

INNOVATION. PERFORMANCE. SAVINGS.
ENERGY STAR® Makes It Simple.



ROOM AIR CONDITIONERS
2007 PARTNER RESOURCE GUIDE



ENERGY STAR

SECTION I : CONSUMER INFORMATION



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energystar.gov

ENERGY STAR is a government-backed program that helps consumers identify the most energy-efficient products.

This document is designed to help partners promote ENERGY STAR® qualified room air conditioners.

- Section I includes the latest consumer messaging on product features and benefits, as well as fun facts and usage tips.
- Section II summarizes the most recent data on ENERGY STAR market share, ENERGY STAR criteria, energy savings, cost-effectiveness, and recycling old units.

ADVANCED TECHNOLOGY

Room air conditioners that have earned the ENERGY STAR are at least 10% more efficient than regular models, thanks to a number of advanced features:

- **HIGH-EFFICIENCY FAN MOTORS**

These fan motors use less energy to circulate the air and are quieter to operate.

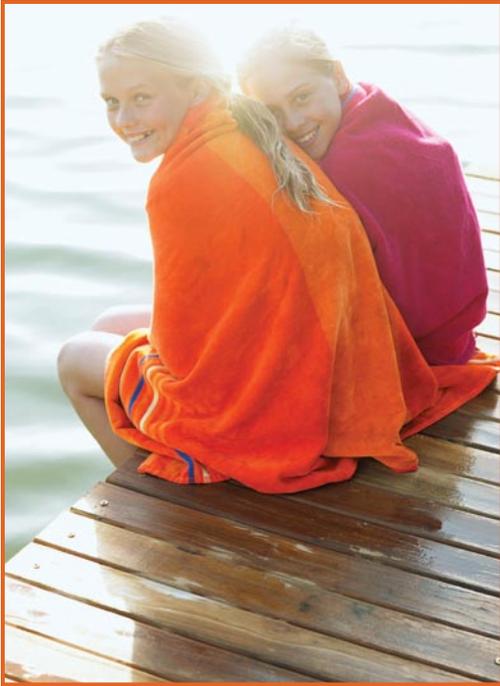
- **ADVANCED COMPRESSORS**

These compressors draw in more heat from the air so they need less energy.

- **TIMERS**

ENERGY STAR qualified room air conditioners often include timers for better temperature control, so the units only run when needed.





BENEFITS FOR CONSUMERS

- **INEFFICIENCY COSTS MONEY! Save with ENERGY STAR.**

When shopping for a new room air conditioner, select an ENERGY STAR qualified model instead of a regular one and you'll cut your cooling costs by 10%. Depending on your climate, this could mean savings of \$20 to \$300 over the lifetime of the unit.

- **ENVIRONMENTALLY FRIENDLY**

Because they use less energy, ENERGY STAR room air conditioners reduce air pollution and greenhouse gases caused by burning fossil fuels.

