliance standards adoption. While not a focus of this report, we highlight states with appliance standards savings attribution approaches and provide an overview of the attribution approach.

Currently, 11 states have attribution approaches in place for energy savings from appliance standards adoption support efforts: Arizona, California, Hawaii, Massachusetts, New Jersey, New York, Rhode Island, and the four states in the NEEA region (Chase et al. 2021). The attribution approach for claiming energy savings from efforts to support state appliance standards adoption follows the same formal attribution approach as for claiming energy code savings (Lee and Stacey 2018). The only difference is the units for calculating potential energy savings, which are unit energy savings per product, rather than per code measure (Chase et al. 2021).

In California, utilities are also able to claim energy savings from efforts to support the adoption of federal appliance standards, through a similar attribution approach with modifications (Lee and Stacey 2018).

One example of appliance standards savings relative to code savings is in Massachusetts, where National Grid's projected value of gross annual electric savings from the standards adoption measures within the commercial and industrial new and replacement equipment initiative was 63% of the projected value of gross annual electric savings from code support measures (MA EEAC 2022a).

# Opportunities to expand energy savings attribution

## Energy code savings attribution

In several states with EERS policies, such as Missouri and Iowa, utilities have C&S programs that are currently considered non-resource and so ineligible for energy code savings claims. (Lee and Stacey 2018). Utilities in Delaware, Maine, and Texas also are involved in code adoption and compliance activities (ACEEE 2022a), but we did not identify attribution approaches for the energy savings from these efforts in place or under consideration. In these states, utilities have the opportunity to propose an attribution approach for their code support efforts.

In developing an attribution approach, utilities can utilize the standard formal attribution model as a framework and adapt it to their state context. In home-rule states like Missouri, where there are no statewide codes and only local jurisdictions adopt codes, utilities can draw from the success of attribution approaches in other home-rule states, such as Colorado. In any state with an EERS policy, in order for utilities to be able to claim energy code savings, state legislative bodies must allow utilities to claim codes-related savings under statutes governing EERS policies, and public utilities commissions must approve of attribution methodologies.

In addition, a number of states have EERS policies but no utility codes programs, including Arkansas, New Mexico, North Carolina, Pennsylvania, South Dakota, Utah, Virginia, and Wisconsin. In these states,

utilities have an opportunity to develop codes programs, which can offer an additional way to meet EERS targets and receive credit for supporting greater code stringency, which may otherwise limit potential savings from utility incentive programs. The program models noted above and the detailed case studies at the end of this paper provide numerous examples for these states to reference in developing programs. In these states, legislative bodies and public utilities commissions can incentivize utility involvement in code adoption and compliance by allowing energy savings from these programs to count toward EERS targets through statutes and program approval.

## Extension to stretch codes

In the states with attribution approaches in place for codes programs, some utilities have expanded or are in the process of expanding the programs to include stretch code adoption support. NYSERDA in New York is the most advanced in formally attributing energy savings from stretch code adoption support efforts, as it quantifies and claims savings from stretch code adoption support efforts separately from savings from training efforts, to determine the combined total savings from its C&S program. While the California utilities have a Reach Code program, it is considered a non-resource program. Rhode Island Energy plans to extend its codes and standards activities to include stretch code adoption support, as does Hawaii Energy. Xcel Energy in Colorado has evaluated potential stretch code adoption support activities, and Illinois utilities are considering stretch code adoption activities following the establishment of a stretch code in the state in 2024. Utilities in other states with stretch codes and attribution approaches in place for codes-related efforts have an opportunity for additional energy savings through incorporating stretch code adoption support activities into C&S programs and quantifying the savings from these activities.

## Extension to building performance standards

Whereas energy codes generally target improving energy efficiency in new construction, buildings that already exist today will represent a majority of building energy usage for decades to come. Building performance standards (BPS) have emerged as a key policy to reduce GHG emissions from existing buildings and achieve climate goals (Nadel and Hinge 2023). A BPS sets a limit on the energy usage or GHG emissions associated with a building, generally related to square footage and building type. A building can receive a financial penalty for exceeding this limit. The idea is for this limit to be reduced in subsequent time periods to capture more buildings and drive down emissions over time. Figure 3 shows the status of BPS in the United States, which is useful to compare to states with C&S programs in figure 1 above. Just over a dozen BPS are active in the United States, and we can expect to see their adoption continue to grow. As these policies are new—none are yet in the active penalty phase—and their potential impact is enormous, establishing effective support programs is important to ensure the success and expansion of BPS policies elsewhere.

