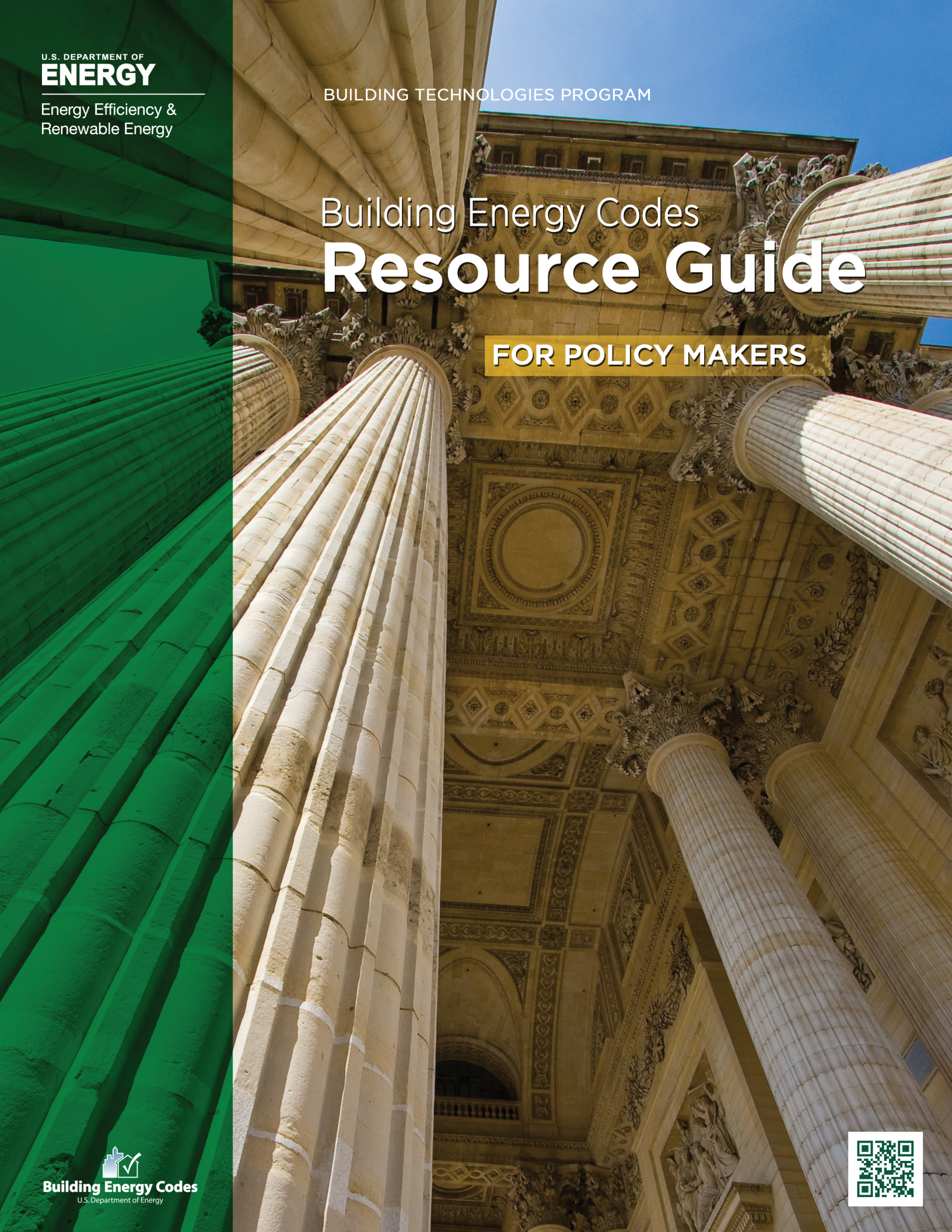
U.S. DEPARTMENT OF
ENERGY
Energy Efficiency &
Renewable Energy

BUILDING TECHNOLOGIES PROGRAM

# Building Energy Codes Resource Guide

## FOR POLICY MAKERS



Building Energy Codes
U.S. Department of Energy

**THIS GUIDE IS INTENDED TO PROVIDE KEY INFORMATION** to policy makers on energy codes and to offer guidance on how policy makers can support the creation of statewide energy efficiency goals and standards. In addition, this guide will help instruct policy makers on how they can:

- **Encourage** the adoption of statewide codes.
- **Establish** energy code awareness programs.
- **Support** enforcement of and compliance with energy codes.
- **Participate** in the development of national codes and standards.
- **Determine** the viability of the new code.

BUILDING TECHNOLOGIES PROGRAM

# Resource Guide for **Policy Makers**

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PREPARED BY

**Building Energy Codes Program**


The U.S. Department of Energy's (USDOE) Building Energy Codes Program (BECP) is an information resource on national energy codes. They work with other government agencies, state and local jurisdictions, national code organizations, and industry to promote stronger building energy codes and help states adopt, implement, and enforce those codes.


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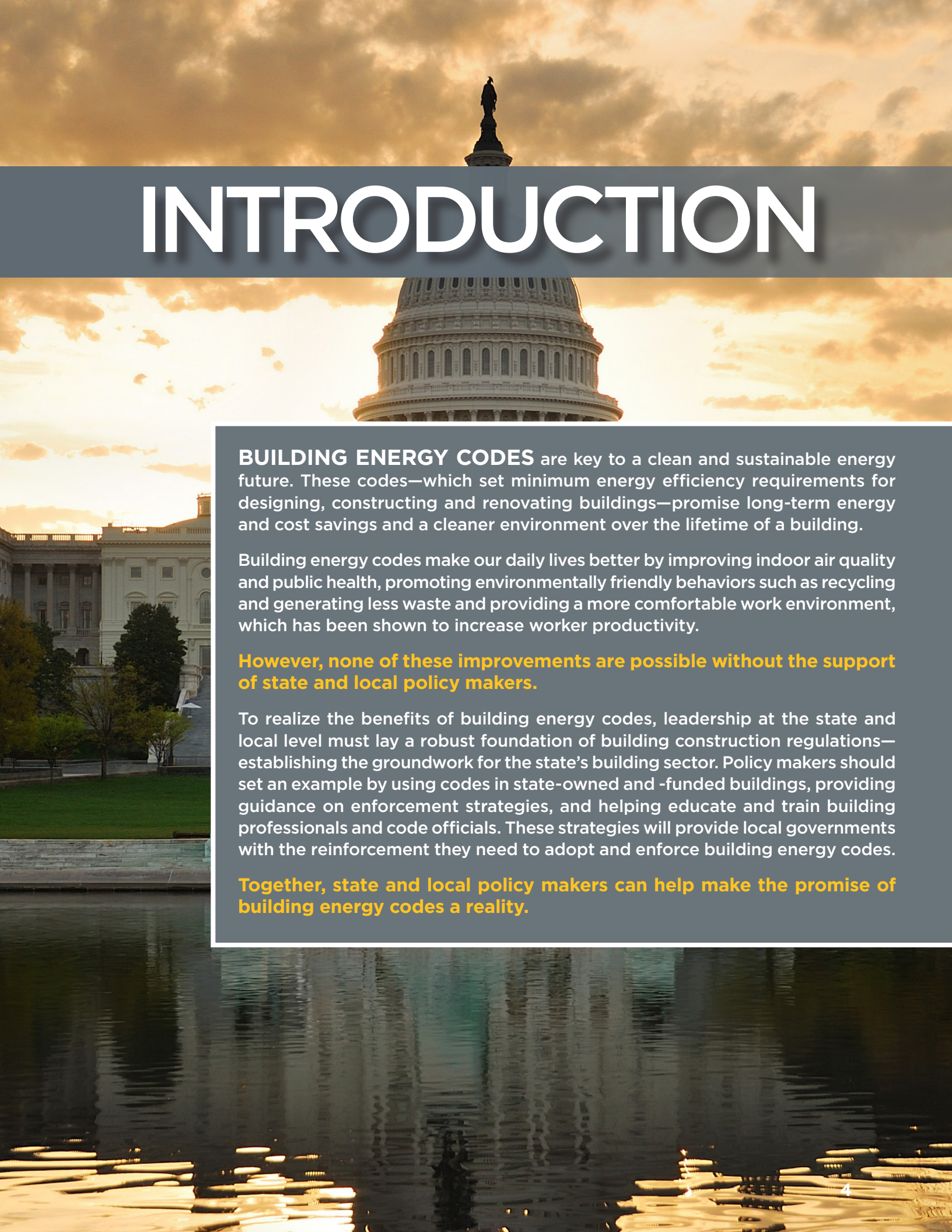


# INTRODUCTION

**BUILDING ENERGY CODES** are key to a clean and sustainable energy future. These codes—which set minimum energy efficiency requirements for designing, constructing and renovating buildings—promise long-term energy and cost savings and a cleaner environment over the lifetime of a building.

Building energy codes make our daily lives better by improving indoor air quality and public health, promoting environmentally friendly behaviors such as recycling and generating less waste and providing a more comfortable work environment, which has been shown to increase worker productivity.

**However, none of these improvements are possible without the support of state and local policy makers.**

To realize the benefits of building energy codes, leadership at the state and local level must lay a robust foundation of building construction regulations—establishing the groundwork for the state's building sector. Policy makers should set an example by using codes in state-owned and -funded buildings, providing guidance on enforcement strategies, and helping educate and train building professionals and code officials. These strategies will provide local governments with the reinforcement they need to adopt and enforce building energy codes.

