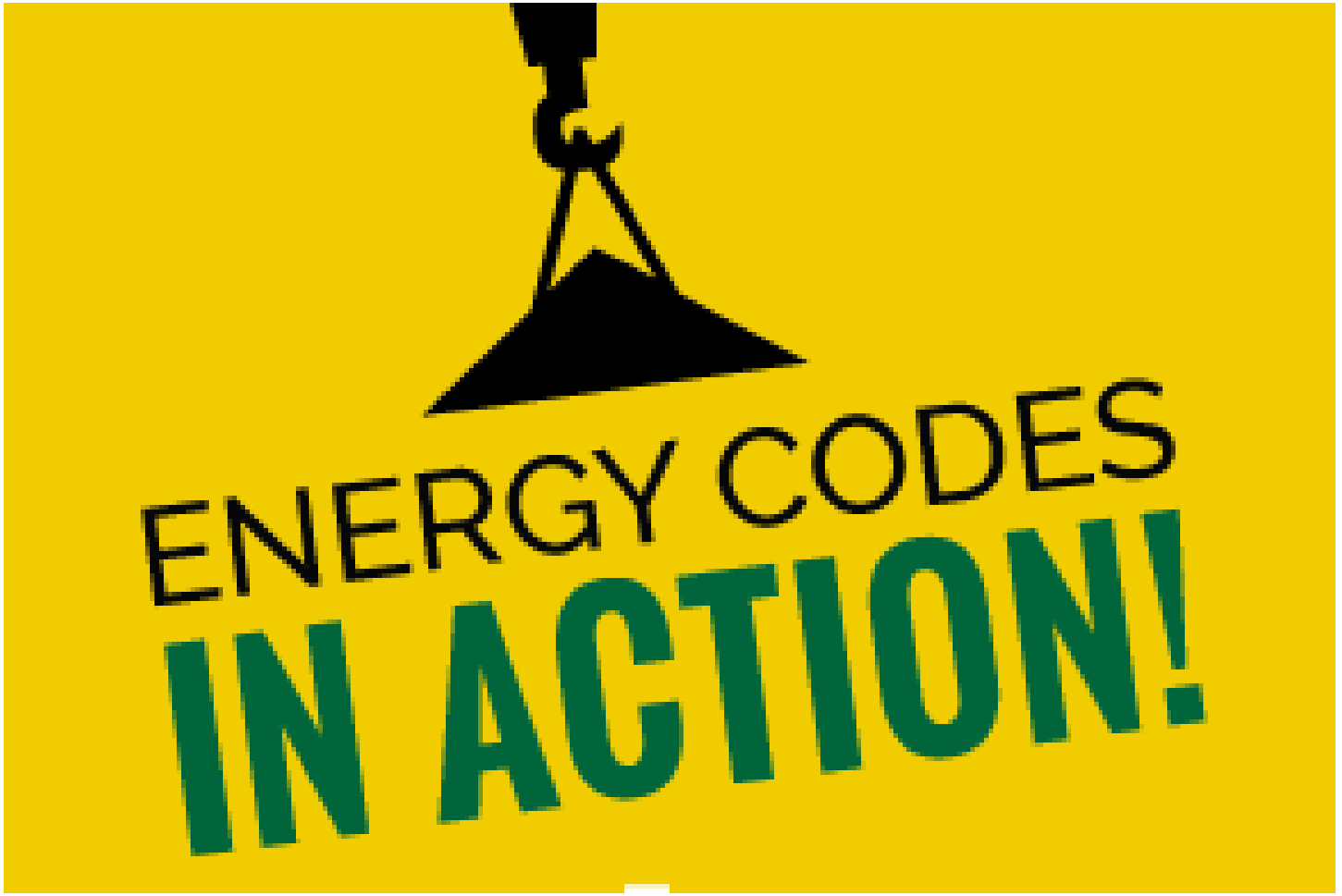
Building Energy Codes Program (BECP)

2015 Building Technologies Office Peer Review



U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

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Program Summary

Timeline:

Start date: Mid-1990s

Planned end date: On-going

Current Statutory Deliverables

1. Commercial Determination (completed)
2. Residential Determination (by June 2015)

Budget:

Total DOE $ to date: approx. $$120M

Total future DOE $: Unknown.

Target Market/Audience:

Residential and commercial new construction, additions and major renovations.

