

# Building Energy Codes... the policy opportunity

National Conference of State Legislatures

Energy Efficiency Institute

June 23, 2008



# BCAP — Building Codes Assistance Project

- Non-profit advocacy group based in D.C. since 1994
- A joint project of the Alliance to Save Energy, the National Resource Defense Council, and the American Council for an Energy Efficient Economy
- Provide *resources, education & advocacy assistance* for the adoption, implementation, & advancement of effective energy codes on behalf of **US Department of Energy**



# Impact of Buildings

Building energy consumption...

- Is about 40% of total energy use in the US
- Accounts for **70% of total** US electricity consumption
- Is responsible for 40% of CO<sub>2</sub> emissions

The average home emits twice as much  
GHG as the average car

In 2004, 2+ million housing units  
permitted in US (NAHB)



# Buildings are critical in addressing energy and climate

- Buildings are the nation's **largest source of global warming pollution**



## Efficient buildings

- Reduce stress on power grid and natural gas supplies
- Improve air quality and public health
- Avoid global warming
- Save consumers money





New construction in the most cost effective time in the life of a building to achieve energy efficiency gains



# VALUE of Energy Codes

## Affects ALL new buildings

By 2010:

- Almost **5 million** new housing units
- Over **233 billion sq feet** commercial floor space

By 2020:

- **23.4 million** new housing units
- Over **1 trillion** sq feet commercial floor space

By 2030:

- Over **41 million** new housing units
- Over **2 trillion** sq feet commercial floor space



Source: EIA, Annual Energy Outlook 2008





# Codes establish the foundation for other building initiatives

- Developments in building technology and practices are enabling more energy efficient buildings
- The sector is moving towards “0 net energy”
- Codes are going to pull up the bottom of the market in step with the “0” goal



# VALUE of Energy Codes

Establish a foundation  
for *energy* and *green*  
programs:

- ENERGY STAR,
- LEED homes and commercial buildings,
- ASHRAE Standard 189
- Building America/ federal tax incentive, and
- Net-zero energy buildings



# VALUE of Energy Codes



Establish a minimum energy efficiency level/ baseline

- Codes (when done right) will establish the minimum worst building that can be built



# Codes are a Critical Element of Energy and Climate Plans

**AND produce savings**

## **SCENARIO:**

If all states implemented a national energy code that is strengthened by 30% starting in 2010 and by 50% around 2020:

**In 2030 our nation could save 2.6 quadrillion BTUs of energy - the equivalent Virginia's annual energy consumption**

**By 2050, cumulative energy savings would reach approximately 111 quadrillion BTUs. = more than the TOTAL US ENERGY CONSUMPTION in 2005 (100.3 quads)**

Estimates are under development and subject to change based on further analysis of EIA and other available building data; data is based on 2005 state energy consumption; Energy Information Administration



# State Policy = Primary Code Adoption

## Critical Policy Elements:

- An effective code/”foundation”
- Update process
- Clear/ unambiguous adoption language
- Requirements for local adoption and enforcement
- Effective enforcement policy
- Financial support for training and education and enforcement



# National Level - National Model Building Energy Code & Standards



**COMMERCIAL**

*ASHRAE Standard 90.1*

**30 % Improvements  
underway**

**RESIDENTIAL**

*International Energy  
Conservation Code (IECC)*



# National Level - National Model Building Energy Code & Standards



**COMMERCIAL**

*ASHRAE Standard 90.1*

**NOW:** 90.1-2007, Advanced  
Energy Design Guides, “Core  
Performance,” LEED,  
ENERGY STAR. Standard 189

**RESIDENTIAL**

*International Energy  
Conservation Code (IECC)*



# The Opportunity to do Better

“...consider an energy-saving home costing \$126,000 alongside a standard home costing \$125,000. The following table shows the comparative expenses of a standard home versus an energy-saving home, assuming that the interest rate is 6% and the term of the mortgage is 30 years: “

- Kentucky Office of Energy Policy

	Standard Home	Energy Saving Home
Monthly Mortgage	\$689	\$695
Monthly Energy Cost	\$50	\$20
Monthly Total	\$739	\$715



