The Home Energy Saver

Do-it-Yourself Survey

http://HomeEnergySaver.lbl.gov

Evan Mills - Lawrence Berkeley National Lab

Touchstone Meeting • San Antonio • May 16, 2006

Energy Efficiency Helps Utility Customers Offset Higher Prices

Highlights

- **Technical**
  - First web energy calculator; non-proprietary; fuel-neutral; transparent assumptions/methods; ~350 "weather" locations across the U.S.
  - Whole-house scope (and includes system interactions)
  - Uses actual electricity tariffs for many locales

- **Deployment/Impact**
  - Broad content offerings, in addition to calculations
  - Extensive media coverage
  - ~75% will return/recommend
  - 35% of surveyed users say they have acted on results
  - New alliance with Touchstone Energy Cooperatives

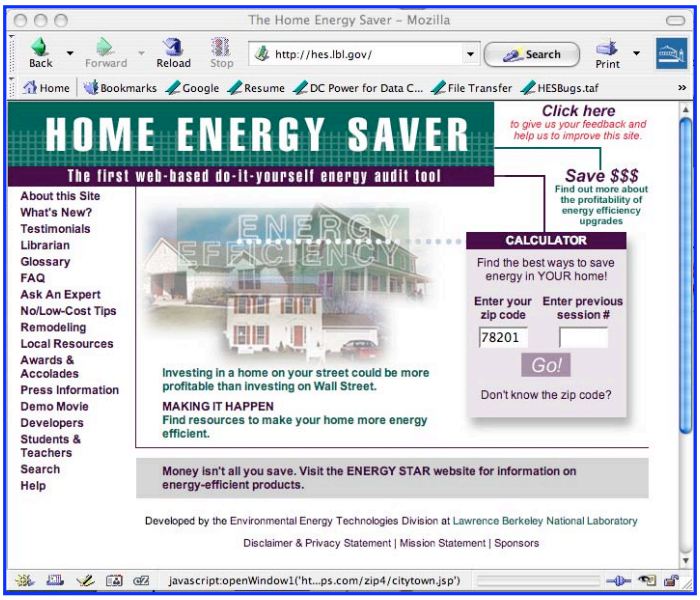
History and Uses

- Initiated development in 1996: Investment $2.3 M

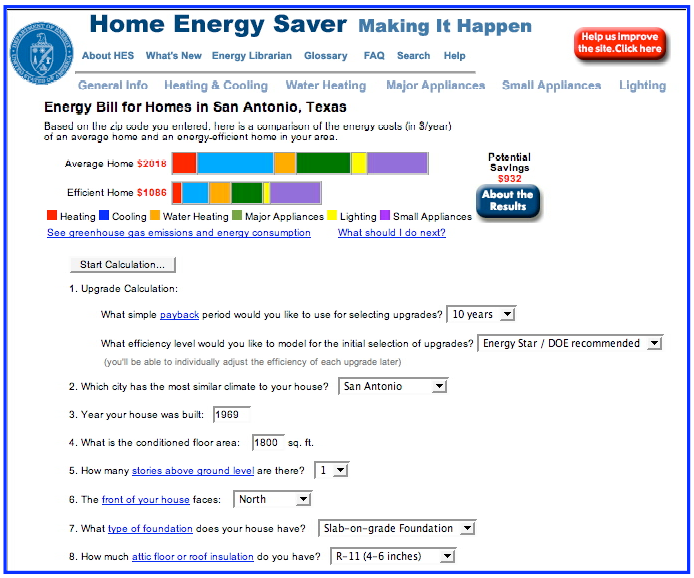
- Clearinghouse for publicly-funded research, data, and consumer information

- 2.8 million visits to-date [60 million "hits"] (about 300 visits during the course of this talk!)
  - We have users from every state
  - 91% are homeowners or renters
  - Contractors, students, analysts as well….