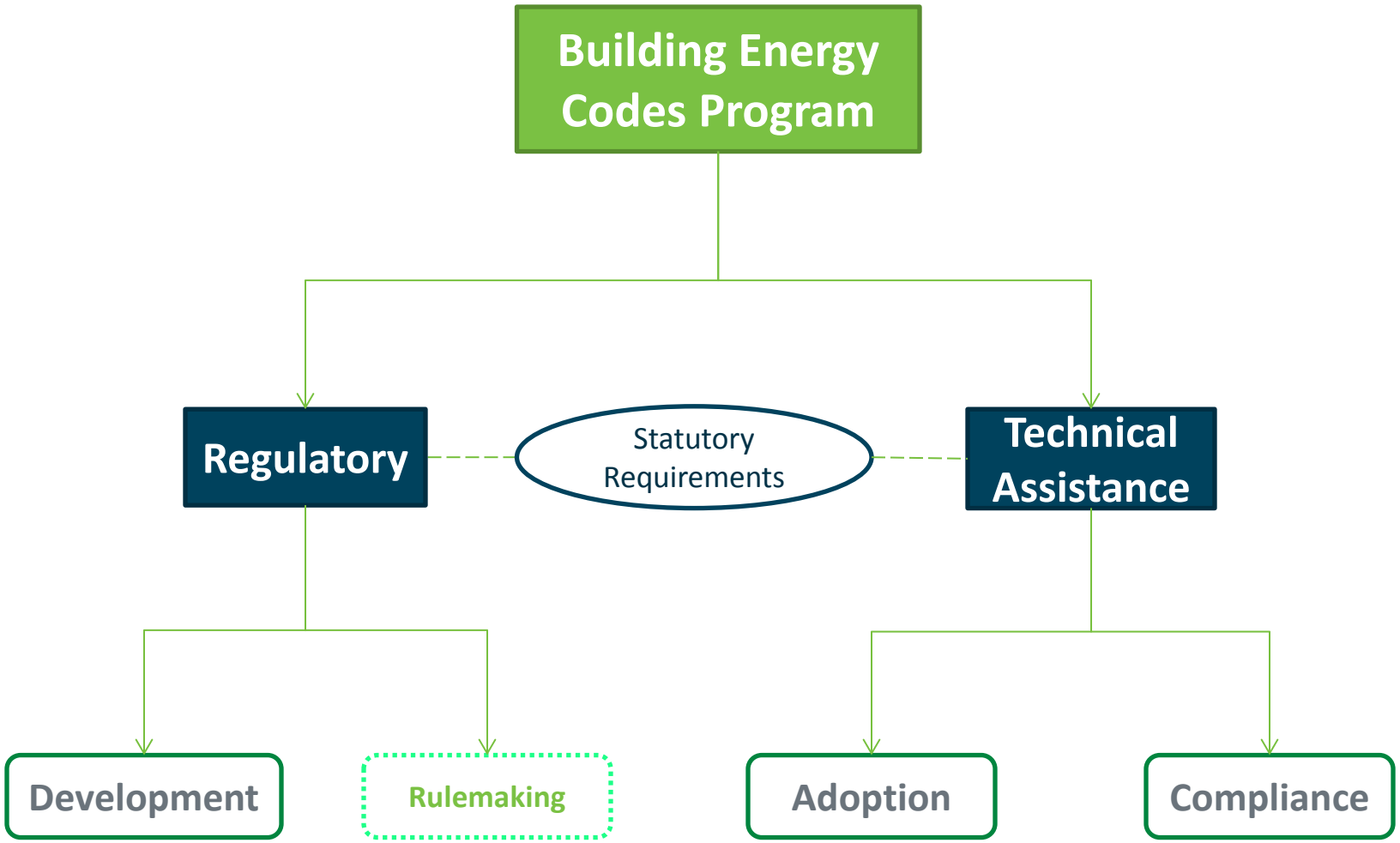
Key Partners:

Pacific Northwest National Labs	National Association of State Energy Officials
Regional Energy Efficiency Orgs (NEEP, SEEA, MEEA, SWEEP, SPEER, NEEA)	

Program Goal:

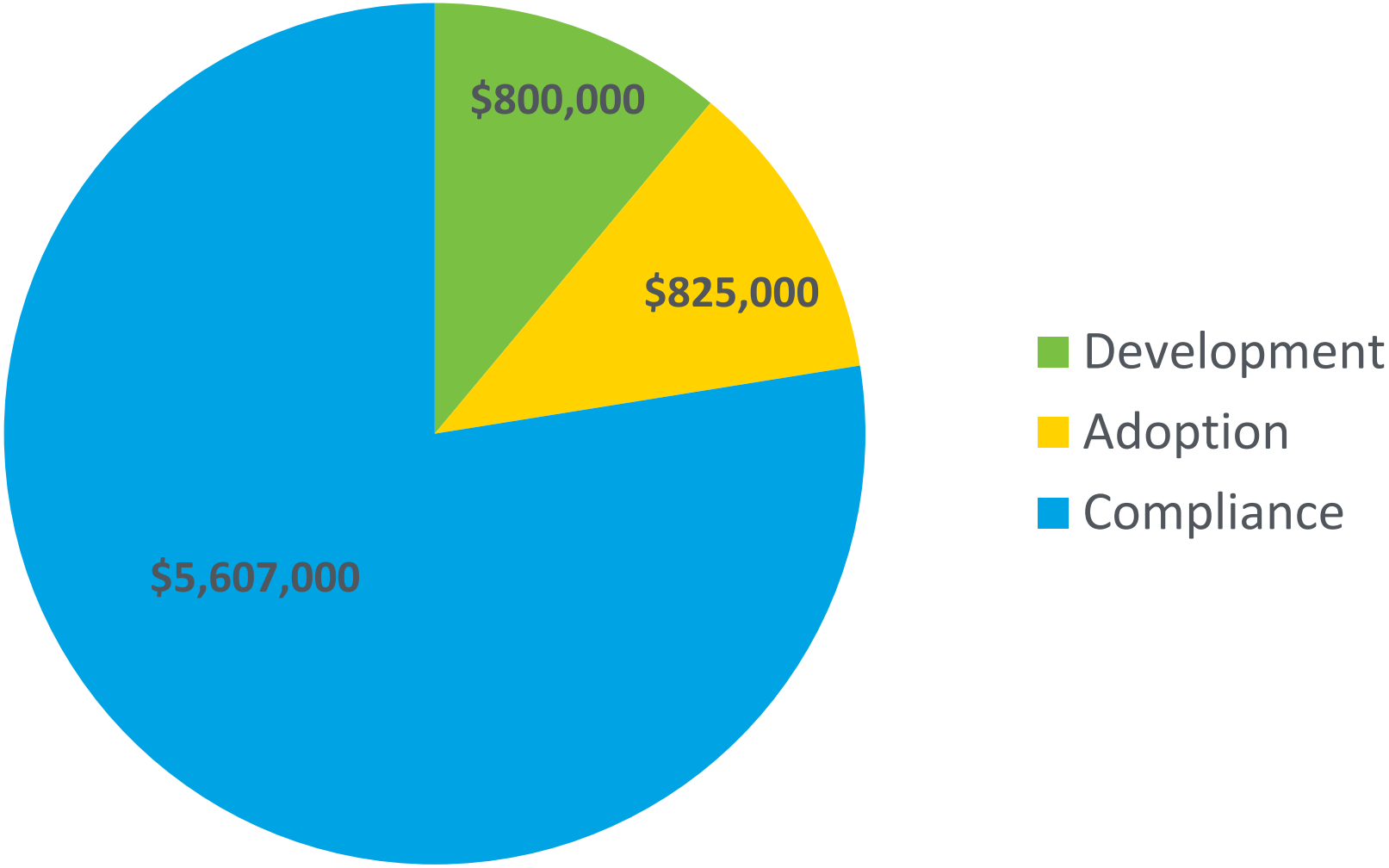
Support the building energy code and standard development, adoption, implementation and enforcement processes to achieve the maximum practicable, cost-effective improvements in energy efficiency while providing safe, healthy buildings for occupants.