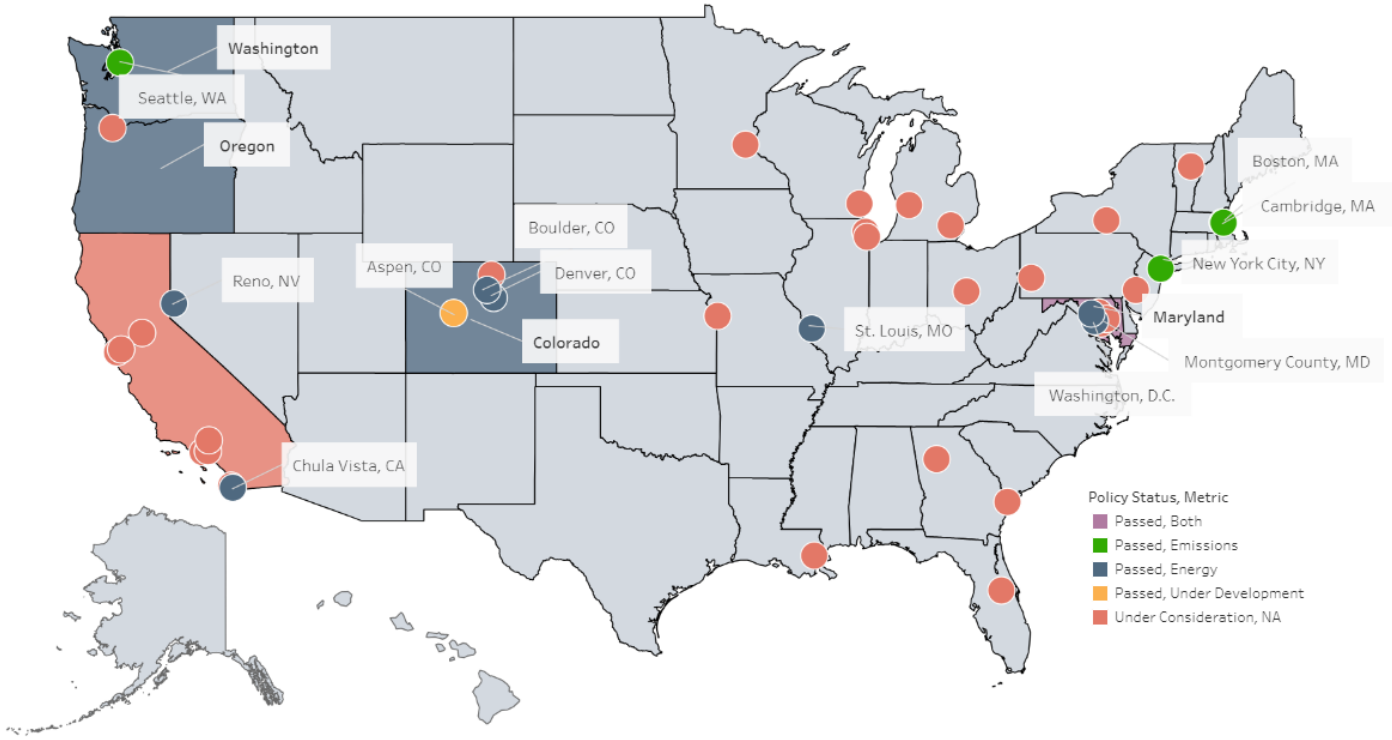


Figure 3. DOE map of current state and jurisdictional BPS policies. *Source*: DOE 2023.

## *Utility support for BPS adoption and implementation*

A few utilities have made initial steps toward extending their codes programs to include BPS adoption and implementation support. California utilities' Reach Code program is extending to include BPS adoption support, and ComEd in Illinois plans to launch an initiative to promote the adoption of a BPS in at least one municipality in their service territory. NYSERDA also plans to develop policy programs to promote decarbonization through BPS. As BPS policies come online, many other utilities have opportunities to expand their codes programs to include BPS adoption and implementation support. Utilities and regulators have an important role to play in supporting BPS adoption and implementation while in its nascency (Nadel 2020). These activities by utilities are associated with significant savings potential, meaning that there are many benefits to incentivizing utilities to support BPS adoption and implementation by allowing them to claim savings for such efforts.

As utility benchmarking data can be a key resource for BPS policy design, utilities are well positioned to support BPS adoption. Access to utility building performance data can improve the accuracy and efficacy of BPS requirements for buildings covered under the policy. In particular, access to utility data can greatly assist jurisdictions that are enacting BPS policies without prior benchmarking programs in place, as utility data can establish more accurate performance baselines than building modeling.

In expanding support for BPS policy implementation, utilities could engage in a variety of activities, both before and after a BPS policy goes into effect. Before a BPS policy goes into effect, utility programs and incentives can support early compliance with the policy; after it is in effect, utilities can offer technical assistance and workforce development programs, as well as incentives for buildings required to comply. For the latter, full compliance will likely take several years to achieve after it is nominally mandated.

Some building owners may choose to pay noncompliance penalties rather than update their buildings. Also, affordable housing owners and other resource-constrained building owners may be particularly challenged to upgrade their buildings. Utility programs can help address these challenges and improve compliance, particularly in the first few years after BPS requirements take effect (Nadel 2020; Jarah, Garfunkel, and Ribeiro 2024). Utilities may need to develop whole building programs that can offer a suite of incentives for energy efficiency upgrades necessary for BPS compliance (as well as for upgrades to exceed BPS requirements), possibly by adapting traditional incentive approaches for whole building performance.

## *Potential utility BPS program and savings attribution models*

Currently no program or attribution model exists for utilities in BPS coverage areas. Given the success of the standard model for energy codes programs, such a model (or individual state approaches) for BPS programs could significantly benefit jurisdictions with existing building energy usage goals, building owners facing penalties for noncompliance, and utility customers who benefit from smaller energy bills. The attribution approaches used for claiming code energy savings provide a framework that could be adapted for utilities to claim credit for energy savings from BPS support efforts. In developing program models for both BPS adoption and BPS compliance support, utilities can benefit from multiple new avenues for receiving credit for energy savings.

This is not straightforward; however, a BPS is a very different policy from an energy code. A BPS targets whole building performance, unlike traditional incentive programs that target equipment or appliance efficiency, specific design considerations are required in both BPS program and attribution model design. For example, BPS policies set standards for either site energy use reductions or emissions reductions in existing buildings. As such, utility credit for BPS implementation efforts would need to be measured in site energy or emissions reductions, rather than in savings from individual energy sources, electricity, and/or gas, as in energy code or efficiency incentive savings attribution models.

Here, we revisit the components of a typical codes program's formal attribution approach, discussed above, as they might be applied to a BPS program:

### *Potential savings*

The potential savings from a BPS policy would be calculated as the difference between the target level building performance and the business-as-usual building performance. As most jurisdictions enact energy benchmarking policies prior to implementing BPS policies, the business-as-usual building performance baseline can be measured from historical benchmarking data. Many BPS policies require a percentage reduction in either building energy use intensity (EUI) or carbon intensity, such as Maryland's BPS, which requires a 20% reduction in carbon intensity by 2030 (Nadel and Hinge 2023). To calculate the potential savings from Maryland's BPS, the total emissions saved from a 20% reduction in carbon intensity of all buildings required to comply with the BPS could be calculated using benchmarking data. Utilities are also in the unique position of having access to data at the building level, regardless of the status of a jurisdiction's benchmarking program, providing a more accurate baseline than the model-predicted performance of building energy codes.

