



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

WINDOWS, DOORS, AND SKYLIGHTS
2007 PARTNER RESOURCE GUIDE



ENERGY STAR

SECTION I : CONSUMER INFORMATION



LEARN MORE AT
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 windows, doors, and skylights.

- 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, and cost effectiveness.
- Section III provides savings estimates for 93 U.S. cities.

Today, manufacturers use an array of **advanced technologies** to make ENERGY STAR-qualified windows.

IMPROVED FRAME MATERIALS

Wood composites, vinyl, and fiberglass frames reduce heat transfer and help insulate better.

LOW-E GLASS

Special coatings reflect infrared light, keeping heat inside in winter and outside in summer. They also reflect damaging ultraviolet light, which helps protect interior furnishings from fading.

GAS FILLS

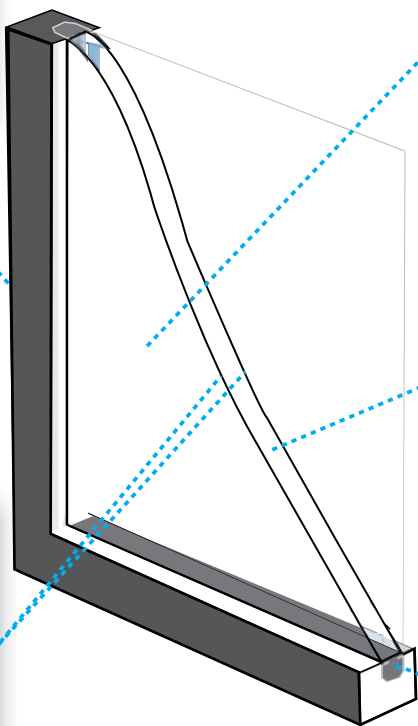
Some energy-efficient windows have argon, krypton, or other gases between the panes. These odorless, colorless, non-toxic gases insulate better than regular air.

MULTIPLE PANES

Two panes of glass, with an air or gas-filled space in the middle, insulate much better than a single pane of glass. Some ENERGY STAR-qualified windows include three or more panes for even greater energy efficiency, increased impact resistance, and sound insulation.

WARM EDGE SPACERS

A spacer keeps a window's glass panes the correct distance apart. Today's warm edge spacers—made of steel, foam, fiberglass, or vinyl—reduce heat flow and prevent condensation.



WHAT MAKES A DOOR ENERGY EFFICIENT?



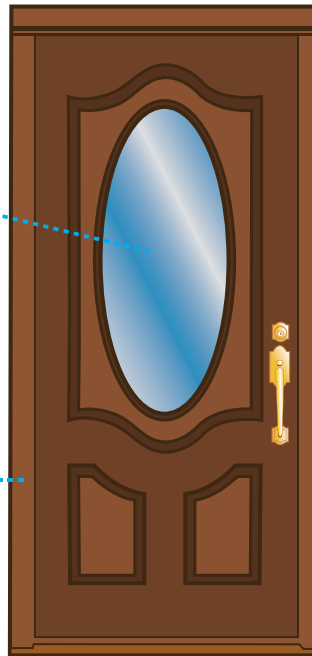
CHANGE FOR THE
BETTER WITH
ENERGY STAR

MULTIPLE GLASS PANES

Double or triple-paned insulating glass is used to reduce heat flow.

IMPROVED CORE MATERIALS

Fiberglass, wood cladding, and steel with polyurethane foam core are among the most energy-efficient door materials available today.



TIGHTER FIT AND IMPROVED WEATHER STRIPPING

New frames may include a magnetic strip to create a tighter seal that reduces air leakage around the edges.

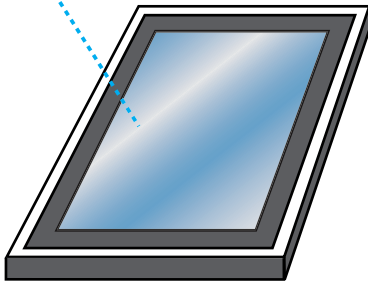
WHAT MAKES A SKYLIGHT ENERGY EFFICIENT?