BECP Structure

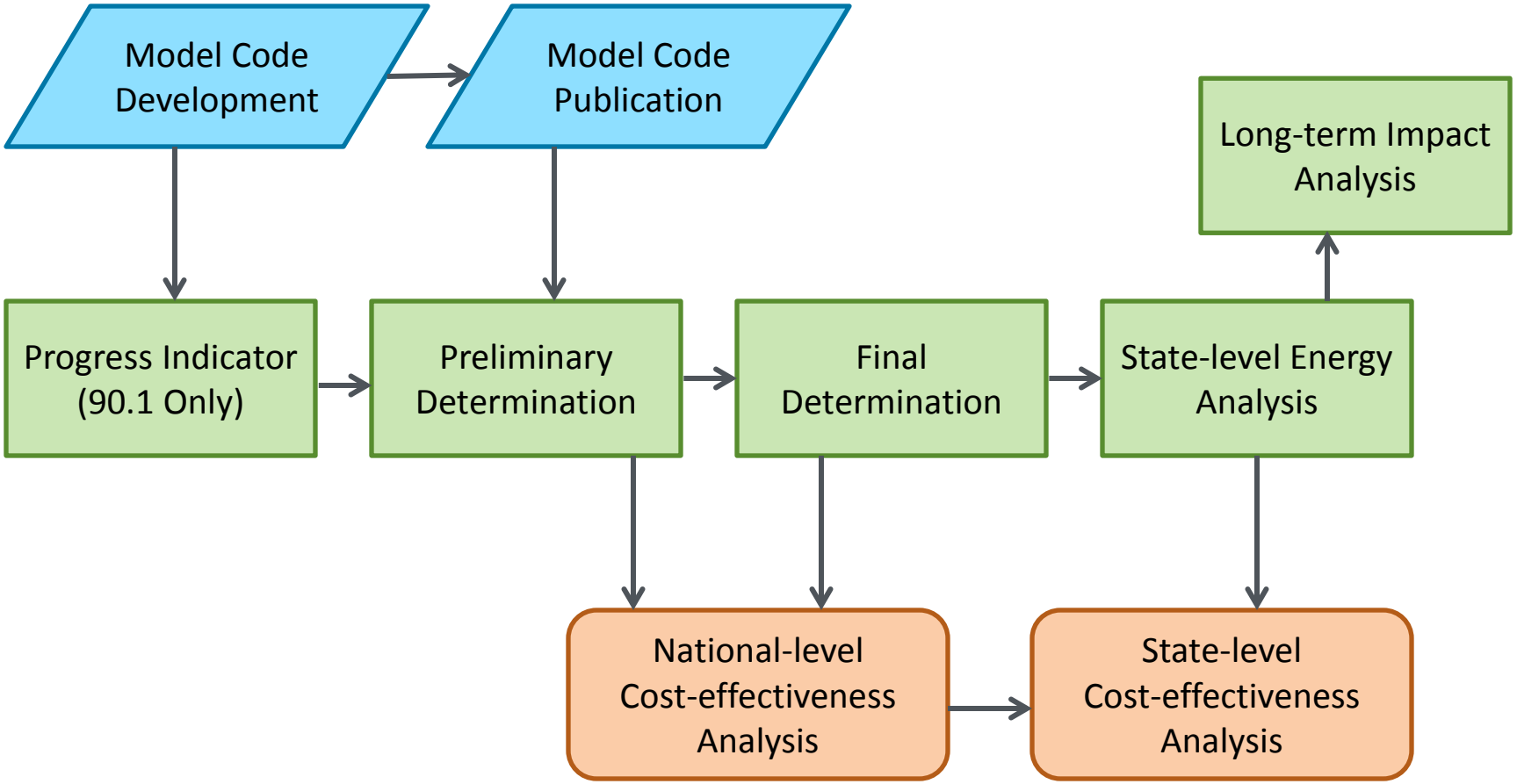


BECP Budget

FY 2015 $5.59M + FOA budget ≈$2M/yr



BECP 3-Year Cycle of Analysis



Purpose and Objectives

Problem Statement: The Congress finds that large amounts of fuel and energy are consumed unnecessarily each year in heating, cooling, ventilating, and providing domestic hot water for newly constructed residential and commercial buildings because such buildings lack adequate energy conservation features (42USC§ 6831(a)(1)).

Target Market and Audience: Residential and commercial new construction, additions and major renovations. Policymakers, code officials, designers, engineers, industry, builders, home and building owners.

Impact of program: Reduce energy use in buildings subject to energy codes.