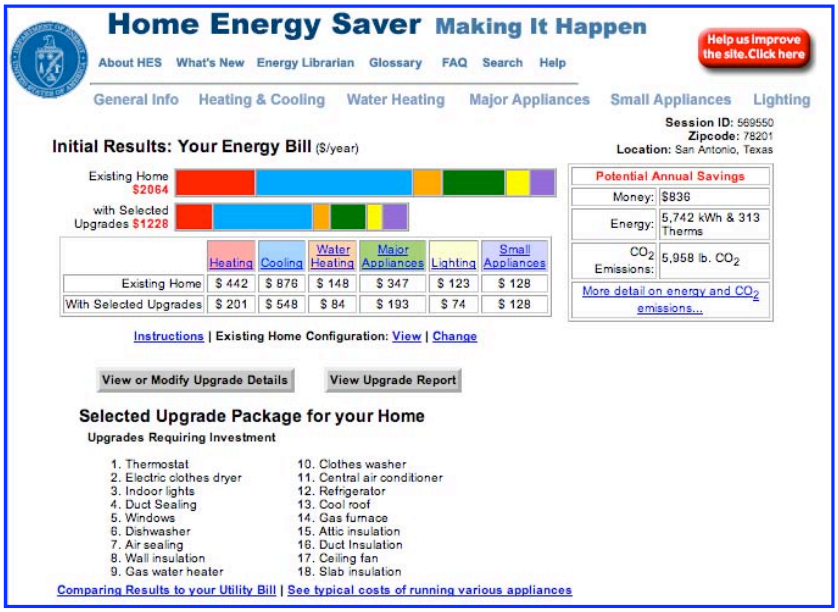
Walkthrough



Simple Input Level Has Only ~12 Questions



User Gets First-tier Answers Rapidly



Ranked Retrofit Recommendations

Add/ Remove	Upgrade		Upgrade Choice and Description	Bill Savings Compared to Existing Unit	Bill Savings Compared to New Unit	Estimated Cost		Max. Cost for 10 Year Payback	Simple Payback Time	Estimated Return on Investment
Check/Uncheck All Upgrades			Total for Selected Upgrades:	$836	$783		$3,101	$7,830	4	25%
☑	Thermostat		ENERGY STAR-labeled programmable	$88	$88	Typical Costs	$ 70	$880	1	125%
☑	Dishwasher	Units	EF=0.58 (ENERGY STAR)	$37	$27	Typical Costs	$ 30	$270	1	90%
☑	Electric clothes dryer		Switch to gas dryer	$67	$67	Typical Costs	$ 50	$670	1	133%
☑	Indoor lights		CFLs in high-use fixtures	$74	$74	Typical Costs	$ 98	$740	1	72%
☑	Duct Sealing	Units	Reduce leakage to 6% of total airflow	$197	$197	Typical Costs	$ 300	$1,970	2	66%
☑	Windows	Units	2-pane/solar-control low-E/argon gas/wood (ENERGY STAR)	$193	$193	Typical Costs	$ 555	$1,930	3	35%
☑	Air sealing		25% air leakage reduction	$108	$108	Typical Costs	$ 400	$1,080	4	27%
☑	Wall insulation	Units	R-11 wall cavity	$142	$142	Typical Costs	$ 615	$1,420	4	23%
☑	Gas water heater	Units	EF=0.62	$24	$24	Typical Costs	$ 130	$240	5	17%
☑	Clothes washer	Units	MEF=1.42 WF=9.5 (ENERGY STAR)	$72	$46	Typical Costs	$ 210	$460	5	20%
☑	Central air conditioner	Units	SEER=14 (ENERGY STAR)	$282	$46	Typical Costs	$ 280	$460	6	14%
☑	Refrigerator	Units	15% better than standard (ENERGY STAR)	$44	$6	Typical Costs	$ 50	$60	8	12%
☑	Cool roof	Units	Solar reflectance = 0.50 (low-slope roofs)	$38	$38	Typical Costs	$ 315	$380	8	12%
☐	Gas furnace	Units	AFUE=90 (ENERGY STAR)	$59	$59	Typical Costs	$ 1041	$590	18	NCE
☐	Attic insulation	Units	R-38	$50	$50	Typical Costs	$ 1099	$500	22	2%
☐	Duct Insulation	Units	R-6	$21	$21	Typical Costs	$ 460	$210	22	NCE
☐	Ceiling fan		ENERGY STAR-labeled	$1	$1	Typical Costs	$ 50	$10	50	NCE
☐	Slab insulation	Units	R-5 slab edge	($24)	($24)	Typical Costs	$ 477	$0	upgrade increases energy use	

Printable "Retrofit Report" measure x measure

Ducts

Have your ducts professionally sealed to reduce leakage

Economic Benefits
Estimated Annual Bill Savings: $197
Estimated Lifetime Energy Cost Savings: $2955
Upgrade Cost: $300
Return on Investment: 66%
Upgrade pays for itself in: 2 years

Additional Benefits: Sealing leaky ducts can help improve comfort and avoid indoor air pollution problems, fire hazards, and rooftop ice-dam formation during the winter.