CHANGE FOR THE
BETTER WITH
ENERGY STAR

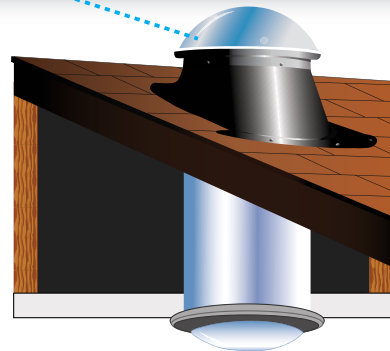
TRADITIONAL SKYLIGHTS

Skylights use the same technologies as windows. But these technologies are even more valuable for skylights, which receive direct sun in summer and greater outside/inside temperature differentials in winter.



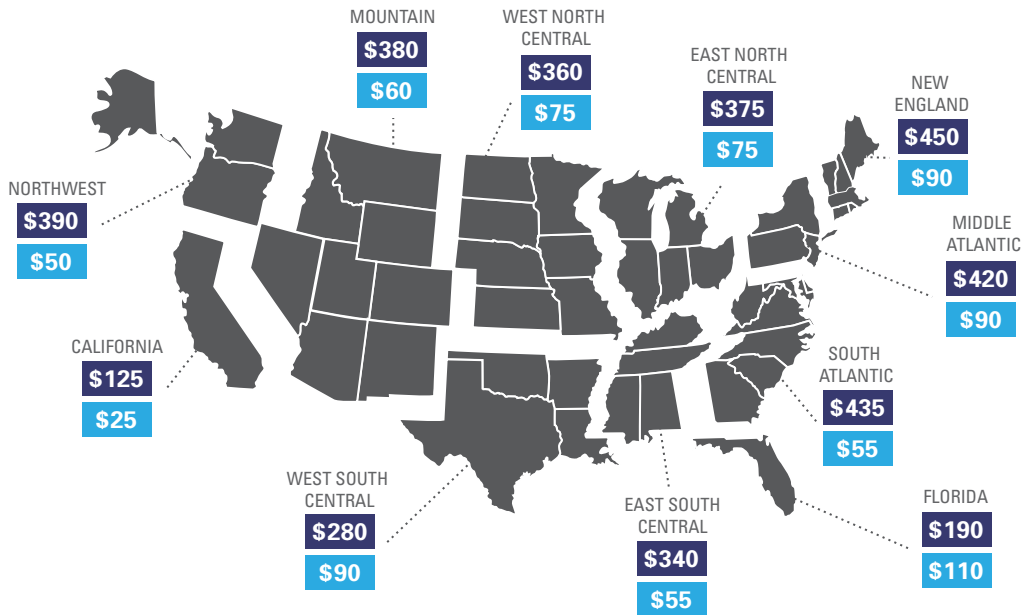
TUBULAR DAYLIGHTING DEVICES INCREASES DAYLIGHT

Tubular daylighting devices (TDD) gather sunlight at the roof and transmit it down to a diffusing lens mounted in an interior surface, usually a ceiling. The natural light from a TDD can illuminate closets, bathrooms, hallways, or other spaces that typically would not have access to sunlight, decreasing the need for electric lighting.





SELLING THE BENEFITS OF ENERGY STAR WINDOWS, DOORS, AND SKYLIGHTS

UPGRADE TO ENERGY STAR ANNUAL SAVINGS¹



UPGRADING FROM:

-  = Single-paned
-  = Double-paned, clear glass²

¹ U.S. Department of Energy. Savings estimates based on population-weighted regional annual energy use for a 2,000 sq. ft., single-story, detached house with 300 sq. ft. of window area, gas heat, and electric air conditioning. Estimates use the Energy Information Administration's 2005 average gas prices and year-to-date through June 2006 electricity prices. Double-paned, clear-glass may not be applicable to all jurisdictions due to mandatory building codes. Actual savings will vary by climate region and home characteristics.

² The savings estimates apply to both new construction and replacement applications with the following two exceptions: savings from double-paned, clear glass windows in new construction in the West South Central and East North Central are \$85 and \$80 respectively.