- **Mid-term**: By 2020, achieve energy savings of 1.1 quads annually.
- **Long-term**: Through 2030, achieve cumulative energy savings of 14 quads, reduce energy bills by $125 billion and avoid carbon emission by 1 billion metric tons

Statutory Language (42USC Subchapter II)

- Explicitly directs DOE to participate in all phases of codes: development, adoption, compliance, enforcement.
- Not neutral. Clear intent is to save energy by increasing code stringency and compliance rates (subject to cost-effectiveness)
    - "provide for the development and implementation" of model codes "designed to achieve the **maximum practicable improvements** in energy efficiency"
    - "**encourage** States and local governments to **adopt and enforce**" model codes. (Says "**meet or exceed**" the model code 13 times.)
    - "The Secretary shall provide technical assistance States to implement the requirements of this section, and to **improve and implement** State residential and commercial building energy efficiency codes…."

Statutory Obligations (42USC Subchapter II)

- **Annually review the technical and economic basis of the national model building energy codes, and participate in the industry process for review and modification [42 USC 6836]**

- **Seek adoption of all technologically feasible and economically justified energy efficiency measures [42 USC 6836]**

- **Perform a determination of energy savings for updated editions of Standard 90.1 (commercial) and the IECC (residential) to initiate state code updates and certifications [42 USC 6833]**

- **Provide technical assistance to states to implement building energy codes, including increasing and verifying compliance to ensure consumer benefits [42 USC 6833]**

Approach

Approach: As directed by statute: participate in code development processes, encourage States and local governments to adopt and enforce model codes, provide technical assistance to states, perform determinations and technical and economic reviews of model codes.

Key Issues:

-- Lack of national agreement on the value energy codes provide.

-- Lack of empirical data on actual energy savings associated with adoption of energy codes and the cost to achieve them.

Distinctive Characteristics: Transparent, publicly reviewed methodologies, analyses and studies.

High-Level Goals

- Establish BECP as a credible, objective and transparent source in all areas of energy codes.
- Provide value. Ensure that what we produce is "used and useful".
- Save energy and reduce emissions.

General Strategies (from Activities Framework document)

- Empower BECP and others who seek to improve energy codes.
- Establish a leadership position and encourage sharing of information by convening discussion forums.
- Participate in processes and forums.
- Ensure intended energy savings.

Progress and Accomplishments (REEOs and NASEO)

SPEER

- Expanded our Energy Codes Ambassadors to be the largest in the country. Provided them with advanced training so that they will be able to provide local "Peer to Peer" assistance to builders, contractors and code officials.
- Increased adoption of the Texas state energy code, by large jurisdictions by 34%.
- Published a Texas Energy Code Adoption report – identifying jurisdictional compliance with state codes.
- Facilitated Energy Code Compliance Collaborative meetings in both Texas and Oklahoma.
- Supported local governments in the adoption of advanced codes.
- Developed training resources for broad distribution to all industry participants.

NEEA

- Created a pilot partnership with the City of Boise and State of Idaho to develop policies for existing building energy efficiency.
- Developing a roadmap for an existing building program.
- Creating a data stream of utility information for building portfolio management.
- Creating a hands-on operator training for HVAC quality measurement and prioritization of operational changes.

SEEA

- Assisted in adoption of the 2009 IECC in Arkansas and Louisiana. Assisted in implementation of the 2009 IECC in Arkansas by providing "Success with the Arkansas Energy Code" for builders and code officials. Developed corresponding curriculum to distribute to local trainers.
- Completed "Construction, Code and Commerce: The Economic Impact of Commercial Energy Codes in the Southeast", a white paper that examines commercial construction trends in the Southeast from 2005-2013.
- Hired a Florida Energy Code Circuit Rider to visit and complete assessments of 10 jurisdictions of varying sizes. Information will be used to determine effective training, education and outreach efforts in 2015. Florida will be adopting a 2012 IECC equivalent energy code on June 30, 2015.
- Developed a "Success with 2009 IECC for Code Officials" guide. Launched the Success with Energy Codes portal where free resources (i.e. trade-specific checklists and visual images) are available.