### *Gross savings*

In the case of BPS, gross savings can be measured as actual savings because of the availability of existing building energy usage data. While all buildings will probably not comply with a BPS, an estimated compliance rate is not needed, unlike for energy code compliance. Rather, utility or benchmarking data

following the year in which BPS requirements take effect can be used to calculate the actual savings during the time period of interest: The actual savings can be calculated by comparing the difference between EUI or carbon intensity of buildings after the BPS policy takes effect to the historical benchmarking baseline of the same buildings. Unique to BPS-related savings, actual savings can be measured through utility or benchmarking data.

### *Net savings*

Net savings from BPS policies can be calculated using a similar concept to net savings from energy codes: by subtracting the savings associated with naturally occurring market adoption (NOMAD) from the gross savings. Here, NOMAD savings would be estimated as the savings from existing buildings that would have been upgraded without the penalty of a BPS policy in place. This type of NOMAD savings, associated with actors who would act in the absence of a penalty for not doing so, is distinct from the concept of "free riders," often considered in the context of utility incentive programs as participants who receive an incentive for an action they would have taken anyway.

### *Net program savings*

Similar to the standard formal approach for codes-related savings, crediting BPS-related net savings to utility BPS adoption and implementation support efforts will likely involve an attribution factor determined by an expert panel through documentation of utility and other market actor efforts. This attribution factor can consider such factors as the proportion of buildings that choose to pay noncompliance penalties instead of upgrading, and the proportion of covered buildings, such as affordable housing, that may struggle to comply with a BPS.

### *Utility-specific savings*

City- or county-level BPS policies may only cover the territory of one utility, making attributing net program savings to the utility simple. However, where multiple utilities contribute to or administer programs in the same BPS coverage area (e.g., where there is a state-level BPS), new methods to evaluate the effectiveness of individual utility BPS programs may be required.

A significant complexity arises from the fact that BPS compliance is measured through site energy reductions or emissions reductions, rather than savings from electricity or gas in isolation. Further, BPS compliance will often include electrification measures (e.g., switching from a gas furnace to an electric heat pump), which may result in a reduction in gas use but an increase in electricity use. Therefore, the model used for energy code support efforts of crediting utilities for electric and gas savings would need to be changed in order to effectively credit utilities for BPS implementation support efforts. While the exact approach will be place and utility dependent, we can broadly categorize two approaches:

1. After determining net program savings in emissions or site energy, attribute those savings to each utility based on some weighting factor. This could be based on pre-intervention emissions or energy usage associated with each energy source, the contribution of each energy utility to the BPS program for each building (e.g., based on the gas and electric utilities' energy efficiency surcharges), or attributing to each energy source a portion of costs that would have been incurred for exceeding the BPS level.
2. Determining net program savings for electricity and gas in isolation is possible, but must take into account that building electrification to meet a BPS would significantly reduce gas usage while increasing electricity usage (in the absence of sufficient energy conservation measures to

offset the additional electricity for space heating, water heating, or kitchens). Crediting a gas utility for these significant gas usage reductions, even potentially to the point of crediting them for the savings associated with a customer leaving their network altogether, provides a financial incentive for the utility to support its current customers' decarbonization efforts. However, electric utilities should also be credited for their support for such efforts, rather than being penalized for increasing electricity usage.

Collaboration among utilities, policymakers, and regulators will likely be required to develop models that apply broadly and/or to tailor models to specific BPS coverage areas.

### *Further considerations*

Attribution approaches for BPS support program savings must avoid double-counting, such as from both a utility's BPS implementation support programs and energy efficiency incentive programs. An effective, holistic program design could even realize more benefits than a BPS or equipment/appliance incentives alone. If utility incentive programs become more forward looking and support customers in achieving future years' energy or emissions limits, those customers may also be eligible for early compliance rewards under some BPS policies. In addition, designing BPS implementation support programs with activities unrelated to traditional energy efficiency incentive programs (e.g., technical assistance, educational resources, benchmarking software development, or workforce development support for BPS) can potentially avoid overlapping savings while raising customer awareness of other available financial support.

Incentivizing utilities to support BPS adoption and implementation, by allowing utilities to claim savings from those efforts, stands to benefit jurisdictions, building owners, and building residents alike. For jurisdictions, utility data for existing buildings enable the calculation of actual savings from BPS compliance. For building owners, in particular those who are resource constrained, greater utility support for BPS implementation reduces the costs of compliance. Both owners and residents can then benefit from lower energy use and emissions from BPS compliance.

## Conclusion

Among the 14 states and DC where utilities can claim energy savings from code adoption and compliance support efforts, 12 states and DC use a similar program model for attributing savings to the utilities' efforts, though state-specific variations exist. These well-established approaches for attributing savings provide clear pathways for other states; five states already have such programs in development. In states with EERS policies, utilities have opportunities to develop code support programs and savings attribution methods, drawing from existing approaches and examples. To incentivize and enable utility code support, legislative bodies and public utilities commissions can allow utilities to claim codes-related energy savings toward EERS targets by enacting permissions in statutes and approving code support programs. Such programs have been shown to drive significant energy savings in the states that have implemented them.

These attribution approaches can be expanded and modified to account for savings from utility BPS support efforts. Ten states with current utility codes programs that can claim energy savings have already passed or are considering a BPS policy at the local or state level, providing an immediate opportunity. However, no model has yet been developed or implemented for utility BPS programs, let

alone for savings attribution, which will be required for crediting utilities. As discussed in this paper, while the standard energy codes model provides an initial framework, BPS attribution requires different approaches to calculating or estimating potential savings, gross savings, net savings, net program savings, and utility-specific savings. A dual challenge and opportunity exists: Preventing double counting of savings could encourage development of holistic program designs, facilitating greater energy and emissions reductions than either an efficiency incentive or BPS program alone.