Upgrade Description: Have your ducts professionally sealed so that the duct leakage is no more than 10% total (supply and return) as a percent of fan flow. The average forced-air duct system loses about 30% of the energy produced by the furnace or air conditioner in the course of distributing air to the rooms. This energy loss can be reduced by sealing duct joints with mastic or high-quality duct tape, and insulating ducts in unconditioned spaces.

Note: The annual bill savings and cost-effectiveness assume that your ducts are sealed to 10% total leakage.

Purchasing Tips:

- To get the level of air sealing specified above, you probably will have to have your ducts sealed by a qualified professional.
- Use high quality duct sealing materials: Underwriters Laboratories-tested UL 181 mastics and tapes listed for duct sealing, or AEROSEAL® sealant.
- Make sure you have your ducts professionally tested with a fan flow metering device after sealing. Ask your contractor for a report documenting the final leakage level; the report may help increase the resale value of your house. Also have the ducts tested prior to sealing, so that you can see how much improvement has been made. See the ENERGY STAR® Specifications for Ducts web site for further information about testing.

More Information

- ENERGY STAR® Duct Sealing Recommendations
- Aerosol-Based Duct Sealing
- General Information from DOE
- EPA's brochure "Should You Have the Air Ducts in Your Home Cleaned?"
- An Introduction to Residential [Duct] Systems

Detailed Results Available as Well

Home Energy Saver Making It Happen

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Appliance and Water Heating Consumption Here is the approximate energy consumed in a typical year, by your major appliances.

Appliance	Appliance Energy		Water Heating Energy			Total Energy	Total Cost
	Energy per Year	Cost per Year	Water Use (gal/day)	Energy per Year	Cost per Year		
First Refrigerator:	858 kWh	$ 211	none	none	none	858 kWh	$ 211
Stove:	33 therms	$ 27	none	none	none	33 therms	$ 27
Oven:	239 kWh	$ 59	none	none	none	239 kWh	$ 59
Clothes Dryer:	1456 kWh	$ 359	none	none	none	1456 kWh	$ 359
Clotheswasher	98 kWh	$ 24	21	83 therms	$ 68	98 kWh & 83 therms	$ 92
Dishwasher Total	162 kWh	$ 40	6	24 therms	$ 20	162 kWh & 24 therms	$ 60
Hot Water: Taps and Faucets	none	none	56	220 therms	$ 181	220 therms	$ 181
Totals	2813 kWh & 33 therms	$ 720	83 gallons	326 therms	$ 268	2813 kWh & 359 therms	$

Appliance energy is the energy used by motors, heating elements, and burners inside your appliances. This number excludes the energy consumed by your water heater to supply hot water for appliances such as clothes washers and dishwashers.

Energy, Costs, Emissions

Carbon emissions and Energy Consumption

Back Forward Reload Stop http://hes3.lbl.gov/hes/Carbon.taf?f=carbon&sess

Home Bookmarks Technology Quarter... Google Resume DC Power for Data

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Detail of Whole House Annual Energy Use

		Your House	With Selected Upgrades	Savings
Whole House	$	$1,661	$885	$776
	Energy	5,740 kWh & 1,196 Therms	3,469 kWh & 656 Therms	2,270 kWh & 540 Therms
	Emissions	14,965 lb. CO_2	8,264 lb. CO_2	6,701 lb. CO_2
Heating	$	$715	$277	$438
	Energy	234 kWh & 837 Therms	147 kWh & 316 Therms	87 kWh & 521 Therms
	Emissions	9,819 lb. CO_2	3,717 lb. CO_2	6,102 lb. CO_2
Cooling	$	$9	$9	$0
	Energy	75 kWh	75 kWh	0 kWh
	Emissions	13 lb. CO_2	13 lb. CO_2	0 lb. CO_2
Hot Water	$	$181	$100	$81
	Energy	326 Therms	227 Therms	99 Therms
	Emissions	3,809 lb. CO_2	2,652 lb. CO_2	1,157 lb. CO_2
Major Appliances	$	$447	$251	$196
	Energy	2,813 kWh & 33 Therms	1,144 kWh & 113 Therms	1,669 kWh & (80) Therms
	Emissions	872 lb. CO_2	1,518 lb. CO_2	(646) lb. CO_2
Lighting	$	$152	$91	$61
	Energy	1,286 kWh	772 kWh	514 kWh
	Emissions	222 lb. CO_2	133 lb. CO_2	89 lb. CO_2
Misc.	$	$157	$157	$0
	Energy	$1,332 kWh	1,332 kWh	0 kWh
	Emissions	230 lb. CO_2	230 lb. CO_2	0 lb. CO_2

