



# Integrating Codes and Standards into Electric Utility Energy Efficiency Portfolios

*IEE Whitepaper  
August 2011*



INSTITUTE FOR  
**Electric Efficiency**

*Advancing energy-efficiency and demand response among electric utilities.*



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### *Acknowledgements*

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## INTRODUCTION

This paper provides illustrative examples of state policies that provide opportunities for utilities to incorporate codes and standards into their energy efficiency portfolios. Although this may not be possible in all states, we believe that opportunities exist in a large number of states. As indicated by the doubling of budgets for utility funded energy efficiency programs from 2007 to 2010, utilities have pursued a suite of energy efficiency programs that incent market transformation and have been champions in educating consumers on the economic and environmental benefits of energy efficient devices and energy management.<sup>1</sup>

Pursuing energy efficiency in place of building new power plants makes sense; and regulators and legislatures in dozens of states have developed policies that incent utilities to administer energy efficiency programs. However, few states have policies in place that recognize the value of utilities participating in advancing energy efficiency through the development of better enforced and more stringent building energy codes and appliance and equipment standards.

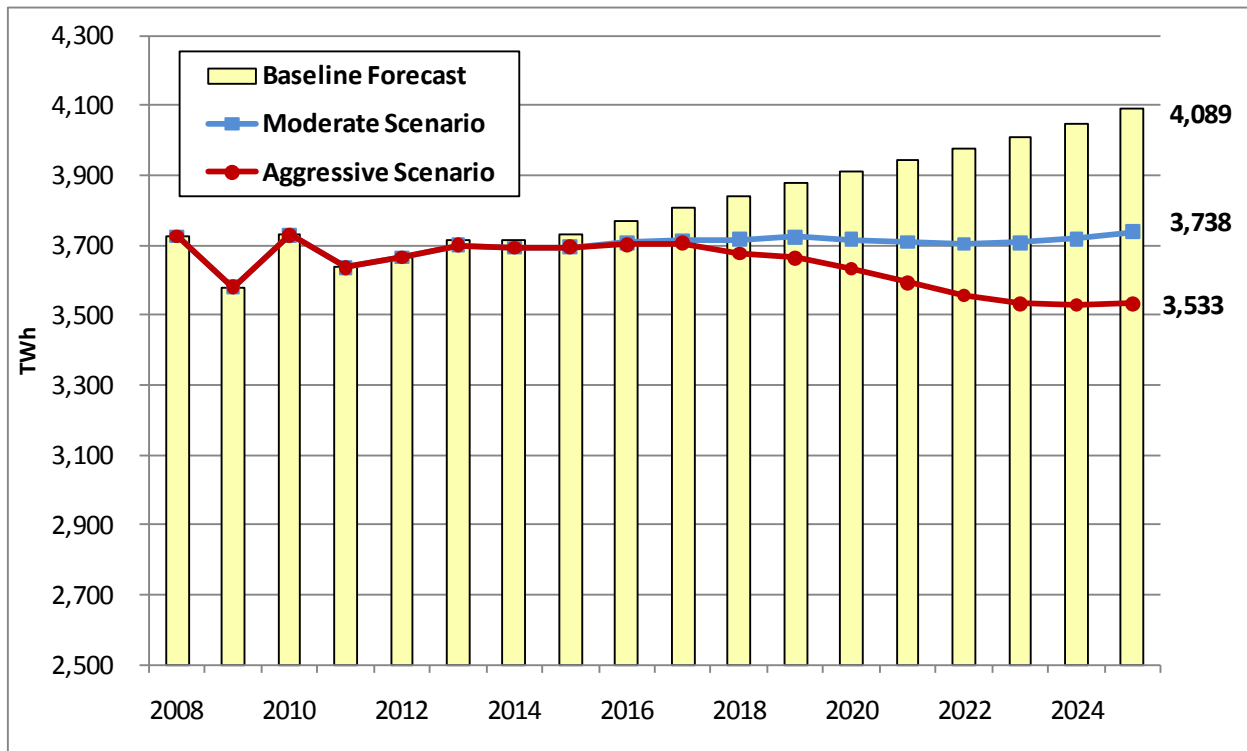
The opportunity to realize energy savings through codes and standards programs is significant. A recent Institute for Electric Efficiency study showed savings of 351 TWh by 2025 under a moderate codes and standards adoption scenario and 556 TWh under a more aggressive scenario, representing between 8.6 percent and 13.6 percent of savings relative to the AEO 2011 baseline forecast for 2025.<sup>2</sup> In fact, as shown in Figure 1, the moderate codes and standards scenario offsets all of the growth in the baseline forecast between 2008 and 2025.