# Detailed case studies

## States with formal energy code savings attribution approaches

## California

### *C&S programs*

California's investor-owned utilities—Pacific Gas & Electric Company (PG&E), Southern California Edison (SCE), San Diego Gas & Electric, and Southern California Gas—are all involved in statewide codes and standards (C&S) programs (Chase et al. 2021; PG&E 2022). The 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). PG&E was appointed by the California Public Utilities Commission (CPUC) as the lead program administrator for appliance standards and building codes advocacy subprograms (Chase et al. 2021; PG&E 2022).

### *Savings attribution and evaluation*

Among the C&S programs, only the codes and standards advocacy subprograms are considered resource programs, meaning utilities are allowed by the CPUC to claim energy savings from the subprograms (Lee and Stacey 2018; Chase et al. 2021). Savings attribution is conducted through the California Codes and Standards Advocacy Program Evaluation Protocol model, as discussed above.

### *BPS or stretch code activities*

The California IOUs have a Reach Codes subprogram, but it is a non-resource program, meaning utilities cannot claim energy savings from the subprograms directly (Chase et al. 2021). California utility efforts within the Reach Code subprogram are extending to include Building Performance Standard (BPS) adoption as well (A. Chase, principal, 2050 Partners, pers. comm., January 8, 2024). While utilities cannot currently claim savings from these efforts, the attribution model could possibly be changed to include such efforts in the future with support from the utilities and the CPUC.

### *Other relevant information*

While the IOUs' Compliance Improvement subprogram is a non-resource program, 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).

## Colorado

### *C&S programs*

Xcel Energy d/b/a Public Service Company of Colorado, the larger of Colorado's two investor-owned utilities, conducts code compliance efforts within their commercial new construction programs (Xcel Energy 2023b). Xcel's code compliance support activities include in-person training, webinars, and educational resources for both residential and commercial building codes (Xcel Energy 2023b).

### *Savings attribution and evaluation*

Xcel Energy has developed an attribution method for determining energy savings that result from their code compliance activities, which follows the standard formal attribution approach (Xcel Energy 2023b). Xcel Energy's code compliance activities in a given year result in savings estimated to be realized two years later, meaning following the launch of their new code compliance program in 2021, savings resulting from the program would be realized in 2023 (Xcel Energy 2022).

For each program year, Xcel Energy determines the attribution factor for its contribution to overall code compliance support activities relative to other active organizations. For the 2021 and 2022 program years, Xcel Energy utilized an attribution factor of 19% to account for construction impacted by training Xcel Energy conducted prior to 2021 (Xcel Energy 2023a). For new construction impacted by their code compliance program launched in 2021, Xcel Energy utilized an attribution factor of 46%, indicating the growth in this relatively new program's impacts (Xcel Energy 2022). In their 2024–2026 Demand-Side Management & Beneficial Electrification Plan, Xcel Energy utilizes an attribution factor of 68% for construction impacted by their 2024 code compliance program activities, and an attribution factor of 76% for construction impacted by their 2025–2029 program activities (Xcel Energy 2023b).

### *BPS or stretch code activities*

Guidehouse, an independent consulting firm, conducted an evaluation of Xcel's codes and standards support programs, including an evaluation of potential opportunities to influence the adoption of green codes and stretch codes that advance electrification and the transition to net-zero emissions (Xcel Energy 2023a). In the area of green codes, stretch codes, and electrification, the Guidehouse Colorado Codes & Standards Study and Evaluation recommended that Xcel Energy work with jurisdictions to be aware of their plans to adopt codes and to continue efforts related to "electric-preferred code support" (Xcel Energy 2023a).

## District of Columbia

### *C&S programs*

DC Sustainable Energy Utility (DCSEU) has a Code Compliance Support Initiative, which includes providing training to increase energy code compliance of new commercial and multifamily buildings beginning in 2017 (NMR Group et al. 2020). The DCSEU further offered training and educational resources to the DC Department of Consumer and Regulatory Affairs (DCRA) for the implementation of a new building energy code, which took effect in 2020 (Nadel 2020).

### *Savings attribution and evaluation*

To date, the DCSEU has only claimed code compliance-related energy savings in 2019 (B. Plotzker, EM&V manager, DCSEU, pers. comm., January 5, 2024). The DCSEU attribution generally followed the standard

formal attribution approach, but used a gross savings method rather than a net savings estimation method (B. Plotzker, EM&V manager, DCSEU, pers. comm., January 5, 2024).

The documented savings attributed to the DCSEU Code Compliance Support Initiative were 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).

### *BPS or stretch code activities*

While there is not currently a stretch code in Washington, DC, should a stretch code be adopted, the DCSEU code compliance program would likely extend to include stretch code adoption support, and the attribution of energy savings from codes-related activities could extend to stretch code adoption efforts as well (B. Plotzker, EM&V manager, DCSEU, pers. comm., January 5, 2024).

## Hawaii

### *C&S programs*

In Hawaii, Hawaii Energy serves as the energy efficiency program administrator. Hawaii Energy offers C&S programs including Building Code Advocacy and Adoption, Building Code Compliance Enhancement, and Appliance Standards Adoption (Hawaii Energy 2022). The Building Code Advocacy and Adoption activities include supporting the State Building Code Council, Hawaii State Energy Office, and the County of Honolulu offices with code adoption, advocating for updates to the next IECC cycle code or adoption of the stretch code, and offering educational workshops (Hawaii Energy 2022). The Building Code Compliance Enhancement activities include training for the architecture, engineering, and construction (AEC) design community and permit office plan reviewers, and offering resources for plan compliance review (Hawaii Energy 2022). Hawaii Energy's Building Code Advocacy and Adoption and Building Code Compliance Enhancement programs focus on both residential and commercial buildings.