MORE THAN JUST DOLLAR SAVINGS

New ENERGY STAR-qualified windows can help reduce your energy bill up to 15%. Estimated savings vary from region to region depending on current heating and cooling costs and are generally greatest where there are hot summers, cold winters or both.

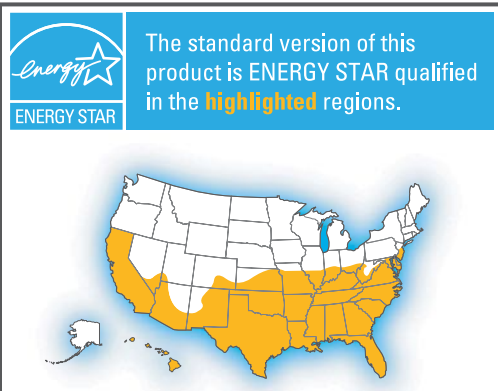
In addition, ENERGY STAR-qualified windows, doors, and skylights do more than just lower energy bills—they deliver more comfort, create less condensation, and protect your valuables from sun damage better than conventional clear-glass double-paned alternatives.

BENEFITS WHEN IT'S COLD

PROTECTION FROM WINTER CHILLS

On cold winter nights, do you avoid seats near the window? The cold, inside surface of an inefficient window pulls heat away from your body, so you can feel chilly in a sweater with the thermostat at 70 degrees. With ENERGY STAR-qualified windows, the interior glass stays warmer, so you can enjoy your window seat even when the temperature outside dips well below freezing.

SELLING THE BENEFITS OF ENERGY STAR WINDOWS, DOORS, AND SKYLIGHTS



When shopping for windows, look for the ENERGY STAR label to determine if the product is qualified in your area. For more purchasing tips, visit www.energystar.gov/windows.



REDUCED CONDENSATION

On winter mornings, is the fog on the inside or the outside of your windows? If an inefficient window or window frame gets too cold, indoor moisture can condense or even freeze on the interior surface and then pool on the sill. Over time, chronic condensation can damage sills, cause paint to crack, and encourage the growth of mold. Advanced technologies enable ENERGY STAR-qualified windows to keep the interior of the glass and frame warmer, reducing the potential for condensation and ensuring a clearer view on winter mornings.

BENEFITS WHEN IT'S WARM

SHIELDING FROM SUMMER HEAT

In summer, do your windows seem like giant heat lamps? A typical double-paned, clear-glass window allows approximately 75% of the sun's heat into your home. Most ENERGY STAR-qualified windows transmit much less heat, usually without reducing visible light. You get the light but a lot less heat.

SAFEGUARDING VALUABLE INTERIORS

Your favorite photograph, your child's artwork, even your couch can fade or discolor after repeated exposure to direct sunlight. Most Low-E coatings—the same coatings that keep out the summer heat—can reduce fading by up to 75%. These coatings act like sunscreen for your house, blocking damaging ultraviolet rays without noticeably reducing visible light.

INCENTIVE PROGRAMS

STATE	# OF PROGRAMS
CALIFORNIA	9
COLORADO	1
IOWA	2
IDAHO	1
MASSACHUSETTS	6
MINNESOTA	1
MONTANA	1
NEW HAMPSHIRE	1
OREGON	14
WASHINGTON	8
WYOMING	1

FINANCIAL INCENTIVES

FEDERAL TAX CREDITS

Consumers can receive a tax credit of 10% of the cost (up to \$200 total) for purchasing ENERGY STAR-qualified windows and skylights. The incentive is even higher for exterior doors, which may qualify for a tax credit of 10% of the cost (up to \$500). Some restrictions apply. Visit www.energystar.gov/taxcredits for more information. Please consult a tax professional for complete guidance.

LOCAL REBATES

Financial incentives for purchasing ENERGY STAR qualified windows, doors, and skylights are available in several states. (See chart to the left). For a more detailed list and contact information, visit www.energystar.gov/rebatefinder.

ENERGY SAVING TIPS

PROPER INSTALLATION

To get the most out of your windows, doors, and skylights, have them installed by trained professionals according to manufacturer instructions. Otherwise, your warranty may be void. When hiring a contractor, interview candidates and ask for references.

