



COLORADO

Strategic Compliance Plan

Improving Energy Code Compliance in Colorado's Buildings

November 2011

The Compliance Planning Assistance Program

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www.colorado.gov/energycodes



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www.colorado.gov/energy



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www.swenergy.org

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Table of Contents

Introduction	1
Secure Funding	4
State and Local Policy	6
Outreach	8
Training	14
Compliance Evaluation	16
Timetable	18

Introduction

The Strategic Compliance Plan is the final phase of the Compliance Planning Assistance (CPA) program, a collaborative effort by the Building Codes Assistance Project (BCAP), the Colorado Department of Local Affairs (DOLA), and the Governor's Energy Office (GEO), beginning in fall 2010. The overarching goal of the project is to document and analyze Colorado's existing energy codes infrastructure in order to address barriers to widespread energy code compliance. A companion document—the Colorado Gap Analysis—provides an overview of the status of energy codes in the state. As a follow on, the Strategic Compliance Plan charts a course forward to achieve 90 percent energy code compliance with the 2009 International Energy Conservation Code (IECC) 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 Colorado; and
- Propose a series of near-term critical actions based on existing gaps.

Funded by the U.S. Department of Energy under the American Recovery and Reinvestment Act of 2009 (Recovery Act), Colorado was chosen as one of ten states to participate in the second phase of this project, based on input from project stakeholders and the likelihood of plan implementation.

Challenge

Colorado's buildings account for **43 percent** of total statewide energy consumption.¹ Therefore, any state-level strategy to advance energy efficiency must address the minimum standard of building energy performance. Energy codes are the easiest and most affordable policy tool for improving the energy efficiency of the building sector at the point of construction or renovation—when savings are highest and most cost-effective—particularly considering that buildings last 40 years or more.²

Colorado's home rule status means that it does not have a statewide mandatory energy code, though HB1146 sets the 2003 IECC as the minimum energy code. However, 80 percent of jurisdictions—covering 97 percent of the population³—have adopted some version of the IECC. These jurisdictions are responsible for enforcing the code. Colorado has made great strides in training for code officials and design and construction professionals, though work still remains. Colorado consumers may unknowingly be buying homes and buildings that fail to meet code, thus losing out on the long-term savings of energy-efficient buildings.

1. U.S. Energy Information Administration. 2009. Energy Consumption by End-Use Sector, Ranked by State. State Energy Data System (SEDS). [www.eia.gov/state/seds/hf.jsp?incfile=sep_sum/plain_html/rank_use.html]

2. Aktas, C. and Bilec, M. 2010. Impact of Product Lifetime on Life Cycle Assessment Results. University of Pittsburgh. Mascaro Center for Sustainable Innovation. [www.lcacenter.org/LCAX/presentations-final/21.pdf]

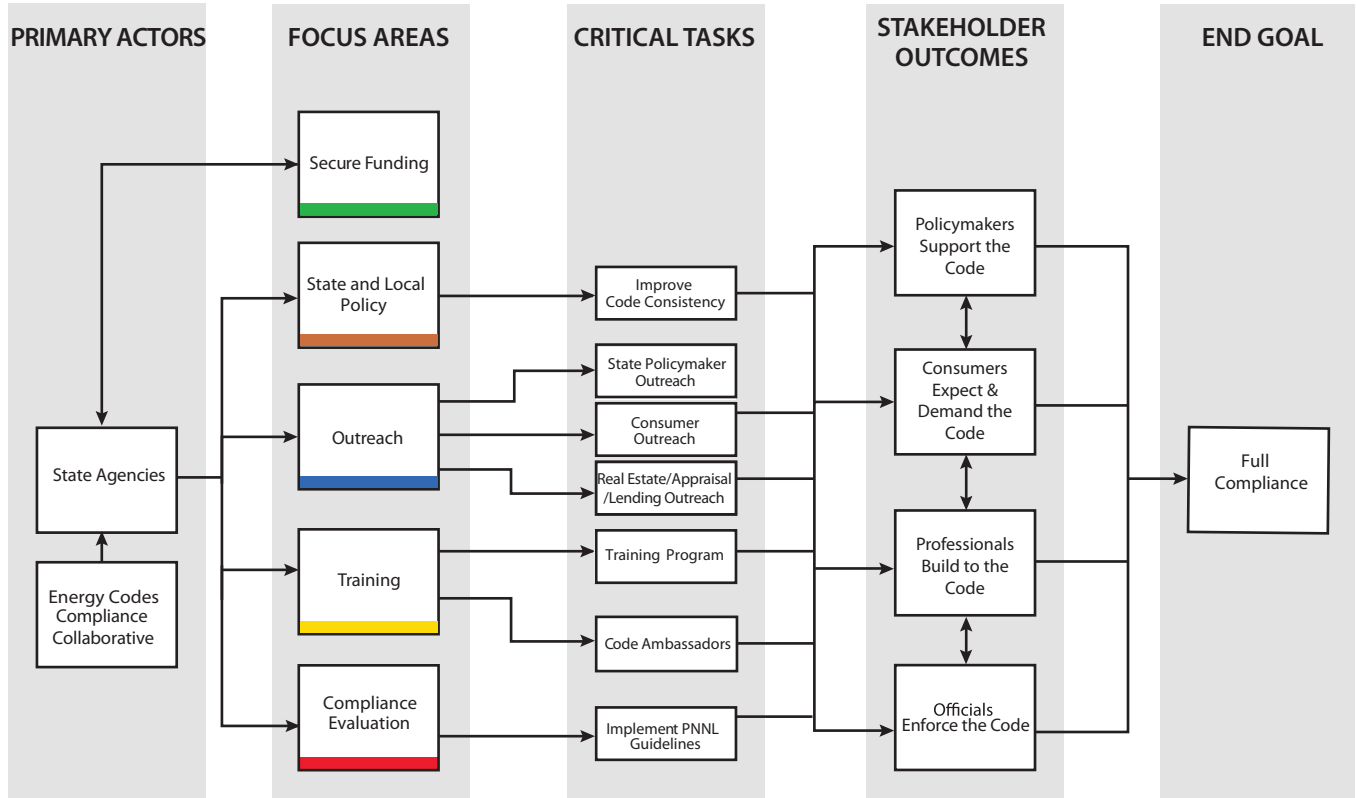
3. BCAP calculation based on DOLA information and 2009 U.S. Census Bureau data

Introduction

NOVEMBER 2011

This Plan demonstrates a vision for a dynamic, functional energy code infrastructure in Colorado, overseen by a Compliance Collaborative of interested market actors throughout the state. Illustrated in the figure below, the Plan is organized around five focus areas and their corresponding critical tasks, which lead to buy-in and market transformation activities from key stakeholder groups and, ultimately, full compliance with the energy code.