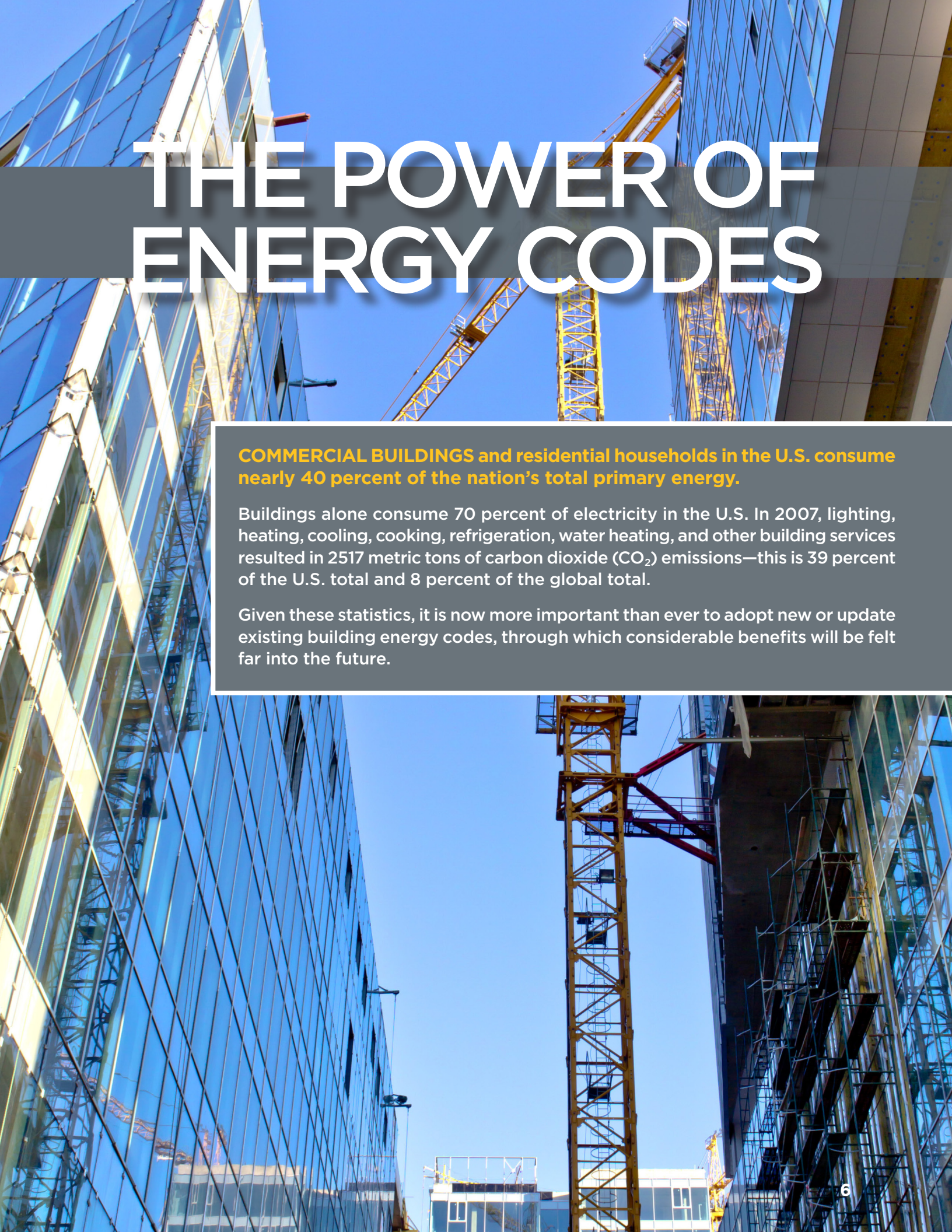
**Together, state and local policy makers can help make the promise of building energy codes a reality.**

**Policy makers play a critical role in realizing energy savings through the successful development, adoption, enforcement and compliance of building energy codes.**

## POLICY MAKER DEVELOPMENT ACTION LIST

| POLICY MAKER DEVELOPMENT ACTION LIST | |
|---|---|
| DEVELOPMENT | **DEVELOP AND MAINTAIN A RELATIONSHIP WITH**<br>• Building Energy Codes Program<br>• International Code Council (ICC)<br>• American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)<br>• American Institute of Architects (AIA)<br>• National Association of State Energy Officials<br>• National Governors Association<br>• American Council for an Energy Efficient Economy<br>• New Buildings Institute |
| | **COORDINATE WITH THE REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs)*** |
| | **PROVIDE LEADERSHIP** in participation in the national model codes and standards process. |
| **POLICY MAKER ADOPTION ACTION LIST** | |
| ADOPTION | **INVESTIGATE THE LOCAL ADOPTION PROCESS**—regulatory, legislative, etc. |
| | **SPEAK WITH LOCAL STAKEHOLDERS**—utilities, industry leaders, and building officials in municipalities to hear first hand the specific challenges with adoption. |
| | **COORDINATE WITH THE ICC GOVERNMENT RELATIONS REGIONAL MANAGERS AND THE REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs)*** to learn about resources and support needed from policy makers. |
| **POLICY MAKER ENFORCEMENT ACTION LIST** | |
| ENFORCEMENT | **INVESTIGATE** any statewide enforcement policies. |
| | **INQUIRE WITH LOCAL MUNICIPALITIES** into the enforcement challenges they face. |
| | **COORDINATE WITH THE REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs)*** to learn about enforcement challenges and support needed from policy makers. |
| | **PROVIDE LEADERSHIP** in addressing enforcement challenges. |
| **POLICY MAKER COMPLIANCE ACTION LIST** | |
| COMPLIANCE | **DETERMINE** the current status of statewide compliance efforts by contacting their regional EEP or the BECP. |
| | **PROVIDE LEADERSHIP** in establishing the mechanisms for conducting statewide compliance evaluations, including training. |

*Southwest Energy Efficiency Project, Northeast Energy Efficiency Partnerships, Midwest Energy Efficiency Alliance, Northwest Energy Efficiency Alliance, Southeast Energy Efficiency Alliance.

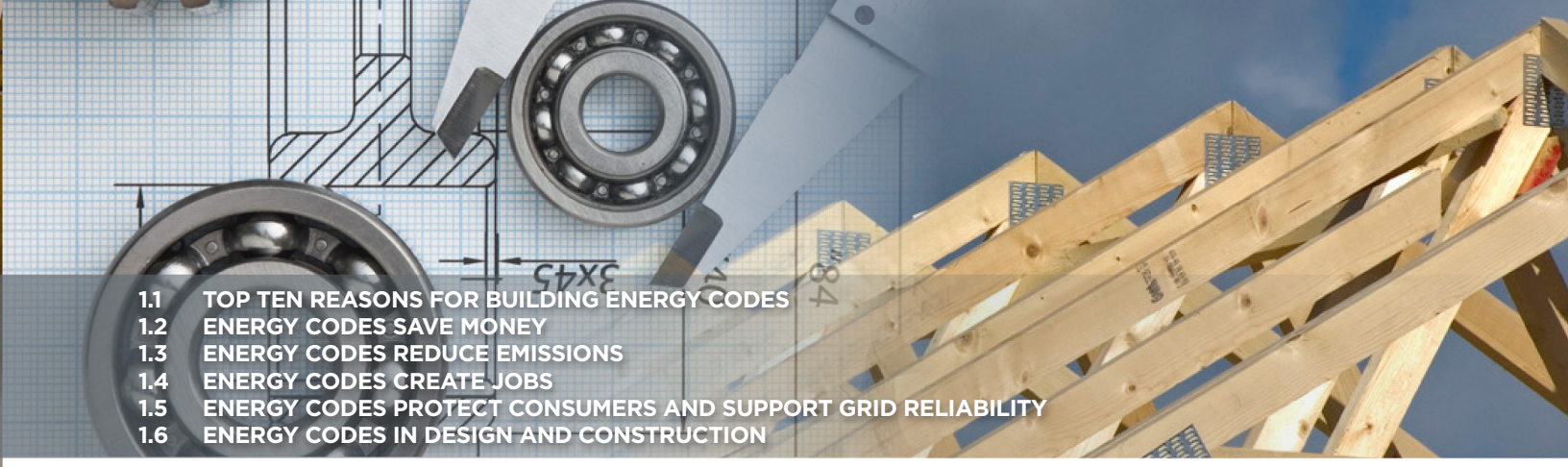


# THE POWER OF ENERGY CODES

**COMMERCIAL BUILDINGS and residential households in the U.S. consume nearly 40 percent of the nation's total primary energy.**

Buildings alone consume 70 percent of electricity in the U.S. In 2007, lighting, heating, cooling, cooking, refrigeration, water heating, and other building services resulted in 2517 metric tons of carbon dioxide ($CO_2$) emissions—this is 39 percent of the U.S. total and 8 percent of the global total.

Given these statistics, it is now more important than ever to adopt new or update existing building energy codes, through which considerable benefits will be felt far into the future.




1.1 TOP TEN REASONS FOR BUILDING ENERGY CODES
1.2 ENERGY CODES SAVE MONEY
1.3 ENERGY CODES REDUCE EMISSIONS
1.4 ENERGY CODES CREATE JOBS
1.5 ENERGY CODES PROTECT CONSUMERS AND SUPPORT GRID RELIABILITY
1.6 ENERGY CODES IN DESIGN AND CONSTRUCTION


## 1.1 TOP TEN REASONS FOR BUILDING ENERGY CODES

Today's energy, economic, and environmental challenges—combined with the fact that buildings consume nearly 40% of the nation's energy—make energy codes a central part of a sustainable future.

**Here are ten key reasons to adopt energy codes:**

**10.** **PROVIDE** a common foundation for evaluating, regulating, and incentivizing building design, construction, technologies, and performance.

**9.** **SUPPORT** energy conservation and efficiency actions.

**8.** **HELP** drive the development and deployment of new building technologies and design strategies.

**7.** **PROVIDE** a cost-effective step toward mitigating problems associated with growing demand for energy and power resources.

**6.** **INCREASE** the use of energy efficient technologies proven through incentive programs, freeing up resources to focus on new, more efficient additional technologies.

**1.** **ENERGY CODES** **not only save money, but also help to reduce needless consumption of energy** to heat, cool, light, ventilate and provide hot water for newly built residential and commercial buildings.

**5.** **PROVIDE** a common basis upon which to educate the building design and construction community in energy efficiency.

**4.** **SAFEGUARD** owners and tenants from long-term financial burdens that can result from short-term design and construction decisions.