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<sup>1</sup> IEE Brief, *Summary of ratepayer-Funded Electric Efficiency Impacts, Budgets, and Expenditures*, January 2011.

<sup>2</sup> IEE Whitepaper, *Assessment of Electricity Savings in the U.S. Achievable through New Appliance/Equipment Efficiency Standards and Building Efficiency Codes (2010-2025)*, May 2011.

**Figure 1: Impact of Codes and Standards on Total U.S. Electricity Consumption (TWh)**



Source: IEE Whitepaper, *Assessment of Electricity Savings in the U.S. Achievable through New Appliance/Equipment Efficiency Standards and Building Efficiency Codes (2010-2025)*, May 2011.

A handful of states and regions—Arizona, California, Massachusetts, Minnesota, and the Pacific Northwest—that have integrated codes and standards into utility energy efficiency program portfolios (or are moving in that direction) provide potential templates for consideration.

## THE UTILITY’S ROLE IN BUILDING ENERGY CODES

*Utilities can play an integral role in the development of energy efficient buildings at a state and local level.* Utilities operating across the U.S. are well aware of the energy needs of their customers and well suited to participate in and influence the energy code process. Utility involvement will vary given region specific circumstances. The list below outlines different facets of the building code process and the potential areas for utility involvement.

- **Development**—During the development of building energy codes, a utility can help in the design of code language and cost effectiveness testing. Simplified code language is generally preferred as a simple code tends to be better enforced than a complex code.
- **Market push**—In preparation of the code, utilities can intentionally design efficiency rebate programs to grow the share of the market held by highly energy efficient building products to support the market viability of the proposed code.
- **Adoption**—If the current code lags readily available codes, utilities can actively support and promote the adoption of new building energy codes.
- **Training**—Utility training programs, such as role-based training, and the provisioning of training materials (e.g., code manuals, software, etc.) for the building design and construction community (e.g., HVAC, builders, engineers, code officials, etc.) are effective methods to educate and train key participants to design and build structures to code.
- **Compliance enhancement**—While the general business practices of utilities excludes their involvement in direct inspection of completed buildings, a utility can become involved in compliance enhancement efforts by supporting third-party inspectors and plan reviewers.
- **Awareness**—The potential for revisions in both the nation’s model energy code and state or region specific codes requires constant communication among various stakeholders including utilities, state energy offices, regulatory bodies, building professionals, and local code officials. Utilities can play a key role by monitoring changes, convening meetings, and providing up-to-date information to stakeholders.<sup>3</sup>

The areas described represent a range of engagement options for utilities. The majority of U.S. states have not adopted the most recent residential or commercial building code and this gap in adoption is an immediate opportunity for utilities.<sup>4</sup> Training and compliance enhancement efforts are also areas where utility involvement would lead to energy savings.

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<sup>3</sup> Measuring the impact of awareness efforts by utilities is difficult and requires a strong methodology for identifying the unique contributions of the utility and assessing the effects of their actions.

<sup>4</sup> The status of building energy codes is detailed in Appendix A.



## **THE UTILITY'S ROLE IN APPLIANCE AND EQUIPMENT EFFICIENCY STANDARDS**

There are three ways for utilities to get involved with standards. First, when there is no set standard for a product but a market exists, a utility can work with regulators to negotiate a market-sourced baseline and run programs that support the adoption of more efficient products by households. The utility can claim the incremental energy saving from utility run programs referenced against the market-sourced baseline.