Given the variability of the political and economic landscape regarding energy efficiency policies, this plan does not and cannot identify every step and market actor that could be involved in the energy codes process. Rather, Colorado should use this Plan as an overarching guideline for making strategic decisions about how and where to allocate funding and resources, with the understanding that new challenges and opportunities may alter the state's strategy in the future.



Energy Code Compliance Collaborative

CRITICAL TASK 1

The Energy Code Compliance Collaborative can be a forum where stakeholders discuss and stay involved in energy code compliance issues. Most likely chaired by representatives from DOLA, with the support of GEO and the governor's office, the Collaborative can advise all appropriate state agencies, local jurisdictions, and interested trades and professionals on what can realistically be implemented statewide and how to prioritize and carry out the tasks necessary to ensure greater compliance with the energy code. DOLA, with input from GEO, will make the final decision concerning the establishment of a Collaborative.

Roles of the Energy Code Compliance Collaborative

Make the Economic Case for Codes

The Collaborative can provide a strong, collective voice for the economic benefits of codes.

A Clearinghouse for Code Information

The Collaborative can serve as an authoritative source for code information.

Targeted Outreach

Using first-hand knowledge of how to reach specific market actors, the Collaborative can carry out targeted outreach campaigns.

Securing Funding for Projects

Through its expertise and connections, the Collaborative can work to secure future funding.

Support Implementation Programs

The Collaborative can provide DOLA with support on specific implementation programs.

Collaborative Members

Consider the following stakeholder groups for membership:

- DOLA (chair)
- GEO
- General Assembly
- Local governments, DRCOG
- Colorado Chapter of the ICC (CCICC)
- Southwest Energy Efficiency Project (SWEET)
- USGBC Colorado chapter
- HBA of Metro Denver and other HBA chapters
- AIA Colorado and regional chapters
- Rocky Mountain ASHRAE, Pike's Peak ASHRAE
- Third-party firms: Colorado Codes Consulting (CCC), EnergyLogic, etc.
- Utility representatives: Colorado Public Utilities Commission (COPUC), Xcel Energy, Fort Collins Utilities, etc.
- Colorado Counties, Inc. (CCI), Colorado Municipal League (CML)
- Environmental groups: Sierra Club, Rocky Mountain Institute (RMI), Rocky Mountain Climate Organization, etc.
- Manufacturers: Johns Mansville, CertainTeed Corporation, Serious Materials, etc.
- Consumer protection, low income advocates
- Real estate, appraisal, and mortgage lending communities, including REEWG Appraisal Committee members

Collaborative Structure

Ideally, the Collaborative will meet on a regular basis as determined by its members. Given Colorado's size, meetings would likely be held in a central location along the I-25 corridor or by teleconference.

Energy Code Funding Mechanisms: What's Working Around the U.S.?

Colorado has made great advances in energy code implementation during the past few years. It is imperative that the state build on this progress through stable and sufficient funding at the state and local levels. Below are some funding approaches that are being used successfully in other states.

Energy Efficiency Resource Standard

Due to the capital costs of building new power generation sources, an EERS helps keep the cost of energy affordable by avoiding and/or delaying the need for building new facilities. Some states—Arizona, California, Massachusetts, Minnesota, and Washington—allow utilities to get credit toward EERS goals for energy efficiency programs related to codes and standards, often for estimated savings resulting from training and compliance activities. Typically, utility-backed energy codes initiatives are funded through a System Benefits Charge (SBC) or a similar volumetric fee imposed on consumers' energy bills.

In 2007, Colorado adopted statewide energy savings goals for electric and gas utilities similar to an EERS. Investor-owned electric utilities must meet 5 percent of 2006 peak demand by 2018, while investor-owned natural gas utilities must meet targets set by the Colorado Public Utilities Commission (COPUC) based on annual spending targets, which must be more than 0.5 percent of revenues. Utilities may recover the costs of demand side management (DSM) programs with a volumetric fee.

With support from the Southwest Energy Efficiency Project (SWEET), Xcel Energy is planning a "Market Transformation with Building Codes" pilot program to encourage code adoption through their 2012-2013 DSM filing with the COPUC. DOLA and GEO will be in discussions with Xcel regarding this pilot program. This project offers an excellent opportunity for the state to continue to build on its energy code implementation work by providing an incentive for utilities to increase their funding of energy code activities.

State Appropriations

A common way to fund energy code work is via the State Energy Program (SEP), Department of Energy (DOE) formula and competitive grants, or through direct appropriations by the state. GEO is responsible for managing SEP funding.

In Texas, the state appropriates funding 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. In 2009, New Hampshire's Office of Energy and Planning (OEP) put together a \$600,000, two-and-a-half-year energy code training and outreach program with one-time SEP funds through the Recovery Act.

Raising Permit and Re-Inspection Fees

Raising permit fees and instituting re-inspection fees for failed inspections are two straightforward ways to offset the additional cost of energy code compliance activities at the local level. In Michigan, the state mandates that local governments cover the cost of code enforcement through building permit fees. In this case, permit and re-inspection fees are based on a suggested fee schedule published by the state and flow directly into a local Construction Code Fund, which may only be used to support local code compliance activities.

Spotlight on Arizona

As a fellow home rule state that does not have a statewide mandatory energy code, Arizona's work to incorporate energy code implementation efforts into its energy efficiency targets offers a model for Colorado to consider. Arizona allows qualified utilities to count up to one third of energy savings from energy codes through measurement and verification of energy savings.