**3.** **CONTINUE** to progress in terms of stringency, scope, and enforcement emphasis—all of which provide new jobs or opportunities to enhance the skills of the current workforce.

**2.** **HELP** protect the natural environment from unnecessary emissions.

## 1.2 ENERGY CODES SAVE MONEY

**Building energy codes are estimated to produce a financial benefit to owners of nearly 2 billion dollars annually by 2015, rising to over 15 billion dollars annually by 2030. This benefit is achieved by saving over 14 quadrillion Btu of energy from 2009–2030, an estimated annual savings of 1.7 quadrillion Btu by 2030.**[1]

**Consider this case in point:** Studies show that transforming the building sector to employ more energy-efficient designs, equipment, and solar power could cut projected overall household energy expenses in 2030 from $285 billion to $130 billion. Failing to catalyze building-sector transformations will raise the cost of meeting long-term climate goals by at least $500 billion per year globally.[2]

## 1.3 ENERGY CODES REDUCE EMISSIONS

**Buildings use a significant amount of energy and create considerable emissions as a result.**

The projected energy savings from energy codes translate into an estimated cumulative savings by 2030 of 800 million metric tons of $CO_2$—equivalent to removing 145 million vehicles from our nation's roadways.

[1] Belzer P, M Halverson, and S McDonald. 2010, *A Retrospective Analysis of Commercial Building Energy Codes: 1990-2008* Building Energy Codes Program, Pacific Northwest National Laboratory, Richland, Washington.

[2] Houser T. 2009. *The Economics of Energy Efficiency in Buildings.* Policy Brief 09-17, Peterson Institute for International Economics, Washington, D.C. Accessed 1/13/2009, at http://www.iie.com/publications/pb/pb09-17.pdf.

## 1.4 ENERGY CODES CREATE JOBS

**The innovative use of improved technology in buildings and the increasing need for energy code experts will create employment opportunities around the nation.**

As new codes are created for greater energy efficiency in buildings, many new jobs will become available, including technical experts, duct and building leakage professionals, quality control assessors, building and system commissioning agents, energy auditors and compliance officers. Completing project retrofits and building weatherization will create new employment opportunities as well.

## 1.5 ENERGY CODES PROTECT CONSUMERS AND SUPPORT GRID RELIABILITY

**Energy codes reduce utility costs, improve indoor air quality and reduce emissions—protecting consumers and bolstering the economy.**

More stringent energy code provisions reduce heating and cooling costs, not only making comfortable living conditions more affordable, but also putting money back into the pockets of consumers. Additional funds allow consumers to spend more on other goods and services; individuals have more money to spend on items in the local economy and business owners have more money to spend on business improvements, including investments and employee benefits. Energy code provisions also reduce pollution and greenhouse gas emissions, improving the indoor air quality of homes and businesses and keeping consumers comfortable and healthy.

**Knowing the energy efficiency of buildings and homes also allows consumers to make educated, informed decisions when buying, renting, or leasing a building and protects consumers from expensive utility bills and future retrofits.**

Through system sizing and increased controls, energy codes are able to curb the impact that buildings have on the energy grid. By decreasing the impact and peak loads of buildings, energy codes help lessen the stress on the grid, which increases grid reliability. Additionally, energy codes that reduce building energy consumption also help reduce our nation's dependency on foreign energy sources.

## 1.6 ENERGY CODES IN DESIGN AND CONSTRUCTION

Baseline building energy codes—the International Energy Conservation Code (IECC) and ASHRAE 90.1—currently address the energy-efficiency requirements for the design, materials, and equipment used in nearly all new construction, additions, renovations, and construction techniques. These requirements affect the overall energy efficiency of any structure and can reduce the energy needed to maintain a healthy, comfortable, and fully functioning indoor environment. Quite comprehensive in nature, the codes apply to:

- Wall, floor, and ceiling
- Doors and windows
- Heating, ventilating, and cooling systems and equipment
- Lighting systems and equipment
- Water-heating systems and equipment
- Hot water consuming fixtures and appliances.

### 1.6.1 What Do Codes Mean for the Architect?

Architects need to design buildings that meet all of the adopted local building codes within the building owner's budget. Complying with a building energy code affects the design of all building systems (e.g., building envelope, heating, ventilating, air conditioning (HVAC), and lighting). Meeting requirements in energy codes can impact the selection of water consuming equipment as well. Many technologies that use energy also use water, including faucets, showers, dishwashers, laundry systems, and commercial kitchen equipment. Carefully selecting water-efficient equipment in these areas will reduce the building's overall energy use. Complying with energy codes affects the materials selected for the building by requiring, for example, glazing with correct efficiencies, proper insulation levels, and lighting controls that meet the intent of the code.

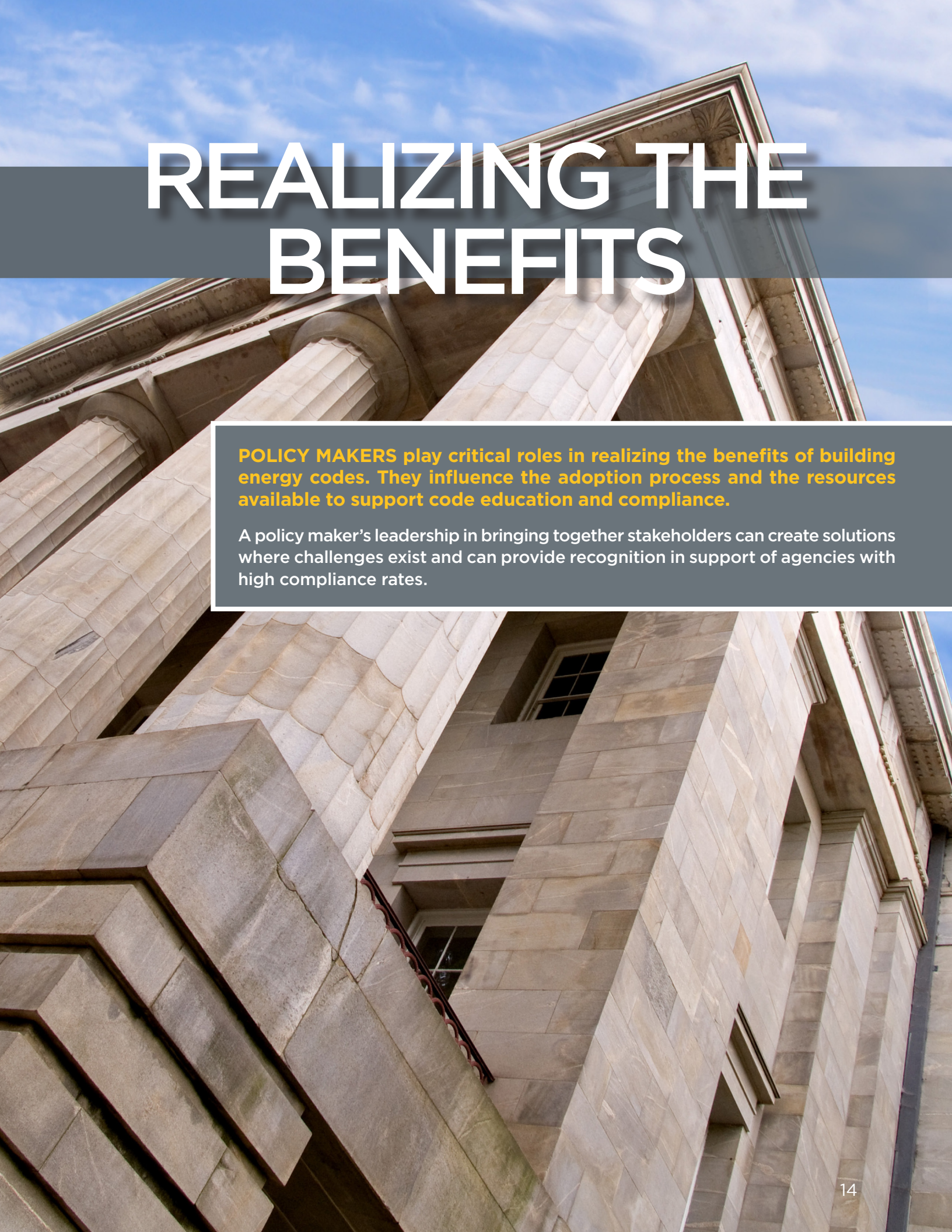
To minimize the first cost for the project, the architect must work collaboratively with the HVAC and lighting designers to optimize the building design and take advantage of the increased efficiencies in the building. For example, increased insulation levels and efficient windows coupled with an efficient lighting system will reduce both the heat loss of the building and the heat gain from the lighting system. With such efficiencies in place, the HVAC contractor can optimize the heating and cooling system to reduce the higher first costs of the building's increased efficiencies. The benefit for the building owner is reduced utility bills for the life of the building.

**Architects can learn about energy code compliance, and going above code to promote integration of energy efficient and sustainable design through the American Institute of Architects (AIA) and other codes and standards training organizations.**

### 1.6.2 What Do Codes Mean for the Builder?

The National Association of Homebuilders Research Center developed construction techniques for residential construction that will reduce the first cost of the building while still ensuring the home meets the structural requirements set by the code. By using advanced design practices, a building can be built with a minimal increase in first cost and also comply with the energy code. Ultimately, the building owner will benefit with reduced energy bills and a comfortable, healthy home.

As with architects, builders must collaborate with subcontractors to take advantage of the reduction in system sizes that result from the increased efficiencies installed in the building. Buildings that comply with an energy code will have higher levels of efficient materials and systems, leading to a decrease in the first cost for the efficiency measures. These increased efficiencies not only lower energy use, but can lower a building's water use as well by downsizing cooling towers and steam systems, for example.