Home can be defined in great detail, if user wishes (inputs optional)

The Non-Rectangular House Page Save Answers

Backward S-shape

Since the house is not a rectangle,
please enter the dimensions needed
to estimate the energy consumption of the house.

This side faces the street

Length of this side: 10

Length of this side: 10

This side faces the street

Length of this entire side: 32.86

This side faces the street

Length of this side: 10

Length of this side: 10

Length of this entire side: 54.77

This side faces the street

Home can be defined in great detail, if user wishes (inputs optional)

Many wall construction options

Walls Save Answers

1. Please select the construction type, insulation level, and exterior finish of your house's walls

	Exterior Finish					
	Wood Siding	Stucco	Vinyl Siding	Aluminum Siding	Brick Veneer	None
Insulation Level	Wood Frame					
R-0 (no insulation)	◉	○	○	-	○	
R-3 (1-2 inches)	○	○	○	-	○	
R-7 (2-3 inches)	○	○	○	-	○	
R-11 (3-5 inches)	○	○	○	-	○	
R-13 (5-6 inches)	○	○	○	-	○	
R-15 (6-7 inches)	○	○	○	-	○	
R-19 (7-9 inches)	○	○	○	-	○	
R-21 (9-10 inches)	○	○	○	-	○	
With Insulated Headers						
R-11 (3-5 inches)	○	○	○	-	○	
R-13 (5-6 inches)	○	○	○	-	○	
R-15 (6-7 inches)	○	○	○	-	○	
R-19 (7-9 inches)	○	○	○	-	○	
R-21 (9-10 inches)	○	○	○	-	○	
With EPS Sheathing						
R-11 (3-5 inches)	○	○	○	-	○	
R-13 (5-6 inches)	○	○	○	-	○	
R-15 (6-7 inches)	○	○	○	-	○	
R-19 (7-9 inches)	○	○	○	-	○	
R-21 (9-10 inches)	○	○	○	-	○	
With Insulated Headers and EPS Sheathing						
R-11 (3-5 inches)	○	○	○	-	○	
R-13 (5-6 inches)	○	○	○	-	○	
R-15 (6-7 inches)	○	○	○	-	○	
R-19 (7-9 inches)	○	○	○	-	○	
R-21 (9-10 inches)	○	○	○	-	○	
With EPS Sheathing and OVE						
R-19 (7-9 inches)	○	○	○	-	○	
R-21 (9-10 inches)	○	○	○	-	○	
With OVE						
R-19 (7-9 inches)	○	○	○	-	○	
R-21 (9-10 inches)	○	○	○	-	○	
R-27 (10-12 inches)	○	○	○	-	○	
R-33 (12-15 inches)	○	○	○	-	○	
R-38 (15-16 inches)	○	-	-	-	-	
	Structural Brick					
R-0 (no insulation)						○
R-5 (1 inch)						○
R-10 (2 inches)						○
	Concrete Block					
R-0 (no insulation)		○			○	○
R-3 (1/2 inch)		○			○	○
R-6 (1 inch)		○			○	○
	Straw Bale					
R-0 (no insulation)		○				

Lighting: two levels of detail

Lighting

◉ **Option 1:** Based on the information you supply about the number of lighting fixtures, we can estimate the energy used by lights. This estimate will be based on typical hours of use and wattage from a field study that monitored lighting in homes.

○ **Option 2:** If you prefer, you can provide the exact wattage and average hours of use per day for each fixture. This information will then be used to calculate lighting energy use. It will probably take you a few minutes to collect the wattage for each fixture.

Save answers...

How many light fixtures do you have in the following rooms (include portable (plug-in) lamps): Note: Multiple lights on a single circuit (switch) count as one fixture.