# Practical?

**ENERGY STAR:** at least 15% more energy savings than the 2004 IRC; over 2 million homes expected by 2010; over a \$1000 in savings a year; level adopted as code in Long Island, NY

**Building America:** around 30%-90% more energy savings; uses design and energy-efficient construction

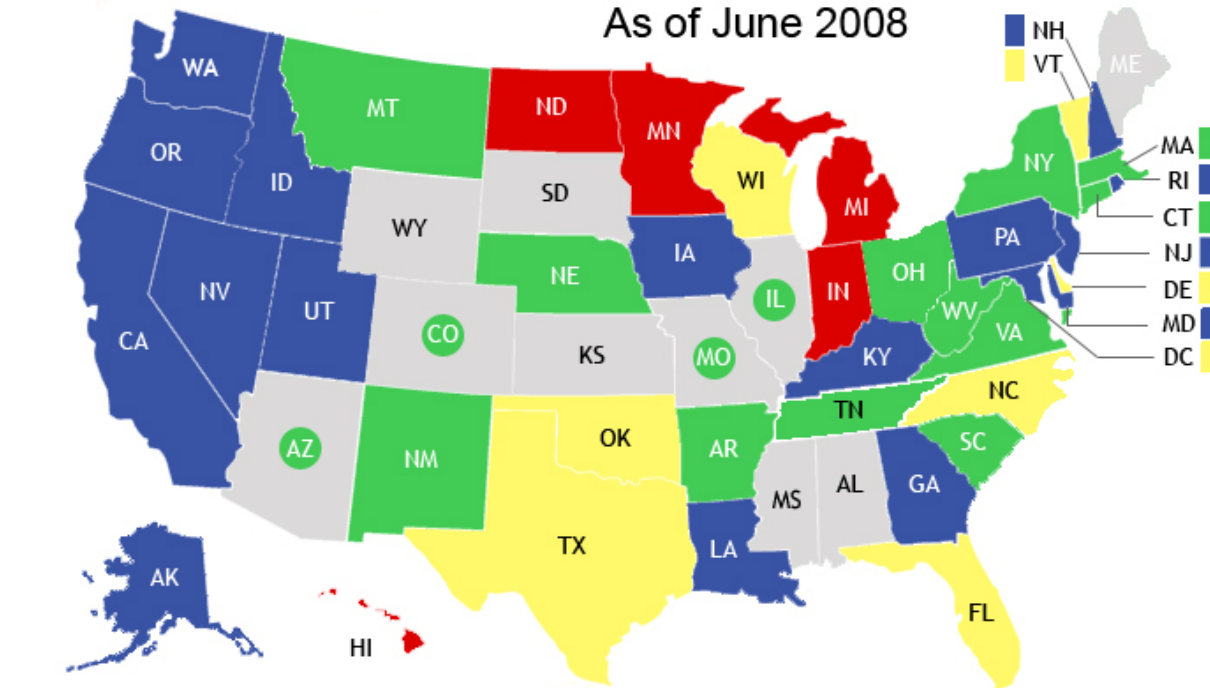
**Tax Incentive:** for 50% energy savings beyond code



# State review & adoption of codes

## Residential State Energy Code Status

As of June 2008



- Adopted code meets or exceeds 2006 IECC or equivalent
- Meets 2003 IECC or equivalent
- Meets 1998-2001 IECC or equivalent (meets EPCA)
- Precedes 1998 IECC or equivalent (does not meet EPCA)
- No statewide code
- New code soon to be effective
- Significant adoptions in jurisdictions