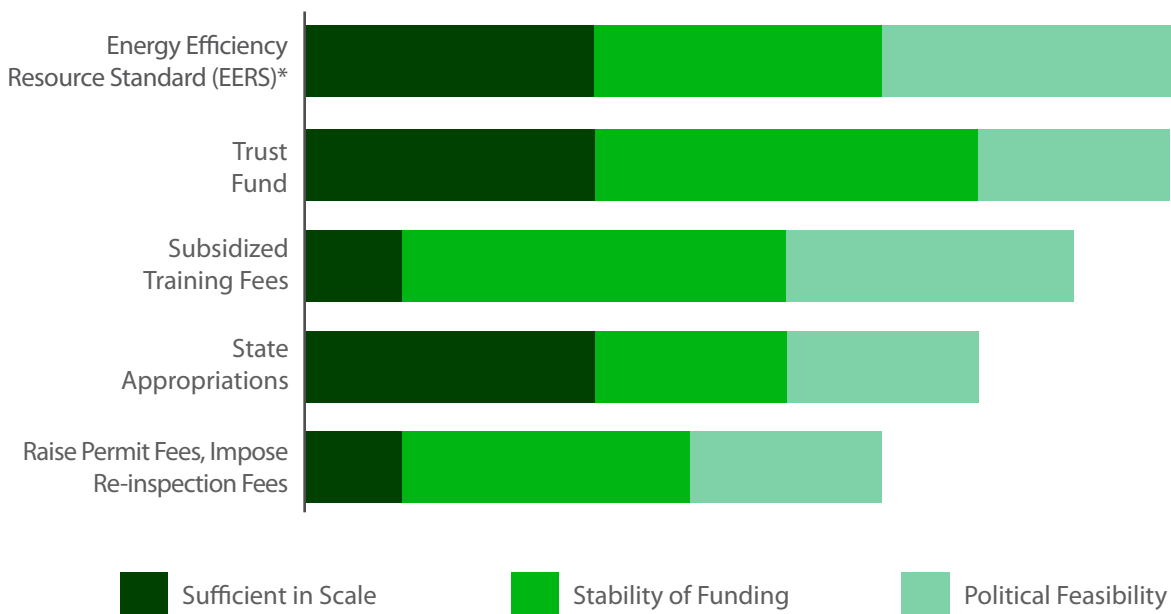
Trust Fund

Another possibility is to create a trust fund administered by the state that is used to pay for projects that benefit the state's citizens, such as energy code-related work. For example, in 1997 in Illinois, electric-industry restructuring legislation created a fund that provides \$3 million annually to be used for renewable energy and residential energy efficiency. DOLA would be the appropriate agency to administer such a program in Colorado.

Subsidized Training Fees

In some cases, the state could consider charging a nominal fee for energy code training. Although fees would only offset a proportion of the cost, they introduce a model to "cost share" the expense incurred to offer training statewide. A nominal training fee also encourages attendance (after enrollment), as trainees are interested in a return on their investment. Colorado could consider this option if other sources do not produce the funds needed to meet the state's training goals.

Funding Options for Energy Code Compliance



* Energy Efficiency Resource Standard (EERS) is not a funding mechanism by itself, but a state policy that sets annual energy efficiency targets. It provides a strong policy incentive for energy code funding.

State and Local Policy



By setting clear, thorough guidelines and delineating roles and responsibilities for energy code implementation activities, states and localities provide direction to all stakeholders regarding what is expected of them to achieve compliance. State and local policies also have the ability to move the market by establishing new funding streams, licensing procedures, above-code incentives, and more.

Improving Code Consistency

In Colorado, the home rule system gives localities more authority to set policies that work best for their own communities, including the adoption of energy and other building codes. The downside of this system is that the state's patchwork of codes creates inconsistencies that lead to an increased regulatory burden on all market actors. The state can address this problem in two ways:

Local Energy Code Adoption

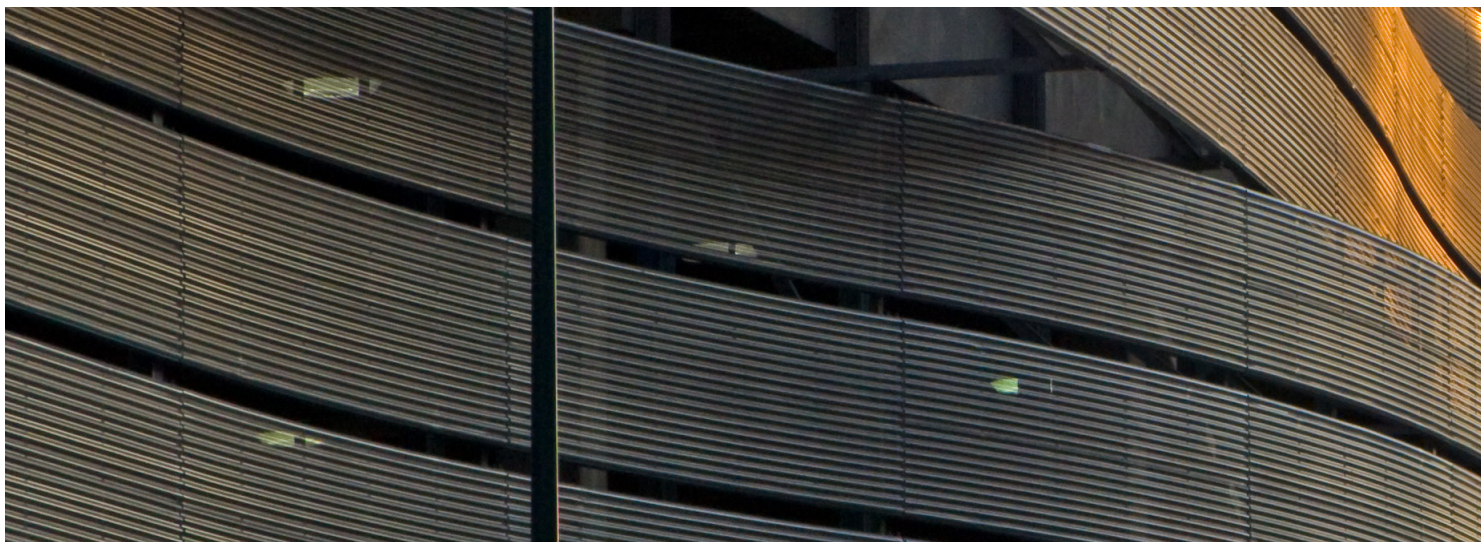
Given Colorado's preference for—and success with—local energy code adoption, widespread adoption will likely meet DOE's requirements in lieu of a statewide energy code. Though local jurisdictions have not directly accepted federal funding for energy code adoption, they have benefited from state agency training and adoption support efforts, allowing them to more easily adopt and enforce local energy codes. Some also received EECBG funding for energy efficiency improvements.