### *Savings attribution and evaluation*

The Hawaii Public Utilities Commission allowed Hawaii Energy to claim energy savings from some of their code adoption support and code compliance enhancement activities conducted between the 2014 to 2018 program years (J. Barnes, associate director, 2050 Partners, pers. comm., February 8, 2024). Hawaii's attribution approach follows the standard formal attribution approach. Hawaii Energy prepared and submitted estimates of the total energy savings from their state appliance standards advocacy efforts and code compliance activities related to nonresidential new construction. They determined the energy savings 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 Hawaii Energy's efforts. The Commission's third-party EM&V contractor conducted an ex-ante review of Hawaii Energy's estimates and reviewed the documentation supporting their attribution factors. The EM&V contractor adjusted the claimed energy savings based on their review.

### *BPS or stretch code activities*

As mentioned above, Hawaii Energy's Building Code Advocacy and Adoption activities include advocating for adoption of the stretch code (Hawaii Energy 2022). For the 2022 to 2024 program years, Hawaii Energy planned to expand their advocacy and engineering support for advancing the stretch code (Hawaii Energy 2022).

# Massachusetts

### *C&S programs*

In Massachusetts, utility programs supporting building energy code compliance and energy code development fall under the Code Compliance Support Initiative (CCSI) and the Energy Code Technical Support Initiative (ACEEE 2022a). The Massachusetts utility programs include both C&S advancement support and C&S compliance support, and involve both commercial and residential efforts (Mass Save 2021). The C&S advancement support involves conducting analyses and developing policy proposals for code development and presenting to stakeholders (Mass Save 2021). The C&S compliance support involves conducting training and engagement with building and design stakeholders, running a C&S hotline, and developing tools and resources (Mass Save 2021).

### *Savings attribution and evaluation*

Utilities developed a methodology for attributing energy savings resulting from code compliance efforts in 2015 (Lee and Stacey 2018). The attribution methodology follows the standard formal attribution approach. As the utilities have established code advancement activities in recent years, the utilities plan to begin claiming energy savings from these efforts as well (Chase et al. 2021). The utilities expect the savings from code advancement activities to be greater than the savings from code compliance activities (Mass Save 2021). Savings are claimed from commercial and industrial, as well as residential codes and standards programs.

The attribution factor used to determine energy savings from the CCSI efforts is evaluated on a three-year basis by evaluators and a Delphi expert panel (Nadel 2020). In 2018, the evaluation team of NMR and Cadmus, constituting the Massachusetts Cross-Cutting Research Area evaluation team, determined an attribution factor and estimated CCSI net savings for the 2019–2021 period for both commercial and residential buildings (Lee and Stacey 2018). For the 2022–2024 Massachusetts Joint State Wide Electric and Gas Three-Year Energy Efficiency Plan, the Massachusetts Department of Public Utilities (DPU) directed the utility program administrators to complete a codes and standards attribution evaluation study (National Grid 2023). The study concluded that a 20% net-to-gross attribution rate was appropriate for attribution of energy savings from the utilities' C&S programs (National Grid 2023).

### *BPS or stretch code activities*

Under the current C&S compliance and technical support initiative, state and local BPS policies are within the scope of the utilities' policy adoption and compliance support activities (Mass Save 2021).

Massachusetts has three building energy codes: a base code, a stretch code, and a net zero code, with the stretch and net zero codes being optional for municipalities to adopt. Massachusetts utilities support stretch code amendments to increase energy efficiency within the stretch code. In their 2022–2024 Joint Three-Year Energy Efficiency Plan, the Massachusetts utilities state that if the final stretch code adopted includes amendments that the utilities developed, the utilities may conduct an evaluation to attribute savings from the stretch code support efforts (Mass Save 2021).

# Minnesota

### *C&S programs*

Minnesota investor-owned utilities CenterPoint Energy, Minnesota Energy Resources Corporation, Minnesota Power, Otter Tail Power Company, and Xcel Energy offer residential and commercial code

support programs. In the 2024 to 2026 period, the utilities will launch a new residential code support program, which will support municipalities with increasing residential energy code compliance, through program services including training, technical resources, advocacy, and technical support for code adoption, a circuit rider, and stakeholder outreach (CenterPoint Energy 2024). For the commercial code support program, joint implementors CenterPoint Energy and Xcel Energy have expanded previous efforts, and will offer program services similar to the residential code support program offerings for the 2024–2026 period, in coordination with all of the state's investor-owned utilities (CenterPoint Energy 2024).

### *Savings attribution and evaluation*

Minnesota utilities are able to claim energy savings from residential and commercial code compliance support efforts. The savings estimation methodology used in Minnesota involves calculating gross potential savings, adjusting based on compliance rate, and attributing claimable savings to the utility programs, and was developed by TRC Consultants (Effinger 2023). The assumed compliance rate was informed by six Minnesota compliance studies as well as compliance estimates from other states. An overall utility attribution rate of 76% was used, based on the relative compliance support activities of the utilities compared to the other involved organizations, including the Minnesota Department of Labor and Industry, the University of Minnesota, and the Association of Minnesota Building Officials. (Effinger 2023)

Under the savings estimation methodology, program costs for code compliance efforts were allocated to each utility based on their contribution to total energy sales, and energy savings were attributed to each utility based on their share of program costs (CenterPoint Energy 2024; Effinger 2023). The Minnesota utilities will undertake an ongoing evaluation of the code compliance support programs and may update the savings calculation for future years of the program based on the evaluation of the 2024 program year (A. Zoet, energy planner director, Minnesota Dept. of Commerce, pers. comm., December 7, 2023). Given the two-year delay between code support activities and the realization of savings, the Minnesota utilities have not yet claimed energy savings, and expect savings from the commercial code support program activities to be realized in 2025 and savings from the residential code support program activities to be realized in 2026 (CenterPoint Energy 2024).

### *BPS or stretch code activities*

The incorporation of stretch code support into the utility code compliance support programs was not recommended by TRC Consultants in their program recommendations, as TRC Consultants found from utility interviews that not many utilities undertook stretch code support activities (Effinger 2023).