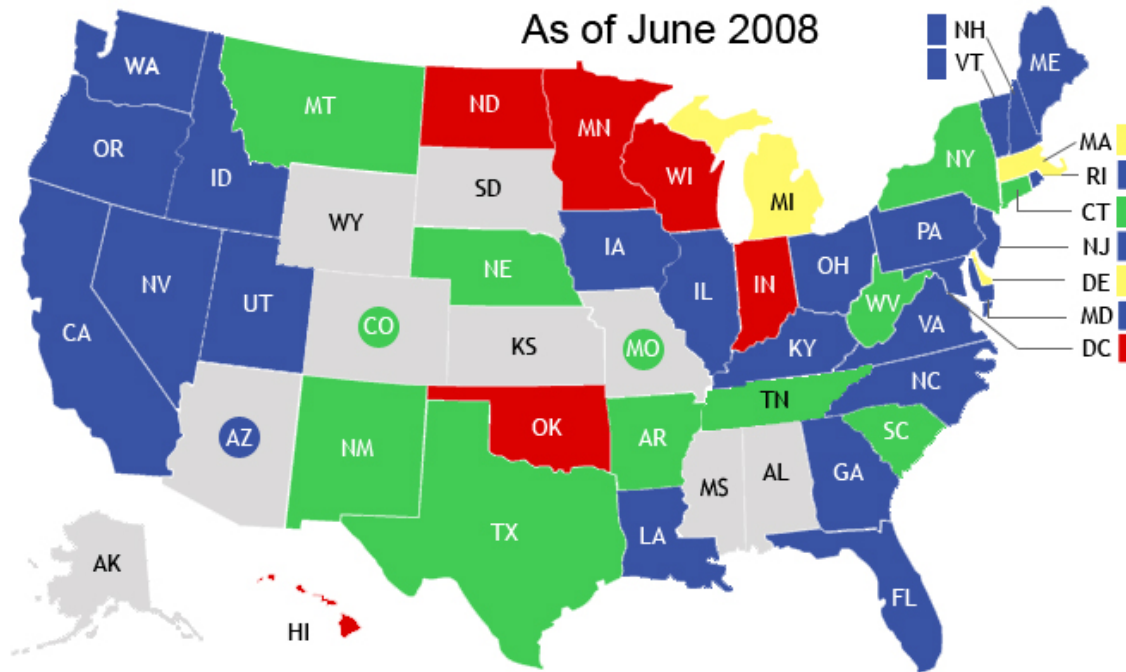
Source:  
Building Codes Assistance Project  
[www.bcap-energy.org](http://www.bcap-energy.org)



# State review & adoption of codes

## Commercial State Energy Code Status

As of June 2008



- Adopted code meets or exceeds 2006 IECC / ASHRAE 90.1-2004 or equivalent
- Meets 2003 IECC / ASHRAE 90.1-2001 or equivalent
- Meets 2001 IECC / ASHRAE 90.1-1999 or equivalent (meets EPCA)
- Precedes ASHRAE 90.1-1999 or equivalent (does not meet EPCA)
- No statewide code
- New code soon to be effective
- Significant adoptions in jurisdictions

Source:  
Building Codes Assistance Project  
[www.bcap-energy.org](http://www.bcap-energy.org)





# Building Codes Assistance Project

[About Us](#)
[Contact Us](#)
[Newsletter Signup](#)
[Home](#) > [Strengthen Your Code](#) > [Policy Action Tool](#)

## Energy Code Reform

The building market demonstrates that efficient designs can significantly improve the energy performance of a building by reducing peak energy demand, air pollution, and greenhouse gas emissions. The nation is recognizing that well-designed, implemented, and enforced building energy codes serve as logical starting points for policies that capture greater energy savings.

This tool provides policy guidance and sample legislation, many of which are already on the books in some states and cities, to assist States and local jurisdictions in incorporating and enhancing current model energy codes into local laws. Below we have categorized energy code policy actions into four different levels. Click on the level to get a description of the reform options and examples of policy action from different states.

### Level I Policy Action - First-time code adoption or update outdated codes

States and local jurisdictions should have a recently developed code to ensure their energy requirements reflect current technology and design that offer increased energy efficiency.

### Level II Policy Action - Pursue "beyond code" efforts

Stakeholders should implement "beyond code" strategies to lock in even greater energy savings.

### Level III Policy Action - Improve the National Model Energy Codes

Stakeholders should participate in the code development process by sharing their experience to improve the national model energy codes.

### Level IV Policy Action - Enact Innovative Legislation

Some states and cities make progress on improving the energy efficiency of buildings through the use of ground-breaking code legislation.