WINDOW ORIENTATION

When building a new home, or planning a major addition, consider this: orienting windows to the south and using roof overhangs can help reduce energy use by providing shade from the sun in the summer and solar heat gain in the winter. Overhangs are much less effective against the lower angles of the east and west sun, therefore reducing the size and number of east and west facing windows can help reduce energy use.

PLANT A TREE

Strategically planting deciduous trees near south, east, and west-facing windows will provide needed shade in the summer, but let the sun's heat in during the winter.

HOME SEALING

If you add up all the hidden air leaks in your home, they can equal a hole the size of an open window! To maximize home efficiency, seal all the gaps where air can leak in or out, including those around windows, doors, wiring holes, recessed lights, plumbing vents, your attic hatch, and more. Stopping drafts can make you feel more comfortable and reduce energy bills. To find out more, visit www.energystar.gov/homesealing.



Orienting windows to the south and planting trees on the east and west helps reduce energy use.

FUN FACTS

JOE'S SPORTING GOODS STORE

202

OPEN

HOURS

MONDAY	9-5
TUESDAY	9-5
WEDNESDAY	9-5
THURSDAY	9-5
FRIDAY	9-5
MONDAY	9-5
SUNDAY	CLOSED

GO

CHI CAGO CUBS

SKI HELMETS & GLOVES 10% OFF

Now IN STOCK JET SKIS

ALL TENTS ON SALE 20% OFF

NEW ORLEANS JAZZ FESTIVAL April-May

The Café

Today's Specials

Cheesesteaks	\$6
Coffee	\$1.50

Upgrading from single-paned to ENERGY STAR qualified windows can save:

- 1- In **Seattle**, enough energy to brew a lifetime's worth of coffee for 18 people³
- 2- In **Chicago**, enough money to take 20 friends to see the Cubs⁴
- 3- In **Boston**, enough money to commute on the T rail for over eight months⁵
- 4- In **Philadelphia**, enough money to feast on 67 cheesesteaks⁶
- 5- In **New Orleans**, enough money to take three friends to the Jazz and Heritage Festival⁷
- 6- In **Miami**, enough money to rent a three-passenger jet ski for one hour.⁸
- 7- In **Denver**, enough money to outfit a family of three with ski helmets and gloves⁹
- 8- In **Phoenix**, enough money for three rounds at a top rated golf course¹⁰
- 9- In **San Francisco**, enough money to camp in Yosemite for five days¹¹

³ Seattle energy savings relative to single pane = 28 million Btu, based on annual energy use for a 2,000 sq. ft., single-story, detached house with 300 sq. ft. of window area, gas heat, and electric air conditioning. Estimates use the Energy Information Administration's 2005 average gas prices and year-to-date through June 2006 electricity prices. Actual savings will vary by home characteristics. Energy to brew one cup of coffee = 70 Btu.

⁴ Chicago cost savings relative to single pane = \$300. Cubs ticket = \$14.

⁵ Boston cost savings relative to single pane = \$440. T rail = \$1.25/trip.

⁶ Philadelphia cost savings relative to single pane = \$405. Cheese steak sandwich = \$6.

⁷ New Orleans cost savings relative to single pane = \$130. Jazz and Heritage Festival tickets = \$30

⁸ Miami cost savings relative to single pane = \$195. Three passenger, one hour jet ski rental = \$120

⁹ Denver cost savings relative to single pane = \$395. Adult ski helmet = \$100, adult ski gloves = \$55, youth ski helmet = \$50, youth ski gloves = \$20.

¹⁰ Phoenix cost savings relative to single pane = \$320. Golf (in season) = \$90.

¹¹ San Francisco cost savings relative to single pane = \$110. Park entrance fee = \$20. Camping = \$18/night.