## Nevada

### *C&S programs*

Nevada's two regulated electric utilities, Nevada Power Companies and Sierra Pacific Power Companies, are wholly owned subsidiaries of NV Energy. NV Energy's residential code and new construction program has two components: the new construction component, which offers assistance and rebates for above-code construction, and the residential codes component, which provides code compliance and adoption support (NV Energy 2023).

The residential code support activities began in 2023 and include in-person training and a circuit rider provided by the program (NV Energy 2023). The training and educational activities are designed to assist

code officials, designers, and builders, and will focus on elements of the energy code with low compliance rates (NV Energy 2023). The program aims to increase code compliance and provide support to jurisdictions in code adoption (NV Energy 2023).

### *Savings attribution and evaluation*

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 Department of Energy will be used for determining the baseline energy usage for estimating savings (NV Energy 2023). As the new construction program activities began in 2022, and the residential codes program activities began in 2023, NV Energy only claimed energy savings from the new construction component for the 2022 program year (NV Energy 2023; ADM Associates 2023).

### *BPS or stretch code activities*

Utility BPS or stretch code activities were not identified.

## Rhode Island

### *C&S programs*

National Grid, previously the main investor-owned utility in Rhode Island, established a Code Compliance Enhancement Initiative (CCEI) in Rhode Island in 2014 (Chase et al. 2021; Nadel 2020). The CCEI activities include training, a circuit rider, technical assistance, and stakeholder engagement (Lee and Stacey 2018; National Grid 2017). In the 2021–2023 period, National Grid planned to expand its codes and standards programs to cover code adoption support in addition to code compliance support (National Grid 2020). National Grid stated that they had demonstrated the potential of their energy code advancement support work in the 2019 to 2020 period, in which they offered technical assistance in the process of Rhode Island updating its energy code (National Grid 2020).

In 2022, National Grid sold its Rhode Island subsidiary, The Narragansett Electric Company, to PPL, who changed the name of the Rhode Island utility to Rhode Island Energy. In Rhode Island Energy's 2022 Energy Efficiency Year-End Report, they reported that the CCEI activities included residential and commercial construction training events with 915 industry participants (Rhode Island Energy 2023a). In their 2024–2026 Energy Efficiency Three-Year Plan and 2024 Energy Efficiency Plan, Rhode Island Energy states that they will continue offering training through the CCEI, targeted toward workforce preparation for the adoption of the 2024 IECC (Rhode Island Energy 2023b).

### *Savings attribution and evaluation*

Rhode Island's attribution approach follows the standard formal attribution approach. However, while the California model uses a Delphi panel to assess the attribution factor, in the Rhode Island approach the attribution factor is assessed by an evaluation team (Lee and Stacey 2018).

Given the gap between code development activities and realized savings from code adoption and enforcement, National Grid stated that they anticipated to report savings in 2022 from their 2019–2020 code development support efforts (National Grid 2020).

Rhode Island Energy plans to claim energy savings from the CCEI calculated from the most recent initiative evaluation, and they will update the evaluation and savings calculation after the adoption of the 2024 IECC (Rhode Island Energy 2023b).

### *BPS or stretch code activities*

In the 2021–2023 period, National Grid planned to expand its codes and standards programs to include supporting the adoption of stretch codes and BPS (National Grid 2020). National Grid's 2021–2023 Plan included CCEI activities related to stretch code compliance support, including training and assistance, and stated that the CCEI would explore possible ways to support increased stretch code adoption (National Grid 2020). In 2023, Rhode Island Energy planned to support adoption of the Rhode Island residential and commercial stretch codes (Rhode Island Energy 2022).

## Other energy code savings attribution approaches

## Arizona

### *C&S programs*

Arizona Public Service Company (APS), an investor-owned utility, has a Building Codes and Appliance Standards (C&S) Initiative as one of its Demand Side Management Initiatives (APS 2022; Lee and Stacey 2018). APS's C&S Initiative supports energy code and appliance standards compliance through work with code officials and building professionals on compliance strategies within their service territory (APS 2022).

### *Savings attribution and evaluation*

Arizona utilizes a deemed attribution approach for attributing energy savings from C&S programs. In a deemed approach, the state determines an attribution factor for the percentage of energy savings attributable to utility C&S programs (Lee and Stacey 2018; Chase et al. 2021). Presently, Arizona is the only U.S. state that uses a deemed attribution approach for codes-related energy savings. 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).

### *BPS or stretch code activities*

Utility BPS or stretch code activities were not identified.

### *Other relevant information*

The Salt River Project (SRP), a public utility not regulated by the Arizona Corporation Commission, was permitted by its board to claim up to one-half of the energy savings from new energy codes and appliance standards (Lee and Stacey 2018; Nadel 2020). SRP must document their influence in the code or standard adoption (Lee and Stacey 2018). The attribution approach used by SRP follows the standard formal attribution approach based on California's model, but includes adjustments to California's model to account for Arizona's home rule state status whereby all codes are adopted at the local (rather than state) level (Lee and Stacey 2018).

# New Jersey

### *C&S programs*

In New Jersey, utilities or state agencies do not administer C&S programs, but the overall savings from building energy codes and appliance standards adoption can be claimed as energy savings from state programs toward energy savings targets, as explained below.

### *Savings attribution and evaluation*

In New Jersey, the BPU administers the state's Clean Energy Program (NJCEP), which includes state- and utility-administered energy efficiency programs (Lee and Stacey 2018). As such, there are separate targets set for energy usage reduction from both the state- and utility-administered programs (NJBPU 2023). For the Triennium 2 period, from 2025–2027, the relative contributions of the state-administered and utility-administered programs to overall energy reduction goals are 11% (state) and 89% (utilities) (NJBPU 2023). A 2023 BPU order directed BPU staff to "evaluate whether energy savings from building energy codes and appliance standards, as well as from other State programs and initiatives, would support increasing the State's relative share of annual net energy reduction goals and thereby lowering utility annual net energy goals" for the 2025–2027 period (NJBPU 2023). This BPU order effectively permitted energy savings attributed from building energy codes to be claimed by state programs toward their energy savings targets (NJBPU 2023).