## Recent Code News

- [Maine passes bill for statewide energy code](#)  
 04/23/2008 - 09:55
- [Maryland county adopts ENERGY STAR standards for new homes](#)  
 04/23/2008 - 09:31
- [SAVE THE DATE! Energy Codes 2008](#)  
 04/14/2008 - 12:45

[more](#)

## Upcoming events

- [Energy Codes 2008](#)  
 (32 days)
- [Utah Commercial Overview](#)  
 (39 days)
- [Utah Residential Overview](#)  
 (40 days)

  
[more](#)

- Home
- Code News
- Code Status and Maps
- Code Basics
- Strengthen Your Code
  - Policy Action Tool
    - Energy Code Reform
      - Level I Policy Action
      - Level II Policy Action
      - Level III Policy Action
      - Level IV Policy Action
    - Code Builder
    - Initiative
  - BCAP Blog
  - Energy Code Champion
  - Resources
  - Event Calendar
  - About Us
  - Links

# State Policy = Primary Code Adoption

## Critical Policy Elements:

- ✓ An effective code/"foundation"
- ✓ Update process
- ✓ Clear/ unambiguous adoption language
- Requirements for local adoption and enforcement
- Effective enforcement policy
- Financial support for training and education and enforcement



# Municipal/County Level – Primary/Secondary Code Adoption

## Often Overlooked – Possible Barriers:

- Adoption may not be mandatory
- Enforcement may not be mandatory

### Opportunity:

Require local adoption & enforcement  
Allow jurisdictions to set mandatory limits beyond  
the state energy code (could even incentivize  
stronger requirements)



# Local Building Department Level – Enforcement

## Often Overlooked – Possible Barriers:

- Education for builders and design professionals
- Training on requirements and inspection for code officials
- Resources – technical, checklists, compliance software
- Staff and \$
- No directive

### Opportunity:

Make energy a priority and recognize the role of builders, architects, and code officials  
Sponsor trainings/education (can be established during adoption process)



# Why are there compliance problems?

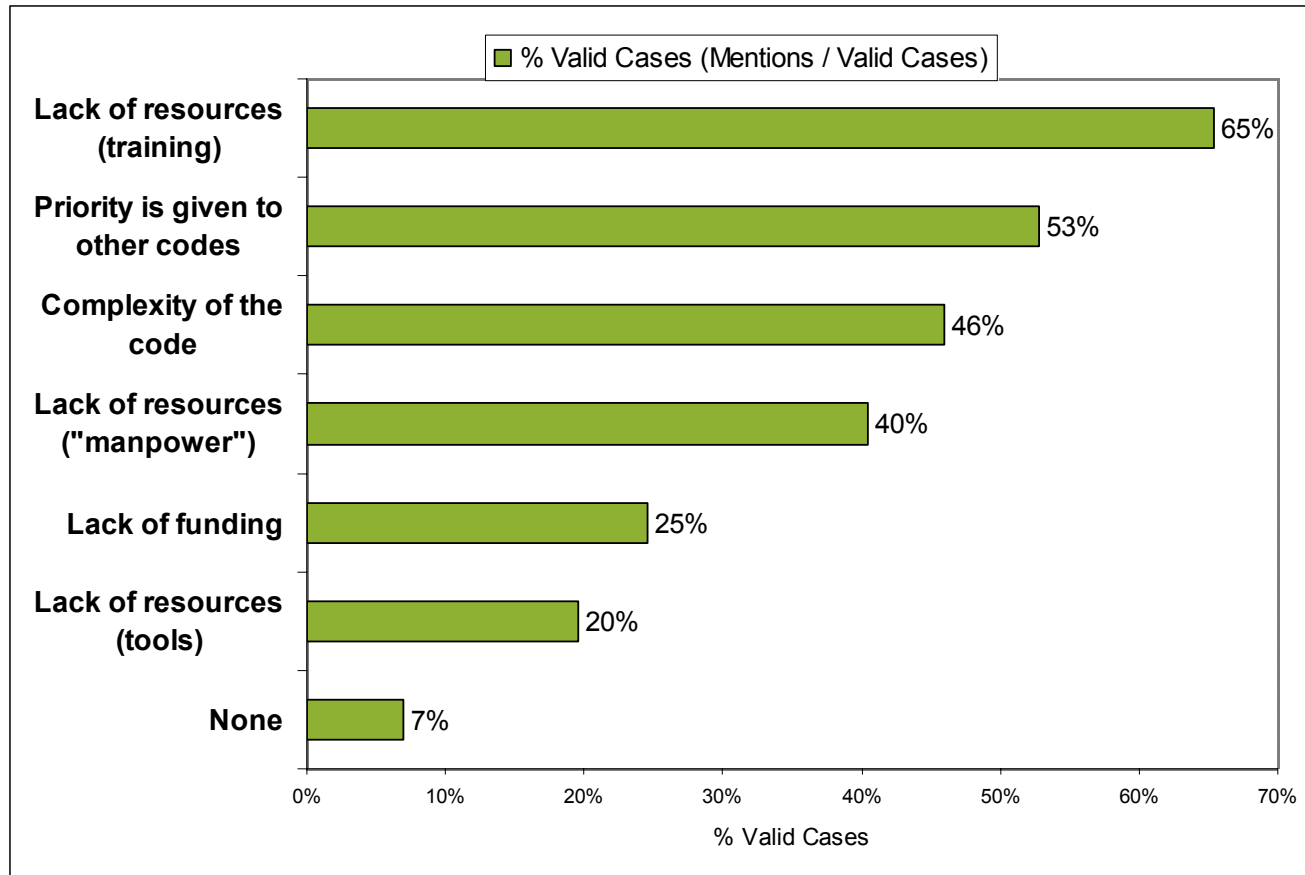
- 95% of code officials say that additional resources and training would be helpful
- 84% of code users say that enforcement is a strong motivator