adoption as advocates, technical and economic advisors, and collaborators. One possibility is to follow up on targeted adoption outreach to jurisdictions with high levels of construction, thereby maximizing impact and stretching limited funding.

Local jurisdictions can also take on this process themselves. A good first step would be to review the Energy Codes Support Partnership Toolkit:

[www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251591390175]

DOLA and the Energy Codes Compliance Collaborative can continue their support for local





Statewide Energy Code

Another option is to upgrade the state's mandatory minimum energy code from the 2003 IECC. Considering that the 2012 IECC is now available, if a jurisdiction chooses to adopt an energy code, requiring that the code be at least as stringent as the 2009 IECC would still respect Colorado's preference for local-first politics and flexibility.

The state's recent support for energy code implementation provides local jurisdictions with state resources to assist them in adopting and enforcing an energy code at their discretion. Should the state pursue this option in the future,

Illinois and Texas provide two examples of states that decided to supersede home rule authority to adopt a mandatory statewide energy code.

Updating the minimum energy code could be accomplished by the General Assembly or possibly an executive order from the governor. However, it is unclear whether such an action is feasible in the current political climate. Colorado should continue to focus on implementation support while it builds a broader base of support through the Energy Code Compliance Collaborative and other activities.



Outreach

Successful energy code implementation requires buy-in, support, and input from a diverse group of audiences with different interests and needs. Outreach efforts attempt to:

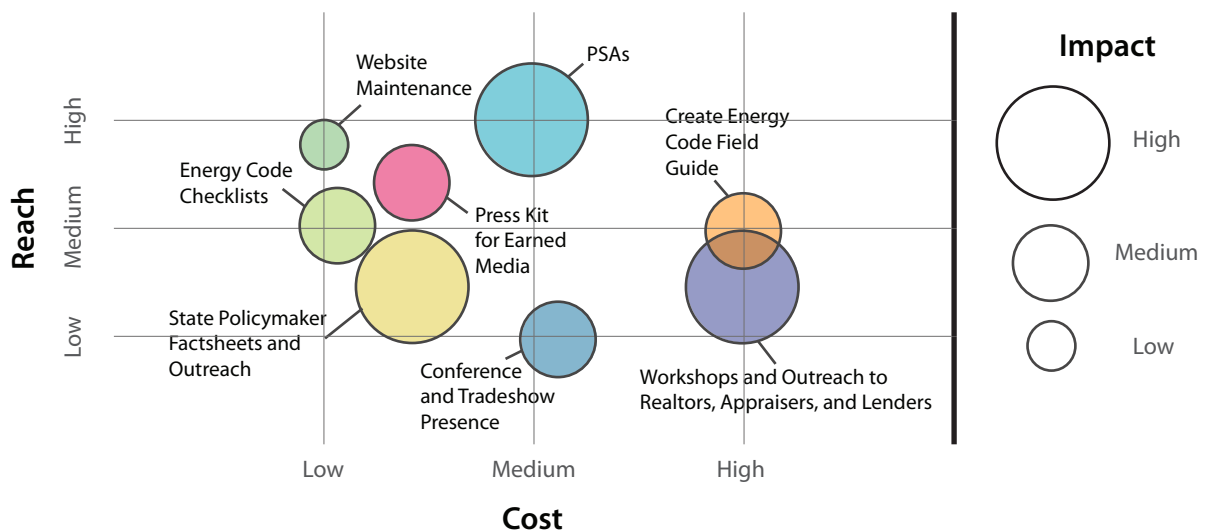
- 1) raise awareness of codes among stakeholders; and
- 2) identify the value propositions that will compel them to change behaviors.

Current Status

DOLA's Energy Codes Support Partnership is working to engage code officials, design and construction professionals, and other non-traditional actors, such as the real estate, lending, and appraisal communities. The state has also made efforts to give consumers information and incentives to make energy efficiency improvements through RechargeColorado.org, now an independent nonprofit. However, there have been few outreach efforts directed towards the new political leadership at the state level.

Cost Estimates for Coordinating a Multi-Media Campaign

Based on previous campaigns in other states, below are some relative cost, reach, and impact estimates for different types of outreach using a high-medium-low scale.



Making the Argument for State-Level Support

CRITICAL TASK 2

In today’s economic climate, Colorado is focused on job creation, cost-cutting, and reducing unnecessary or confusing regulation. Energy code implementation support can play an important role in this process.

Conduct an Economic Assessment

GEO is responsible for measuring the impact of Recovery Act energy efficiency programs, including the Energy Codes Support Partnership. GEO has hired a consultant to conduct the assessment, which the state can also use to help justify present funding and secure future funding. Moreover, it can be coupled with similar economic data from other green industries, as well as included in the economic argument for uniform building codes of all types.

Know Your Resources: Use What’s Out There!

Colorado doesn’t have to start from scratch. There are a number of resources available designed specifically for policymakers that can inform Colorado’s efforts and even lead to future collaborations.

