Strategic Compliance Plan

Improving Energy Code Compliance in Pennsylvania's Buildings

November 2012

The Compliance Planning Assistance Program
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Introduction

This Strategic Compliance Plan is based upon the initial research in the Pennsylvania Gap Analysis Report. Based on the findings from that report and other state-specific resources, this Strategic Compliance Plan charts a course to achieving 90 percent energy code compliance with the Pennsylvania Uniform Construction Code (UCC) by 2017.

The objectives of this Strategic Compliance Plan are twofold:

- Provide a realistic and effective model of a well-functioning energy codes infrastructure, given the current building code environment in Pennsylvania; and
- Based on existing gaps identified in Pennsylvania’s building code infrastructure, this plan describes the near-term critical actions needed to achieve 90 percent compliance with the energy provisions of the UCC by 2017.

Funded by the U.S. Department of Energy (DOE), Pennsylvania was chosen as one of three states to receive the second phase of this project.

Challenge

Pennsylvania’s buildings represent approximately 44% of total statewide energy consumption. Therefore, productive strategies to advance energy efficiency at the state level must include tactics to raise the minimum standard of building energy performance. Building energy codes, such as the current 2012 IECC, represent a systematic approach to influence sector-wide energy consumption at the point of construction or renovation – the easiest, most cost-effective opportunity to address component upgrades over the 70 year lifetime of a commercial building.

Prior to 1999, the commonwealth did not have a statewide building code and each municipality had the freedom to choose whether to adopt and enforce a building code. In 1999 the Pennsylvania General Assembly passed Act 45, the Pennsylvania Construction Code Act of 1999, mandating a statewide building code in Pennsylvania. The legislation required the Pennsylvania Department of Labor and Industry (L&I) to promulgate regulations to implement the requirements of the legislation and, in addition, to consider the development of alternative prescriptive methods for energy conservation that account for the various climatic regions within the commonwealth. The regulations were not fully promulgated until 2004, thus enforcement of a statewide code did not begin in earnest until 2004. Additionally, municipalities may opt-out of implementing the UCC; 161 jurisdictions have done so. The vast majority of these jurisdictions are small, rural communities with relatively little construction activity. In these cases, L&I is responsible for all commercial code enforcement, while the enforcement for residential construction is overlooked.

1. The UCC has state amendments and is equivalent to the 2009 International Energy Conservation Code (IECC) and ASHRAE Standard 90.1-2007.
4. The Building Energy Conservation Act of 1980 (Act 222) created the first residential energy code in Pennsylvania. It was not enforced, however, as builders were only required to self-certify compliance. http://www.engr.psu.edu/phrc/Publications/106EnergyCodeEnforcementTurns.pdf.
5. The L&I website maintains the status of all municipalities in the commonwealth: http://www.portal.state.pa.us/portal/server.pt?open=514&objID=553835&mode=2
The following Strategic Compliance Plan presents the components of a dynamic energy code infrastructure that achieves energy savings while limiting the financial and administrative responsibilities of state and municipal governments.

Pennsylvania’s Strategic Compliance Plan is organized around five focus areas necessary to achieve 90 percent energy code compliance for buildings: funding, outreach, compliance evaluation, and training. These activities are largely overseen by a group of representatives from interested and invested stakeholders throughout the commonwealth. An example is the Energy Code Compliance Collaborative. Figure 1 illustrates the collective importance of each of these focus areas that lead to 90 percent compliance with energy codes in Pennsylvania.

Given the variability of the political and economic landscape in Pennsylvania, this plan does not and cannot identify every activity involved in reaching the 90 percent energy code compliance target. Rather, Pennsylvania should use this plan as an overarching guideline to inform strategic decisions about how and where to allocate funding and resources, with the understanding that new challenges and opportunities may alter the commonwealth’s strategy in the future.
Meeting compliance targets for the energy provisions of the UCC requires buy-in from public officials, the private sector, and citizens. In acknowledgement of the need to bring these various groups together to move forward, this report proposes that the commonwealth continue to strengthen its support for the UCC by establishing an Energy Code Compliance Collaborative, which organizes a group of knowledgeable and influential stakeholders around sound energy code implementation and compliance. Through coordination, the Collaborative can help shape a functional and effective energy code infrastructure that fits the needs of the commonwealth. By coordinating the actors involved and creating a feedback loop from the bottom up, the Collaborative can help shape a functional and effective energy code infrastructure that fits the needs of Pennsylvania’s local governments and Council of Governments (COGs), which consists of several smaller municipalities that pool their resources together.