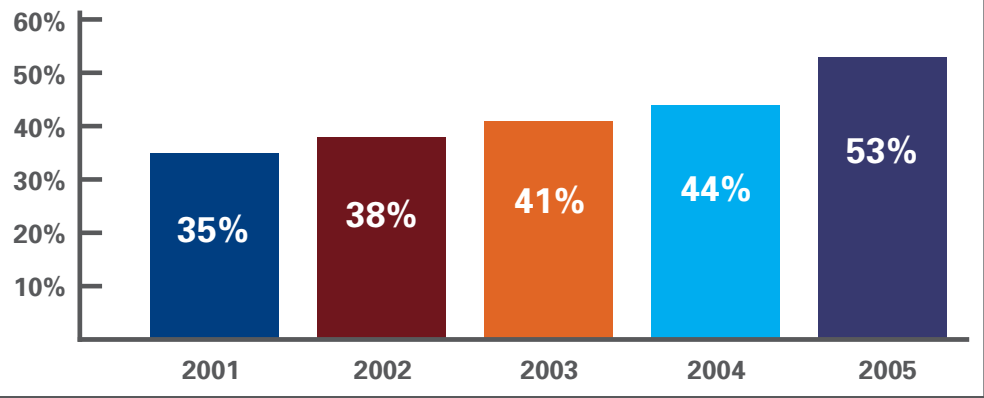
SECTION II : MARKET DATA



ENERGY STAR MARKET SHARE

Market share for ENERGY STAR qualified windows has grown steadily and quickly, at an annual rate of 8.2% since the program's inception in 1998, with current market share estimated at 53%.¹²

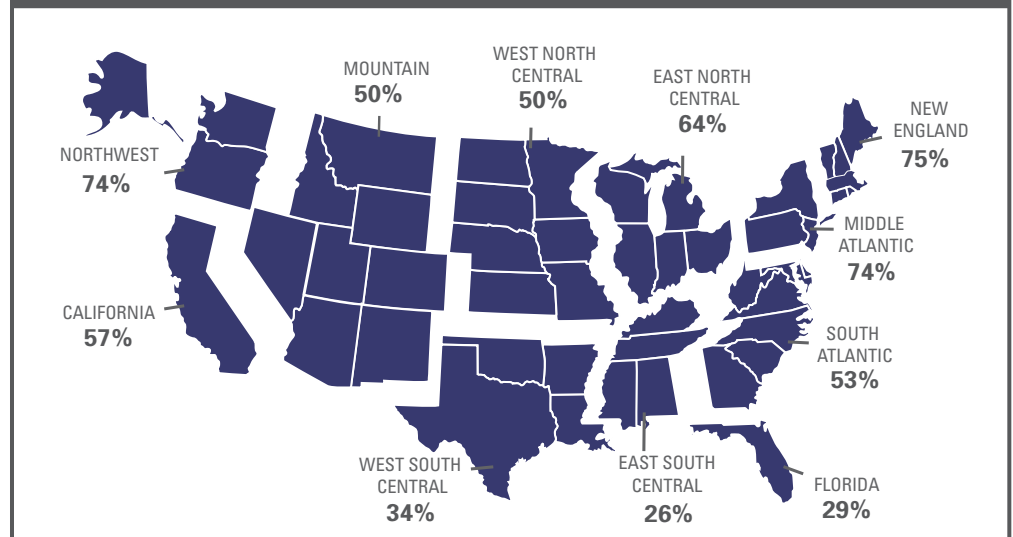
ENERGY STAR WINDOWS MARKET SHARE



REGIONAL MARKET SHARE

There is significant regional variation in market share, with the highest levels occurring in the northeast and northwest U.S., and the lowest in the southern states.

REGIONAL MARKET SHARE



¹² Market share data for ENERGY STAR qualified windows based on biannual reports in 2001, 2003, and 2005 prepared by Ducker Research and published by AAMA/WDMA. Data for 2002 and 2004 calculated by the U.S. Department of Energy using previous and subsequent data from Ducker Research.



COST EFFECTIVENESS

- Average life expectancy of ENERGY STAR qualified windows = 20 years
- ENERGY STAR price premium = about 5-15%
- Time to recover initial upgrade investment = as short as three years

ENERGY STAR CRITERIA

The ENERGY STAR criteria for residential windows, doors, and skylights are tailored to four Climate Zones: Northern, North/Central, South/Central, and Southern. A product's energy efficiency for a given climate is based on its impact on heat gain and loss in cold weather, and heat gain in warm weather. Windows that are energy efficient in Florida will not necessarily be energy efficient in Michigan and vice versa.

