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

# BUILDING TECHNOLOGIES FY14 BUDGET AT-A-GLANCE

***Building Technologies leads EERE's RDD&D effort to improve the efficiency of our homes and buildings and save consumers billion on their energy bills. Buildings account for 40 percent of U.S. energy use and greenhouse gas pollution. Building Technologies supports the development and deployment of technologies and systems that can reduce building energy use by 50 percent by 2030.***

## What We Do

Building Technologies uses an integrated, three-pronged approach to deliver energy and consumer cost savings:

- ✓ **Research and Development** that invests in innovative technologies and techniques that enable energy-efficient building systems.
- ✓ **Market Stimulation** activities to overcome barriers to "speed and scale" adoption through technology demonstration, information, technical assistance, and workforce development.
- ✓ **Codes and Standards** that establish energy use standards in a transparent public process that protect consumer interests, enhance U.S. industry competitiveness and profitability, expand the portfolio of energy efficient appliances and equipment, and raise the efficiency bar.

## Program Goals/Metrics

- Develop cost-effective, energy-efficient technologies, leading to energy savings of 70 percent in lighting, 60 percent in water heating, 40 percent in HVAC/Building Envelope, 20 percent in appliances, and 20 percent in building controls.
- Between FY 2010 and FY 2013, enable retrofit of 100,000 existing homes to generate at least 20 percent energy savings.
- Develop and demonstrate 20 solutions for existing and new commercial buildings (technology specifications, business models, training and performance tools) with at least 20 percent energy savings.Issue 16 final rules between the start of FY 2013 and the end of FY 2016 to provide cost-effective energy savings through national appliance and equipment standards.

## FY 2014 Priorities

- **Emerging Technologies** will pursue improvements in major energy end-uses and the building envelope, while increasing its R&D focus in sensors and controls, particularly around whole building and grid integration.
- **Commercial Buildings** will increase emphasis in building systems, sensors and controls, whole-building systems/solutions at scale, building performance tools.
- **Residential Buildings** will demonstrate 30 percent to 40 percent cost effective efficiency improvements in new and existing homes, deploy Home Energy Score and building solution centers nationwide, enable the retrofit of homes to increase energy efficiency by 20 percent, and include renewable-ready, net zero energy homes in the Challenge Home Program.
- **Appliance Standards** will use the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) to develop consensus input for rules for both certification and enforcement activities and standards rulemakings. Building Codes will emphasize code compliance.

## Key Accomplishments

- **Appliance Standards:** EERE appliance standards improved the energy efficiency of household appliances, saving households money on their utility bills, as existing appliances are replaced with newer, more energy-efficient models. As a result of the standards implemented from 1987 through 2011, energy users were estimated to have saved

| (Dollars in Thousands) | FY 2012 Current | FY 2013 Request | FY 2013 Annualized CR* | FY 2014 Request |
|---|---|---|---|---|
| Commercial Buildings Integration | 31,913 | 73,000 | — | 36,570 |
| Emerging Technologies | 61,182 | 76,750 | — | 131,740 |
| Energy Innovation Hub | 23,583 | 25,000 | — | 24,300 |
| Equipment and Buildings Standards | 66,746 | 98,250 | — | 82,000 |
| Residential Buildings Integration | 31,282 | 37,000 | — | 24,390 |
| NREL User Facility | 0 | 0 | — | 1,000 |
| **Total, Building Technologies** | **214,706** | **310,000**** | **220,546** | **300,000** |

*FY 2013 amounts shown reflect the P.L. 112-175 continuing resolution level annualized to a full year. These amounts are shown only at the "congressional control" level and above; below that level, a dash (—) is shown.
** Also includes $6,455 thousand in anticipated SBIR/STTR transfer.

approximately $40 billion on their utility bills in 2010.[1] Since 2009, 16 new or updated standard covering more than 30 products have been issued, which will help increase annual savings even further over the coming years. Cumulative consumer utility bill savings associated with these recently enacted standards are projected to be $180 billion (undiscounted) through 2030.[2]

- In collaboration with EPA through the Home Performance with **ENERGY STAR Program**, EERE has partnered with state and local governments, utilities, and non-profit organizations since 2002 to encourage homeowners to perform building science-based energy upgrades to their homes. This has resulted in average energy savings of 20 to 30 percent. To date, more than 250,000 retrofits have been completed – saving owners 15 to 30 percent annually on their energy bills.
- In 2012, DOE launched the **Rooftop Unit (RTU) Challenge**. The Challenge included 5 manufacturers who agreed to develop and commercialize new, best in class RTU technologies as a result of a clear new product specification of demonstrated interest to commercial building owners. This specification for a 10-ton capacity commercial air conditioner, or rooftop unit, was developed by Building Technologies in coordination with its industry partners from the Better Buildings Alliance, including many with a nationwide presence of large stores.
  - Units that meet the RTU Challenge specification can be expected to use 50 percent less energy than current units (i.e., AHSHRAE 90.1 compliant units).
  - Energy savings of up to $1 billion per year could be achieved if RTU Challenge units were used to replace the entire existing stock of RTUs in the United States.

[1] Savings generated from the analysis for each rule promulgated through 2011. For further information see: http://ees.ead.lbl.gov/bibliography/energy_and_economic_impacts_of_u_s_federal_energy_and_water_conservation_standards_adopted_from_1987_through2011.

[2] Savings generated from the analysis for each rule promulgated since January 20, 2009. For a complete list of products with standards, please see: http://www1.eere.energy.gov/buildings/appliance_standards/standards_test_procedures.html.