With guidance from the New Jersey Statewide Evaluator of energy efficiency and peak demand reduction programs, consultants from Rutgers University conducted an analysis to attribute energy savings from the state's adoption of updated energy codes (NJBPU 2023; Center for Urban Policy and Research 2023). The attribution analysis projected energy savings over the Triennium 2 period (2025–2027) resulting from New Jersey's adoption of ASHRAE 90.1-2019 for commercial construction and IECC 2021 for residential construction in 2023. The attribution approach involved the calculation of potential savings, gross savings, and net savings. The compliance rate, used to calculate gross savings, ranged from 0.85–0.88 for 2025 for residential construction and 0.84–0.94 for 2025 for commercial construction among three scenarios (conservative, middle-of-the-road, and optimistic scenarios) analyzed by the Rutgers consultants to account for uncertainty. The net savings were calculated using a net-to-gross ratio and an adjustment factor for increasing market adoption by year, both of which have different values under the three scenarios as well.

The energy savings attributed from the adoption of more stringent energy codes were included as additional energy savings from state programs in an updated analysis for determining energy efficiency goals for state-administered and utility-administered programs for the 2025–2027 period (NJBPU 2023). The analysis determined that the additional energy savings from the energy code adoption, as well as from appliance standards adoption and other additional programs, could decrease the annual energy usage reduction goals for both state-administered and utility-administered programs (NJBPU 2023).

### *BPS or stretch code activities*

BPS or stretch code activities were not identified.

## New York

### *C&S programs*

In New York, the New York State Energy Research and Development Authority (NYSERDA) is the main administrator of energy efficiency programs, including C&S programs, while utilities are not involved in C&S programs (Chase et al. 2021). The Clean Energy Fund (CEF), passed by the New York Public Service Commission in 2016, established energy efficiency and clean energy program portfolios managed by NYSERDA, including the Codes and Standards for Carbon Neutral Buildings initiative (previously called the Code to Zero initiative) (NYSERDA 2023). This initiative covers code advancement, with a focus on stretch code adoption, and compliance support activities, including training and resource offerings (NYSERDA 2023).

### *Savings attribution and evaluation*

The preliminary savings estimation methodology was developed in the first year of the initiative, and NYSERDA planned for it to be reviewed by an evaluation team in 2023 (Eckstein and Horkitz 2022a). The methodology involved calculating both savings from stretch code adoption efforts and savings from increased code compliance resulting from training efforts (Eckstein and Horkitz 2022b). The savings estimation methodology follows the standard formal attribution approach. In estimating savings from stretch code adoption efforts, the attribution factor for the portion of energy savings attributed to the efforts of the Codes and Standards for Carbon Neutral Buildings initiative was determined to be 75% for New York City and 92% for other jurisdictions (Eckstein and Horkitz 2022b).

### *BPS or stretch code activities*

As mentioned, energy savings from stretch code support activities are currently claimed by NYSERDA. NYSERDA also plans to develop policy programs to promote building decarbonization, including building performance standards (NYSERDA 2023).

## Northwest Energy Efficiency Alliance (NEEA) – Idaho, Montana, Oregon, Washington

### *C&S programs*

The Northwest Energy Efficiency Alliance (NEEA), an alliance of utilities and energy efficiency organizations, runs codes programs in Idaho, Montana, Oregon, and Washington (NEEA 2024). NEEA is funded by the Bonneville Power Administration, the Energy Trust of Oregon, and member utilities in its territory. NEEA's codes-related work includes support for code development, code adoption, and code compliance (NEEA 2023). NEEA's code support activities include training for code officials and builders and development of education resources (M. Rehley, director of emerging technology, product management, codes, standards, and new construction, NEEA, pers. comm., February 9, 2024). NEEA's plans for its codes and standards work in 2024 include supporting code development for updated Washington and Oregon codes, providing support in Montana and Idaho if those states decide to update their codes, undertaking compliance studies, and offering training and educational tools (NEEA 2023).

### *Savings attribution and evaluation*

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 process of claiming energy savings is conducted by utilities with their state PUC.

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. The calculation of total savings is based on Dodge real building data and HUD permits for residential buildings, and the savings are reported as first-year savings. 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. These approaches are based on the premise that NEEA participated in the code adoption process and can quantify the savings resulting from the code changes for funders to claim (M. Rehley, director of emerging technology, product management, codes, standards, and new construction, NEEA, pers. comm., May 7, 2024). NEEA reports code savings at the state level. The attribution of savings for funders is based on their portion of NEEA funding (Lee and Stacey 2018).

### *BPS or stretch code activities*

BPS or stretch code activities were not identified.

## States considering or developing attribution approaches

## Connecticut

### *C&S programs*

Connecticut's investor-owned utilities—Eversource Energy, United Illuminating, Connecticut Natural Gas Corporation, and Southern Connecticut Gas—jointly offer code compliance support programs (Eversource et al. 2022a). In the 2022–2024 period, the utilities have planned to offer training, circuit riders, and tool development support for builders, contractors, architects, and building enforcement officials to increase code compliance (Eversource et al. 2022a).

### *Savings attribution and evaluation*

Connecticut utilities do not currently claim savings for C&S programs, but they are in the process of developing an approach for claiming these savings. The utilities stated in their joint 2022–2024 Conservation and Load Management Plan that they will study existing attribution approaches for savings from building code support programs, including Massachusetts' and Rhode Island's approaches (Eversource et al. 2022a). Third-party baseline compliance studies have been conducted for both residential new construction and commercial and industrial new construction, beginning in 2021, which will be used to establish code compliance rates and for savings attribution for future code compliance efforts by the utilities (Eversource et al. 2022a).