Why the Energy Code Compliance Collaborative?
As the representative group of the commonwealth’s energy codes stakeholders, the Collaborative will develop a vision that can accomplish this goal without placing undue burden on any single constituency. Additionally, the Collaborative will offer a deep understanding of what can be realistically implemented throughout the commonwealth and will be best-suited to prioritize the necessary tasks to the commonwealth.

Collaborative Structure
It is imperative that the Collaborative include a diverse set of stakeholders, so that all parties affected by the energy code are able to participate in designing a functional framework for UCC compliance.

Collaborative should encompass the following groups:
- Representatives from state advocacy groups
- Local jurisdictions or COGs with their own building departments
- Representatives from utilities and cooperatives
- Design, construction, and trade communities
- Building product manufacturers in the commonwealth
- State-level laboratories, universities, or other research groups that focus on energy policy or advancing building performance
- Consumer protection and low income advocates
- Real estate and mortgage lenders

Additionally, it would be best if the Collaborative met on a regular basis, as determined by its members. This will ensure that efforts remain ongoing and issues are quickly resolved. When considering the “home” of the Collaborative, the state should consider L&I as the hosting Department and subsequently create a position – Energy and Building Coordinator – that would manage the collaborative, and their greater initiatives, while also championing energy code efforts through to 2017.

Potential Roles of the Energy Code Compliance Collaborative
There are a number of synergistic functions that the Collaborative is well-positioned to oversee:

Collective Voice on Code Issues
The Collaborative can provide a collective voice to communicate with policymakers and other stakeholders on a unified front.

A Shared Forum
The Collaborative will become a place to exchange viewpoints and perspectives, organized around productive collaboration.

A Clearinghouse for Code Information
Because of the diverse knowledge of its members, the Collaborative can serve as an authoritative source for code-related information and provide validation for state agencies, policymakers, and others.

Securing Funding for Projects
The Collaborative will be uniquely qualified to advance mutual interests and, therefore, well-positioned to secure funding for code-related projects.

Targeted Outreach
Collaborative members will likely include a number of active practitioners that can help craft targeted value propositions for specific market actors. Executing focused outreach campaigns will be critical to achieving code compliance.

Implementation Program Oversight
In cases where L&I does not have the resources necessary to oversee specific code implementation programs (e.g. a new training series, targeted consumer outreach), the Collaborative could assist with oversight and funding opportunities of these specific programs.
Secure Funding

FOCUS AREA 1

Funding at the state and local levels is a prerequisite for successful energy code implementation activities. Below are some funding approaches that are being used successfully in other states.

Energy Code Funding Mechanisms From Around the U.S. — What’s Working?

1. Raising Fees
Instituting re-inspection fees for failed inspection is one option to offset the additional cost of energy code compliance activities. Act 13 of 2004 increased the established $2.00 surcharge on permitting fees to $4.00 for building permits issued by or under direct supervision of a building code official. The $4 is divided equally between the PCCA and PHRC at Penn State. This funding provides training and continuing education programs for construction code officials, design professionals, contractors and individuals who are involved with the implementation and enforcement of the UCC throughout the commonwealth. For more details, see Uniform Construction Code Statute, section 7210.703(a): Education and Training Program.

2. Institute Small Charge for Training
While it is often incumbent on the state to provide the funding for the training needed to bring the construction industry up to speed on new energy codes, this report recommends charging a nominal fee for energy code training. Although admission fees will not completely offset the cost of training, they do introduce a model to cost share the expense incurred to offer training statewide. A nominal training fee also encourages attendance (after enrollment) and participation, as trainees are interested in a return on their investment.

An EERS is a regulatory mechanism, typically administered by a state’s public utility commission, which requires obligated utilities to meet a specified portion of their electricity demand through energy efficiency within a defined timeframe. To date, more than half of all states have implemented an EERS.