Second, utilities can work between final rule making and effective date of a new standard to help accelerate market adoption of high efficiency products and secure energy savings through a market transformation effort. In this approach, the new standard becomes the baseline and utilities can focus the market by incenting the purchase of higher than minimum efficiency products. In some cases, readily available high efficiency products will not pass cost-effectiveness tests and the utility will need to work with the product manufacturers.

A third, and less common, approach is for utilities to work with a state agency, such as a standard setting energy office, to develop a standard for a product that is not federally covered.<sup>5</sup> A recent example of this approach is the creation of new energy efficiency standards for color televisions in California.

In summary, utilities can contribute to the development and implementation of efficiency standards in a variety of ways. Examples of utility involvement with standards include:

- Holding meetings and working groups to target products ripe for new standards;
- Developing technical reports on the feasibility, costs, and benefits of candidate technologies for standards consideration;
- Developing standards testing practices and evaluation tools;
- Increasing the market share of high efficiency products through incentives; and
- Providing expert witness testimony in regulatory hearings and assisting with consumer and regulator education efforts.

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<sup>5</sup> It should be noted that not every state energy agency has the authority to pursue and set efficiency requirements. In some states, a legislative effort may be required to alter minimum efficiency standards.

## CODES AND STANDARDS CAN BE A SIGNIFICANT SAVINGS OPPORTUNITY—CALIFORNIA

The opportunity for energy savings from codes and standards programs is large, yet, to date, only California gives utilities credit toward their efficiency goals for such energy savings. Table 1 shows the 678 GWh of electricity savings and 123 MW of peak reductions during the 2006-2008 program cycle and 2009 bridge funding period attributable to codes and standards programs.<sup>6</sup> These savings represent about 9 percent of the overall energy efficiency portfolio for the California investor owned utilities (IOUs) in that period. Importantly, these savings were delivered cost-effectively. Because the codes work is so cost effective, the addition of codes and standards program savings to the broader portfolios of utility incentive, education, and marketing programs can reduce the overall program portfolio cost per kWh saved.

**Table 1: Evaluated Savings of California IOUs from Codes and Standards Programs (2006-2009)**

IOU	Electricity (GWh)	Peak Savings (MW)
PG&E	299	55
SCE	309	56
SDG&E	70	13
<b>Total</b>	<b>678</b>	<b>123</b>
<b>Share of EE Portfolio</b>	<b>9.20%</b>	<b>9.40%</b>

Source: CPUC-ED, Energy Efficiency Evaluation Report for the 2009 Bridge Funding Period, January 2011.

Given the significant level of energy savings realized and the cost-effectiveness, at least two of the three California IOUs plan to increase their codes and standards program funding levels for the 2010-2012 cycle. By locking in future purchases of devices at a higher energy efficiency level, preliminary estimates of energy savings from codes and standards for the 2010-2012 program cycle are about 837 GWh.<sup>7</sup>

An important financial consideration for utilities is that energy savings through codes and standards programs are achieved without the cost of rebating efforts. California's significant

<sup>6</sup> California Public Utilities (CPUC) Energy Division, *Energy Efficiency Evaluation Report for the 2009 Bridge Funding Period*, January 2011.

<sup>7</sup> CPUC Fact Sheet, *Energy Efficiency Statewide Codes and Standards Program (2010-2012)*, July 2010. <http://www.cpuc.ca.gov/NR/rdonlyres/FAA129C6-55D8-42CC-8B1C-3F4FBAD8FE5B/0/EE14CodesandStandardsPrograms0710.pdf>

energy savings from codes and standards programs provide motivation for other states to consider the adoption and enhancement of utility-supported codes and standards programs.<sup>8</sup>

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<sup>8</sup> A challenge for utilities seeking credit for the incremental savings associated with making improvements to base building energy codes and/or appliance standards is the development of a commission-approved business-as-usual baseline. As with energy efficiency programs, all quantitative assessments of performance require a comparison of actual recorded consumption to a business as usual baseline.