# REALIZING THE BENEFITS

**POLICY MAKERS play critical roles in realizing the benefits of building energy codes. They influence the adoption process and the resources available to support code education and compliance.**

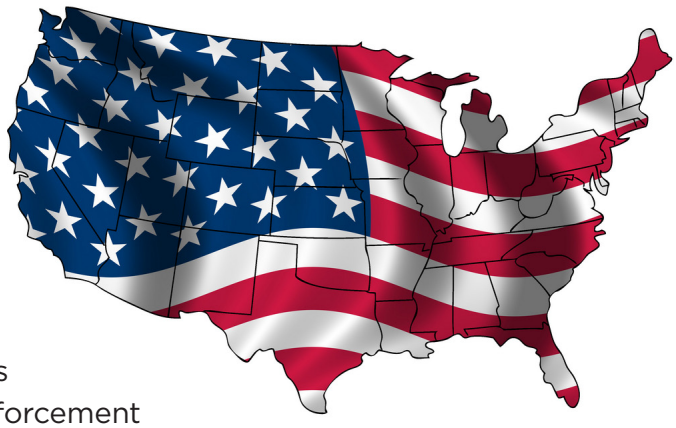
A policy maker's leadership in bringing together stakeholders can create solutions where challenges exist and can provide recognition in support of agencies with high compliance rates.

2.1 OVERCOMING CHALLENGES
2.2 CODE DEVELOPMENT PROCESS
2.3 POLICY ADOPTION PROCESS
2.4 CODE ENFORCEMENT
2.5 CODE COMPLIANCE VERIFICATION

## 2.1 OVERCOMING CHALLENGES

Though the benefits associated with building energy codes are clear, challenges involved in energy code adoption, enforcement and compliance must be overcome to fully realize the potential energy savings.

**Without statewide adoption and support, jurisdictions are left without state guidance or resources. Policy makers can help put in place a legislative process or regulatory agency in their state or district to adopt updated codes on a regular basis.**



Once the code is adopted, the challenges of enforcement and compliance must be overcome. Insufficient training and a lack of manpower are often cited as roadblocks to proper enforcement. As with any aspect of building codes, the time required for plan review and inspections must be accounted for in department staffing. Training in codes is critical to the design, building, and enforcement communities. Not only is there a need for understanding the latest code terminology, but new construction techniques, materials and technologies must be considered and understood as well.

**Policy makers can help make training and other resources available, encouraging collaboration in funding and delivery.**

For example, collaboration between Utah's Department of Natural Resources, Rocky Mountain Power and Questar resulted in impactful training to over 500 affected parties in 2006.

## 2.2 CODE DEVELOPMENT PROCESS

### 2.2.1 Baseline Codes: IECC and ASHRAE 90.1

Two primary baseline building energy codes may be adopted by states and local jurisdictions to regulate the design and construction of new buildings: the International Energy Conservation Code (IECC) and the ANSI/ASHRAE/IESNA Standard 90.1 Energy Standard for Buildings except Low-Rise Residential Buildings. The IECC addresses all residential and commercial buildings and ASHRAE 90.1 covers commercial buildings defined as buildings other than single-family dwellings and multi-family buildings three stories or less above grade. The IECC adopts, by reference, ASHRAE 90.1; therefore, compliance with ASHRAE 90.1 qualifies as compliance with IECC for commercial buildings.

**The IECC is developed by the ICC using a government consensus process.**

Per this process, all interested parties may participate, but the final vote on the content of the codes is made by individuals associated with federal, state, or local governments who are also members of the ICC. The IECC is one of 14 model codes developed by the ICC that provide the foundation for a complete set of building construction regulations. The ICC codes are updated every three years, providing a model that jurisdictions can adopt as is, or modify. Because the IECC is written in mandatory, enforceable language, state and local jurisdictions can easily adopt, implement, and enforce the IECC as their energy code. Before adopting the IECC, state and local governments often make changes to reflect regional building practices or state-specific energy efficiency goals.

**ASHRAE 90.1 is developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers using the ANSI consensus process.**

Per this process, all interested parties may participate by addressing the committee during deliberations, becoming involved in subcommittees, or commenting during the public review process. The final vote of the project committee includes members from all interests and is not limited to government representatives. Revisions in the development and maintenance of the standard occur on an ongoing basis and are not approved without achieving a balanced consensus, or a substantial agreement reached by directly and materially affected interest categories. Before adopting ASHRAE 90.1, state and local governments often make changes to reflect regional building practices or state-specific energy-efficiency goals.

### 2.2.2 Code Collaboration

**Both the IECC and ASHRAE 90.1 are developed, revised, and adopted in open public forums.** The openness and transparency of these processes is critical to widespread acceptance of the end result. Stakeholders representing a cross-section of interests are involved in maintaining these documents and include:

- The design community, including architects, lighting, designers, and mechanical and electrical engineers.
- The code enforcement community, including building code officials, representatives of code organizations, and state and local regulatory agencies.
- Builders and contractors.
- Building owners and operators.
- Industry and manufacturers for the building industry.
- Utility companies.
- Energy advocacy groups.
- The academic community.
- Federal agency staff, including the Building Energy Codes Program (BECP).

## POLICY MAKER DEVELOPMENT ACTION LIST

**DEVELOPMENT**

**DEVELOP AND MAINTAIN A RELATIONSHIP WITH**

- Building Energy Codes Program
- International Code Council (ICC)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- American Institute of Architects (AIA)
- National Association of State Energy Officials
- National Governors Association
- American Council for an Energy Efficient Economy
- New Buildings Institute

**COORDINATE WITH THE REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs)***

**PROVIDE LEADERSHIP** in participation in the national model codes and standards process.

*Southwest Energy Efficiency Project, Northeast Energy Efficiency Partnerships, Midwest Energy Efficiency Alliance, Northwest Energy Efficiency Alliance, Southeast Energy Efficiency Alliance.

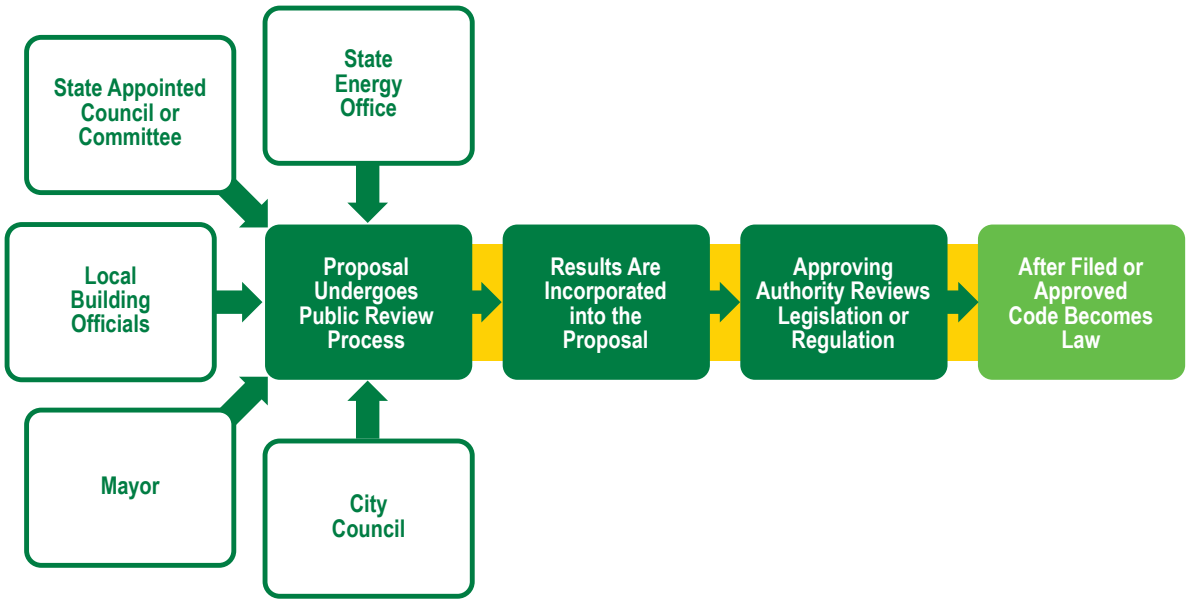
## 2.3 POLICY ADOPTION PROCESS

**Adoption of energy codes can occur directly through legislative action or by regulatory action through agencies authorized by the legislative body to oversee the development and adoption of codes. Here's how:**

- **Directly through legislative action**—When adoption is accomplished through legislation, a committee may be appointed to provide recommendations and/or draft the legislation.
- **By regulatory action through agencies** authorized by the legislative body to oversee the development and adoption of codes—When adoption occurs through a regulatory process, states and local governments often appoint an advisory body comprising representatives from design, building construction and enforcement communities. Starting with model energy codes, this advisory panel recommends modifications to accommodate local preferences and construction practices. Recommendations then enter a public review process. The panel may also serve as a source of information during the adoption process.

A key component to the successful adoption of energy codes is suitable regulatory, legislative and local level code adoption language. Proper language will not only contribute to the adoption of the most recent version of the codes and standards, but will influence the enforcement and compliance of codes as well.

**Idaho, Illinois, Iowa, Oregon, and Virginia are great examples of different adoption languages and resources used to implement the adoption and compliance processes. For more information on these state examples and to view sample policies and ordinances, see page 32 for the State Adoption Example pages.**




Details of the adoption process vary depending on whether the energy code is adopted via legislation or regulation by a statewide or local government. However, the process of adopting codes generally includes the following steps:

1. **A proposal is initiated by a legislative or regulatory agency** with the authority to promulgate energy codes. Interested or affected parties also may initiate proposals. An advisory body typically is convened and will recommend a new energy code or revisions to an existing energy code. Examples of typical initiators include State Energy Office, State Appointed Energy Code Council, Local Building Officials, Mayor, or City Council.

2. **The proposal undergoes a public review process** consistent with the legislative or regulatory process under which the code is being considered. Public review options include publishing a notice in key publications, filing notices of intent, or holding public hearings. Interested and affected parties are invited to submit written or oral comments.

## ENERGY CODE ADOPTION ACTIVITY

To view the most current State Energy Code Adoption Activity, visit: http://www.energycodes.gov/states/index.stm.