**2008 BCAP national survey**



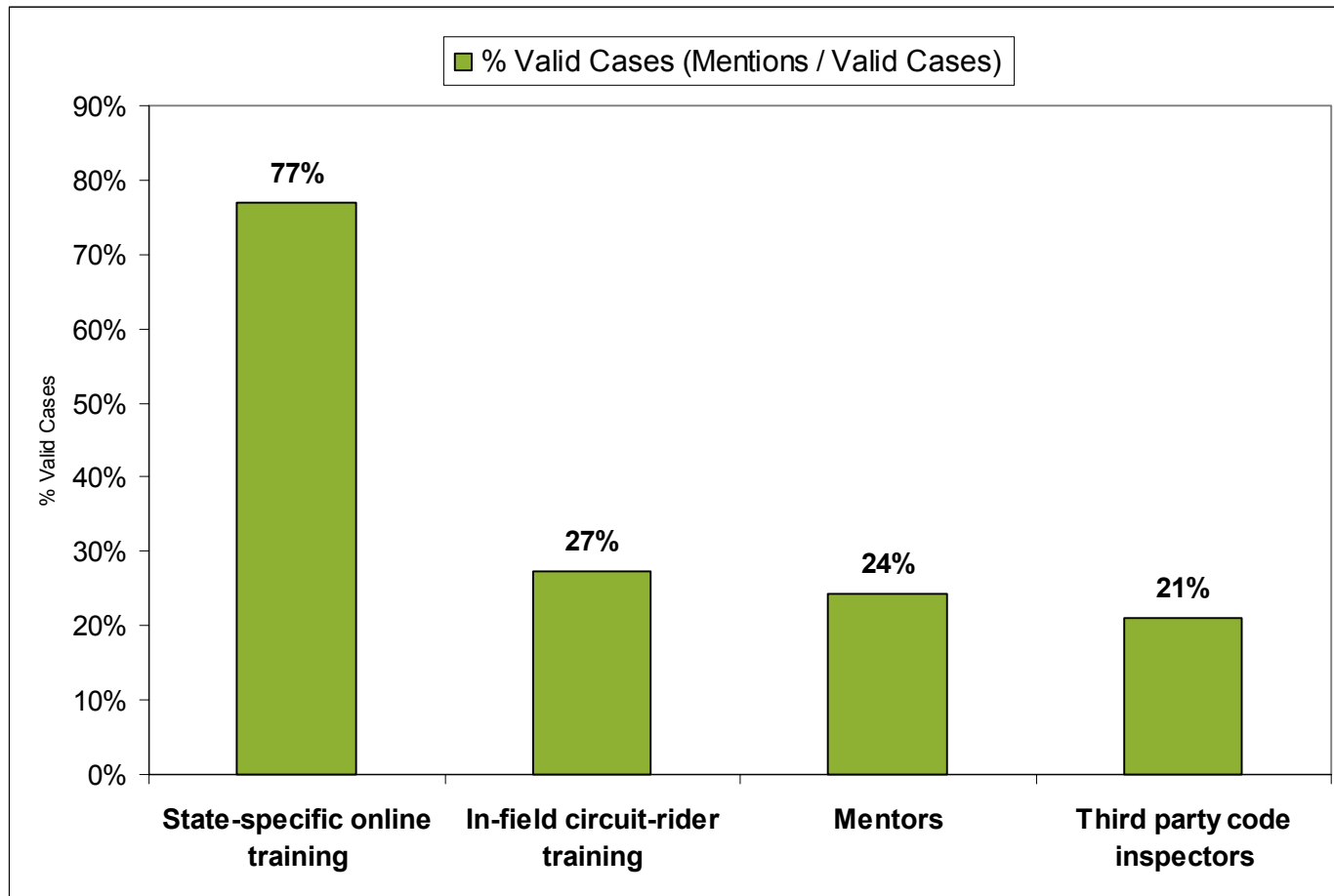
## 2008 BCAP National Code Survey

**Q (Code Official): What do you believe are the largest barriers in enforcing the commercial energy codes, if any? (Check all that apply)**



## 2008 BCAP National Code Survey

**Q (Code Official): Are there any other resources, assistance, training, and/or specific delivery methods you would like to see available to improve commercial code compliance? (Check all that apply)**





# Building Codes Assistance Project

[About Us](#) [Contact Us](#) [Newsletter Signup](#)

- Home
- Code News
- Code Status and Maps
- Code Basics
- Strengthen Your Code
- BCAP Blog
- Energy Code Champion
- Resources
- Event Calendar
- About Us
- Links

Home

## Code News

State based code news and recent updates to state codes status.

### Maine passes bill for statewide energy code

Wed, 04/23/2008 - 09:55 — Aleisha.Khan

The Maine Legislature passed a bill on April 18, 2008 to adopt and enforce a statewide energy code. The bill also establishes the Division of Building Codes and Standards to administer the code and provide technical support. The bill requires that the 2009 IECC (along with the 2009 versions of the IBC, IRC, and IEBC) will be incorporated into the Maine Uniform Building and Energy Code and that future versions of these codes update the Maine state code. Enforcement of the statewide code will start on June 1, 2010.

[Add new comment](#)

[Residential](#) [Maine](#)

### Maryland county adopts ENERGY STAR standards for new homes

Wed, 04/23/2008 - 09:31 — Aleisha.Khan