Kitchen	2	**Dining Room**	1	**Living Room**	3
Family Room	1	**Master Bedroom**	2	**Hall**	2
Bedroom(s) (enter the total for all other bedrooms, excluding closet lights)	2	**Bathroom(s)** (enter the total for all bathrooms)	2	**Closet(s)** (enter the total for all closets)	0
Utility Room	0	**Garage**	1	**Outdoor Lighting**	2
Other	0				

Extensive Coverage of "Misc." Uses

Home Office Save Answers

Please enter detail if you own the following appliances
Whenever there is more than one of a particular item, enter the average per-unit usage for all units in the house.
Do not select more than 24 hours in a day

Computer CPU	One	used	5	Hours	per	Day		
Computer Monitor	One	used	5	Hours	per	Day		
Laptop Computer Charger	None	used	0	Minutes	per	Day	(Time should indicate time that laptop is plugged into the charger)	
Laser Printer	None	used	1	Hours	per	Week	(Time should indicate time printer is actively printing)	
Inkjet Printer	One	used	1	Hours	per	Week	(Time should indicate time printer is actively printing). All inkjet printers naturally qualify as EnergyStar, therefore there is no difference in the energy used by EnergyStar vs. non-EnergyStar inkjet printers.	
Router / DSL / Cable Modem	One	used	5	Hours	per	Day		
Thermal Fax Machine	None	used	4	Minutes	per	Day	Energy Star?	Yes / No
Inkjet Fax Machine	None	used	4	Minutes	per	Day		
Home Copy Machine	None	machine						
Time Copying	30	Minutes	per	Day				
Time Left On but Idle	0	Hours	per	Day				

Unique Tariff Module [~300 utilities]

(Tariff database funded by BT-Standards)

Home Energy Saver Making It Happen

Help us improve the site. Click here

About HES | What's New | Energy Librarian | Glossary | FAQ | Search | Help

General Info | Heating & Cooling | Water Heating | Major Appliances | Small Appliances | Lighting

Energy Bill for Houses in Berkeley, California

Based on the zip code you entered, here is a comparison of the energy costs (in $/year) of an average home and an energy-efficient home in your area.

Average House - $1206
Efficient House - $811

Potential Savings $395

About the Results

Heating, Cooling, Water Heating, Major Appliances, Lighting, Small Appliances

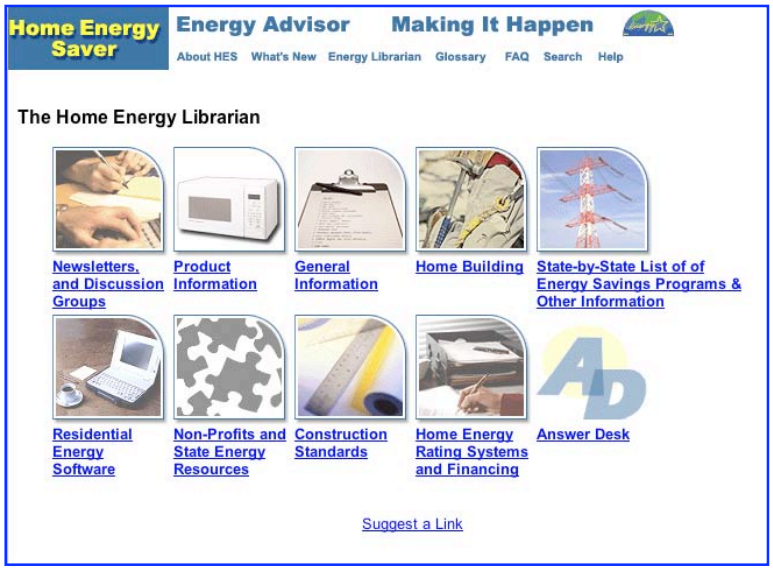
See greenhouse gas emissions and energy consumption | What should I do next?

