

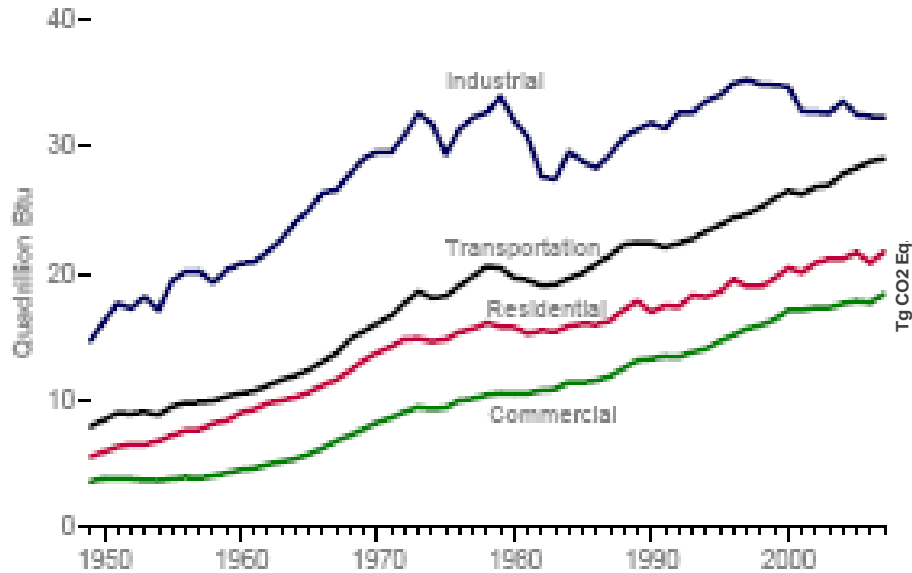
Encouraging Energy Efficiency Improvement in New and Existing Homes

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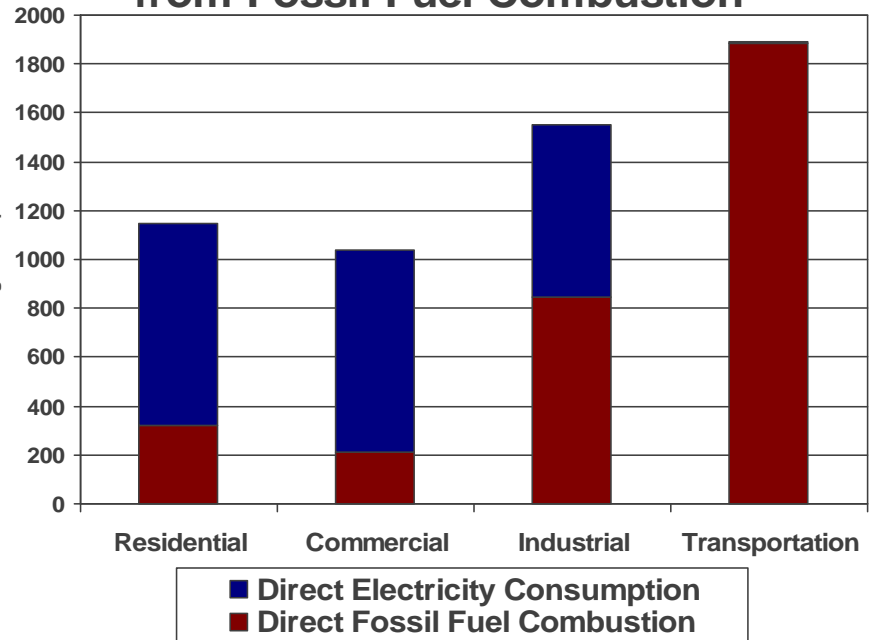
Residential Energy Use



Total Consumption by End-Use Sector, 1949-2007



2007 End-Use Sector CO₂ Emissions from Fossil Fuel Combustion



Annual Energy Review (DOE/EIA, 2007)

Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2006 (US EPA, 2008)

The energy used in the average house can cause about two times as much the greenhouse gas emissions as the average car