Since the capital costs for building new power plants raises consumer rates, an EERS helps maintain an affordable cost of energy by avoiding and/or delaying the need for building new generation plants. To satisfy EERS obligations, utilities around the country have focused on the most cost-effective energy efficiency opportunities. Recognizing the role of code compliance in driving efficiency, some states—Arizona, Minnesota, and Washington—allow utilities to credit energy savings attributable to energy codes toward EERS goals. As a result, utilities have a strong interest in advancing sound energy codes and code compliance. Utility-backed energy codes initiatives are typically funded through a System Benefits Charge or a small fee included on consumers’ energy bills (see #4).
4. Public Benefit Funds (PBF), Energy Efficiency Trusts and the System Benefits Charge (SBC)

A PBF is a way to provide long-term funding for energy programs, typically via a System Benefits Charge (SBC) — a small, use-related fee added to customers’ electricity bills each month. SBCs are usually collected from customers of investor-owned utilities, and the funds are administered by a state agency, a third-party or the utility. Some states, including New York, are successfully using funds collected from their SBC for energy code-related work.

Other states have simply established trust funds with state monies (often overseen by a public utility commission) that are used to pay for energy efficiency initiatives that benefit the state’s citizens. For example, in Illinois, 2007 legislation that restructured the state electric industry also created a fund that provides $3 million annually to be used for renewable energy and residential energy efficiency. In addition, the Illinois Clean Energy Community Trust was established in 1999 with $225 million — some of which goes toward energy efficiency projects in the state.

5. Direct Utility Support

In some instances, utilities may provide in kind support for energy code activities within their jurisdictions by providing meeting space, technical expertise, or lunch for attendees. There are also a few cases where utilities have offered rebates to offset the cost of third-party energy ratings that can be used to demonstrate energy code compliance.

6. State Appropriations

A common way to fund energy code training and outreach is leveraging federal funds via State Energy Programs (SEP), or through direct appropriations by the state. In Texas, the state appropriates funds to the Texas State Energy Conservation Office (SECO) for programmatic use. SECO then allocates a portion of these dollars to energy code training and outreach.

DOE also offers formula and periodic competitive grant awards that could be used for energy code-related projects. Typically, funding proposals are submitted through State Energy Programs (SEP) to compete for these funding opportunities. Planning future programs now can help Pennsylvania ready its proposal when such opportunities arise.
Expanding an Energy Codes Training Program in Pennsylvania

Training is an ongoing process. While energy code training has been offered twice a year by the Pennsylvania Construction Codes Academy (PCCA) since the UCC was first implemented in 2004, the commonwealth’s building and enforcement sectors will continue to require sustained and expanded code training to support their roles in energy code compliance. Additionally, since April 2009, all code officials enforcing the UCC must earn 15 CEU’s annually to maintain their commonwealth certification.

As the commonwealth is in a holding pattern over whether the General Assembly considers the adoption of the 2012 IECC, trainers from the PCCA could take the opportunity to consider how the 2012 code will affect their training programs. In anticipation of possible changes, this report proposes that the state conduct a Code Compliance Perception Survey of code officials throughout the commonwealth in order to develop a training program that fills the knowledge gaps identified and reaches more professionals in the rural regions of the commonwealth.

Expand the Energy Codes Training Program

CRITICAL TASK 1

When funded, the PCCA provides training six months prior to or after a new effective date of the UCC. In 2012, DEP partnered with the PCCA and Pennsylvania Housing Research Center (PHRC) to provide six energy-specific trainings throughout the commonwealth that offered six CEUs for attendees. The training sessions were low or no cost and held in multiple jurisdictions across the commonwealth, which increased the accessibility for many rural municipalities. PCCA did a good job at announcing the trainings events well in advance, so they were successful with high attendance rates.

While PCCA and PHRC has a history of providing basic training, especially in the past few years, the commonwealth must continue and expand upon these efforts. The following table outlines three levels of training for code enforcement and construction professionals. Pennsylvania is operating in Level 1. To add to their toolkit of resources, PCCA, PHRC, DEP or L&I should consider the development of specific training for plan review.