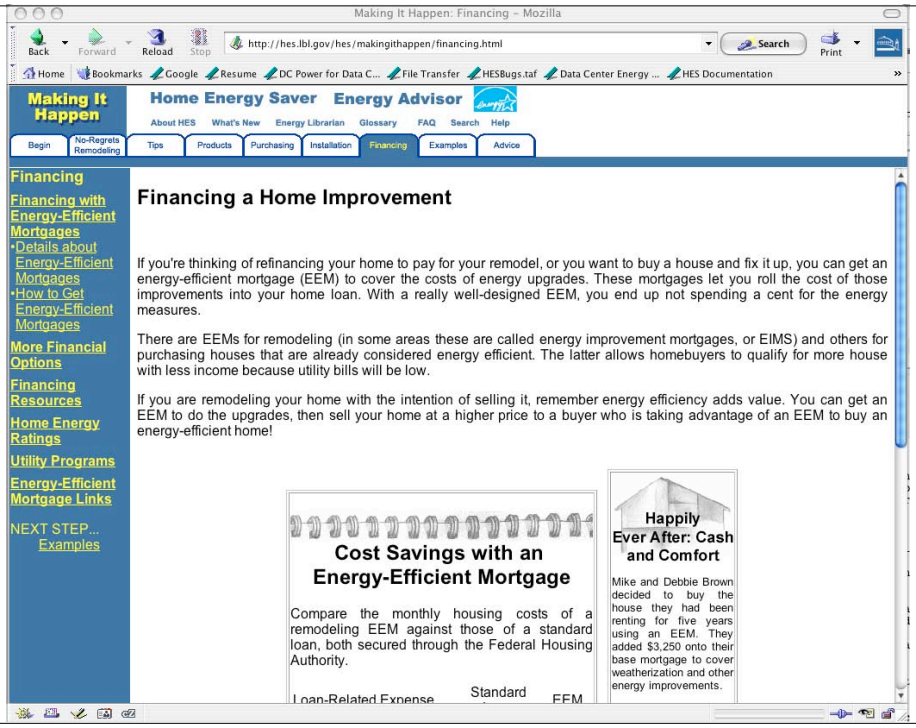
Select your utility from the list below

Alameda City of	Read more information
Anaheim City of	Read more information
Imperial Irrigation District	Read more information
Los Angeles City of	Read more information
Modesto Irrigation District	Read more information
Pacific Gas & Electric Co	Read more information
Redding City of	Read more information
Riverside City of	Read more information
Sacramento Municipal Util Dist	Read more information
San Diego Gas & Electric Co	Read more information
Southern California Edison Co	Read more information
Southern California Water Co	Read more information
Turlock Irrigation District	Read more information

Choose this Utility

Calc's Complemented with Extensive Decision-support Content





EERE: Information Center - Mozilla

http://www1.eere.energy.gov/informationcenter/

U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

EERE Home

EERE Information Center

The EERE Information Center answers questions on EERE's products, services, and 11 technology programs, refers callers to the most appropriate EERE resources, and refers qualified callers to the appropriate expert networks.

Technical and programmatic information for the residential, commercial, institutional, industrial and transportation sectors is also immediately available through the EERE Web site.

Other ways to find the information you need include:

- Visiting the EERE Online Catalog
- Visiting the A Consumer Guide to Energy Efficiency and Renewable Energy Web site
- Searching EERE's Web site for online resources
- Reviewing EERE's Industrial Information, Tools and Publications

You may contact the EERE Information Center with questions on EERE's products, services, and 11 technology programs by calling 1-877-EERE-INF (1-877-337-3463) or by completing and submitting the form below. A customer service specialist or energy expert at the EERE Information Center will respond to your inquiry.

Fields with asterisks are required. Please note that we are only able to respond to inquiries from the United States.

First Name*: **MI:**
Last Name*:
Title:
Organization:
Address 1*:
Address 2:
City*:
State*: **Zip Code:**
Phone:
Fax:
E-mail*:
Profession*: Private Citizen/Homeowner/Consumer

Please input your question*:

The Home Energy Saver Glossary - Mozilla

http://hes.lbl.gov/hes/glossary.html

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Energy Advisor Making It Happen
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Glossary of Energy Terminology

- Heating, Ventilation and Cooling Terminology
- Insulation Terminology
- Window Efficiency Terminology
- Water Heater Terminology
- Lighting Terminology

Heating, Ventilation and Cooling Terminology

System Capacity
System capacity is a measurement of the total amount of heat or cooling your furnace, heat pump or air conditioner can produce in one hour. This amount is reported in Btu/hr on the nameplate of your equipment.

Btu
Btu, short for British Thermal Unit is a unit of heat energy. One Btu is the amount of heat needed to raise the temperature of one pound of water 1°F. To get a rough idea of how much heat energy this is, the heat given off by burning one wooden kitchen match is approximately one Btu.