- The U.S. Department of Energy created a Resource Guide for Policymakers: [www.energycodes.gov/publications/resourceguides/policymaker.stm]
- The American Council for an Energy-Efficient Economy (ACEEE) has conducted economic assessments in ten states on the impact of increased energy efficiency programs, including energy codes: [www.aceee.org/blog/2011/11/how-does-energy-efficiency-create-job]
 - For example, ACEEE’s 2011 report on Missouri estimates that energy efficiency policies could product 8,500 new jobs and net savings of \$6.1 billion: [www.aceee.org/research-report/e114]
- The Institute for Market Transformation (IMT) is interested in exploring the relationship between improved code implementation and job creation and would like to partner with a state to determine a workable methodology.
 - One example of IMT’s work is their calculation that every \$1 spent on energy code implementation yields \$6 in energy savings: [www.imt.org/files/PolicymakerFactsheet-EnergyCodeCompliance.pdf]
- BCAP created a one-page factsheet for policymakers that can be tailored for Colorado: [www.bcap-ocean.org/resource/why-energy-codes-matter-what-policymakers-need-know]

State Policymaker Factsheets

Policymakers set the rules by which other market actors participate. They need to understand the value energy codes present to their constituents and communities and set policies—and budgets—that incentivize code-compliant construction.

Messages	<ul style="list-style-type: none"> • Energy codes reduce utility bills for citizens, businesses, and public buildings • Full compliance with the 2009 IECC in Colorado would yield roughly \$522 million in annual energy cost savings for households and businesses, or \$4.6 billion from 2011-30¹ • By 2030, 9-14 percent annual energy savings would equal 43 trillion Btu of energy² • Energy codes improve grid reliability and reduce pollution • Energy codes are much more cost-effective than expensive energy efficiency retrofits • Energy codes protect citizens from substandard construction
Potential Partners	• Governor’s office, General Assembly, Local governments, CCICC
Dissemination	• City council hearings, Mayors offices, Legislative conferences
Additional Strategies	• Newspaper articles, Local TV, Radio features, Petitions

1&2. BCAP Energy Code Calculator: [www.bcap-ocean.org/resource/energy-code-calculator]

Consumer Outreach to Raise Public Awareness CRITICAL TASK 3

Engaging the public as advocates for energy codes through public outreach provides support for policymakers to counter arguments against energy code adoption and implementation. It also builds public demand for energy-efficient construction—and ultimately, builders will build what consumers demand.

However, most consumers assume new homes are energy-efficient simply because they are new. They're unaware of widespread compliance failures. Even so, consumers intuitively understand the value of codes. According to a nationwide survey of more than 5,000 households conducted by BCAP and Consumers Union (makers of the popular magazine *Consumer Reports*):

- 82 % believe that homeowners have a right to a home that meets national energy standards;
- 79% believe that disclosing a home's energy usage would enable them to make an informed decision about a new home purchase;
- 84% believe that more energy-efficient buildings will reduce energy use and pollution;
- 74% believe that energy code standards will help ensure that homeowner and taxpayer dollars are used wisely and efficiently as new buildings will be required to be built right the first time.

Use Public Service Advertisements (PSAs)

Do research

Energy codes are confusing to consumers. Prior to designing a PSA, conduct focus group studies with your target audience to test different messages and determine which resonate well. Prior to producing a PSA, test your planned PSA to determine if it's compelling.

Have only one "call to action"

What do you want the consumer to do upon seeing or hearing your ad, (e.g., visit a website)? During focus groups, test to assure that the URL is memorable.

PSAs are advertisements that you pay to create, but don't pay to place. Rather, PSAs are given free placements in unsold advertising space. They can be created in any format that regular ads come in: TV, radio, internet, billboards, and print. The cost depends on the type of ad. For example, 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. However, given the economic downturn, there may be more unsold ad space available compared to a few years ago.

Utilize a ready-made PSA. New Hampshire is willing to share their radio PSA with other states free-of-charge (you just pay to customize the call-to-action for your state). You can listen to this ad here: [www.nhenergycode.wordpress.com/2011/08/29/psa-highlights-the-advantages-of-building-to-new-hampshire%E2%80%99s-energy-code/]

Consumer Outreach to Raise Public Awareness

CRITICAL TASK 3 *CONTINUED*

Garner Earned Media

Draft Press Releases and Articles

Press releases and articles can appear in newspapers, magazines, newsletters, and more. Newsworthy topics may include: the added cost to a new home vs. energy savings, how energy codes help reduce strain on aging utility infrastructure, and how energy codes help keep rates low by reducing the need to build new power plants. Send the news release or article to reporters and follow up with a phone call. See some examples at:

[www.bcap-ocean.org/news/2011/august/25/utah-media-outlets-draw-attention-energy-codes]

Meet with editorial boards

Editorial boards determine and write a newspaper's or magazine's official position on issues. Meeting with editorial boards to inform them about the importance of energy codes is a no-cost activity that can go a long way toward raising public awareness.

Produce a News Story with B-Roll

DOLA 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 1-2-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:

[www.youtube.com/watch?v=D6cumG9i_eg&feature=youtu.be]

Earned media refers to publicity gained through outreach efforts other than paid advertising. This is a low-cost way to reach thousands of people via regular media outlets. Reporters are always looking for new and compelling stories with great visuals. Energy codes can meet these needs when pitched the right way. DOLA can put together stories that describe the benefits of energy codes to consumers and pitch these stories to consumer or political reporters. DOLA can also develop a concise, one-page media "backgrounder," including facts and benefits of energy codes for a reporter's reference. One example of earned media can be seen here: [www.ksl.com/index.php?nid=148&sid=14492845]

Conduct a Media Tour with a Local Expert

Another inexpensive way to gain exposure is to pitch interviews with an energy "expert" (e.g. local government official, code advocate) to local TV and radio news broadcasts (e.g., morning shows or evening news shows). Develop talking points and practice interviews ahead of time. Conducting back-to-back interviews over a set period of time allows your expert to reach multiple radio and TV stations in just a few hours or days. This can be especially successful if planned in advance of an upcoming event (e.g., an important state meeting, regional energy rate hike, or even just "energy awareness month" in October).

Resource Media. Resource Media is a Boulder-based communications nonprofit that specializes in outreach campaigns: [www.resource-media.org]

Real Estate, Appraisal, and Lending Outreach

CRITICAL TASK 4

Some of the most important non-traditional market actors are real estate, appraisal, and lending professionals. These groups have huge influence over the marketability of homes that meet or exceed energy code standards, whether consumers demand energy-efficient construction, and whether the design and construction industry are rewarded for doing so. Though these stakeholders will be reached by public awareness campaigns, targeted outreach is crucial to not just raise awareness of the benefits of codes, but help these groups change their practices to account for these benefits.