The current four-zone criteria for ENERGY STAR windows, doors, and skylights went into effect in August of 2003 and was subsequently amended to include alternative, performance based, criteria for the Southern and South/Central zones (excluding California). The amended criteria went into effect in September of 2005.

To be eligible for ENERGY STAR, products must be rated, certified, and labeled for both U-Factor and Solar Heat Gain Coefficient (SHGC) in accordance with the procedures of the National Fenestration Rating Council (NFRC) at levels that meet the following ENERGY STAR qualification criteria in one or more Climate Zone.

ENERGY STAR QUALIFICATION CRITERIA

WINDOWS, DOORS, AND SKYLIGHTS

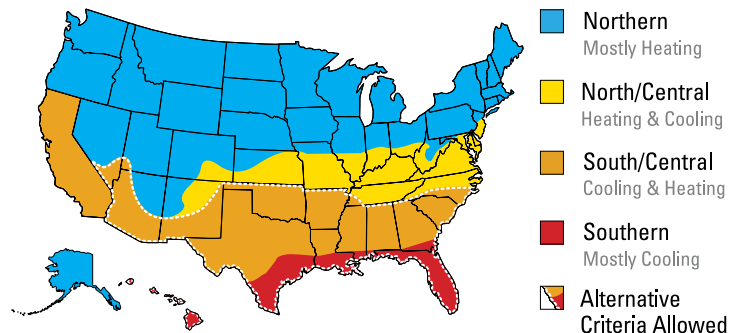
WINDOWS & DOORS

Climate Zone	U-Factor ¹³	SHGC ¹⁴	
Northern	≤ 0.35	Any	
North/Central	≤ 0.40	≤ 0.55	
South/Central	≤ 0.40	≤ 0.40	Prescriptive
	≤ 0.41	≤ 0.36	Equivalent Performance (Excluding CA) Products meeting these criteria also qualify in the Southern zone.
	≤ 0.42	≤ 0.31	
	≤ 0.43	≤ 0.24	
Southern	≤ 0.65	≤ 0.40	Prescriptive
	≤ 0.66	≤ 0.39	Equivalent Performance
	≤ 0.67		
	≤ 0.68	≤ 0.38	
	≤ 0.69	≤ 0.37	
	≤ 0.70		
	≤ 0.71	≤ 0.36	
	≤ 0.72	≤ 0.35	
	≤ 0.73		
	≤ 0.74	≤ 0.34	
	≤ 0.75	≤ 0.33	

SKYLIGHTS

Climate Zone	U-Factor ¹⁵		SHGC ¹⁶
	2001 and 2004 NFRC rated at 20° ¹³	RES97 rated at 90° ¹⁴	
Northern	≤ 0.60	≤ 0.45	Any
North/Central	≤ 0.60	≤ 0.45	≤ 0.40
South/Central	≤ 0.60	≤ 0.45	≤ 0.40
Southern	≤ 0.75	≤ 0.75	≤ 0.40

CLIMATE ZONES



¹³ Btu/h.ft².°F

¹⁴ Fraction of incident solar radiation.

¹⁵ U-Factor qualification criteria based on 2001 or 2004 NFRC simulation and certification procedures that rate skylights at a 20-degree angle. Although reported U-Factor is higher than RES97 rated products, energy performance at the ENERGY STAR minimum qualifying level is equivalent.

¹⁶ NFRC certification using the 1997 NFRC procedures for residential windows (RES 97) that rated skylights at a 90-degree angle. Skylights rated under this procedure may be present in the marketplace until March 31, 2008. NFRC labels for products using this procedure state: "RES97 rated at 90 degrees."