AFUE
The AFUE, or Annualized Fuel Utilization Efficiency, is the ratio of the total useful heat your gas furnace delivers to your house to the heat value of the fuel it consumes. Click here to see a more complete description of AFUE.

Heat Pump
A heat pump is basically an air conditioner with a reversible valve that allows it to operate in reverse, removing heat from your house and shunting it outdoors in the summer, and removing heat from outdoor air and shunting it into your house in the winter. Because heat pumps do not actually create heat—they just move it from one place to

The Home Energy Saver Answer Desk - Mozilla

http://hes.lbl.gov/hes/answerdesk.html

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The Home Energy Saver Answer Desk

General Comment: most answers to questions about home energy use depend heavily on your personal situation -- the climate where you live, your energy usage patterns, home size, configuration and features. For this reason, we can give general guidance here, but for a more definitive answer you should use the Energy Advisor to assess your own situation.

Not finding what you need here? Try DOE's Information Center.

General

1. What is the typical energy use of household appliances?
2. What's the most common mistake people make in trying to save energy around the house?
3. We don't own a home; we rent an apartment. What can we do?
4. We have an older house. Which should we do first: insulate or replace the furnace?
5. My neighbor's bills are much lower than mine, even though they have children, and are home more than we are. Why are my bills so high?
6. What's the single biggest user of electricity in my house?
7. I was trying to find an estimate of the expected savings of an ENERGY STAR New Home (30% better than Model Energy Code) versus an "average" existing home. Your estimates seem to be oriented to retrofits using Energy Star equipment, as was clear once I got into the details. Have you also done, or do you have a reference on the savings with the Energy Star new home? That would presumably come out somewhat better than the full retrofit case.
8. How about energy savings in my car?
9. What are the benefits of energy efficiency besides saving energy?

Heating, Ventilation and Air Conditioning

1. How much energy can I save by using fans instead of my air conditioner?
2. Should I use portable room heaters to lower my energy bills?
3. What information can you give me on air-to-air heat pumps for the home?
4. Does it pay to run a large duct from the outside of the house to the furnace to provide outside air for combustion? Contractors provided a passive supply of air along with the installation of our new furnace in St. Paul, Minnesota and we are wondering if it is worthwhile with a 30-year old furnace in Macomb, Illinois.
5. How can I tell if the contractor who is putting in a new furnace is gouging me on the price?
6. We have been very unhappy with our current heat pump and are wondering whether to install a new one or convert to natural gas. What factors should we consider?
7. If I shut off my heater or air conditioner when I'm gone from the house, doesn't it cost more to heat or cool the house back to the right temperature once I return?

Energized Learning - Mozilla

http://energizedlearning.lbl.gov/

Energized Learning

Students

Lessons

- Getting Started
- Bringing It Home
- Unit Conversions

Resources

Links

Workshops

Printer version

This web site is designed for middle and high school students, their teachers and their parents. The more advanced elements of the lessons are applicable to college-level courses. The site includes lessons and activities that develop specific skills and knowledge students are expected to learn in science, mathematics, economics and social sciences and politics. Energy supply, conversion and use is central the quality of life for all people. It is our hope that students, teachers and parents will develop a better understanding of energy and its complex interrelationships.

Mathematics, science, economics, social and political science teachers will find a list of student lessons and activities with keys to subject matter standards.

As students work through one or more of the standards-based lessons they will be exposed to the following concepts:

- Energy and the environment are linked — students will compare the amount of carbon dioxide, a greenhouse gas, emitted to the atmosphere as a result of energy use choices in their homes.
- Quality of life can be increased without increasing energy use — students analyze the impact of energy efficient options for services, such as lighting and heating that provide for conveniences, comfort, and entertainment
- Achieving energy efficiency is an investment, not an expenditure — students analyze the impact of energy efficient investments on their annual energy costs.
- Understanding and managing energy use requires concepts and information from many areas — Students will learn that planning for an energy efficient future involves knowledge of science, mathematics. economics and social science.

Teachers

Why Use the Energized Learning Site?

How Will Teachers & Students use the Energized Learning Site?