3. **The results of the review process are incorporated** into the proposal and the final legislation or regulation is prepared for approval.
4. **The approving authority reviews the legislation** or regulation. Revisions may be submitted to the designated authority for final approval or for filing.
5. **After being filed or approved, the code becomes effective**, usually on some specified future date. The delay creates a grace period that allows those regulated to become familiar with any new requirements. The period between adoption and effective date typically varies from 30 days to six months.

If possible, regulatory adoption is preferred because it gives the state/local agencies more leverage with respect to regional requirements, managing compliance, enforcement, etc.

## POLICY MAKER ADOPTION ACTION LIST

| ADOPTION | |
|---|---|
| | **INVESTIGATE THE LOCAL ADOPTION PROCESS**—regulatory, legislative, etc. |
| | **SPEAK WITH LOCAL STAKEHOLDERS—**utilities, industry leaders, and building officials in municipalities to hear first hand the specific adoption challenges. |
| | **COORDINATE WITH THE ICC GOVERNMENT RELATIONS REGIONAL MANAGERS AND THE REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs)*** to learn about resources and support needed from policy makers. |

*Southwest Energy Efficiency Project, Northeast Energy Efficiency Partnerships, Midwest Energy Efficiency Alliance, Northwest Energy Efficiency Alliance, Southeast Energy Efficiency Alliance.

## 2.4 CODE ENFORCEMENT

Adopting building energy codes at state and local levels is important; enforcement of the codes is critical. Without mechanisms to ensure and verify compliance, the benefits associated with the energy codes or standards are not fully realized.

**It is important for policy makers to understand that there is a significant return on their investment. By enforcing energy codes, cost savings are realized by the consumers, which in turn stimulates the economy.**

### State Enforcement

States generally enforce the energy code for state-owned or state-financed construction. Depending on the resources of the local government, some states enforce energy codes for certain building types or locations. Plan review is typically performed by one agency. Though there may be numerous state field inspectors, both review and inspection agencies are generally controlled by one agency, although in some states there may be separate agencies addressing building and fire code issues. The building construction community benefits because this arrangement offers them a single point of contact from plan review to building inspection. State resources determine the extent of building plan reviews and construction inspections.

### Local Enforcement

Authorized local agencies with sufficient resources will enforce the adopted codes. The close proximity of local agencies to construction sites and the design community offers the potential for more regular enforcement. As with states, the availability of resources determines the extent to which plan reviews and construction inspections can be performed.

**Also as with states, resource limitations can affect enforcement of energy codes when the local agencies are also responsible for fire and safety code enforcement. Because jurisdictions vary, local enforcement may produce differences in the rate of code compliance across a state.**

**Compliance is enhanced when a state code agency actively supports local governments in their efforts to enforce the state code.**

Some states allow local jurisdictions to conduct enforcement activities that are usually the state's responsibility. This strategy offers the advantages associated with state enforcement, recognizes those local governments with equivalent enforcement capabilities, and helps produce comparable levels of compliance. Continued state assistance helps to support a consistent level of enforcement by local jurisdictions.

**Policy makers may need to support alternative compliance procedures such as: the state agency conducting the plan review and the local authority conducting the construction inspection, or use of third party plan reviewers and inspectors.**

## POLICY MAKER ENFORCEMENT ACTION LIST

| ENFORCEMENT | |
|---|---|
| | **INVESTIGATE** any statewide enforcement policies. |
| | **INQUIRE WITH LOCAL MUNICIPALITIES** into the enforcement challenges they face. |
| | **COORDINATE WITH THE REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs)*** to learn about enforcement challenges and support needed from policy makers. |
| | **PROVIDE LEADERSHIP** in addressing enforcement challenges. |

*Southwest Energy Efficiency Project, Northeast Energy Efficiency Partnerships, Midwest Energy Efficiency Alliance, Northwest Energy Efficiency Alliance, Southeast Energy Efficiency Alliance.

## 2.5 CODE COMPLIANCE VERIFICATION

**To help states uniformly assess respective rates of compliance with their codes, the Building Energy Codes Program (BECP) has developed procedures that states can readily obtain and apply to measure and report compliance with building energy codes.**

These procedures are made available to states as they begin to implement plans to achieve compliance with their energy codes. They include:

- **Guidance** for home rule states and states with codes other than the target codes.
- **Informational sheets** on approaching the jurisdiction prior to the onsite evaluation.
- **Guidelines for developing** a random sample of jurisdictions and buildings within those jurisdictions.
- **Recommended certification** for those conducting the onsite evaluations.
- **Training materials** for onsite evaluators.
- **Guidelines for conducting a plan check** on the selected buildings.
- **Guidelines for conducting an onsite building evaluation** on the selected buildings.
- **Inspection checklists** to be used by evaluators performing the onsite inspection.
- **Guidelines for derivation** of the overall state compliance metric.
- **Training materials** for the target codes and for addressing specific code infractions.
- Guidelines for meeting the **annual measurement requirements**.
- Suggestions for additional **information-gathering opportunities** that might be afforded by this effort.
- **A set of survey questions** for evaluating administrative and permitting/inspection processes of the jurisdiction and guidelines for collecting and using that information.

The procedures are accompanied by support tools that will allow each state to effectively address compliance verification.

**These support tools consist of BECP's code compliance software, RES*check*™, which supports the 2009 International Energy Conservation Code (IECC) and COM*check*™, which supports the 2009 IECC and ASHRAE Standard 90.1-2007.**

It is important to note that compliance will be increased if the adopting agency prepares the building construction community to comply with the energy code and provides resources to the code officials for enforcing it.

In the absence of state or local code enforcement through traditional review and inspection means, other avenues are available that include tying contractor licensing to code compliance, requiring self-certification of compliance as a condition for utility service, and incorporating incentives tied to the energy use of the building after occupancy.

## POLICY MAKER COMPLIANCE ACTION LIST

| | |
|---|---|
| COMPLIANCE | **DETERMINE** the current status of statewide compliance efforts by contacting their regional Energy Efficiency Partnerships (EEPs)* or the Building Energy Codes Program (BECP). |
| | **PROVIDE LEADERSHIP** in establishing the mechanisms for conducting statewide compliance evaluations, including training. |

*Southwest Energy Efficiency Project, Northeast Energy Efficiency Partnerships, Midwest Energy Efficiency Alliance, Northwest Energy Efficiency Alliance, Southeast Energy Efficiency Alliance.

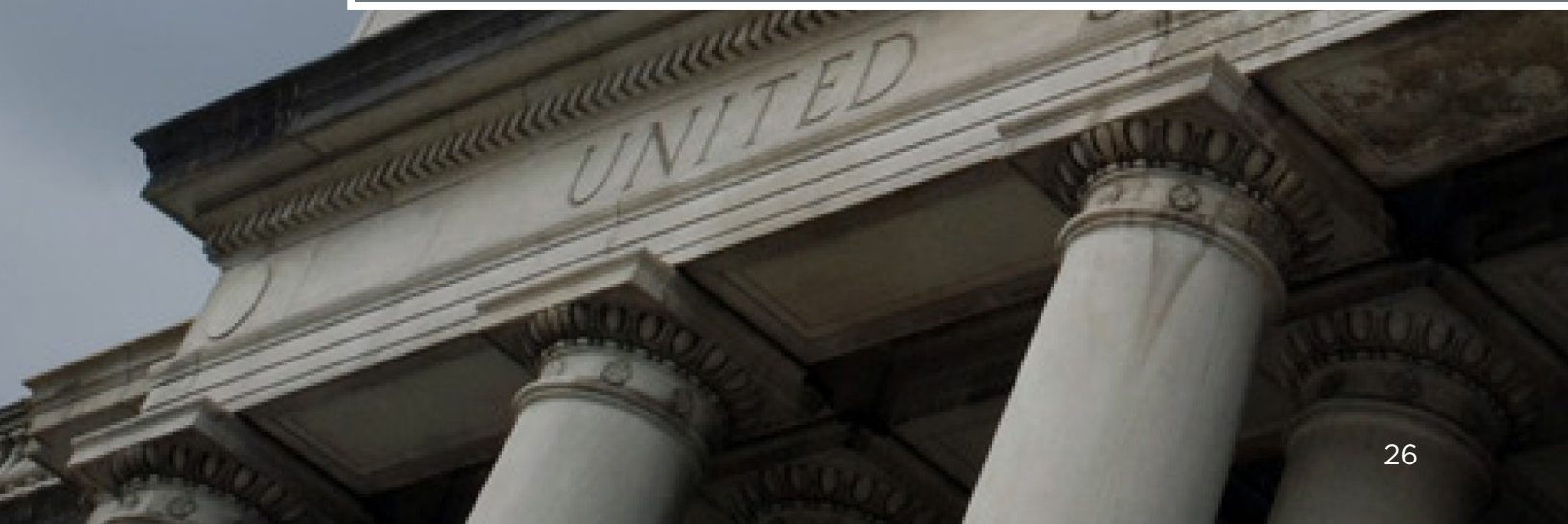
# CONCLUSION

**BUILDING ENERGY CODES** can play a key role in reducing building energy costs, our nation's reliance on foreign oil, and carbon emissions, as well as in increasing the comfort of our homes and offices. The benefits of building energy codes far outweigh the challenges.

Crafted in open public forums, all stakeholders and interested and affected parties are welcome to participate in the process of developing building energy codes. The processes used to update both the ICC model codes and ASHRAE standards are designed to make sure the interests of varied stakeholders are considered, including those that pertain to industry, are of importance to building scientists, and affect financial viability.

Building energy codes are readily available for states and jurisdictions to adopt, and a broad range of enforcement and compliance tools are available to help policy makers, designers, builders, and the enforcement community successfully implement building energy codes.