When planning and developing future UCC trainings, the commonwealth might be better served if the code trainings were accomplished through online classes. This suggestion was given due to the large geographical area the state covers and budget restrictions on travel.
## Tiered Training

### Level 1: Basic Training

<table>
<thead>
<tr>
<th>LENGTH (RESIDENTIAL):</th>
<th>Half-day training</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH (COMMERCIAL):</td>
<td>Half-day training</td>
</tr>
<tr>
<td>COVERAGE:</td>
<td>Basic energy code provisions</td>
</tr>
<tr>
<td>FREQUENCY:</td>
<td>Ongoing; updated after every code adoption or update</td>
</tr>
<tr>
<td>ADDITIONAL:</td>
<td>Online training opportunities</td>
</tr>
</tbody>
</table>

### Level 2: Intermediate Training (All code officials and design/construction professionals)

<table>
<thead>
<tr>
<th>LENGTH (RESIDENTIAL):</th>
<th>Full-day training</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH (COMMERCIAL):</td>
<td>Full-day training</td>
</tr>
<tr>
<td>COVERAGE:</td>
<td>All energy code provisions; 2012: E-Compliance trainings for inspectors, trade specific</td>
</tr>
<tr>
<td>FREQUENCY:</td>
<td>Organized around new code adoption—six months prior to and after new effective date</td>
</tr>
<tr>
<td>ADDITIONAL:</td>
<td>Online training opportunities</td>
</tr>
</tbody>
</table>

### Level 3: Advanced Training *Best Practice

<table>
<thead>
<tr>
<th>LENGTH (RESIDENTIAL):</th>
<th>Full-day and multi-day training sessions, or on-site training</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH (COMMERCIAL)</td>
<td>Full-day and multi-day training, or on-site training</td>
</tr>
<tr>
<td>COVERAGE:</td>
<td>In-depth coverage of individual aspects of the code:</td>
</tr>
<tr>
<td></td>
<td>• HVAC, lighting systems, envelope, scope and administration, etc.</td>
</tr>
<tr>
<td></td>
<td>• Installation, advanced building techniques</td>
</tr>
<tr>
<td></td>
<td>• Additional code interpretation</td>
</tr>
<tr>
<td>FREQUENCY:</td>
<td>Ongoing; updated after every code adoption or update</td>
</tr>
<tr>
<td>ADDITIONAL:</td>
<td>On-site training; train-the-trainer program; part of community/technical college curriculum; specialized software training/energy modeling</td>
</tr>
</tbody>
</table>

## Energy Code Ambassadors Program

### CRITICAL TASK 2

An easy and inexpensive way to keep the enforcement professionals throughout the commonwealth trained and up-to date on the energy provisions of the UCC is to institute an Energy Code Ambassadors Program (ECAP). This train-the-trainer approach keeps costs down by requiring only 1-2 official training sessions, and allows for code officials to become well-versed in the code by learning from their peers. DEP or L&I should consider investing and implementing ECAP or a similar program.

### Program Structure

Generally, the initial ECAP training is given by a well-established energy code trainer to 8-12 selected code officials from the commonwealth. This training consists of three parts: energy code advocacy, residential provisions of the code, and commercial provisions of the code. The size of the class allows for the trainer to go at a slower pace, focusing on parts of the code and advanced segments that are in need of greater understanding. In some cases the instructor may spend a second day reviewing the content of three ICC energy certification exams, and then proctoring the admission of the tests.

### Ambassador Selection

The commonwealth shares the ECAP description with local ICC chapters and invites members to apply. Well-known and respected ICC members should be targeted, and the group should be formed by a diverse set of building departments.
Motivation for Participation

It is rare that monetarily compensating these code officials will be permissible if the program is supported with federal or commonwealth funding, but since these attendees are generally taking off a day of work, it is desirable the ECAP program be provided to them at no cost. This means that officials should be reimbursed for any travel expenses to and from the meeting, as well as any travel throughout the commonwealth to train code officials at other building departments. Additionally, providing the attendees with free code books and ICC vouchers to take the energy certification tests at no cost is an allowable alternative to payment when using government funding.

Cost Estimate

Based on ECAP programs in other states, the following can be used as a model template for pricing the program for eight ambassadors spread over two days:

<table>
<thead>
<tr>
<th>Expense</th>
<th>Cost Each</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainers’ Fee</td>
<td>$1,200</td>
<td>$2,400</td>
</tr>
<tr>
<td>Room Rental</td>
<td>-</td>
<td>$5,000</td>
</tr>
<tr>
<td>Ambassador Travel Reimbursements</td>
<td>$1,000</td>
<td>$8,000</td>
</tr>
<tr>
<td>Code Books</td>
<td>$202</td>
<td>$1,616</td>
</tr>
<tr>
<td>2009 IECC/ASHRAE Standard 90.1-2007</td>
<td>$123</td>
<td>$1,616</td>
</tr>
<tr>
<td>2009 IECC w/ Commentary</td>
<td>$44</td>
<td>$44</td>
</tr>
<tr>
<td>2009 IECC Workbook</td>
<td>$35</td>
<td>$35</td>
</tr>
<tr>
<td>ICC Energy Exam Vouchers (3 Tests)</td>
<td>$180</td>
<td>$4,320</td>
</tr>
<tr>
<td>Oversight Costs – can be subcontracted to BCAP/ICC</td>
<td>-</td>
<td>$16,000</td>
</tr>
<tr>
<td>Program Administration</td>
<td>$7,000</td>
<td>$7,000</td>
</tr>
<tr>
<td>Curriculum Prep and Development</td>
<td>$7,000</td>
<td>$7,000</td>
</tr>
<tr>
<td>Travel</td>
<td>$2,000</td>
<td>$2,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$37,336</strong></td>
</tr>
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</table>
Coalescing Around Energy Codes

Energy code implementation and compliance requires buy-in and support from a diverse group of audiences. On the frontlines are the inspection, design, and construction communities—collectively the professionals who integrate energy codes into existing construction practices. State legislators, city council members, mayors’ offices, and other decision-makers must also recognize the public value of building energy codes, and enact reasonable policies that promote quality construction and assist building practitioners to consistently achieve code compliance. Utilities, state and local agencies, environmental and energy efficiency organizations often view energy codes as a fundamental strategy to advance energy security, temper demand growth and progress against environmental priorities.

Consumer groups, realtors, lenders, appraisers, and other interested parties, each play a crucial role in promoting energy codes as a market-driven standard of quality construction. Finally, consumers may represent the greatest force to move real estate markets by decidedly making energy cost savings a purchasing priority—demanding that homes, offices, and public buildings meet or exceed the minimum energy code.

Unifying stakeholders and aligning common interests is an important element of a healthy building codes system. By communicating the benefits of energy codes to relevant market actors, energy savings from construction can emerge as an issue for Pennsylvania consumers.

Consumer Outreach to Raise Public Awareness

Energy code outreach has achieved recent successes in Pennsylvania including the creation of customized consumer materials that were distributed with the help of state agencies and partners. Over the past year, the commonwealth’s Office of Pollution Prevention & Energy Assistance, PennEnvironment, and Western PA Energy Conservation Collaborative have convened stakeholders around energy code issues. DEP supported a consumer campaign that successfully laid the groundwork for sustained outreach effort in future years and a baseline from which the campaign can further grow and improve. Unfortunately, many residents still remain unaware of building energy codes and their benefits. Because minimum building codes are written into state legislation, many consumers expect that new buildings are necessarily code compliant and that energy codes are enforced.

Engaging the public as advocates for energy codes provides needed support for policy-makers to counter arguments against codes. Ultimately, builders will supply what the public demands. More public outreach will raise awareness of the benefits of energy codes and will build vital support for moving energy codes forward. Most buyers assume that a new home is energy efficient simply because it is new. They don’t know that energy codes are often not enforced. L&I and DEP should use and implement a public awareness campaign using the existing materials customized for the commonwealth, in addition to the following media opportunities.
Another inexpensive way to gain exposure via earned media is by setting aside one day to book interviews with an energy expert who can get out a specific message. Develop talking points and practice interviews ahead of time. Pitch to local TV and radio news broadcast outlets (such as morning shows or 6:00 PM news shows) that this expert will be available on a certain day for interviews. Planning to conduct multiple interviews over one or two days makes pitching the story appear timely and newsworthy, especially if you plan it in advance of an upcoming key meeting or other important date (such as an important state meeting, regional energy rate hike, or even energy awareness month in October.