SECTION III : CITY SAVINGS ESTIMATES

		Compared to Single Pane		Compared to Typical Alternative			
				Replacement		New Construction	
Official Savings Statements:		Choose ENERGY STAR and save [insert \$ or Btu] a year when replacing single pane windows		Choose ENERGY STAR and save [insert \$ or Btu] a year over double pane, clear glass replacement windows		Choose ENERGY STAR and save [insert \$ or Btu] a year over double pane, clear glass windows in new construction	
CITY		Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)
AK	Anchorage	\$385	65	\$55	9.4	\$55	9.2
	Fairbanks	\$490	83	\$70	13.5	\$85	11.3
AL	Birmingham	\$340	19.4	\$50	2.2	\$50	2.2
	Mobile	\$150	7.5	\$40	0.2	\$30	0.5
AR	Little Rock	\$375	22.6	\$55	2.6	\$55	2.5
AZ	Phoenix	\$320	16.7	\$85	3.5	\$90	3
	Flagstaff	\$665	44.1	\$30	1.8	\$30	1.7
	Tucson	\$305	17.4	\$65	2.5	\$65	2.1
CA	Fresno	\$235	12	\$70	2.1	\$75	1.8
	Los Angeles ¹⁷	\$65	4.4	\$15	0	\$10	0
	Red Bluff	\$275	14.8	\$75	2.5	\$75	2.2
	San Diego	\$65	3.7	\$20	0.3	\$20	0.3
	San Francisco ¹⁸	\$110	9.1	-\$5	-0.8	-\$10	-0.4
	Arcata ^{17, 18}	\$150	12.5	\$0	-0.4	-\$5	-0.2
	Bakersfield	\$225	10.4	\$75	2	\$75	1.6
	Daggett	\$275	11.3	\$90	2	\$90	1.8
	Sacramento	\$190	11.6	\$50	1.5	\$50	1.3

¹⁷ Zero energy savings and positive dollar savings occur simultaneously because electric cooling costs per Btu through June 2006 in California were more than three times those for gas heating per Btu. The greater savings per Btu of electricity outweigh the increased heating costs leading to overall monetary savings.

¹⁸ Anomalies such as negative savings (costs) occur when the cooling energy savings from ENERGY STAR qualified windows are less than the heating energy penalty, resulting in slightly greater average energy use than double clear windows.

CITY		Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)
CO	Denver	\$395	34.8	\$50	3.3	\$50	3.1
	Grand Junction	\$380	31.8	\$60	3.4	\$60	3.2
CT	Hartford	\$475	25.9	\$105	4.8	\$110	4.5
DC	Washington	\$505	27.9	\$70	3.4	\$70	3.3
DE	Wilmington	\$655	41.7	\$80	4.4	\$80	4.3
FL	Jacksonville	\$195	7.4	\$70	1	\$60	1.2
	Miami	\$195	6.8	\$170	5.1	\$170	4.6
	Daytona Beach	\$170	6.1	\$95	2	\$85	2
	Tallahassee	\$185	7.2	\$55	0.3	\$45	0.6
	Tampa	\$190	6.8	\$120	3	\$115	2.9
GA	Atlanta	\$465	24.6	\$55	2.4	\$55	2.3
	Savannah	\$330	17.1	\$50	2.1	\$50	1.9
IA	Des Moines	\$425	28.7	\$90	5.4	\$90	5.3
ID	Boise	\$395	36.6	\$50	4.1	\$50	3.8
IL	Chicago	\$300	23.4	\$65	4.7	\$70	4.4
	Springfield	\$280	21.6	\$65	4.3	\$65	4.1
IN	Indianapolis	\$345	25.2	\$75	4.8	\$75	4.5
KS	Wichita	\$340	23	\$70	4	\$70	3.8
KY	Lexington	\$490	34.7	\$65	4.3	\$65	4.2
	Louisville	\$440	30.9	\$60	3.9	\$60	3.8
LA	Lake Charles	\$150	7.8	\$70	1.6	\$65	1.6
	New Orleans	\$130	6.5	\$65	1.3	\$55	1.4
	Shreveport	\$245	14.7	\$50	2.2	\$50	2
MA	Boston	\$440	26.6	\$85	4.1	\$85	4.1
MD	Baltimore	\$555	33.3	\$65	3.6	\$70	3.5
ME	Portland	\$450	27	\$75	3.9	\$75	4
MI	Detroit	\$535	45.8	\$100	8.3	\$105	7.9
	Grand Rapids	\$560	48.2	\$110	9.1	\$115	8.8