## **THE ENVIRONMENT FOR UTILITY ENGAGEMENT**

This section describes potential pathways for utilities and stakeholders to integrate codes and standards into utility energy efficiency portfolio goals. Three approaches that encourage utility involvement in codes and standards are described. These approaches embody different emphasis areas and varying levels of engagement between utilities and stakeholders involved with the development, adoption, and enhancement of building energy codes and appliance/equipment standards. These are potential pathways for utilities and stakeholders to work together to bring about cost-effective energy savings from codes and standards.

### **APPROACH 1: CALIFORNIA, MASSACHUSETTS, MINNESOTA**

#### ***California***

California is often recognized as a pioneering state when it comes to energy efficiency. Since 1998, California utilities have played a key role in advancing building energy codes and appliance/equipment standards, and starting in 2005, the annual energy savings goals set by the California Public Utilities Commission (CPUC) allowed for energy savings from codes and standards to be counted towards meeting the goals.<sup>9</sup>

Key contributions from the California IOUs are the Codes and Standards Enhancement (CASE) reports that the IOUs develop and provide to the California Energy Commission (CEC). CASE reports evaluate the costs and benefits of pursuing specific energy saving technology measures (e.g., efficient TVs) and help the CEC justify changes to California's Administrative Codes Title 20 (Appliance Codes) and Title 24 (Building Codes).

Prior to the development of CASE reports, the IOUs and the CPUC create a goal of developing a certain number of reports. The CPUC then authorizes funding requests for the CASE reports as part of the overall energy efficiency funding request. Once a technology/measure is identified for evaluation, the utility develops the CASE report in collaboration with the CEC. Although this process can be lengthy—it may take several years for a code change opportunity to be assessed through a CASE study, codified into the state's building codes and appliance standards, and for estimated savings to be incorporated into the utilities' energy efficiency portfolios—the IOUs'

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<sup>9</sup> Eilert, et al., *Managed Diffusion*, ACEEE Summer Study on Energy Efficiency in Buildings, 2006.

efforts to develop and support increasingly stringent building energy codes and appliance/equipment standards have led to substantial cost-effective energy savings.

In addition to the information and foresights delivered by the CASE reports, California has developed a robust evaluation and attribution model that can be used to credit utilities for the energy saving resulting from the adoption of codes and standards (see Appendix C).

California has served as a model for the efficiency community for many years, and the maturity of their codes and standards programs and the robust results delivered demonstrate the benefits of utility involvement. Some states and utilities are taking portions of the California approach and tailoring this model of engagement to fit the needs of their codes and standards community and to meet their energy efficiency goals. Of note are the efforts underway in Massachusetts and Minnesota.

### ***Massachusetts***

The Commonwealth of Massachusetts is currently finalizing a process that recognizes the role of utilities in advancing codes and standards. The 2008 Green Communities Act allows for communities (cities and towns) to apply for “green community” status and adopt building reach codes that are greater than the minimum statewide energy code.

As of June 2011, 95 of 351 Massachusetts communities have adopted reach codes.<sup>10</sup> The reach code is a standardized, optional appendix to the current Massachusetts building energy code (IECC 2009) that provides communities the option to adopt an energy code that is more efficient than the statewide code for all new residential and some new commercial buildings.<sup>11</sup> The reach code is designed to be 20 percent more energy efficient than the base energy code.<sup>12</sup> Reach codes provide Massachusetts the opportunity to realize energy savings greater than what would be achieved under IECC 2009.

A working group comprising Massachusetts utilities, the Energy Efficiency Advisory Council (EEAC), and the Department of Public Utilities (DPU) is developing a process that will recognize the role of utilities in supporting codes and standards and provide credit for such

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<sup>10</sup> [http://www.mass.gov/Eoeea/docs/doer/green\\_communities/grant\\_program/stretch\\_code\\_towns.pdf](http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/stretch_code_towns.pdf)

<sup>11</sup> A standardized reach code simplifies training efforts and accelerates the market transformation process.

<sup>12</sup> [http://www.mass.gov/Eoeea/docs/doer/green\\_communities/grant\\_program/q\\_and\\_a\\_stretch\\_code.pdf](http://www.mass.gov/Eoeea/docs/doer/green_communities/grant_program/q_and_a_stretch_code.pdf)

savings in meeting energy efficiency goals.<sup>13</sup> In addition to the evaluation process, efforts are underway to develop a code compliance study, an estimation of savings potential from code improvements, and refinement of the program design.