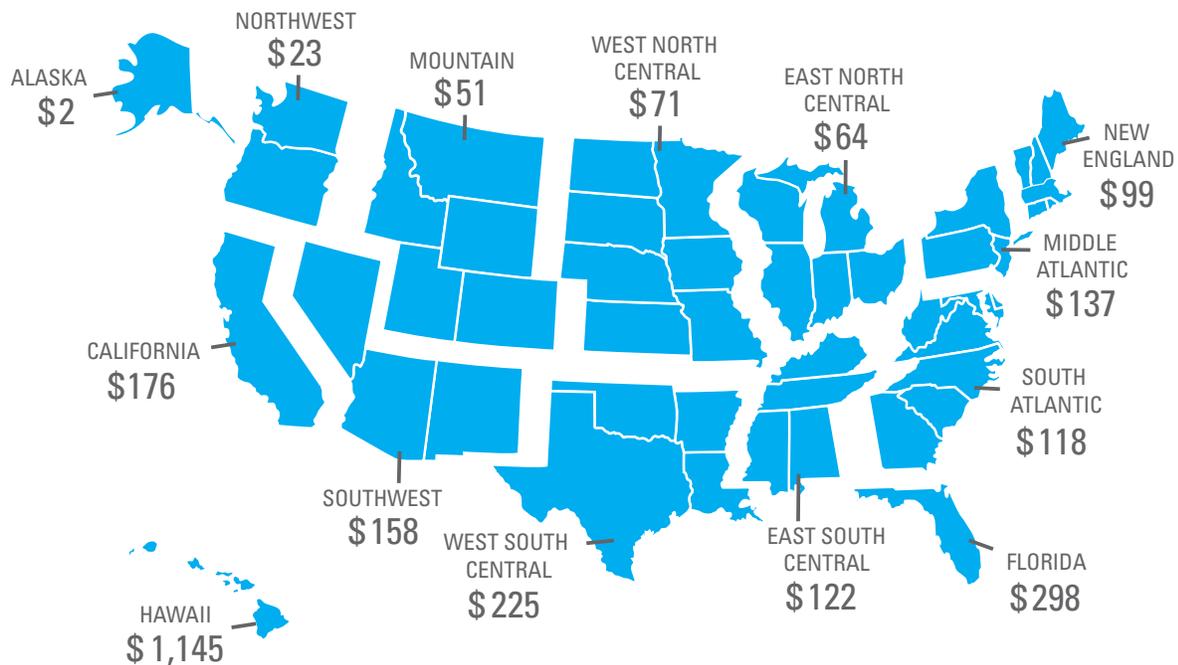
- **ENERGY SAVINGS...AND MORE**

ENERGY STAR qualified room air conditioners often include timers for better temperature control. Look for other features, such as digital displays, remote controls, and directional vents.

- **ENJOY THE PEACE AND QUIET**

ENERGY STAR qualified units are quieter to run, so your room isn't just more comfortable, it's more peaceful too.

LIFETIME SAVINGS OF ENERGY STAR QUALIFIED ROOM AIR CONDITIONERS¹



¹ Lifetime savings are weighted according to 2002 EPA full-load cooling hours and based on regional electric rates from Energy Information Administration (DOE), 2006.



COMFORT CONSIDERATIONS

RIGHT SIZE, REAL SAVINGS

With room air conditioners, size matters. Consumers often buy a unit that is too large for the space they wish to cool, thinking that a larger air conditioner means they'll be more comfortable. Units that are too big may cool a room quickly, but some of the humidity will remain, leaving the room feeling cold and clammy. A unit that is too large also wastes energy, raising the utility bill. A properly-sized unit may take slightly longer to initially cool the space, but it will maintain a more comfortable temperature and humidity level, while using a lot less energy.

TRY A CEILING FAN

To feel more comfortable in the summer, consider installing an ENERGY STAR qualified ceiling fan in rooms where you tend to spend the most time. The sensation of air moving over your skin actually helps you feel cooler, and you may be able to raise the temperature setting on your room air conditioner.

KEEP THE SUN OUT

Be sure to close blinds during the day to prevent the sun from warming your home.

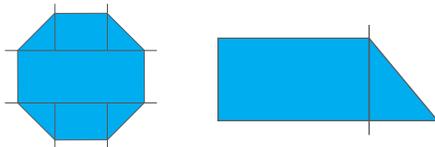
RIGHT SIZE — REAL SAVINGS



DETERMINE WHICH UNIT SIZE IS BEST FOR YOU.

- **IF THE ROOM IS SQUARE OR RECTANGULAR,** multiply the length of the area by the width.
- **IF THE ROOM IS TRIANGULAR,** multiply the length of the area by the width and divide by two.

Most rooms can be further divided into these basic shapes to determine the square footage:



If your room is other than square or rectangular, ask your sales associate to help you determine the square footage.