**We encourage policy makers to become more familiar with energy codes, support energy code adoption and implementation, and partner with stakeholders to adopt updated codes and foster programs to ensure compliance with those codes.**



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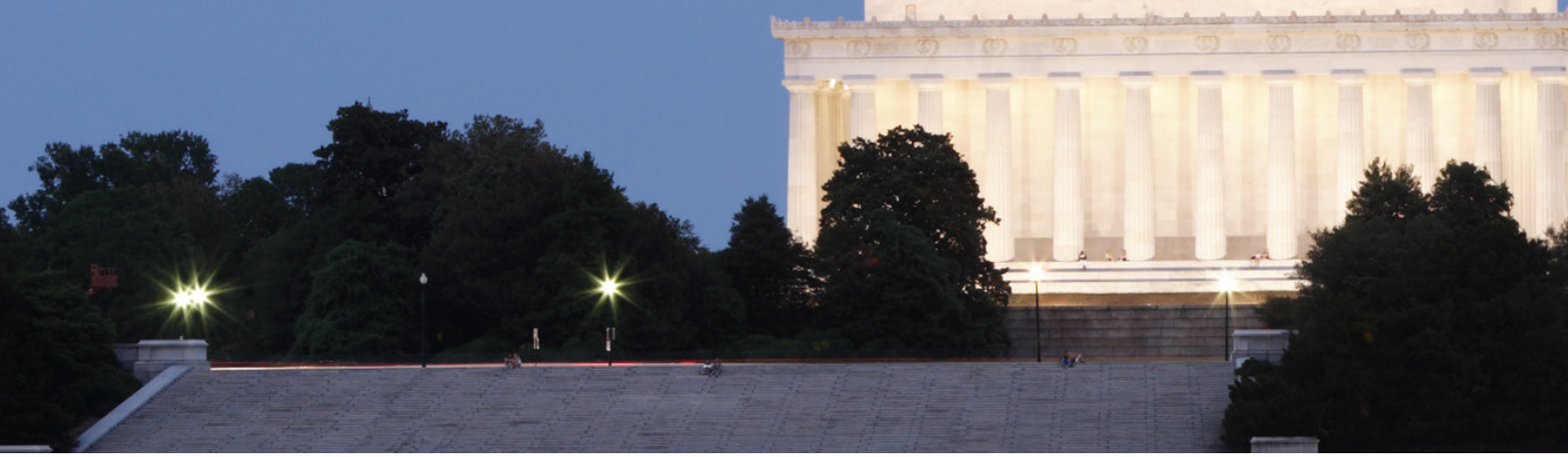


# INFORMATION TOOLKIT

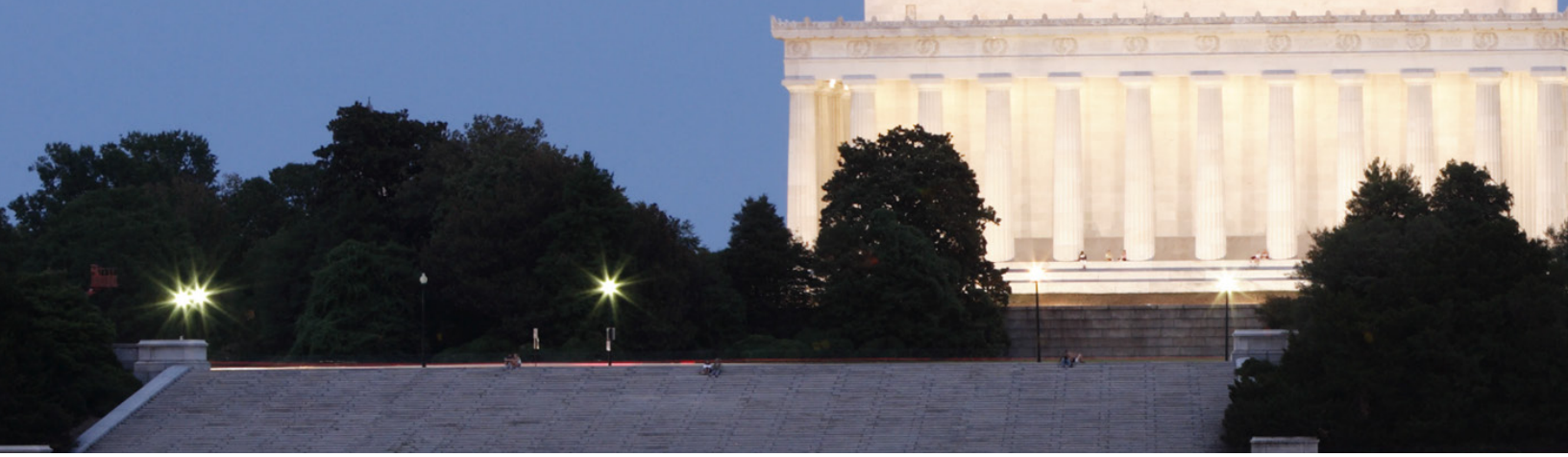
### For the Policy Makers in the Decision Making Process (P)

| | | | | |
|---|---|---|---|---|
| Building Energy Codes Assistance for States | Status of State Energy Codes | Check on the current code status of any U.S. state or territory using BECP's interactive map tool. Also find links to state-specific portions of BECP's recent nationwide analysis reports, state-level energy official contact information, and more. | http://www.energycodes.gov/states/ | P |
| | Technical Assistance to States | BECP provides specialized technical assistance to the states in the form of economic analysis, code comparisons, webcast training, and compliance material development requested by states to help them adopt, upgrade, implement, and enforce their building energy codes. | http://www.energycodes.gov/states/techAssist.stm | P |
| | State Compliance Assistance | BECP has developed an approach states can use for measuring compliance with building energy codes. | www.energycodes.gov/arra/compliance_evaluation.stm | CE |
| Advocacy | The Building Codes Assistance Project (BCAP) | BCAP is an initiative of the Alliance to Save Energy, the American Council for an Energy-Efficient Economy, and the Natural Resources Defense Council that provides states with code advocacy assistance on behalf of DOE. | www.bcap-ocean.org | P |

### For Compliance and Enforcement (CE)

| | | | | |
|---|---|---|---|---|
| No-cost Compliance Tools | Residential Code Compliance Software | RES*check*™ and RES*check*-Web™ | www.energycodes.gov/software.stm | CE |
| | Commercial Code Compliance Software | COM*check*™ and COM*check*-Web™ | | |
| Training | Codes University | To help stakeholders broaden and deepen their knowledge of building energy codes, BECP is collecting its diverse training resources in an extensive Codes university that features webcasts, training videos, self-paced online courses, presentations, and other BECP materials and tools. | www.energycodes.gov/becu/ | CE |

| National Contacts and Resources | Address | Phone |
|---|---|---|
| The International Code Council (ICC) is a membership association dedicated to building safety and fire prevention. ICC develops the codes and standards used to construct residential and commercial buildings, including homes and schools. ICC is the publisher of the International Energy Conservation Code. They are a resource for code books and training. Local chapters are active in most states. They are the publisher of the ICC-700-2008 national green Building Standard, and the International Green Construction Code currently under development in conjunction with the American Society for Testing and Materials (ASTM) and the American Institute of Architects. | www.iccsafe.org<br><br>ICC<br>500 New Jersey Avenue, NW, 6th Floor<br>Washington, D.C. 20001 | Phone:<br>(888) ICC-SAFE<br>(422-7233) |
| American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) is an international membership organization for advancing heating, ventilation, air conditioning, and refrigeration through research, standards writing, publishing, and continuing education. They are a resource for standards, education, research, and training. Local chapters are active throughout the country. ASHRAE is the publisher of Standard 90.1 and 189. | www.ashrae.org<br><br>ASHRAE<br>1791 Tullie Circle, N.E.<br>Atlanta, GA 30329 | Customer Service Tel:<br>(800) 527-4723<br>(Toll Free in US & Canada only)<br><br>(404) 636-8400 |
| The U.S. Department of Energy's (USDOE) Building Energy Codes Program is an information resource on national energy codes. They work with other government agencies, state and local jurisdictions, national code organizations, and industry to promote stronger building energy codes and help states adopt, implement, and enforce those codes. | www.energycodes.gov | |
| The National Association of State Energy Officials (NASEO) is the only national non-profit organization whose membership includes the governor-designated energy officials from each state and territory. NASEO was formed by the states and through an agreement with the National Governors Association in 1986. The organization was created to improve the effectiveness and quality of state energy programs and policies, provide policy input and analysis, share successes among the states, and to be a repository of information on issues of particular concern to the states and their citizens. NASEO is an instrumentality of the states and derives basic funding from the states and the federal government. | www.naseo.org<br><br>National Association of State Energy Officials<br>1414 Prince Street, Suite 200<br>Alexandria, VA 22314 | Phone:<br>(703) 229-8800<br>Fax:<br>(703) 299-6208 |
| Founded in 1908, the National Governors Association is the collective voice of the nation's governors and one of Washington, D.C.'s most respected public policy organizations. Its members are the governors of the 50 states, three territories and two commonwealths. NGA provides governors and their senior staff members with services that range from representing states on Capitol Hill and before the Administration on key federal issues to developing and implementing innovative solutions to public policy challenges through the NGA Center for Best Practices. | www.nga.org<br><br>National Governors Association<br>Hall of the States<br>444 N. Capitol St., Ste. 267<br>Washington, D.C. 20001 | Phone:<br>(202) 624-5300<br>Fax:<br>(202) 624-5313 |



| National Contacts and Resources | Address | Phone |
|---|---|---|
| The American Council for an Energy-Efficient Economy is a nonprofit, 501(c)(3) organization dedicated to advancing energy efficiency as a means of promoting economic prosperity, energy security, and environmental protection. ACEEE was founded in 1980 by leading researchers in the energy field. Since then we have grown to a staff of more than 35. Projects are carried out by ACEEE staff and collaborators from government, the private sector, research institutions, and other nonprofit organizations. | www.aceee.org<br><br>American Council for an Energy-Efficient Economy<br>529 14th Street N.W.,<br>Ste. 600<br>Washington, D.C. 20045 | Phone:<br>(202) 507-4000<br>Fax:<br>(202) 429-2248 |
| New Buildings Institute (NBI) is a nonprofit organization working to improve the energy performance of commercial buildings. We work collaboratively with commercial building market players—governments, utilities, energy efficiency advocates and building professionals—to remove barriers to energy efficiency, including promoting advanced design practices, improved technologies, public policies and programs that improve energy efficiency. | www.newbuildings.org<br><br>White Salmon Office<br>PO Box 2349 (USPS)<br>142 East Jewett Blvd<br>(shipping)<br>White Salmon, WA 98672<br><br>Vancouver Office<br>1601 Broadway Street<br>Vancouver, WA<br>98663-3435 | Phone:<br>(509) 493-4468<br>Fax:<br>(509) 493-4078<br><br>Phone:<br>(360) 567-0950<br>Fax:<br>(360) 213-1065 |