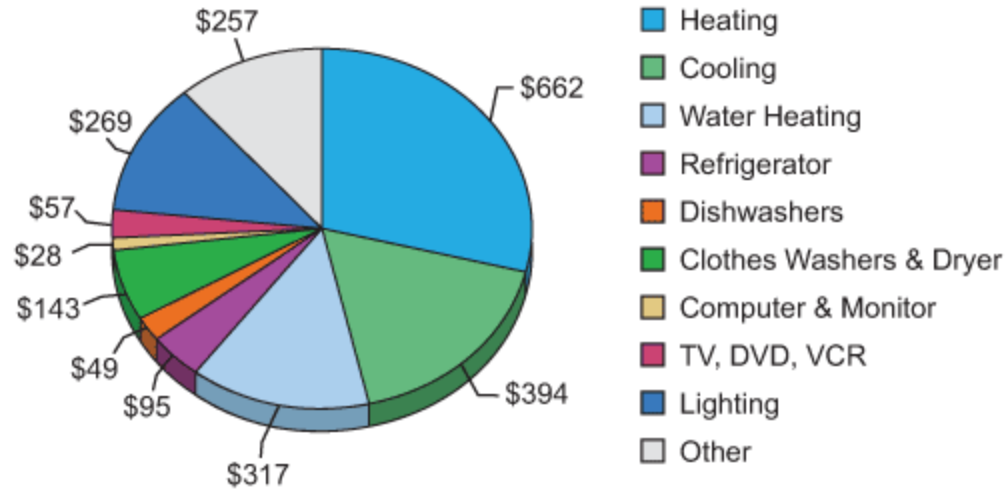


Residential Energy Use



- 114 million households¹
 - 69% built before 1980¹
 - 68% or 76 million owner occupied¹
 - 59% single-family owner occupied¹
- Average energy cost \$2200/year

Typical House's Annual Utility Bill



Heating and cooling almost 60%

- 56% heat with natural gas²
- 26% heat with electricity²
- 64% cool with central AC²

¹2007 Building energy Data Book, DOE
²2005 RECS, Single-Family Homes Table US14, HC2.4 and HC2.6 EIA/DOE
Pie Chart Source: Typical House memo, Lawrence Berkeley National Laboratory, 2009 and Typical house_2009_Reference.xls spreadsheet.





Energy Savings Potential



- **If every household in America...**
- replaced just one light with an ENERGY STAR light, we would save about \$700 million in annual energy costs, and prevent 9 billion pounds of ghg emissions per year
- added insulation to their attic, we would save more than \$1.5 billion in annual energy costs and prevent nearly 25 billion pounds of ghg emissions per year
- serviced their heating and cooling systems, changed their air filters, sealed and insulated heating and cooling ducts in unfinished areas, and programmed their thermostat for energy savings while they're away or asleep, we would save \$14 billion in annual energy costs and prevent more than 160 billion pounds of ghg emission per year.

“Good fortune is
what happens when
opportunity meets
with **planning.**”

-Thomas Edison

The American Recovery and Investment Act is an opportunity.



What's your plan?

American Recovery
And Investment Act

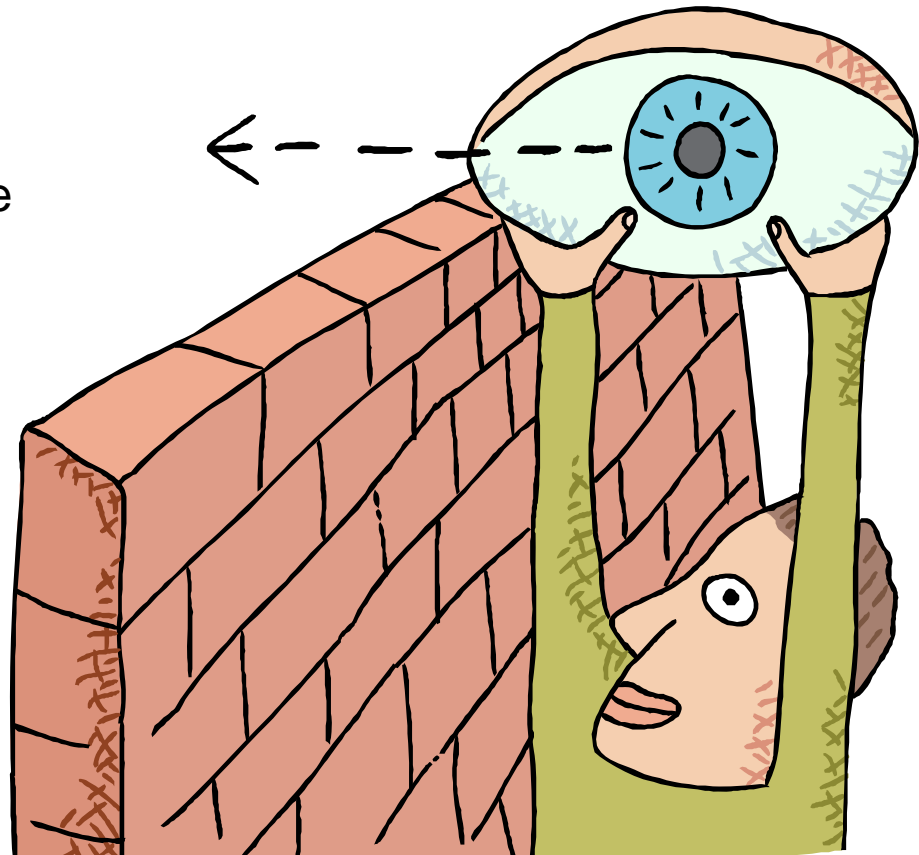


What do you want to achieve?

- Set a Goal
- Climate Action Plans...
 - Burlington, VT - reduce ghg by 80% by 2050
 - Berkley, CA - reduce ghg by 80% by 2050
 - Boulder, CO – reduce ghg 7% below 1990 levels by 2012
 - Chicago, IL – reduce ghg 25% below 1990 levels by 2020
- AIA 2030 Challenge
 - ...energy consumption performance standard of 50% of the regional average for that building type.

