

BUILDING CODES & ENERGY EFFICIENCY: NORTH CAROLINA



Updated November 23, 2009



Buildings account for roughly 40 percent of the total energy use in the United States and 70 percent of our electricity use, representing a significant opportunity for energy savings. Energy efficiency—through the adoption and enforcement of strong building energy codes—is the quickest, cheapest and cleanest way to reduce energy consumption and achieve a sustainable and prosperous future. For the state of North Carolina, the next step should be the adoption of the U.S. model energy codes—the **2009 International Energy Conservation Code (2009 IECC) and ASHRAE Standard 90.1-2007**.

In February 2009, the **American Recovery and Reinvestment Act (Recovery Act)** – the federal stimulus legislation appropriating funds for a variety of state initiatives – allocated \$3.1 billion for the U.S. Department of Energy’s State Energy Program (SEP) to assist states with building energy efficiency efforts. As one of the requirements to receive this funding, Gov. Beverly Perdue [certified to DOE](#)¹ that North Carolina would implement energy standards of equal or greater stringency than the latest national model codes—the 2009 edition of the IECC and Standard 90.1-2007.

Having already received [\\$38 million](#)² in federal SEP funding, North Carolina is eligible to receive an additional \$38 million in grants upon demonstration of the successful implementation of its energy plans submitted to DOE. It is in North Carolina’s best economic interest to **adopt the 2009 IECC and Standard 90.1-2007 statewide** and begin enjoying the benefits of an efficient building sector.

ECONOMIC BENEFITS

- Consumers save money by reducing utility bills, minimizing the negative impacts of fluctuations in energy supply and cost, and by conserving available energy resources. Retail and office buildings constructed to meet the requirements of the IECC can be **over 30 percent more energy efficient** than typical buildings not constructed to meet national model energy standards.
- Monetary savings derived from codes increase a consumer's purchasing power, and help **expand the state’s economy** by keeping local dollars in North Carolina.

BUILDING INDUSTRY BENEFITS

- The national model code, the 2009 IECC, offers flexibility to North Carolina builders and design professionals, allowing them to **optimize the cost-effectiveness** of energy efficient features in their building products, and to satisfy a variety of consumer preferences.
- The 2009 IECC also **simplifies guidelines** for builders, providing a uniform code across the state with multiple options for compliance.
- Uniformity throughout North Carolina will enable local jurisdictions to **pool limited resources** and combine personnel to form county-wide, regional, and statewide enforcement and educational programs.

UTILITY AND ENVIRONMENTAL BENEFITS

- Energy codes improve the energy efficiency performance of new buildings and reduce demand on power generators, therefore **improving the air quality** of local communities throughout North Carolina.
- Electricity use is a leading generator of air pollution. **Rising power demand increases emissions** of sulfur dioxide, nitrous oxides and carbon dioxide. Energy codes are a proven, cost-effective means for addressing these and other environmental impacts.



Blue Ridge Mtns. from Blowing Rock (Credit—Zaynab Razvi)

North Carolina's current energy code³ for residential and commercial construction—the North Carolina Energy Conservation Code (NCECC)—is based on the 2006 IECC. It became effective January 1, 2009. While the code does contain some strengthening amendments above the base code, **it does not achieve the energy savings of the 2009 IECC.**

The 2009 IECC⁴ improves upon the 2006 IECC and will provide North Carolina households and businesses lower utility costs, increased comfort, and better economic opportunity. A limited DOE analysis⁵ of the changes from the state's current code to **the 2009 IECC resulted in estimated energy savings of 13 to 16 percent, or \$209 to \$234 a year** for an average new house at recent fuel prices.

When states regularly update and enforce their energy codes (as North Carolina has in recent years, in coordination with the three-year model code update cycles), they ensure the consistency and continued enhancement of the benefits of model building practice. By maintaining this commitment, **North Carolina can demonstrate leadership on energy efficiency issues** by meeting national standards.

ENERGY CONSUMPTION AND SUPPLIES

Coal is a significant fuel source for electricity generation in North Carolina, typically supplying more than

three-fifths of the power generated. North Carolina relies primarily on coal shipped by rail from other states like West Virginia and Kentucky.

Per capita electricity consumption in North Carolina is among the highest in the US.⁶ This is due in part to high demand for electric air-conditioning during hot summer months and the widespread use of electricity for home heating in more than half of all homes during typically mild winter months.

HOUSEHOLD PROSPERITY

In 2006, North Carolina ranked 36th in the nation in per capita income.⁷ Energy expenses comprise an economic drain on low-income communities. **Low-income households typically spend 17 percent of their total annual income on energy**, compared with four percent for other households. According to some estimates, more than four-fifths of energy expenses leave low-income communities. Higher energy costs deprive these communities of resources needed to generate additional economic activity.

AN UNTAPPED RESOURCE

Energy prices are projected to rise sharply over the next decade. By **using energy codes to increase the significant potential energy supply** improved building energy efficiency produces, North Carolina can enhance its energy security by reducing energy demand within its borders. Wise management of state-wide energy policy should include seizing the low-hanging fruit that is the energy savings improved building energy codes offer. Among the opportunities:

- If North Carolina began implementing the 2009 IECC and ASHRAE Standard 90.1-2007 statewide in 2011, businesses and homeowners would **save an estimated \$221 million annually by 2020** and an **estimated \$443 million annually by 2030** in energy costs (assuming 2006 energy prices).
- Additionally, adopting and implementing the 2009 IECC statewide would help **avoid roughly 60 trillion Btu of primary annual energy use** by 2030 and annual emissions of roughly **4.2 million metric tons of CO₂** by 2030.

** NOTES **

For more information, please visit www.bcaphp.org

¹ US DOE (http://www.energy.gov/media/Perdue_North_Carolina.pdf)

² US DOE (<http://www.energy.gov/news2009/7501.htm>)

³ BCAP (<http://bcap-ocean.org/state-country/north-carolina>)

⁴ BCAP (<http://bcap-energy.org/node/330>)

⁵ US DOE (http://www.energycodes.gov/implement/state_codes/reports/IECC2009_Residential_Nationwide_Analysis.pdf)

⁶ US EIA (http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=NC)

⁷ US BEA (<http://www.bea.gov/newsreleases/regional/spi/2007/spi0307.htm>)