



Shaping Tomorrow's Built Environment Today

ENERGY USE METRICS AND TARGETS FOR COMMERCIAL BUILDINGS

THE ISSUE

Commercial buildings¹ consume almost 20% of all energy used in the United States². Energy efficiency helps create jobs, reduce pollution, and improve energy security. A building's utility costs are some of the largest, yet most controllable, operating expenses; therefore, managing a building's energy efficiency is an integral part of the building's operational and financial performance.

You can't manage what you don't measure, and building owners, operators, and policymakers can't effectively communicate goals, evaluate potential investments, and measure success if they don't speak the same language. Common, widely accepted and validated definitions and metrics of building energy use do not currently exist. By working with stakeholder groups and Federal agencies to develop, validate, and establish these common metrics and associated targets, Congress can help solve this communication problem.

ASHRAE's ROLE

ASHRAE and its partners³, develop building energy standards that Federal agencies, States, and local governments adopt in their energy codes. ANSI/ASHRAE/IES Standard 90.1 has been the basis for State commercial building energy codes since 1975. Standard 90.1 also serves as the US Department of Energy's baseline for measuring relative energy use improvement in Federal buildings. ASHRAE uses data from the Commercial Buildings Energy Consumption Survey (CBECS) in its standards, and in its building energy rating program and performance measurement tool – Building Energy Quotient (bEQ)⁴. ASHRAE is committed to developing and promoting building energy data and other technical tools to assist the commercial building design, construction and operation industry in moving towards the most efficient buildings feasible. To this end, ASHRAE has updated its Standard 100 *Energy Conservation in Existing Buildings*, and its Standard 105 *Standard Methods of Determining, Expressing and Comparing Building Energy Performance and Greenhouse Gas Emissions*. ASHRAE will continue to be a resource to the Federal government by providing technical tools to aide owners and operators in their decision-making, such as *Performance Measurement Protocols: Best Practices*, and by serving as a voice of the industry.

ASHRAE's VIEW

Energy use targets must be based on the best technologies available, to foster innovation. They must include all building loads, from lighting and HVAC to plug-in appliances.

Congress should foster collaboration among DOE, NIST, EPA, ASHRAE and others to 1) Establish a single objective definition of energy use intensity⁵ (EUI), including plug and process loads; 2) Identify an objective set of commercial building types and simulation models for establishment of target EUIs; 3) Produce one set of target EUIs for the commercial building sector for use in State building energy codes; 4) Undertake measures that disseminate, educate, and lead all parties in the building industry to use these objective measures to demonstrate the economic and environmental value of their actions.

Congress should support regular updates to the Commercial Buildings Energy Consumption Survey. The recent 2012 update was the first in nine years. Maintaining recent data on energy consumption in the US will make it easier to identify opportunities to increase efficiency and assess progress towards energy efficiency goals. ASHRAE should also encourage international efforts to gather and disseminate data on commercial buildings worldwide.

¹ "Commercial buildings" are defined as offices, schools, stores, and similar non-residential facilities, whether ownership is private or public.

² US Department of Energy. 2011. "2011 Buildings Energy Data Book". <http://buildingsdatabook.eren.doe.gov/TableView.aspx?table=1.1.3>.

³ Including the Illuminating Engineering Society of North America, the US Green Building Council, the American Institute of Architects, the International Code Council, and the Air Conditioning Contractors of America.

⁴ Additional information on ASHRAE's bEQ is available at www.buildingeq.com.

⁵ Energy Use Intensity (EUI) is the most commonly accepted metric to measure a building's absolute energy use performance. It is traditionally measured in kBtu/sf-yr.