| REGIONAL ENERGY EFFICIENCY PARTNERSHIPS (EEPs) — Most states belong to a regional code organization which will support their efforts to advance building energy codes. They provide policy guidance, access to research, training, etc. | Address | Phone |
|---|---|---|
| Southwest Energy Efficiency Project (SWEEP) is a regional non-profit organization that promotes greater energy efficiency in a six-state region that includes Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming and facilitates regional partnerships. Their programs include buildings and energy codes, utilities, transportation, industrial efficiency and combined heat and power. | www.swenergy.org<br><br>Southwest Energy Efficiency Project<br>2260 Baseline Rd. #212<br>Boulder, CO 80302 | For general requests:<br>Email:<br>info@swenergy.org<br>Phone:<br>(303) 447-0078 |
| Northeast Energy Efficiency Partnerships (NEEP) is a regional non-profit organization that facilitates regional partnerships to advance the efficient use of energy in homes, buildings, and industry in the Northeast U.S. states of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont, and the Mid-Atlantic states of Pennsylvania, Delaware, Maryland, and Washington, D.C. | www.neep.org<br><br>Northeast Energy Efficiency Partnerships, Inc.<br>91 Hartwell Avenue<br>Lexington, MA 02421 | Phone:<br>(781) 860-9177 |
| Midwest Energy Efficiency Alliance (MEEA) is a regional non-profit organization that facilitates regional partnerships. As a central source for information and action, MEEA raises awareness, facilitates energy efficiency programs, and strengthens policy across the Midwest region, including the states of Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. | www.mwalliance.org<br><br>Midwest Energy Efficiency Alliance<br>645 N Michigan Ave Ste 990<br>Chicago, IL 60611 | Phone:<br>(312) 587-8390 |
| Northwest Energy Efficiency Alliance (NEEA) is a regional non-profit organization that facilitates regional partnerships, whose stated mission is to mobilize the Northwest to become increasingly energy efficient for a sustainable future. NEEA works with the states of Washington, Idaho, Montana, and Oregon. | www.nwalliance.org<br><br>Northwest Energy Efficiency Alliance<br>529 SW Third Ave.,<br>Suite 600<br>Portland, OR 97204 | Phone:<br>(800) 411-0834 or<br>(503) 827-8416 |
| Southeast Energy Efficiency Alliance (SEEA) is a regional non-profit organization that facilitates regional partnerships to promote and achieve energy efficiency through networking, program activities, and education. SEEA is active in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia. | www.seealliance.org<br><br>Southeast Energy Efficiency Alliance<br>P.O. Box 13909<br>Atlanta, GA 30324 | Phone:<br>(866) 900-7332 or<br>(404) 931-1518 |

# STATE ADOPTION EXAMPLES

**A KEY COMPONENT** to the **successful adoption of energy codes** is suitable **regulatory, legislative and local level code adoption language.** Proper language will not only contribute to the adoption of the most recent version of the codes and standards, but will **influence the enforcement and compliance of codes** as well. Idaho, Illinois, Iowa, Oregon, and Virginia are great examples of different adoption languages and resources used to implement the adoption and compliance processes.

IDAHO

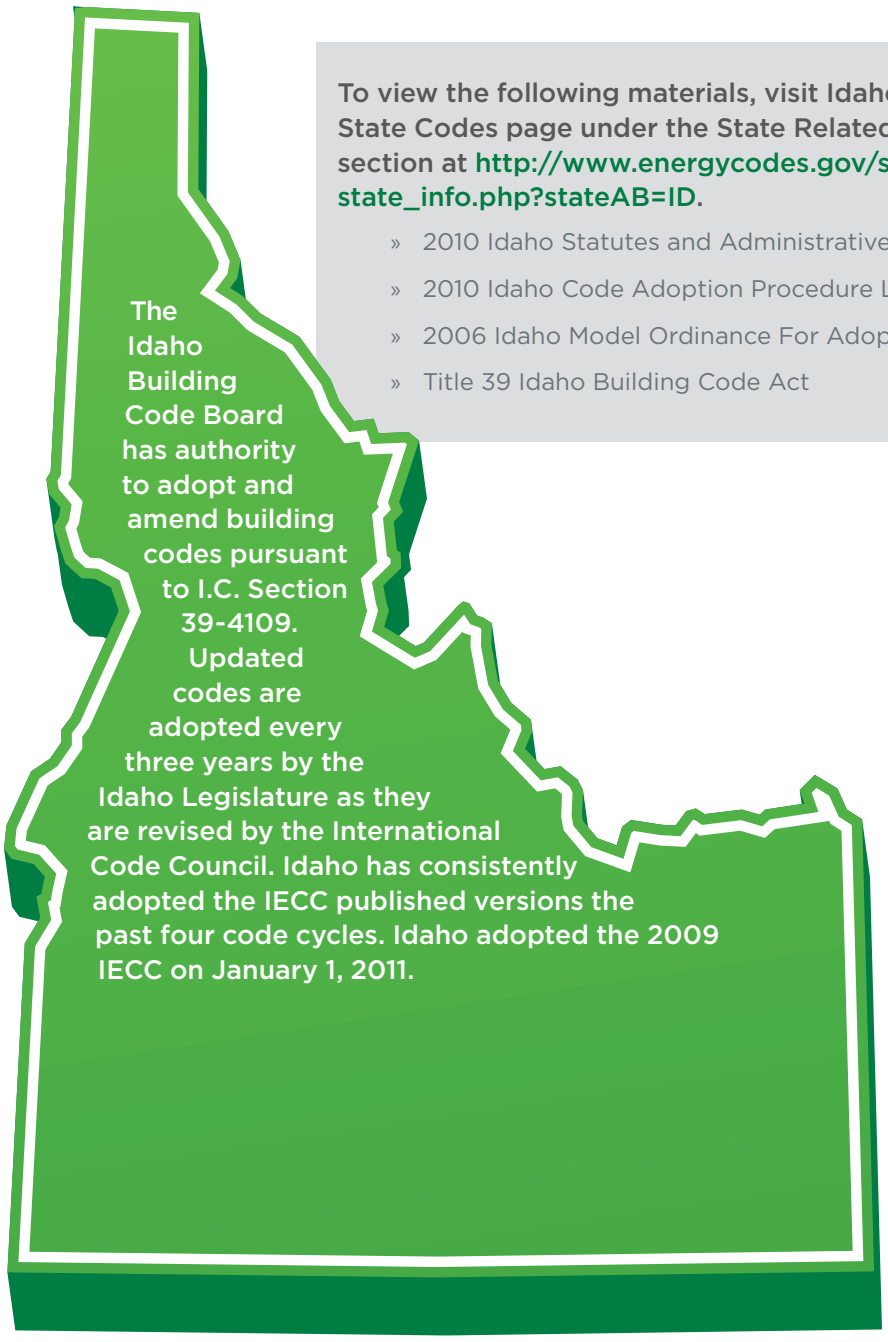
ILLINOIS

IOWA

OREGON

VIRGINIA

# IDAHO




To view the following materials, visit Idaho's Status of State Codes page under the State Related Resources section at http://www.energycodes.gov/states/state_info.php?stateAB=ID.

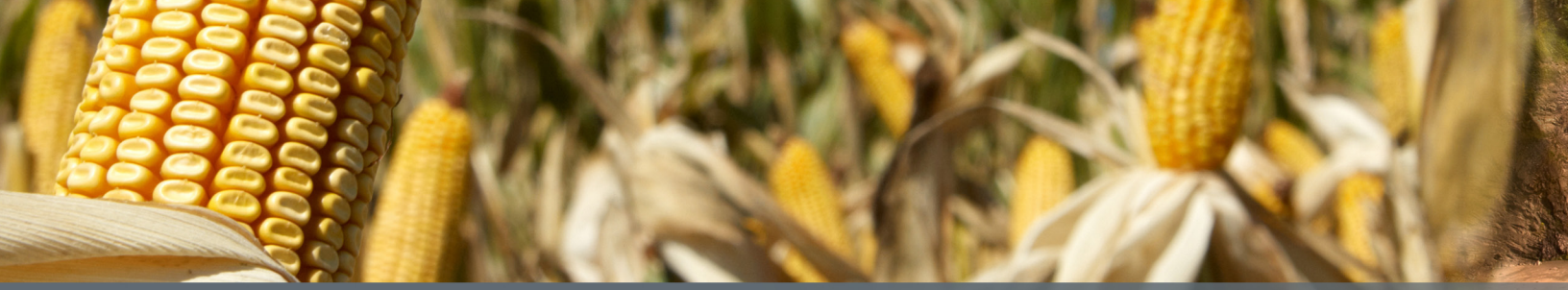
- 2010 Idaho Statutes and Administrative Rules
- 2010 Idaho Code Adoption Procedure Letter
- 2006 Idaho Model Ordinance For Adopting IBC
- Title 39 Idaho Building Code Act