Earned media refers to publicity gained through outreach efforts rather than paid advertising. This is a low-cost way to reach thousands of people via regular media outlets. States can put together stories that describe to consumers the benefits of energy codes. One example of earned media via TV and a news release (from Utah) can be seen here: http://www.ksl.com/index.php?nid=148&sid=14492845

A state can make it easier for a TV station to cover an energy code story by providing it with ready-made interviews and video (called b-roll). These one- to two-minute news-style stories save TV stations time as they don’t have to travel to get good images of energy efficiency. An example of one such story is found here: http://www.youtube.com/watch?v=D6cumG9i_eg&feature=youtu.be
Use Public Service Advertisements (PSAs)

PSAs are advertisements that you pay to create, but don’t pay to place. Rather, PSAs are given free placements in unsold advertising space. PSAs can be created in any format that regular ads come in: TV, radio, Internet, billboards, and print (for newspapers, magazines). The cost of creating a PSA depends on the type of ad you create and the design costs. For example, an in-house black and white print ad costs much less than a professionally designed full-color ad; a TV ad is significantly more expensive than a radio ad. Free placements are not guaranteed and there’s lots of competition for unsold ad space from other good causes. The following tips should provide a starting point to creating a PSA:

- **Do research.** Energy codes can be confusing to consumers. Prior to designing a PSA, conduct focus group studies with your targeted audience to test different messages and learn what resonates well. Prior to producing a PSA, test it again to determine what’s memorable, and what messages resonate well.

- **Make sure to have only one call to action** – what you want the consumer to do upon seeing or hearing your ad. Visiting a website (as long as it’s easy to remember) is a good call to action. During focus groups, test to assure that the placement of the URL is memorable.

- **Educate media on why your PSA should be placed.** After distributing the PSA to media markets in your state, conduct outreach to stations to tell them why energy codes are vital to your state. A simple phone call and email can be the deciding factor on which PSA gets placed.


**Consumer Strategy: Focus on Savings and Economic Benefits**

In addition to working with a statewide, citizen-based environmental advocacy organization, such as PennEnvironment, DEP can work with local stakeholders and other statewide advocates to distribute the existing materials. In most cases, these advocacy groups share the same views as consumers on the benefits of energy efficiency and have the reach to influence consumers. These groups could include the ACTION-Housing Green, Western PA Energy Conservation Collaborative, American Institute of Architects Pennsylvania, Habitat for Humanity of PA, Central Pennsylvania Chapter, USGBC, PA League of Cities & Municipalities (PLCM), and Northeast Energy Efficiency Partnerships (NEEP).

### Motivating the Market, Aligning Individual Interests

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Value Proposition</th>
<th>Effective Outreach Strategies</th>
</tr>
</thead>
</table>
| Consumers    | Consumers are the greatest beneficiary of sound building energy codes and they stand to gain both immediate and long-term energy cost savings from energy code compliance in the form of lower utility bills. Unlike many high-tech green technologies added to existing buildings, incremental construction costs for energy efficiency can be financed into mortgages from the onset. Educating consumers can help them demand action. | • Public Service Announcements  
• Factsheets  
• Video Spotlights  
• Cost-Benefit Analysis |
Motivating the Market, Aligning Individual Interests

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Value Proposition</th>
<th>Effective Outreach Strategies</th>
</tr>
</thead>
</table>
| Trades                     | Tradespeople have an obligation to perform work that meets or exceeds minimum code requirements. Consistent compliance measurement will help show which contractors are doing the best job – and therefore the best to contract with for future work. | • Factsheets  
  • Field Guides  
  • Online Best Practice Videos                                      |
| Design Professionals       | Design professionals are expected to design projects that meet or exceed minimum code requirements, and are a crucial first step in translating the code into construction practices.                                      | • Factsheets  
  • Code Books  
  • Energy Code Checklists                                              |
| Builders                   | Pennsylvania builders are required to build to code, although some are not familiar with the latest code. Besides the increased comfort and performance of code-compliant buildings, builders can market energy cost savings as an added benefit to buyers. | • Factsheets  
  • Field Guides  
  • Incremental Cost Studies  
  • Online Best Practice Videos                                          |
| Code Officials             | To make their jobs more manageable, code officials value tools and resources to stay up-to-date on the latest energy code. Officials also benefit from outreach to building sector professionals, which increases the awareness of energy code requirements and improves compliance. | • Field Guides  
  • Incremental Cost Studies  
  • Code Books                                                            |
| Real Estate Professionals  | For cost-conscious buyers, marketing the benefits of energy efficiency can be a practical tool to motivate buyers. Understanding the elements of the energy code, benefits, and how to ensure a property meets the latest code are important to communicate to prospective buyers. | • Fact Sheets  
  • Conferences                                                           |
| Commercial Lenders         | Excessive monthly energy bills can be a heavy burden for residents and businesses, and have a direct impact on a property owner’s (or lessee’s) ability to make timely monthly payments. Understanding the effect of current energy codes on monthly operating expenses can have significant implications for lenders and their risk exposure. | • Fact Sheets  
  • Incremental Cost Studies                                              |
| Policy Makers              | Statewide, buildings represent roughly 45% of total energy use. Reducing energy demand from the building sector begins with new construction and will help to advance economic objectives within the state to keep energy prices low. Further, money spent to enhance the energy efficiency of buildings in Pennsylvania will generate local jobs and keep investment dollars within the state. | • Public Service Announcements  
  • Factsheets  
  • Video Spotlights                                                        |

