

# RESIDENTIAL CENTRAL AIR CONDITIONING AND HEAT PUMPS



**Overview:** The primary goals of this initiative are to increase the adoption and proper installation of high-efficiency residential central air conditioning and air-source heat pumps. To achieve this goal, CEE has teamed with utility partners and energy-efficiency organizations nationwide to promote common specifications for systems and installation that offer greater efficiency.

**About this Market:** The energy savings and peak demand reduction potential of the residential air conditioning market is significant. Central air conditioners and heat pumps rank third in residential energy use behind space and water heating. The residential air conditioning market uses .55 quadrillion BTU of energy annually and is responsible for more than 14 percent of U.S. residential site electricity consumption, costing consumers \$13.8 billion in annual energy expenditures.

More than 53 percent of all existing homes now have central air conditioning. These numbers are increasing rapidly; four out of five new homes constructed today are built with central air conditioners.

**Initiative Background:** Since 1994, CEE has worked with efficiency program administrators nationwide to promote the adoption of common efficiency targets that exceed federal minimum standards. Equipment meeting CEE's targets offers significant savings when compared to standard-efficiency HVAC systems. CEE is also working with industry stakeholders to achieve the necessary market conditions that will lead to energy-efficient in-field performance of HVAC equipment.

**Quality Installation:** To optimize in-field performance, CEE members are running programs that encourage proper equipment sizing and refrigerant charging as well as efficient air flow and duct system performance. Program strategies include education, technician certification, consumer outreach, installation verifications and home performance programs.

Improving installation practices can reduce system efficiency losses by as much as 30 percent. CEE and its members are currently working with manufacturers, HVAC contractors, trade organizations and other industry stakeholders in pursuit of a national strategic model to promote quality installations.

In addition, North American Technician Excellence (NATE) is developing the HVAC Efficiency Analyst Certification, an exam that tests a technician's ability to diagnose installation problems and perform an energy-efficient installation. CEE and its members provided significant input during development of this NATE certification exam.

**Accomplishments:** Thanks to work with CEE members and industry partners, this initiative has helped increase the availability of energy-efficient single-package and split air-conditioning systems with capacities of up to 65,000 Btu/hr. In August 2000, CEE completed a Residential Quality Installation Specification, a comprehensive document providing consistent guidelines that can be incorporated into an energy-efficient installation.

On July 6, 2004, CEE and ARI launched a directory of energy-efficient residential and small commercial HVAC equipment. The directory, which catalogues thousands of HVAC systems that

# FACT SHEET

qualify for CEE's residential and commercial HVAC initiatives, can be accessed at [www.ceeHVACdirectory.org](http://www.ceeHVACdirectory.org).


**Expected Energy Savings:** This initiative consists of three efficiency tiers for cooling and heating performance. Equipment meeting these efficiency levels saves an average of 500 kWh or approximately \$40 annually. Consumers living in warmer climates have the potential for even greater savings.

## CEE high-efficiency specification for residential HVAC systems

*Effective April 1, 2007*

### Split Systems

Level	SEER	EER	HSPF
<b>ENERGY STAR</b>	14	11.5	8.2
<b>CEE Tier 1</b>	14	12	8.5
<b>CEE Tier 2</b>	15 or higher	12.5 or higher	8.5 or higher
<b>CEE Tier 3 (Advanced)</b>	16 or higher	13 or higher	

CEE'S HIGHEST TIER IN 2006\* 

\*Reference level for EPA Act 2005 tax incentives

### Packaged equipment

Level	SEER	EER	HSPF
<b>CEE Tier 1 and ENERGY STAR</b>	14	11	8
<b>CEE Tier 2</b>	14 or higher	12 or higher	8 or higher

**Contact:** Additional information about CEE's Residential Central Air Conditioning and Heat Pumps Initiative is available at [www.cee1.org](http://www.cee1.org) or by contacting John Taylor at 617-589-3949, ext. 228, or [jtaylor@cee1.org](mailto:jtaylor@cee1.org).