Accruing sustainable energy savings from codes (reach or statewide minimum) is a challenge. Research efforts by the Massachusetts Institute of Technology are examining how best to carry forward codes and retrofit efforts related to the American Recovery and Reinvestment Act through utility-to-community programs. MIT's Energy Efficiency Strategy Project is proposing several innovative approaches, including a utility-supported financial model for public facilities, utility leadership in reach codes, and taking a closer look at retrofit ordinances for majority renter populations.<sup>14</sup>

### ***Minnesota***

In Minnesota, the 2007 Next Generation Energy Act calls for energy savings of 1.5 percent of the utility's annual retail electricity sales, starting in 2010.<sup>15</sup> Energy savings from building codes and appliance standards can count towards the utilities' annual energy savings goals.<sup>16</sup>

Through an effort funded by the state Department of Commerce and facilitated by the Minnesota Environmental Initiative, a group of stakeholders was brought together to fashion a set of recommendations on how codes and standards can contribute to the 1.5 percent goal.

Stakeholders for this working group included the Midwest Energy Efficiency Alliance, Xcel Energy, Otter Tail Power, Dakota Power, The Weidt Group, Brookfield Properties, and the Center for Energy and Environment.<sup>17</sup>

The recommendations focused on enhancing code compliance and discussed ways to measure energy savings. Suggestions for possible utility activities include:

- Early-retirement DSM programs for appliances and equipment.

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<sup>13</sup> Tolkin, et al., *Savings from Codes and Standards Activities: Developing an Evaluation Mechanism in Massachusetts*, 2010.

<sup>14</sup> Michaels, Harvey, *Community Engagement: A Potential Transformative Path to Greater Energy Efficiency*, August 2011.

<sup>15</sup> 2010 Minnesota Statutes, 216B.241 – Energy Conservation Improvement.  
<https://www.revisor.mn.gov/statutes/?id=216B.241>

<sup>16</sup> Next Generation Energy Act of 2007, Section 4 – Energy Conservation Policy Goal.

<sup>17</sup> 1.5% Energy Efficiency Solutions Project, Minnesota Environmental Initiative, March 2011 Final Report.

- Establishing a program modeled after the Washington State Utility Codes Group that includes funding and/or rebates for a third-party plan review and inspection program.<sup>18</sup>

By training, testing, and certifying a group of inspectors and providing rebates for inspections, the Minnesota utilities can become a third-party facilitator of advancing energy codes and would then be able to claim an appropriate share of the energy savings associated with their codes and standards program efforts.

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<sup>18</sup> Kunkle, Rick, *The Washington State Energy Code: Energy Code Privatization—The Utility Code Group Story*, January 1997.

## APPROACH 2: ARIZONA

### *Arizona*

A second model for a utility to receive credit for its efforts in advancing codes and standards is emerging in Arizona, where regulated IOUs can receive a credit of up to one-third of the savings associated with codes programs.

In 2010, the Arizona Corporation Commission unanimously approved an Electric Energy Efficiency Standard that requires regulated electric utilities to achieve cumulative energy savings equivalent to at least 20 percent of retail energy sales, plus up to a 2 percent credit for peak demand reductions from demand response programs, for a total of 22 percent by 2020.<sup>19,20</sup> In its recommendation, the Commission outlined an opportunity for utilities to count up to one-third of the energy savings resulting from the implementation of building energy codes towards these energy efficiency goals. Savings must be quantified and reported through a measurement and evaluation study undertaken by the affected utility.

At this time, savings from appliance and equipment standards are credited to regulated gas utilities but not electric utilities. Therefore, electric utilities are focusing on enhancing building energy codes to receive credit towards the statewide energy efficiency standard. For example, Tucson Electric Power (TEP), an IOU, has submitted a building code support pilot program as part of its 2011-2012 Energy Efficiency Implementation Plan, currently pending before the Arizona Corporation Commission. The program seeks to:<sup>21</sup>

- Better prepare code officials and building professionals to adhere to existing standards;
- Provide data and market insight to document the specific local benefits of code enforcement, and recommend energy code changes over time;
- Ensure utility incentive programs align well with local energy codes;
- Collaborate with relevant stakeholders to help build a more robust community working to advance strong and effective building energy codes across the local jurisdictions within TEP; and
- Advocate for energy code updates over time.