The Collaborative can incorporate these materials into any information they provide to their constituents. Basic materials, such as fact sheets, new home buyer guides, and other resources can be produced at low cost and rely on existing precedents. With additional funds, these materials could be promoted and enhanced with web efforts, including videos, appearances on television or radio, and presentations at conferences or a booth at home shows. Many resources based on the 2009 IECC are available on BCAP’s website: http://bcap-ocean.org/consumers-take-action.
To achieve 90% compliance, the commonwealth – either through DEP or L&I – can employ focused public policies to shape the effectiveness of code enforcement infrastructure on the ground. Among other priorities, the state could:

**Adopt the 2009 IECC**
Continue to work towards adoption of the 2012 IECC. DEP and the Governor’s Green Government Council should continue to advocate for the UCC’s Review and Advisory Council (RAC) to recommend the adoption of the 2012 IECC to the Governor, the General Assembly, and L&I.

**Adopt a Stretch Code**
Adopt a stretch code. By adopting a voluntary stretch code, the commonwealth would give the opportunity to those jurisdictions that desire to raise their level of baseline building performance. A stretch code would also offer insight into construction and code compliance issues in future codes. DEP could conduct targeted outreach to communities that gauges their interest in such a program.

**Support Local Above-Codes**
In lieu of an official stretch code supported by the commonwealth, the commonwealth could support local governments should they choose to explore adopting a code that is more advanced than the current 2009 UCC.

**Share Resources**
Resource sharing among Council of Governments (COG) and municipalities. COGs already pool resources from municipalities into regional administration, but it could be taken a step further: COGs could coordinate among other COGs to improve enforcement of the energy provisions of the UCC. For example, a UCC requirement is blower door testing to ensure proper sealing, however the equipment and certification is an expensive undertaking. COGs could invest in equipment sets and provide certification to several professionals who would later provide certification within the partner area. Neighboring municipalities could implement this principle as well.
Compliance Evaluation

FOCUS AREA 5

Education and outreach for building professionals and inspectors is perhaps the most important work needed to reach 90 percent compliance by 2017. To ensure Pennsylvania exists and future efforts of outreach, education, and training are successful, the commonwealth needs to develop a long-term compliance evaluation program. The purpose of a compliance evaluation is to determine what is working and where efforts should be improved. Pennsylvania understands that at its core, compliance evaluation is not about doubting the competency of code officials. Rather, a compliance evaluation will determine how well construction and design professionals are doing their job—and help the commonwealth know how to support them by providing the right resources to build homes and businesses that meet the energy provisions of the UCC.

While Pennsylvania has a little more than four years and a great deal of flexibility to develop a strategy that works best for its unique needs, beginning early will make that process much easier. By beginning now, the commonwealth will have ample time to assess existing construction practices, build feedback loops, and take strategic steps to promote compliance. Fortunately, Pennsylvania will not have to craft a plan from scratch. The commonwealth can draw on lessons from the nine compliance pilot studies DOE sponsored across the country.

Program Structure

While the commonwealth is responsible for reporting compliance results, some responsibility will fall to local governments and COGs—usually their inspection departments—to collect data on how designers and construction professionals are designing and constructing a small sample of buildings. Sometimes, there is a state-designated inspector that marshals this effort. DOE has suggested that evaluation of design and building practice for each state can be structured in a number of ways: (1) First party evaluation by local inspections departments; (2) Second-party inspection by the state; (3) Third-party evaluation by private sector firms.

Cost

The cost will vary depending on factors including: number of buildings evaluated; method of data collection (telephone, plans-only, or in-person inspections, and the number of inspections), cooperation from code officials in capturing data and contractors cost. Additionally, the compliance evaluation may vary greatly depending on the level of detail the commonwealth desires. Due to these factors, compliance evaluation costs will vary from as little as $75,000 to as much as $500,000, judging from the costs of studies conducted in other states. For instance, in Illinois, BCAP estimated that a reasonable cost is approximately $200,000.