MEEA

- Partnered with DTE, CMS and Navigant Consulting to design and implement a code compliance utility program in Michigan.
- Established a code compliance collaborative in Minnesota in partnership with Fresh Energy
- Worked with Nebraska Department of Energy and the three major utilities to establish a code compliance utility program based on reducing peak demand
- Provided technical and policy information to Illinois Energy Codes Advisory Committee as it continues to develop the 2015 Illinois Energy Conservation Code.
- Managing code compliance study in Kentucky funded by the Department of Energy

SWEEP

- Educated municipalities and other stakeholders in Arizona on benefits of 2012 IECC. By end of 2014, over 60% of all new construction occurred in communities on 2012 IECC.
- Educated municipalities and other stakeholders in Colorado on the benefits of 2012 IECC. By end of 2014, 27% of all new construction occurred in communities on the 2012 IECC.
- Coordinated building industry's support for the adoption of the 2012 IECC in Nevada.
- Supported implementation of the 2012 IECC for commercial buildings in Utah along with an improved energy code for new homes.
- Assisted the City and County of Denver as it worked on adoption of the 2015 IECC, including providing funding for training of the building industry.
- Worked with the Colorado Energy Office to draft a proposal for energy code training in Colorado with 25 trainings provided throughout Colorado.
- Worked with New Mexico utility (PNM) to add funding to support energy code training in New Mexico. Five energy code trainings were provided in the PNM service area.
- Hosted the first regional energy codes conference to discuss critical energy code topics in the Southwest. Approximately 50 professionals participated in the 1.5 day meeting.
- Conducted two webinars on energy code compliance for stakeholders in the region.

NEEP

- NEEP helped Vermont and Maryland become the first states in the nation to adopt the 2015 International Energy Conservation Code (IECC). also assisted in Delaware and New York's 2014 adoptions of the 2012 IECC.
- Facilitated Energy Code Collaboratives in Delaware, New Hampshire, and Pennsylvania
- Supported cutting-edge code compliance enhancement efforts in Rhode Island
- Disseminated NEEP's utility claimed savings report
- Developed Regional Code Adoption and Compliance Toolkits

NASEO

- NASEO provides ongoing one-on-one assistance to states regarding energy codes. For example, NASEO held conversations with DOE and MEEA regarding potential support for the Michigan State Energy Office regarding a code compliance program for its newly adopted energy code, based on the 2012 IECC. NASEO also facilitates peer-to-peer (state-state) assistance on energy codes compliance, for example. Ongoing activity.
- NASEO included updates related to building energy codes in the Buildings Committee session held during NASEO's 2014 Annual Meeting in September. In addition, NASEO developed a separate session for all meeting participants on energy code compliance as a potential option for cost effectively meeting environmental rules – 47 of the 56 state and territory energy offices attended.
- NASEO developed a building energy codes educational presentation at our February 2015 Buildings Committee meeting in Washington, DC. The session had over 25 state energy office representatives in attendance and many private sector experts. The session included an update on DOE energy codes activities, the DOE-supported compliance project in Texas, and information about the Building Energy Codes Summit.
- NASEO began to update its list of State Energy Office staff contacts responsible for energy codes. Update and use of this list facilitates more effective and efficient communications of key DOE and other codes information, and directly enables peer-to-peer information sharing among the states. The update activity is about one-third complete and ongoing. Ongoing activity.

BECP Accomplishments – Creating Structure

- Cost-effectiveness methodology
- Activities framework document
- REScheck/COMcheck guidelines
- IECC participation guidelines
- Changes to adoption maps and certification (pending)
- Determinations

BECP Accomplishments – Leadership

- National Energy Codes Conference
- Energy Ratings Index analysis
- ASHRAE Addendum BM
- Residential Energy Codes Funding Opportunity Announcement
- Research Projects

Program Integration and Collaboration

Program Integration: Within the Building Technologies Office, BECP meets regularly with the commercial and residential deployment programs to identify technologies and practices with the potential to be included in code change proposals.

Partners, Subcontractors, and Collaborators: Contractors are PNNL, REEOs, NASEO. There is collaboration with a very large number of code developers, users and enforcers.

Communications: Items of broad importance are published in the federal register.

Next Steps and Future Plans

- Participate in 2018 IECC development process
- Determine education and training tools and materials
- Determine future software path
- Need to improve general communication about BECP

Best role for BECP??

Building Technologies Office

Building Energy Codes Program

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REFERENCE SLIDES

Program Budget

Program Budget: FY15 $5.59M.
Variances: None.
Cost to Date: Approximately half of FY15 budget.
Additional Funding: $6M, 3-year FOA approved in FY14.

Budget History					
Mid-1990s		FY2015 (current)		FY2016 – planned	
DOE	Cost-share	DOE	Cost-share	DOE	Cost-share
≈$120M	N/A	$5.59M	N/A	$5.38M	N/A