CITY		Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)
MI	Houghton	\$635	55	\$120	10.2	\$120	10.3
MN	Minneapolis	\$335	27	\$75	5.3	\$75	5.2
	Duluth	\$405	33.2	\$80	6.1	\$75	6.3
MO	Kansas City	\$355	24.6	\$75	4.7	\$75	4.5
	St. Louis	\$355	24.6	\$75	4.8	\$75	4.5
MS	Jackson	\$260	15.5	\$55	2.3	\$55	2.2
MT	Great Falls	\$695	61.9	\$85	7.2	\$90	7.1
	Billings	\$660	58.4	\$85	6.6	\$85	6.5
NC	Raleigh	\$355	20.6	\$50	2	\$45	2.3
ND	Bismark	\$385	30.8	\$75	5.9	\$80	5.8
NE	Omaha	\$305	24.3	\$65	4.8	\$70	4.5
NH	Concord	\$480	28.7	\$95	4.9	\$95	4.8
NJ	Atlantic City	\$410	30.3	\$75	4	\$70	4.2
NM	Albuquerque	\$315	24	\$35	1.6	\$35	1.5
NV	Las Vegas	\$345	18.8	\$75	2.2	\$75	1.8
	Reno	\$425	31.2	\$45	2.3	\$45	2.2
NY	Buffalo	\$470	28.1	\$105	5.6	\$110	5.5
	New York City	\$365	21.1	\$85	3.5	\$85	3.4
	Albany	\$455	27	\$100	5.1	\$105	5
OH	Dayton	\$315	24.7	\$70	4.7	\$70	4.4
	Cleveland	\$330	25.8	\$75	5.2	\$75	5
OK	Oklahoma City	\$435	30.4	\$55	2.9	\$55	2.9
OR	Medford	\$380	27.8	\$60	3.4	\$55	3.5
	Portland	\$390	29	\$50	3.2	\$45	3.4
PA	Philadelphia	\$405	25.3	\$80	4.3	\$80	4.1
	Pittsburgh	\$460	29.4	\$95	5.7	\$100	5.5
	Williamsport	\$455	28.8	\$90	5.3	\$95	5.2
RI	Providence	\$415	25.3	\$75	3.9	\$80	3.8

CITY		Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)	Utility Dollars	Btu (millions)
SC	Charleston	\$240	13.6	\$50	1.6	\$45	1.7
	Greenville	\$295	17.3	\$50	1.7	\$40	2
SD	Pierre	\$350	26.8	\$70	5	\$75	4.8
TN	Memphis	\$275	17.6	\$50	2.2	\$45	2.4
	Nashville	\$335	22	\$60	3	\$55	3.1
TX	Brownsville	\$240	8.6	\$175	4.5	\$175	4.1
	El Paso	\$305	16.1	\$70	1.9	\$70	1.6
	Fort Worth	\$330	17.3	\$75	2.4	\$75	2.1
	San Antonio	\$225	9	\$130	2.3	\$125	2.2
	Houston	\$210	8.6	\$125	2.5	\$120	2.4
	Lubbock	\$380	23.1	\$60	2.1	\$60	2
UT	Salt Lake City	\$285	28.8	\$45	3.5	\$50	3.3
	Cedar City	\$260	26.9	\$35	2.4	\$35	2.3
VA	Richmond	\$500	28.9	\$60	2.8	\$55	2.8
VT	Burlington	\$465	34.1	\$95	6.2	\$95	6.2
WA	Seattle	\$340	28	\$40	3	\$40	2.9
	Spokane	\$465	38.1	\$60	4.5	\$60	4.4
WI	Madison	\$345	26.3	\$75	5	\$75	4.9
WV	Charleston	\$540	38.2	\$60	4.5	\$65	4
WY	Cheyenne	\$520	46.1	\$50	4.1	\$50	4.1

Source: U.S. Department of Energy (2006).

Note: For Savings Methodology, visit www.energystar.gov/windows_methodology



United States
Department of Energy

For more information visit
www.energystar.gov
1.888.STAR.YES (1.888.782.7937)