In an update to their 2022–2024 Conservation and Load Management Plan, the Connecticut utilities proposed changes to their plan to align with the Connecticut Department of Energy and Environmental Protection's (DEEP) Comprehensive Energy Strategy, aimed to advance decarbonization efforts (Eversource et al. 2022b). The utilities stated their plans to "claim savings and support decarbonization

efforts to partially offset declining new construction savings due to code change and new standard practice baselines," which would increase the decarbonization focus of the utilities' new construction programs (Eversource et al. 2022b). The third-party baseline compliance studies will provide a foundation for further efforts to claim savings in this area (Eversource et al. 2022b).

### *BPS or stretch code activities*

While Connecticut does not currently have a stretch code, legislation permitting a stretch code has been proposed, and should such legislation be passed, the utilities will plan to offer technical development support for a stretch code (Eversource et al. 2022a). If a stretch code is passed, the utilities also plan to offer support for stretch code compliance (Eversource et al. 2022a).

## Illinois

### *C&S programs*

As required by Illinois statute, Commonwealth Edison (ComEd) has planned to consider program options for advancing new building codes and standards and supporting compliance "as a potentially cost-effective means of acquiring savings to count toward savings goals" in the 2022–2025 period (ComEd 2022).

The Illinois Commerce Commission is currently working with an Illinois utility in the process of implementing an energy code and stretch code energy savings program in 2024 (E. Horne, policy analyst, Illinois Commerce Commission, pers. comm., December 12, 2023).

### *Savings attribution and evaluation*

The method for attributing energy savings from utility codes programs is still under development in Illinois. The proposed methodology for attributing energy savings is based on the number of units, 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 (E. Horne, policy analyst, Illinois Commerce Commission, pers. comm., December 12, 2023).

### *BPS or stretch code activities*

In the 2022–2025 period, ComEd plans to launch a new market transformation initiative to increase adoption of building performance standards (BPS) for existing buildings in at least one municipality in its service territory (ComEd 2021, 2022). ComEd also plans to consider stretch codes as a focus of new market transformation initiatives (ComEd 2022). As Illinois residential and commercial stretch codes will be in place for adoption on July 1, 2024, there are current utility efforts to consider potential energy savings related to stretch code adoption support efforts. Potential stretch code and BPS adoption support efforts may include utility rebates and new construction programs (E. Horne, policy analyst, Illinois Commerce Commission, pers. comm., December 12, 2023).

## Michigan

### *C&S programs*

Michigan utility DTE launched a Codes and Standards pilot in 2020 as one of its residential pilots (DTE Energy 2023). The first phase of the pilot was focused on code adoption through participation in the process of updating Michigan's Building Energy Code (DTE Energy 2023). DTE states that the goal of its code adoption efforts is to "positively affect the codes and standards to be later codified in a

measurable way" (DTE Energy 2023). The second phase of the pilot is focused on code compliance through support for builders and code officials in code implementation, targeting an increased code compliance rate (DTE Energy 2023).

### *Savings attribution and evaluation*

The method for attributing energy savings from pilot programs was determined in a 2008 order by the Michigan Public Service Commission (PSC) (DTE Energy 2023; MPSC 2008). The PSC permitted utilities to spend up to 5% of their Energy Waste Reduction (EWR) budget on pilot programs, and used a deemed approach for corresponding energy savings, allowing pilot programs to generate up to 5% of the required energy savings for the program year (DTE Energy 2023; MPSC 2008). DTE's total electric pilot program savings for 2022 were 53 GWh and total gas pilot program savings were 117.8 MMcf (DTE Energy 2023).

### *BPS or stretch code activities*

Utility BPS or stretch code activities were not identified.

## New Hampshire

### *C&S programs*

The New Hampshire investor-owned utilities—Liberty Utilities, New Hampshire Electric Cooperative, Eversource Energy, and Until-NH Gas and Electric Operations—offer energy efficiency programs jointly through the NHSaves Program (Liberty Utilities et al. 2020). In the New Hampshire utilities' joint 2021–2023 Statewide Energy Efficiency Draft Plan, the utilities state their plans to expand training under their residential programs to include additional activities related to building code compliance (Liberty Utilities et al. 2020). The utilities also state their plans to continue to engage local building departments on residential building codes and offer program information to building code enforcement offices (Liberty Utilities et al. 2020).

### *Savings attribution and evaluation*

In the 2021–2023 Plan, the utilities stated that they have been conducting research on building code savings attribution approaches used in New England and in Massachusetts in particular (Liberty Utilities et al. 2020). The utilities stated that an attribution approach for New Hampshire could cover savings resulting from increased codes and standards compliance and code training (Liberty Utilities et al. 2020). While the utilities stated that an attribution approach for New Hampshire may be proposed in the 2021–2023 period (Liberty Utilities et al. 2020), no further updates have been identified.

### *BPS or stretch code activities*

Utility BPS or stretch code activities were not identified.

## Vermont

### *C&S programs*

Efficiency Vermont's programs include a Codes and Standards Support programs that cover residential buildings as well as commercial and industrial buildings (VEIC 2023). The Codes and Standards Support program includes an Energy Code Assistance Center, which offers technical assistance, educational resources, and training specifically on the connection between the energy code and Vermont's

Comprehensive Energy Plan and Climate Action Plan (VEIC 2023). The Codes and Standards Support program also includes energy code training and support for market partners, including training for building and real estate professionals and municipal staff (VEIC 2023).

### *Savings attribution and evaluation*

While Vermont does not currently allow utilities to claim energy savings from codes and standards support efforts, there are considerations of such an approach currently under proposal. The Vermont Department of Public Service 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). In the 2024–2026 Triennial Plan, Efficiency Vermont states that it aims to "develop a framework to capture the unique and long-term value achieved from and provided by energy code development and assistance to developers, builders, design professionals, and property owners" (VEIC 2023).

### *BPS or stretch code activities*

BPS or stretch code activities were not identified.

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