Raise Awareness

The first step is to make real estate, appraisal, and lending professionals aware of the full value of energy-efficient construction.

Activities	<ul style="list-style-type: none"> • Minimum: Factsheets and checklists • Best Practice: Presentations to groups of professionals
Messages	<ul style="list-style-type: none"> • Energy codes reduce utility bills for citizens and businesses • Full compliance with the 2009 IECC in Colorado would yield roughly \$522 million in annual energy cost savings for households and businesses, or \$4.6 billion from 2011-30 • Code-compliant homes with lower operating costs are more valuable to owners and renters • Owners are less likely to default on their mortgage payments • Code compliance can be a significant selling point • Everyone can check for energy code requirements after construction is complete (checklist) • Code compliance is part of statewide efforts to reduce energy use in residential buildings
Potential Partners	<ul style="list-style-type: none"> • Colorado Association of Realtors, Colorado Chapter of the Appraisal Institute, Colorado Mortgage Lenders Association, Colorado Housing Counseling Coalition, Colorado Housing and Financing Authority, local chapters
Dissemination Strategies	<ul style="list-style-type: none"> • Home and trade shows, annual conferences, monthly association meetings, websites, real estate offices, banks
Available Resources	<ul style="list-style-type: none"> • New Hampshire posts factsheets, checklists, and presentations on its outreach and training website: [www.nhenergycode.com] • NEEP Real Estate Guide: [www.neep.org/uploads/NEEPResources/id762/NEEP%20GuidanceChecklist%20Real%20Estate%20Professionals_Final_Aug2011.pdf]

The SAVE Act

Another possibility on the national level is the Sensible Accounting to Value Energy (SAVE) Act, which would update lending guidelines to account for projected energy use for all mortgages backed by a federal agency. This would allow many potential buyers to qualify for larger mortgages, reduce the risk of foreclosure for lenders, and provide an incentive for builders to construct more energy-efficient homes that would receive a higher appraisal. For more information:

[www.ase.org/sites/default/files/SAVE_Act-Fact_Sheet_0.pdf]

While it is uncertain whether this legislation will pass in its current form, Colorado could use it as a guide to write state legislation.

Real Estate, Appraisal, and Lending Outreach

CRITICAL TASK 4 *CONTINUED*

Change Practices

Moving beyond awareness, DOLA and its partners should work to change practices within these industries. This will require a longer-term effort, which could be led by the Collaborative.

Real Estate Community

Practice	<ul style="list-style-type: none"> Update MLS listings to include level of energy code compliance and green features
Arguments For	<ul style="list-style-type: none"> Providing information on the energy efficiency of buildings will give prospective buyers better data to make informed decisions, as well as increase the marketability of energy-efficient buildings
Status	<ul style="list-style-type: none"> GEO has an ongoing effort to “green” the state’s largest MLS listings

Appraisal Community

Practice	<ul style="list-style-type: none"> Incorporate level of energy code compliance into appraisal process
Arguments For	<ul style="list-style-type: none"> Buildings that save their owners money on utility bills are more valuable than buildings that waste energy and, thus, cost more to operate
Status	<ul style="list-style-type: none"> DOLA and its partners are interested in working with appraisers to adjust appraisal criteria to include a building’s level of energy code compliance. One exciting possibility might be to partner with the Appraisal Institute (AI), which recently released its “Residential Green and Energy-Efficient Addendum” written for appraisers, by appraisers: [www.appraisalinstitute.org/education/downloads/AI_82003_ReslGreenEnergyEffAddendum.pdf]

Lending Community

Practice	<ul style="list-style-type: none"> Incorporate expected operating costs based on level of energy code compliance into lending criteria
Arguments For	<ul style="list-style-type: none"> Lowering operational costs will provide building owners with more capital to make mortgage payments, which has been shown to reduce the risk of foreclosures
Status	<ul style="list-style-type: none"> DOLA and its partners are interested in exploring this option. They can begin by looking at the SAVE Act (see the facing page) and research from IMT on energy-efficient mortgages: [www.imt.org/residential-finance.html]

Training

Energy codes cover all elements of building science and design, from lighting and insulation to windows, HVAC, and more. Even experienced code officials and design and construction professionals require hours of training to understand their meaning and application in the field. Fortunately, training is one of the most cost-effective ways to improve energy code compliance.

Current Status

Colorado is a national leader at providing no-cost energy code training to local code officials and design and construction professionals, particularly through Recovery Act funding. Successful statewide trainings in 2008 and 2009 paved the way for DOLA's Energy Codes Support Partnership, a more ambitious, three-tiered training and adoption outreach program. Support Partnership contractors have visited almost every jurisdiction in the state and held over 50 customized training sessions. They are now conducting second visits to select locations.

Train-the-Trainer

One low-cost possibility is to establish a train-the-trainer program, such as Energy Code Ambassadors, that gives select code officials additional energy code enforcement expertise. These code officials can then provide training to colleagues in their area.

Videotaped Trainings

Posting videotaped trainings online is a useful way to reach a wider audience. It also gives attendees the ability to refer back to specific segments of the training for additional insight whenever they need it.

Promote Above-Code Trainings

DOLA can leverage the relationships built during the Support Partnership to supplement any training it provides by promoting future above-code trainings, such as ENERGY STAR and the State Energy Sector Partnership (SESP), as a means for interested stakeholders to continue to advance their knowledge, skill set, and credentials.

Maintaining the Momentum

With interest in energy code enforcement and compliance at an all-time high, Colorado must maintain its momentum. The state has laid the foundation for a strong energy code training infrastructure and, in the process, gained significant expertise running energy code trainings.

While a comparable multi-level training program may prove infeasible on an annual basis, the state could undertake an abbreviated version that places emphasis on those communities that still require the most assistance. The state could also consider at least two more comprehensive energy code training programs similar to the Support Partnership, centered around local adoption of the 2012 and 2015 IECCs.