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<sup>19</sup> Arizona Corporation Commission, Docket No. RE-00000C-09-0427.

<sup>20</sup> Electric distribution cooperatives are required to meet 75 percent of the savings specified by the Electric Energy Efficiency Standard.

<sup>21</sup> TEP 2011 & 2012 Building Code Support Pilot Program Description, Appendix C: Energy Codes Enhancement Program.



The Salt River Project (SRP), another electric utility in Arizona, but one that is not regulated by the Arizona Corporation Commission, is also pursuing energy code enhancement programs. In May 2011, SRP's Board of Directors approved a proposal which incorporates codes into its Sustainable Portfolio Standard. SRP is not obligated to meet the energy efficiency standard passed by the Arizona Corporation Commission, and has developed its own target of meeting 20 percent of its expected retail energy requirements through sustainable resources by 2020.<sup>22</sup> SRP views codes and standards as a means to achieving the goal.

Specifically, SRP plans to:

- Work with municipal jurisdictions to help accelerate the implementation of more robust building energy codes for new construction and major remodels. SRP will count no more than 50 percent of the energy savings resulting from the adoption of more efficient model energy codes beyond current code levels and credit savings towards its sustainable portfolio.
- Support activities at the state and federal levels to expedite the passage of more stringent energy standards. These standards will include both commercial and residential electric appliances, devices, and equipment. SRP will count no more than 50 percent of the energy savings resulting from the passage of new standards above the prevailing level toward its sustainable portfolio.<sup>23</sup>

SRP's initial assessment of the likely energy savings from implementing its energy code advocacy and training assistance program indicates that the program could potentially deliver up to 80,000 MWh of savings per year by 2016.<sup>24</sup> The achievement of this goal would represent about 0.25 percent of SRP's retail sales in 2016.<sup>25</sup> Recognizing the opportunity, SRP, in conjunction with the Arizona Department of Commerce's Energy Office, has already launched initial efforts to support building code advancement in the state. To date, SRP's efforts include providing resources for jurisdictions to purchase energy code books and manuals, providing funds to support energy code trainers, providing technical support to make energy code trainings available by producing DVDs, providing physical space for energy code trainings, and supporting adoption of the 2009 and 2012 IECC by the 19 local jurisdictions in their service territory.

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<sup>22</sup> Sustainable resources are renewable energy sources and energy efficiency.

<sup>23</sup> SRP Sustainable Portfolio Principles.

<https://www.srpnet.com/environment/earthwise/pdfx/spp/April1/2011RevisedPrinciples033111.pdf>

<sup>24</sup> SRP Position Paper on Model Energy Codes, *In Support of Clean & Efficient Energy*.

<https://www.srpnet.com/environment/earthwise/pdfx/spp/ModelEnergyCodes2011.pdf>

<sup>25</sup> Email correspondence with Josh Robertson, Senior Policy Analyst, Salt River Project. (5/25/2011). Discussion by phone with Dan Dreiling, Product Manager, Salt River Project. (6/15/2011).

### **APPROACH 3: PACIFIC NORTHWEST**

#### ***Pacific Northwest***

In the Pacific Northwest, the region's utilities, the Northwest Energy Efficiency Alliance (NEEA), and the Northwest Power and Conservation Council (NPCC) coordinate efforts to realize energy savings in a four state area. Codes and standards programs are a cornerstone of their success.

The Northwest Power and Conservation Act of 1980 (NW Power Act) authorized the states of Idaho, Oregon, Montana and Washington to form an interstate compact, the NPCC. The planning act called for the NPCC to develop a 20-year load forecast and resource plan while working together to develop reliable electricity through a least cost resource approach with energy efficiency recognized as the highest priority resource, equivalent to generation.