# ILLINOIS

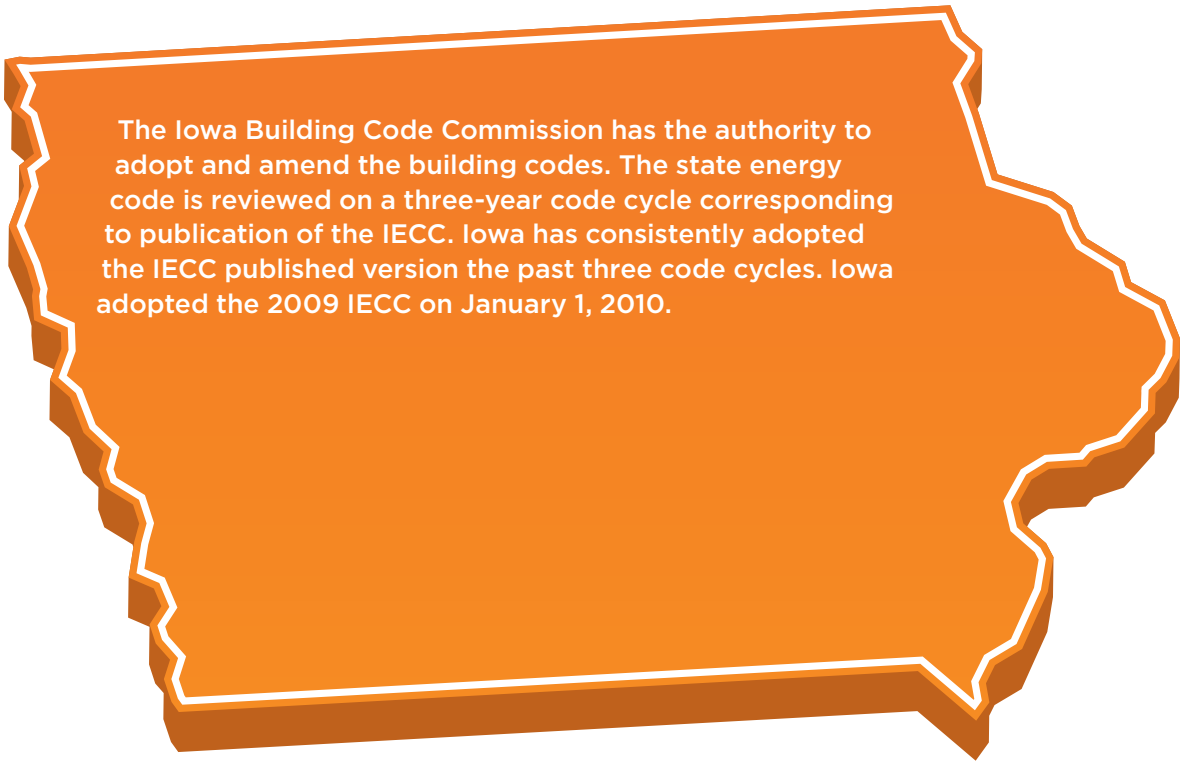
August 28, 2009, Governor Pat Quinn signed the Energy Efficient Building Act into law. The Act established a statewide residential energy code (for the first time), which requires that newly constructed residential buildings meet the minimum standards set forth in the most recent version of the International Energy Conservation Code (2009 IECC). The Illinois Capital Development Board (CDB) must now review and adopt the code through an administrative proceeding. The Illinois Capital Development Board adopts each new version of the IECC within nine months of its publication, with an effective date three months afterwards. Administrative rules for the law are developed by CDB and approved by the General Assembly's Joint Committee on Administrative Rules (JCAR). Illinois has adopted the last three published versions of ASHRAE/IESNA Standard 90.1. The State is now on track to adopt both residential and commercial consistently. Illinois adopted the 2009 IECC/ASHRAE 90.1-2007 on January 29, 2010. The IECC 2012/ASHRAE 90.1-2010 is expected to be adopted January 2012.

**To view the following materials, visit Illinois' Status of State Codes page under the State Related Resources section at http://www.energycodes.gov/states/state_info.php?stateAB=IL.**

- Illinois HB3987 – The Energy Efficient Commercial Building Act Amendments
- Illinois Energy Conservation Code for Commercial and Residential Buildings
- Title 71 Illinois Administrative Code
- Title 72 Illinois Administrative Code



# IOWA



The Iowa Building Code Commission has the authority to adopt and amend the building codes. The state energy code is reviewed on a three-year code cycle corresponding to publication of the IECC. Iowa has consistently adopted the IECC published version the past three code cycles. Iowa adopted the 2009 IECC on January 1, 2010.

**To view the following materials, visit Iowa's Status of State Codes page under the State Related Resources section at http://www.energycodes.gov/states/state_info.php?stateAB=IA.**

- 2011 Iowa Commission on Energy Efficiency Standards and Practices Final Report
- 2010 Enforcement of the State Energy Code Memorandum
- Iowa State Energy Code Review Form Revised 2009 IECC
- Iowa Statutory Authority for State Energy Code

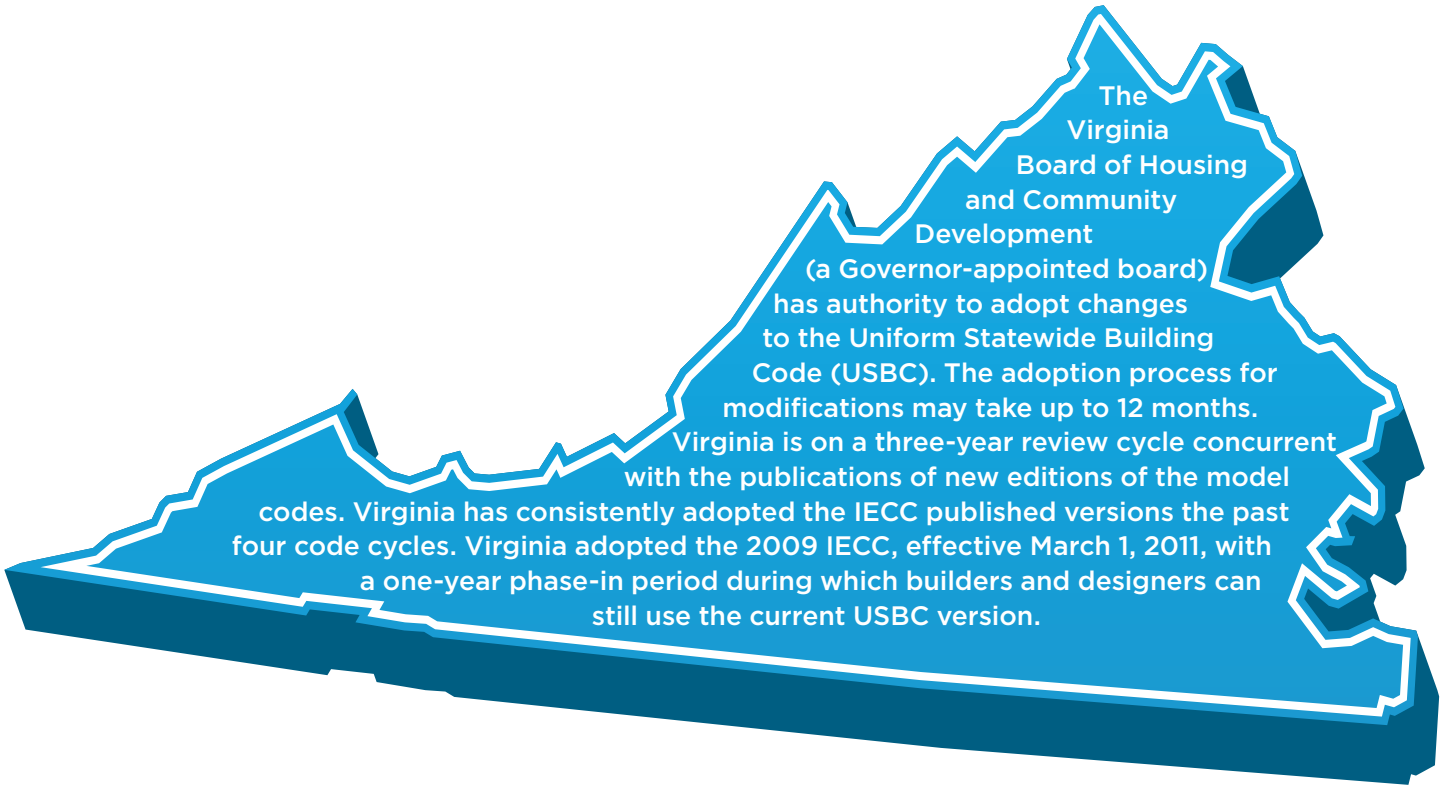
# OREGON

The Oregon Building Codes Division has the authority to approve and adopt codes and proposed code amendments. The state building code is derived from the most appropriate version of base model codes, which are adopted approximately every three years from the last Oregon specialty code effective date. Oregon adopted the OR Residential Specialty Code (ORSC) effective July 1, 2011 and the OR Energy Efficiency Specialty Code (OEESC) for commercial buildings effective July 1, 2010. Oregon has also adopted a commercial reach code which became effective July 1, 2011. This is a voluntary code based on the International Green Construction Code. Oregon is one of the few states that now has a reach code based on the baseline code which has exceeded the IECC version for the last two code cycles.

To view the following materials, visit Oregon's Status of State Codes page under the State Related Resources section at http://www.energycodes.gov/states/state_info.php?stateAB=OR.

- 2011 Oregon Statewide Building Code
- Oregon Code Adoption Process Checklist
- Oregon Code Adoption Process Rules

# VIRGINIA




**To view the following materials, visit Virginia's Status of State Codes page under the State Related Resources section at http://www.energycodes.gov/states/state_info.php?stateAB=VA.**

- Virginia Board of Housing and Community Development
- 2009 Virginia Regulatory Action and Meeting Dates
- Virginia Regulatory Process Standard
- Virginia Regulatory Process Non-Standard
- 2009 Virginia Division of Building and Fire Regulation Code Change Process
- Virginia Code Commission Office of the Registrar of Regulations
- Virginia Uniform Statewide Building Code

**Building energy codes constitute a major tool for improving building energy efficiency and substantially reducing U.S. energy consumption.**

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

**EERE Information Center**
1-877-EERE-INFO (1-877-337-3463)
www.eere.energy.gov/informationcenter

PNNL-SA-81023 June 2011

For information on Building Energy Codes visit **www.energycodes.gov**.

**Building Energy Codes**
U.S. Department of Energy