U.S. Department of Energy’s energy codes website offers videos, best practices, and web tools to demonstrate how states and local inspections departments can create a plan specifically tailored for Pennsylvania. Visit and create a compliance plan at: http://www.energycodes.gov/compliance/evaluation

Pennsylvania Strategic Compliance Plan

NOVEMBER 2011

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Pennsylvania Strategic Compliance Plan
Develop the Tools and Resources
CRITICAL TASK 1

Baseline is Necessary
Baseline information is the first step for compliance evaluation. A baseline study will determine current UCC practices and compliance and will provide a point of reference from which to compare future results. This information can help to identify key points that need to be focused on for the commonwealth to achieve full compliance.

Additionally, this report recommends that the commonwealth create an anonymous Code Compliance Perception Survey for code officials throughout the commonwealth in order to develop a baseline on compliance (and specific compliance shortfalls). By “taking the temperature” of where code compliance may fall short, L&I, PCCA, or PHRC has the ability to modify training (and shape outreach materials) to respond to knowledge gaps. This survey will uncover the local code enforcement professionals’ understanding and confidence of the energy provisions of the UCC.

Create Feedback Loops
Creating feedback loops is part of a tactical enforcement plan. These code procedures – enforcement and evaluation – provide buckets of information that should be looped back into the energy code process in order to fix where efforts or knowledge of the energy code are weak. For example, if a code official were to notice over several inspections that one element of the code is routinely misinterpreted or completed incorrectly, this information should be gathered to create training that would correct the lack of knowledge or misunderstanding. The simple task of information gathering will save the commonwealth added enforcement efforts and, eventually, improved construction practices.

Evaluation
Measuring compliance will require the commonwealth or third-party contractor to evaluate a small sample of construction projects. To make this process as simple as possible, the commonwealth should consult DOE’s State Sample Generator, an online resource that provides a suggested sample size in four categories: new commercial construction projects, commercial renovations, new residential construction and residential renovations. Sample sizes are relatively small and are based on the recent number of permits over preceding years. Choosing which buildings to include in the sample should be left up to responsible local jurisdictions or COGs. Fortunately, officials are not required to track specific buildings throughout every stage of the inspection process. Instead, to make data collection more efficient, DOE suggests that local officials may perform inspections of various code requirements across a larger group of buildings (each at a different level of completeness) simultaneously. For more information, please see: http://www.energycodes.gov/arra/compliance_evaluation.stm.

Monitor & Document
Monitor energy savings attributed to the building energy code and document cost effectiveness of energy code compliance activities. The agency leading this effort, perhaps L&I, should share the energy savings information with other agencies and departments that also have commonwealth goals, such as energy efficiency or CO₂ abatement.
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<tr>
<th>Timetable</th>
<th>2009-2011</th>
<th>2011-2012</th>
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<tr>
<td><strong>Ongoing Training efforts</strong></td>
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<td>Worked with BCAP to conduct study of current energy code status via “Gap Analysis Report” (2012)</td>
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<td></td>
<td>Created consumer outreach materials</td>
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<td>Consider the Energy Code Ambassadors Program (ECAP) to supplement other offerings</td>
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<td>Reach out to utilities to fund code training and compliance efforts</td>
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<td>2012-2013</td>
<td>2013-2017</td>
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<td>Consider Adoption of 2015 IECC</td>
<td>Engage Building Energy Collaborative in expanding consumer outreach efforts</td>
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<tr>
<td>Based on results of Code Compliance Perception Study, adapt and expand consumer outreach program</td>
<td>Engage Energy Code Ambassadors to work regionally</td>
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<td>Create and distribute Code Compliance Perception Study to Code Officials</td>
<td>Demonstrate 90% compliance with 2009 IECC</td>
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<td>Consider Compliance Colllaborative</td>
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<td>Use results of PNNL / DOE pilot compliance studies to develop methodology for a compliance study</td>
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<td>Produce online energy code trainings</td>
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<td>Continue working with local utilities</td>
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For more energy code compliance resources, please visit

bcap-energy.org/topics/compliance

www.energycodes.gov