

For 30 years, ACEEE's energy efficiency experts have helped to shape our nation's energy efficiency research and policy agenda. We achieve our success through...

- conducting in-depth technical & policy analyses
- advising policymakers, energy professionals & utilities
- working collaboratively with businesses & other organizations
- organizing conferences
- publishing conference proceedings and reports
- educating consumers & businesses

Collaboration is key to ACEEE's success. We work with organizations around the globe including federal, state, and local government agencies, utilities, research institutions, businesses, and public interest groups. Our focus is on 6 primary program areas:

- Energy Policy
- Economic Analysis
- Buildings, Appliances, & Equipment
- Utilities
- Industry & Agriculture
- Transportation

ACEEE is leading the development of technology and policy solutions that ensure the security of our energy systems. As energy leaders, we promote the vibrancy of the American economy and the sustainability of the environment worldwide.

Advanced Building Energy Codes

ACEEE PRIORITIES

Congress should...

- Establish energy efficiency improvement targets for building energy codes such as those included in pending Federal legislation. Achievable and cost effective efficiency improvements for residential and commercial model energy codes are 30% by 2010 and 50% by 2015/2016.
- Authorize and appropriate adequate funding and technical assistance to states and local governments for energy code compliance and enforcement.
- Allow higher minimum equipment efficiency requirements in building codes (i.e., levels exceeding federal equipment efficiency standards) provided the code offers an explicit pathway for meeting code levels with equipment just meeting federal minimums (e.g., by including other efficiency measures to make up for the lower efficiency equipment).

THE ISSUE

In order to meet long-term US energy goals, it is important that new buildings be as energy-efficient as is economically justified, since it will be much more expensive to retrofit these buildings after they are completed. ACEEE supports adoption and implementation of energy-efficient building codes at the state, local, and federal levels.

SUMMARY

Advanced building energy codes are a cost-effective way to help consumers save energy and money, make new housing and commercial buildings more affordable, improve comfort, and reduce air pollution. All of these benefits are difficult or impossible to capture if not taken into consideration at the time of construction. There are additional benefits: codes increase the reliability of utility systems, mitigate harmful environmental conditions such as ground-level ozone, and climate change, and boost job creation nationwide.ⁱ

Buildings use 72% of electricity, and 40% of the total energy use in the United States. They are also responsible for 40% of U.S. CO₂ emissions.ⁱⁱ Since buildings have long lifetimes and retrofits can be costly, it is crucial to incorporate energy saving measures during construction in order to achieve acceptable efficiency and comfort. Building energy codes, which are written legal requirements directing design and construction of buildings, establish the minimum level of energy efficiency for residential and commercial buildings. They improve efficiency by mandating performance, achievable through careful construction and proper selection of building components, including wall and ceiling insulation, window and door specifications, heating, ventilation and air conditioning (HVAC), equipment and system efficiency, and lighting power density and controls.

Most states use a version of the International Energy Conservation Code (IECC) for their residential building code, which requires a minimum level of energy efficiency in new residential construction. Most commercial building codes are based on ASHRAE 90.1, jointly developed by the American Society of Heating, Refrigerating and Air Conditioning (ASHRAE) and the Illuminating Engineering Society (IES). The IECC also includes prescriptive and performance commercial building provisions.ⁱⁱⁱ

Model code organizations are in the process of updating building codes to achieve aggressive levels of savings. The International Energy Codes Council recently adopted changes to residential building codes for the 2009 IECC that provide 15% more efficiency than the 2006 edition and will consider additional changes in the coming months. The American Society of Heating Refrigerating and Air-Conditioning Engineers (ASHRAE) has

passed a 30% savings target for the pending 2010 update of their model commercial building code. To support these efforts, the 2009 House energy and climate bill contains a provision calling for DOE and states to update energy codes for new buildings. This provision directs DOE to support efforts by model code organizations to update building codes to reduce energy use of new buildings by at least 30% by 2010, and 50% by 2015. As new codes are finalized, states are directed to either adopt these model codes or their own state-specific equivalents. Funding and technical assistance to states is authorized.

Similar provisions are in pending Senate legislation and should be adopted by Congress soon. Five to six years between code upgrades is reasonable, particularly since the 50% savings level is already being promoted by federal tax incentives enacted by Congress in 2005.

ACEEE estimates that by 2030, the above-mentioned building code provisions would save 1.6 quads of energy (including 97 billion kWh of electricity and 630 billion cubic feet of direct natural gas), with carbon dioxide emissions reductions totaling approximately 91 million metric tons in 2030. The policy would also yield significant economic benefits including net energy bill savings for customers of \$6.9 billion in 2030.

In addition, Congress should consider provisions to allow higher minimum equipment efficiency requirements in building codes (i.e., levels exceeding federal equipment efficiency standards) provided the code offers an explicit pathway for meeting code levels with equipment just meeting federal minimums (e.g., by including other efficiency measures to make up for the lower efficiency equipment). Such a provision is contained in a recent agreement between ACEEE, other energy efficiency advocates, and AHRI, the trade association for heating and air-conditioning equipment manufacturers.^{iv}

ACEEE CONTACTS

Harry Misuriello
hmisuriello@aceee.org
202-507-4030

Harvey Sachs
hsachs@aceee.org
202-507-4014

Jennifer Amann
jamann@aceee.org
202-507-4015

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ⁱ *More Jobs and Greater Total Wage Income: The Economic Benefits of an Efficiency-Led Clean Energy Strategy to Meet Growing Electricity Needs in Michigan* <http://aceee.org/pubs/e07x.htm>

ⁱⁱ *The 2008 State Energy Efficiency Scorecard* <http://aceee.org/pubs/e086.htm>

ⁱⁱⁱ *ibid.*

^{iv} <http://aceee.org/press/0910ahri.htm>