Using the square footage and the chart on the right, determine the correct cooling capacity.

| AREA TO BE COOLED (sq. ft.) | CAPACITY NEEDED (btu/hour) |
|-----------------------------|----------------------------|
| 100 to 150 | 5,000 |
| 150 to 250 | 6,000 |
| 250 to 300 | 7,000 |
| 300 to 350 | 8,000 |
| 350 to 400 | 9,000 |
| 400 to 450 | 10,000 |
| 450 to 550 | 12,000 |
| 550 to 700 | 14,000 |
| 700 to 1,000 | 18,000 |
| 1,000 to 1,200 | 21,000 |
| 1,200 to 1,400 | 23,000 |
| 1,400 to 1,500 | 24,000 |
| 1,500 to 2,000 | 30,000 |

MAKE ANY ADJUSTMENTS FOR THE FOLLOWING CIRCUMSTANCES

- **IF THE ROOM IS HEAVILY SHADED,** reduce the capacity by 10%.
- **IF THE ROOM IS VERY SUNNY,** increase the capacity by 10%.
- **IF MORE THAN TWO PEOPLE REGULARLY OCCUPY THE ROOM,** add 600 Btu/hour for each additional person.
- **IF THE UNIT WILL BE USED IN A KITCHEN,** increase the capacity by 4,000 Btu/hour.

Note: Consider where you install the unit. If you are mounting an air conditioner near the corner of a room, look for a unit that can send the air flow in the right direction.



SHOULD I REPLACE MY OLD UNIT?

RETIRE AT 10

Models that are at least 10 years old use 35% more energy than new ENERGY STAR qualified models. Replacing your 10-year-old room air conditioner with a new ENERGY STAR qualified model will save an average of \$250 over the lifetime of the unit.

DON'T FORGET TO RECYCLE THE OLD UNIT

Room air conditioners contain refrigerant that should be removed by a trained technician before the unit is recycled or thrown away. Contact your local solid waste organization for information on how to properly dispose of your old room air conditioner.



SHOULD I REPLACE MY EXISTING ROOM AIR CONDITIONER?

| AGE OF EXISTING ROOM AIR CONDITIONER | ANNUAL ENERGY USE—CURRENT MODEL (kWh/year) | ANNUAL ENERGY USE—NEW ENERGY STAR MODEL (kWh/year) | AVERAGE ENERGY SAVINGS (kWh/year) | AVERAGE ANNUAL ELECTRIC BILL SAVINGS (dollars) |
|--------------------------------------|--|--|-----------------------------------|--|
| 5 years old | 829 | 706 | 123 | \$13 |
| 10 years old | 950 | 706 | 244 | \$25 |
| 15 years old | 1,015 | 706 | 309 | \$31 |
| 20 years old | 1,219 | 706 | 513 | \$52 |
| 25 years old | 1,475 | 706 | 769 | \$78 |



FUN FACTS²

Choose an ENERGY STAR qualified room air conditioner over a conventional model and save enough money over its lifetime to buy:

- 21 pints of Ben & Jerry's ice cream
- 110 24 oz. bottles of water
- 45 two-liter bottles of soft drinks
- three slip-and-slide toys
- eight tubes of sunscreen
- 17 beach balls

Choose an ENERGY STAR qualified room air conditioner over a conventional model and save enough energy over its lifetime to:

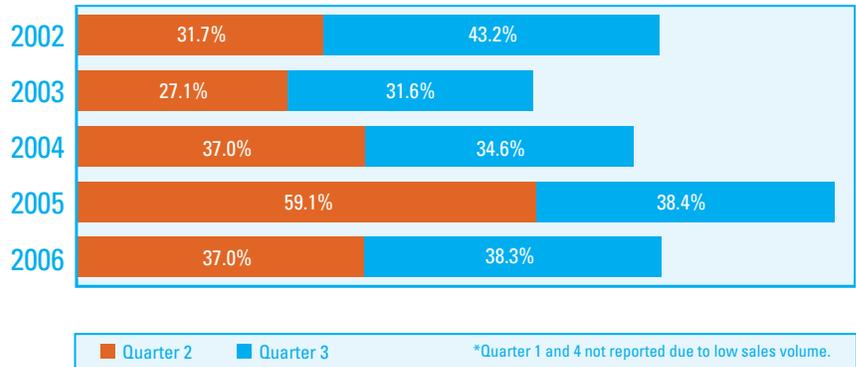
- Run an ENERGY STAR ceiling fan every night of the summer for nearly nine years.³
- Freeze over 43,000 ice cube trays.
- Run an ENERGY STAR qualified refrigerator for more than a year and a half.