With respect to codes and standards, the NPCC is tasked under the NW Power Act with promulgating model conservation standards (MCS) that must be “designed to produce all power savings that are cost-effective for the region and economically feasible for consumers, taking into account financial assistance made available to consumers” (by utilities).<sup>26</sup> Given the NPCC recommendations, the utilities in the Northwest, along with NEEA, determine the mix of codes and standards programs that will yield the largest savings at the lowest cost with the highest level of compliance.

In the beginning, the NPCC had to overcome technical, political, and market-based challenges to demonstrate the benefits of adopting the MCS. In the early 1980s, the NPCC worked with the Bonneville Power Authority (BPA) to demonstrate the feasibility of implementing the MCS on a pilot demonstration basis. Between 1982 and 1984, four-hundred homes were built to MCS levels. With the engineering and building science aspects validated and the lifetime cost-effectiveness of building to MCS levels verified, the BPA and the NPCC moved forward with a consumer marketing program to build demand for high efficiency homes. To offset the slightly higher cost to construct MCS dwellings, the BPA paid builders \$2,000 to build to MCS requirements. Between 1983 and 1999, several thousand homes were built using MCS techniques, expanding the technical know-how of the homebuilder community. The final step in locking in the savings from the MCS was to codify the standard into law. Recognizing that early

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<sup>26</sup> Northwest Power and Conservation Act, Section 4.(f)(1).

adopting jurisdictions would need additional support and training to deliver on the promise of the MCS, the BPA provided training for building code officials, provided computers and code compliance software, and paid the incremental cost of compliance enhancement efforts.<sup>27</sup>

Today, NEEA actively participates in the code development process and leads contractor training workshops.<sup>28</sup> NEEA's strategy is to advance energy savings through commercial, industrial, and residential initiatives that are voluntary and are designed to train and inform building professionals on new technologies that can deliver energy savings. This strategy has successfully developed trained building professionals that can explain the benefits of energy efficiency measures to their customers. As the voluntary approach spreads and benefits are realized, the new technologies and practices by building professionals are then adopted by the state code.

Washington and Oregon are two of three states to have ever documented a 90 percent energy code compliance rate across the entire state.<sup>29</sup> In 2009, NEEA's support of the Northwest ENERGY STAR Homes program led to the development of roughly 1 out of 8 new homes in the region meeting ENERGY STAR Home efficiency levels.<sup>30</sup> ENERGY STAR homes are at least 15 percent more energy efficient than code.

The relationship between NEEA program efforts, utility sponsorship, and recognition of energy savings by the regulatory agencies is outlined in the utilities' integrated resource plan filings.

Figure 2 shows that advancements in state building codes, supported in part by utilities, accounted for 18 percent of total cumulative energy savings between 1978 and 2009 in the Pacific Northwest. In total, NEEA efforts and state codes account for 30 percent of total cumulative energy savings during that period.