This Earth Day, Montgomery County (located in Maryland, just north of Washington, DC ) took a bold step towards reducing carbon emissions and saving energy by adopting the US EPA's ENERGY STAR standards for all new homes. The county council unanimously approved the bill which will go into effect January 2010. The move will improve home energy use by 15 to 30 percent above minimum energy code levels. For more on the story, see the Washington Post article at:

[Add new comment](#) [Read more](#)

[Residential](#) [Maryland](#)

### SAVE THE DATE! Energy Codes 2008

Fri, 04/11/2008 - 10:00 — Aleisha.Khan

US Department of Energy has announced that Energy Codes 2008 will be held July 22-25 in St. Paul, Minnesota at the Crowne Plaza St. Paul-Riverfront. Come and participate for hands-on training and unique networking opportunities with state energy office representatives and members of the building industry. Registration will open soon and be available at: [www.energycodes.gov](http://www.energycodes.gov)

[Commercial](#) [Residential](#)

### Texas Residential Training Workshops

## Recent Code News

- Maine passes bill for statewide energy code  
04/23/2008 - 09:55
- Maryland county adopts ENERGY STAR standards for new homes  
04/23/2008 - 09:31
- SAVE THE DATE! Energy Codes 2008  
04/14/2008 - 12:45

[more](#)

## Upcoming events

- Utah Commercial Overview (Now)
- Energy Codes 2008 (32 days)
- Utah Commercial Overview (39 days)

[more](#)

# Thank you

Aleisha Khan

Executive Director

Building Codes Assistance Project (BCAP)

akhan@ase.org

[www.bcap-energy.org](http://www.bcap-energy.org)