Lessons

- Getting Started
- Bringing It Home
- Unit Conversions

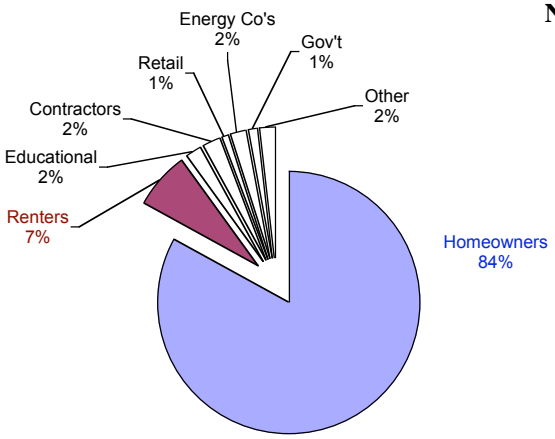
Resources

Links

Done

Users

(feedback form respondents)



Non-household examples:

- Research
- Forecasting
- Air-Force: Housing developers required to document performance using HES
- Insulation Manufacturers: customer/contractor tools
- High Schools & Colleges: *Energized Learning*
- Utilities: customer service (linked or *integrated* into websites)

Accolades

YAHOO

PC PCMAG.COM

National Rural Electric Cooperative Association

LYCOS® Your Personal Internet Guide

Médaille d'Or

TOP 10 galaxy 30 DAYS ON THE INTERNET TOP ENERGY SITES

BRIGHT SPOT ON THE WEB SELF-WORTH.COM

WHITE HOUSE MILLENNIUM COUNCIL Energy-100

Snyder's Empire Golden Excellence Award www.spydersempire.com

Local Papers (32+ states) (partial list)

AR – Searcy Daily Citizen	**MA** – The Herald News	**PA** – The Philadelphia Inquirer
CA – Gilroy Dispatch	**MD** – Baltimore Sun	**SC** – The State
CO – Denver Rocky Mountain News	**MN** – Minneapolis Star Tribune	**TX** – The Eagle
DC – Washington Post	**MI** – Ann Arbor News	**VA** – Richmond Times-Dispatch
DE – The News Journal	**MO** – St. Louis Post-Dispatch	**WA** – The Yakima Herald Republic
FL – Miami Herald	**MS** – Daily Mississippian	**WI** – Oshkosh N'western
GA – Gainesville Times	**MT** – The Missoulian	
IA – Quad-City Times	**NJ** – Bergen Journal	
ID – Boise Weekly	**NY** – The Times Union	
IL – Chicago Sun Times	**OH** – Mount Vernon News	
IN – Fort Wayne Journal Gazette	**OR** – The Register-Guard	
KY – Courier-Journal	**OK** – Bartlesville Examiner	

User Feedback

Ongoing e-survey with 3372 responses thus far:

- Users in *every* state (8% CA, 6% TX, 5% NY, 5% FL)
- Return Visits: 18% of users (45% of contractors)
- Navigation: 89% say "OK" to "very easy"
- Required Input: 84% "Just Right" or "Too Simple"
- Content *vs* Calcs: Equally important!
- Will Return: 72% "yes"; 22% "undecided"
- Will Recommend: 74% "yes"; 17% "undecided"
- Implemented Efficiency Improvement based on site:
  - 33% (owners); 29% (renters)
    - 71% and 60% of the upgrades were for equipment as opposed to behavior changes

Log Analysis

(excludes development team, robots, etc.)

- Median time on site: 19 minutes [minimum info 10 seconds; preliminary "run" 1 minute]
- Median number of pages viewed per session: 11
- Wide use of various end-use modules
- Flat content is broadly visited
- 80% of users do "simple" runs; 20% "detailed"
- 80 pages (!) of free-form comments [indicative of a very engaged user community]

"The Home Energy Saver is one of the government services that make paying taxes worthwhile."

Nick Wilder
Homeowner
Wheat Ridge, Colorado

Early Co-op Adopters

- Clay-Union (SD)
- Polk-Burnett (WI)
- Jackson Electric (WI)
- Rappahannock Elec (VA)
- Community Energy (IL)
- Douglas Electric (OR)
- Hancock-Wood (OH)
- Iowa Lakes (IA)
- Red River Valley (MN)
- Ravalli Electric (MT)
- Pennyrille (TN)

Potential Collaboration with Touchstone/NRECA

1. Localize the tool (e.g. utility-specific tariffs for rural energy cooperatives; farm equipment; etc.)
2. New features (e.g. farm equipment; evaporative coolers….)
3. Information streams; decision-support
4. Training for co-op "help desk" staff; local home improvement contractors
5. Your ideas?

http://HomeEnergySaver.lbl.gov

Thank You

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