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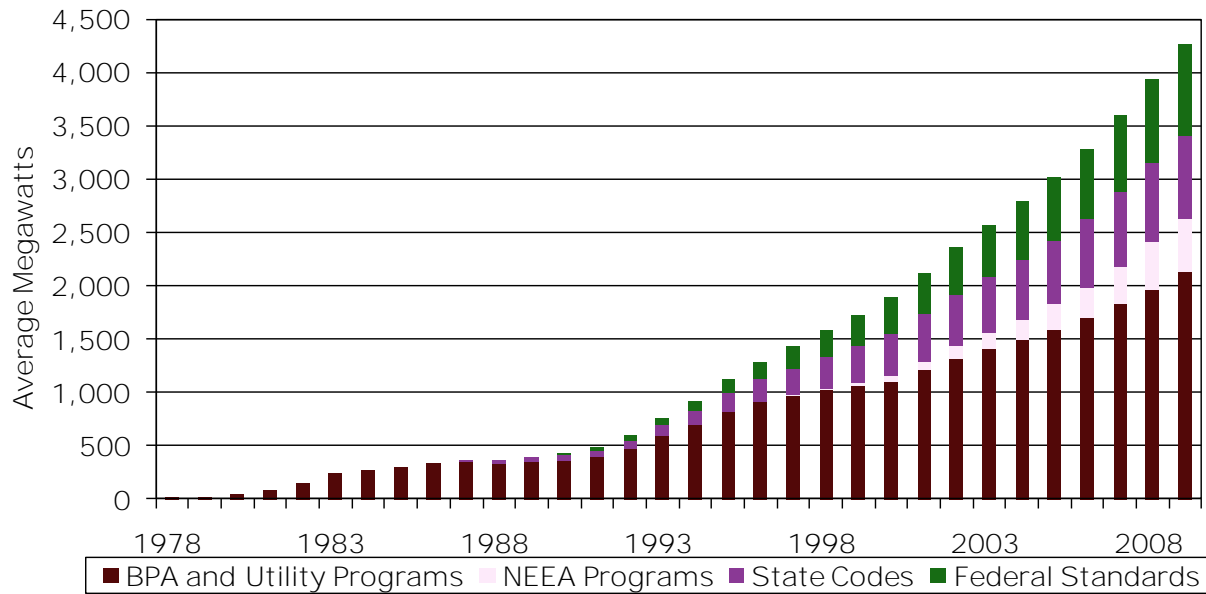
<sup>27</sup> The Proven Road to 90% Compliance, David Cohan, NEEA (Draft).

<sup>28</sup> <http://www.nwalliance.org/ourwork/index.aspx>

<sup>29</sup> The Proven Road to 90% Compliance, David Cohan, NEEA (Draft). The third state is California.

<sup>30</sup> Northwest Energy Efficiency Alliance Annual Report, 2009.

**Figure 2: Pacific Northwest Annual Energy Savings (1978-2009, cumulative)**



Source: Northwest Power and Conservation Council.

The success of the Pacific Northwest in the areas of energy savings from codes and high rates of code compliance could not have occurred without substantial upfront investments and ongoing involvement by the utilities.

## **EXAMPLES OF UTILITY INVOLVEMENT WITH STANDARDS**

The 1987 National Appliance Energy Conservation Act (NAECA) authorized federal standards set by DOE to preempt state law, but utilities can still advance energy savings by providing incentives for households and businesses to purchase greater than minimum efficiency products, or adopt state specific appliance/equipment standards in the absence of prevailing federal standards. DOE's Appliances and Commercial Equipment Standards Program develops the minimum efficiency standards for residential appliances and commercial equipment and currently has authority to regulate efficacy levels for over 40 residential, commercial, and industrial products.<sup>31</sup>

### ***Educating Customers and Regulators on Changes in Standards***

*The Energy Independence and Security Act of 2007 (EISA) authorized DOE to develop new efficiency requirements for household lamps starting in 2012. The transition between standards creates a space for utilities to become involved and add value.* The upcoming revisions to residential lighting standards, promulgated by EISA, are important to utilities due to the prominence of utility-sponsored lighting rebate programs that incent households to replace incandescent lights with compact fluorescent lamps (CFLs). According to Ecos Consulting, in 2010, at least 100 U.S. utilities ran a CFL lighting program and the cumulative budgets exceeded \$250 million.<sup>32</sup> Since the 1990s, utilities have paid rebates on hundreds of millions of CFLs, saving billions of kWh.

EISA does not ban the manufacture or sale of incandescent bulbs. Incandescent bulbs will still be available but will be built to operate at more efficient wattages relative to light output (measured in lumens). Utilities can step in and help the customer understand their choices of bulbs and the appropriate replacement bulb based on the lighting application and the efficiency (lumen output per watt) of the bulb.

The new lighting standard will require utilities to partially redesign their lighting programs and to work with regulators to redefine the baseline. In general, net energy savings from rebated bulbs will be smaller and the cost per lifetime kWh saved will increase (from 0.5-1.0

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<sup>31</sup> [http://www1.eere.energy.gov/buildings/appliance\\_standards/](http://www1.eere.energy.gov/buildings/appliance_standards/)

<sup>32</sup> Ecos presentation, Next Generation Lighting Webinar, October 13, 2010.























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