² Based on data from national retailer Web sites, 2006.

³ Assumes eight hours of use per night.

SECTION II : MARKET DATA

ENERGY STAR ROOM AIR CONDITIONER MARKET SHARE BY QUARTER⁴



HOUSEHOLD SATURATION

Approximately 27% of U.S. homes have a room air conditioner.⁵ They are typically found in homes that do not have central air conditioning, such as older housing stock and homes located in colder climates.

Room air conditioner sales vary widely from year to year and region to region, based primarily on weather patterns.

REGIONAL MARKET SHARE AND SATURATION

| CENSUS DIVISION | ROOM AIR CONDITIONER HOUSEHOLD SATURATION ⁶ | ENERGY STAR ROOM AIR CONDITIONER 2006 MARKET SHARE ⁷ |
|--------------------|--|---|
| NEW ENGLAND | 44% | 54% |
| MIDDLE ATLANTIC | 41% | 52% |
| SOUTH ATLANTIC | 15% | 47% |
| EAST SOUTH CENTRAL | 21% | 39% |
| WEST SOUTH CENTRAL | 19% | 18% |
| MOUNTAIN | 35% | 12% |
| PACIFIC | 11% | 21% |
| WEST NORTH CENTRAL | 19% | 21% |
| EAST NORTH CENTRAL | 22% | 18% |

⁴ Figures based on 2006 sales data received from ENERGY STAR national retail partners.

⁵ 29th Annual Portrait of the U.S. Appliance Industry, *Appliance Magazine*, September 2006.

⁶ Residential Energy Consumption Survey (RECS), U.S. Department of Energy, 2001.

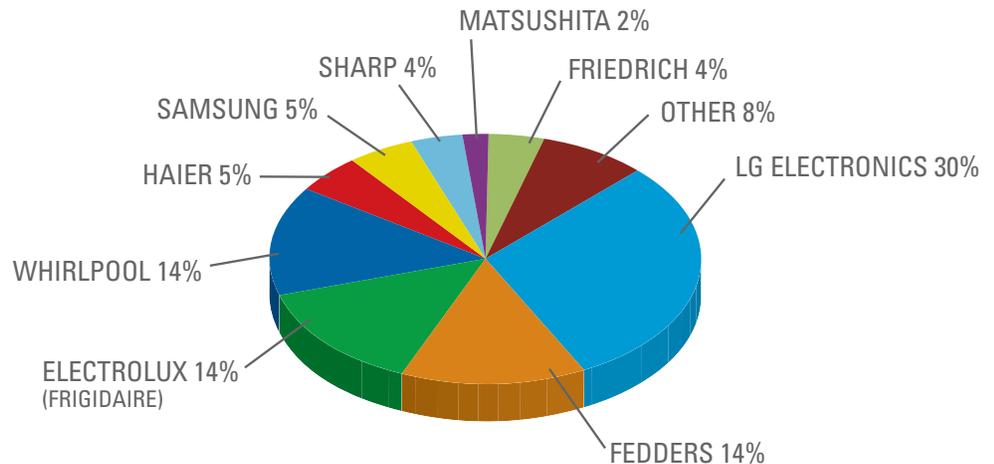
⁷ Figures based on 2006 sales data received from ENERGY STAR national retail partners.