Energy Code Ambassadors Program

CRITICAL TASK 5

One cost-effective way to keep code officials up-to-date is an Energy Code Ambassadors Program (ECAP). Code Ambassadors attend an ICC train-the-trainer workshop, then train their peers. ECAP would be an excellent way to continue Support Partnership and Colorado Codes Consulting efforts to build a network of trusted local experts.

The ICC has successfully implemented ECAP in fellow mountain west states Idaho, Utah, and Nevada. Idaho-based K-energy is an experienced ECAP trainer, though Colorado also has a number of firms with the expertise to offer quality ECAP training. DOLA could also tailor the program to fit the state's needs more closely.

Program Structure

A well-established energy code trainer gives the initial ECAP training, consisting of three parts: energy code advocacy, residential requirements, and commercial requirements. The size of the class allows the trainer to go at a slower pace, focusing on parts of the code and advanced segments in need of greater attention. In some cases, the instructor may spend a second day reviewing the content of the three ICC energy certification exams before proctoring the tests.

Ambassador Selection

DOLA could advertise ECAP through the Collaborative, particularly the CCICC. Well-known and respected code officials could also be targeted individually. Ambassadors should include plans examiners and building inspectors from the Denver, Fort Collins, Pueblo, Colorado Springs, and Grand Junction regions at a minimum.

Motivation for Participation

Compensation for the Ambassadors is unlikely. Therefore, it is critical that ECAP be free and attendees be reimbursed for any travel expenses, as well as for travel around the state to train colleagues. In addition, DOLA and the Collaborative can provide the attendees with food, code books, and ICC vouchers if applicable.

Cost Estimate

Based on ECAP programs in other states, the following table provides a template for pricing the program for eight ambassadors spread over two days. Costs may vary in Colorado.

Expense	Cost Each	Total Cost
Trainers' Fee	\$1,600	\$3,200
Room Rental	240	2,400
Ambassador Travel Reimbursements	1,000	8,000
Food and Drinks	120	240
Code Books	215	1,720
2009 IECC/ASHRAE Standard 90.1-2007	137	
2009 IECC w/ Commentary	54	
2009 IECC Workbook	24	
ICC Energy Exam Vouchers (3 tests)	180	4,320
Oversight Costs (dependent on trainer)	-	8,500 - 17,000
Program Administration	4,000-7,000	
Curriculum Prep and Development	4,000-7,000	
Trainer's Travel and Other Expenses	500-3,000	
Total		\$28,380 - 36,880

Compliance Evaluation

Verifying the success of energy code implementation efforts—and satisfying the conditions of the \$50.2 million the state accepted in Recovery Act funding—requires a compliance evaluation program.

Current Status

Colorado has not undertaken any significant compliance evaluation measures on the statewide level, though it is evaluating the impact of the Support Partnership through a third party consultant, Nexant, which plans to measure and verify on-site energy savings in a sampling of jurisdictions with the 2009 IECC.

In the late 1990s, Fort Collins Utilities and the city conducted a compliance evaluation study, identifying several key areas for improvement. Though outdated, DOLA and the Collaborative could benefit from the institutional knowledge of those involved: [www.coloradoenergy.org/tips/builders/fort_collins_study.pdf]

Goals of Compliance Evaluation

Compliance measurement is not about looking over the shoulder of local code officials. Instead, a successful program will determine how well construction and design professionals are doing—and help provide all parties with improved resources to build and inspect homes and businesses that meet or go beyond the requirements of the adopted energy code. Goals include, but are not limited to:

1. Establishing an energy code compliance baseline;
2. Tracking progress toward overarching statewide energy efficiency goals;
3. Monitoring energy savings attributed to the building energy code; and
4. Documenting cost-effectiveness of energy code compliance activities.

DOE Resources and Pilot Studies

It is essential to begin planning today so that the state has time to assess existing construction practices, build feedback loops, etc. Fortunately, DOE has created a website that provides videos, best practices, and tools to demonstrate how states and local inspection departments might create a plan specifically tailored to their needs:

[www.energycodes.gov/arra/compliance_evaluation.stm]

In addition, the state will be able to draw on lessons from the nine DOE compliance pilot studies.



Compliance Evaluation Study

CRITICAL TASK 6

The pilot studies and PNNL protocol have set the stage for Colorado to establish its own compliance evaluation study. However, the state will have the freedom and flexibility to develop a program that meets Colorado-specific needs and criteria.

Structure of the Study

Cost

The cost could vary depending on a number of factors, including number of buildings evaluated, method of data collection (telephone, plans-only, in-person inspections), number of inspections, state-local cooperation, and contractor cost. Due to these factors, DOE's pilot compliance studies ranged from \$75,000 to as much as \$750,000.

Sample Size

DOE also developed a State Sample Generator¹ to provide states with suggested sample sizes based on the recent number of permits over preceding years. For example, for new single family construction, the Generator suggests a range of one to five buildings per county, out of over 9,000 that have been built from 2008 to 2010.

1

[energycode.pnl.gov/SampleGen/]

Evaluators

DOE has suggested three options for how to conduct evaluations: first-party evaluations by local inspections departments, second-party inspection by the state, or third-party evaluation by private sector firms. Given Colorado's growing local enforcement infrastructure and existing third-party infrastructure, the state could reasonably pursue either possibility, or a combination of both. Utilities and/or the COPUC could also play an important role in this process, particularly if Colorado pursues an SBC or EERS regulations that include energy code implementation efforts.

Buildings

DOLA and the Collaborative will have leeway to choose which buildings to include in the sample. Moreover, DOE will not require the state to track specific buildings throughout every stage of the inspection process. Instead, the state may perform inspections of various code requirements across a larger group of buildings, each at a different level of completeness. For more information, please see the DOE Compliance Evaluation Resource.²

2

[energycodes.gov/arra/compliance_evaluation.stm]

Timetable

Five years ago, it would have been nearly impossible to predict what the energy codes landscape would look like on the national, state, and local levels. Likewise, the next five years will no doubt bring new realities and opportunities dependent on a host of unknown variables.