MARKET TRENDS

- 2005 national room air conditioner shipments: 8,031,678.⁸
- Room air conditioners are often an impulse purchase, with consumers racing out to buy an inexpensive unit in the face of a sudden heat wave. As a result, sales vary widely year-to-year and region-to-region based on weather patterns. 2005 and 2004 sales were much lower than 2003 sales due to cooler summer temperatures. Room air conditioner sales are also tied more closely to the economic health of the country than other major appliances.
- Most retailers do not stock room air conditioners year round. They are brought in during the summer and may be displayed in areas of the store devoted to seasonal merchandise. Retailers place orders for room air conditioners well in advance of the summer season, typically by the fall.
- Retail and wholesale pricing increased moderately in 2005 as a result of a more expensive power cord that manufacturers are required to use by federal mandate.⁹ Manufacturers also face rising raw materials costs (i.e., copper, aluminum and steel) and a shortage of compressors.
- The manufacturing of room air conditioners is increasingly shifting towards Asian producers. The largest Asian manufacturers are LG Electronics (Korea), Haier (China) and Samsung (Korea).¹⁰ This trend has pushed per-unit margins down for most vendors, leading to relatively small marketing budgets for these products.

2005 ROOM AIR CONDITIONER MANUFACTURER MARKET SHARE¹¹



⁸ Association of Home Appliance Manufacturers, Estimated Distributor Sales by State, 2005.

⁹ Gerry Beatty, "Air on the Side of Caution," *Home Furnishing News*, October 18, 2004.

¹⁰ 29th Annual Portrait of the U.S. Appliance Industry, *Appliance Magazine*, September 2006.

¹¹ Ibid.



ENERGY STAR CRITERIA

To earn the ENERGY STAR, room air conditioners must be at least 10% more efficient than the minimum federal government standards.

Various types of room air conditioners are eligible for the ENERGY STAR label. These include:

| ENERGY STAR QUALIFIED ROOM AIR CONDITIONERS | |
|---|---|
| SINGLE CYCLE (cooling only) | Window Units — with louvered sides |
| | Through-the-Wall Units — without louvered sides |
| REVERSE CYCLE (heat pump) | Window Units — with louvered sides |
| | Through-the-Wall Units — without louvered sides |
| CASEMENT MODELS | Casement — slider models |

DOE is currently analyzing the potential energy savings of expanding the ENERGY STAR qualified room air conditioner category to include packaged terminal equipment (PTACs/PTHPs).

COST EFFECTIVENESS

- Average product life expectancy = 10 years¹²
- Approximate price range for ENERGY STAR qualified room air conditioners = \$130 – \$850¹³
- Approximate price range for non-qualified room air conditioners = \$80 – \$1,000¹⁴
- Typical ENERGY STAR price premium = \$30 – \$50
- Time to recover price premium = 4 – 7 years

| | ANNUAL SAVINGS ¹⁵ | | | | | |
|--------------------------------------|-------------------------------------|-----------------------|-------------------|-----------------------------------|----------------|-------------------|
| | ENERGY STAR vs. NON QUALIFIED | | | ENERGY STAR vs. 10-YEAR OLD | | |
| | ENERGY STAR | NEW NON- QUALIFIED | ANNUAL SAVINGS | ENERGY STAR | 10-YEAR OLD | ANNUAL SAVINGS |
| ENERGY USE (kWh/yr) | 706 | 781 | 75 | 706 | 950 | 244 |
| ENERGY BILL (\$/yr) ¹⁶ | \$72 | \$80 | \$8 | \$72 | \$97 | \$25 |

¹² 29th Annual Portrait of the U.S. Appliance Industry, *Appliance Magazine*, September 2006.

¹³ Based on data from national retailer Web sites, 2006.

¹⁴ Ibid.

¹⁵ Based on national average energy usage. Regional numbers vary widely.

¹⁶ Energy costs based on national average electric rate of 10.19¢ from Energy Information Administration (DOE), 2006.



United States
Department of Energy

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