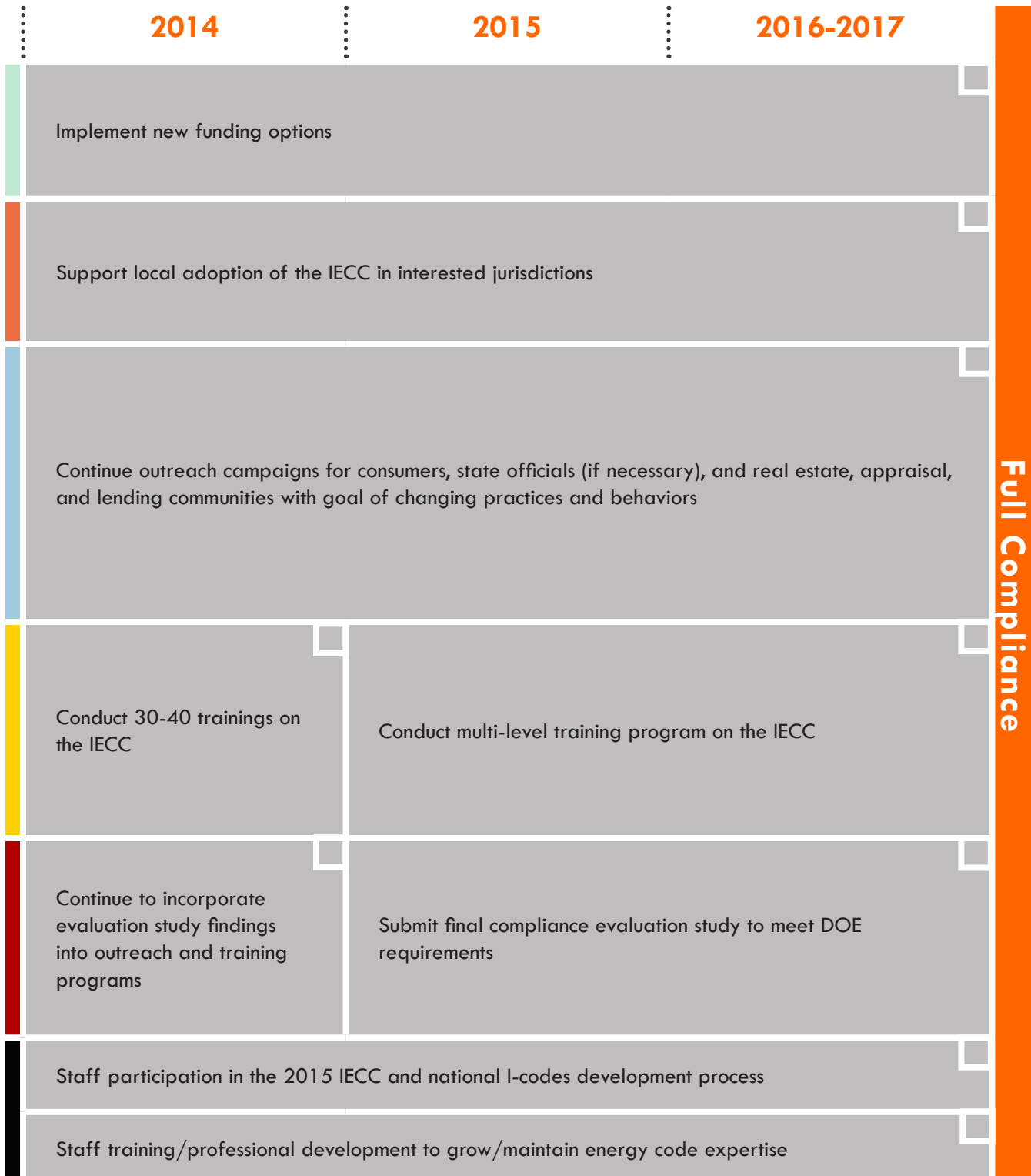
Below are some near- and mid-term goals for Colorado that are both reasonable and necessary. Beyond these, the Strategic Compliance Plan outlines those longer-term outcomes that are realistic and expected.

NOVEMBER 2011

	2009-2011	2012	2013
Funding	Recovery Act funding, state appropriations (2009-2011) ✓	End of Recovery Act funding	Implement new funding options
		Explore/Implement new funding options	
State & Local Policy	Growth of ENERGY STAR New Homes Program (ongoing) ✓	Support local adoption of 2009 and 2012 IECCs in interested jurisdictions	
Outreach	Launched Energy Code Support Partnership (2010-2011) ✓	Post best practices from the Support Partnership on DOLA website	Launch consumer awareness campaign
		Create outreach campaign on economic benefits of codes for state officials	Continue outreach campaign to state officials
	Began outreach to real estate industry to "green" MLS (2011) ✓	Continue to advance partnership with real estate industry to "green" the MLS	Expand campaign to include appraisal and lending communities
Training	Conducted 20 energy code trainings statewide (2009) ✓	Conduct 15-30 trainings in locations around the state	Conduct multi-level training program on IECC
	Launched Energy Code Support Partnership (2010-2011) ✓	Conclude Support Partnership trainings	Launch Energy Code Ambassadors Program
Compliance Evaluation	Began M&V for on-site energy savings in select jurisdictions with the 2009 IECC - part of Support Partnership (ongoing) ✓	Evaluate PNNL pilot study protocol to determine Colorado-specific approach	Continue compliance evaluation study using PNNL protocol
		Develop and conduct compliance evaluation study using PNNL protocol	Analyze evaluation findings to inform outreach and training goals
Other	Worked with BCAP on Gap Analysis Report (2010) ✓	Form Energy Codes Compliance Collaborative	Expand Collaborative to include non-traditional actors
	SWEEP report on green bldg in Denver area (2010) ✓	Staff training/professional development to grow/maintain energy code expertise	

Colorado Strategic Compliance Plan

This timetable should act as much like a mile marker and reference point as a guide. Moving forward, the state should chart its own course towards energy code compliance, built on a solid foundation of proven practices.



For more energy code compliance resources, please visit
www.bcap-ocean.org/resources
www.energycodes.gov

For more information on the Colorado Department of Local Affairs

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