What barriers stand between you and your goal?

- Reduce carbon emissions
- Increase energy efficiency
- Create a sustainable green marketplace and jobs



Energy Efficiency



- Consumer Awareness
 - Don't realize they consume more than most
 - Don't understand the benefits
 - Don't know how to change
- Availability Perception
 - Difficult to find efficient products, homes or weatherization contractor
- Affordability Perception
 - Costs too much to upgrade energy efficiency

Policy - a course of action adopted and pursued by a government, ruler, political party, etc

What policies will help clear each hurdle?

Increase standards and codes

Require energy disclosure or rating

Require energy audits

We need a community-wide campaign

Offer low-interest EE financing

Require energy retrofits

Allow financing payment on property tax bill

?



“The big secret in life is that there is no big secret.
Whatever your goal, you can get there if you're willing to work.”

Oprah Winfrey



ENERGY STAR Products



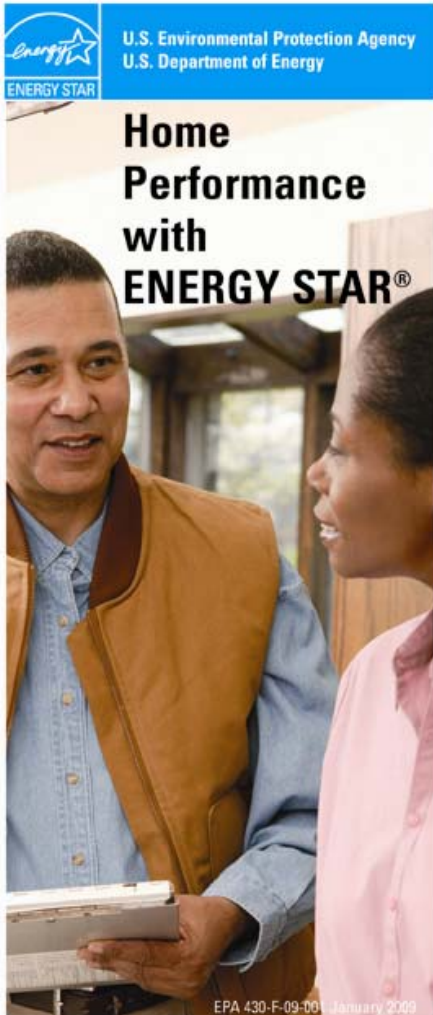
- **ENERGY STAR Products**
- An opportunity to save energy with every purchasing decision
- More than 60 types of products
 - Lighting
 - Heating and cooling
 - Appliances
 - Office equipment
 - Home electronics
 - Battery charging systems

ENERGY STAR Homes



- **ENERGY STAR Homes**
- At least 15% more energy efficient than homes built to the 2004 IRC
- Include additional energy-saving features that typically make them 20–30% more efficient than standard homes
- **Typically Includes:**
- Effective Insulation Systems
- High-performance Windows
- Tight Construction and Ducts
- Efficient Heating and Cooling System
- Appliances and Lighting
- Third-party Verified

Home Performance with ENERGY STAR



- Sponsored by a utility, state or local gov.
- A network of specially-trained contractors
 - Evaluate homes using state-of-the-art equipment
 - Recommend comprehensive energy improvements
 - Ready to complete the work or refer to someone who can
- Quality assurance program checks work of participating contractors to verify program standards are met
- Homeowner chooses and pays for improvements based on credible information

Overcome Awareness Barrier



- Educate Consumers on Value of Energy Efficiency
 - Change the World Campaign – Pledge Drivers Wanted
 - ENERGY STAR Products, Homes, and Home Improvement
 - Web site
 - Sponsor education at home shows, fairs, and other local events
 - Write an article in local newspapers/media
- Work with local utility to offer energy use feedback on bills
 - Include comparative energy use (e.g., SMUD utility bill)
 - ENERGY STAR Home Energy Yardstick
- Work with local realtors and appraisers:
 - Realtor training on ENERGY STAR
 - Appraiser training on value of ENERGY STAR Qualified Homes
 - Incorporate ENERGY STAR in local MLS



National Campaign



Change the World, Start with ENERGY STAR

a national campaign encouraging all Americans to join with millions of others and take small, individual steps that make a big difference in the fight against global warming



www.energystar.gov/changetheworld



Change the World



- Pledge Drivers Wanted
- Materials to Get You Started
 - Sample Newsletter, Email and Web Text
 - Sample Press Release
 - Proclamations for Mayors
 - Web Buttons and Banners
 - Key Messages
 - Image Library

www.energystar.gov/changetheworld

Homeowner Education Through the Web



- Home Energy Advisor
Make a plan
www.energystar.gov/homeadvisor
- ENERGY STAR @ Home
Go room-by-room
www.energystar.gov/home
Can be hosted on your site
- Home Energy Yardstick
Track your progress
www.energystar.gov/yardstick
Can be hosted on your site

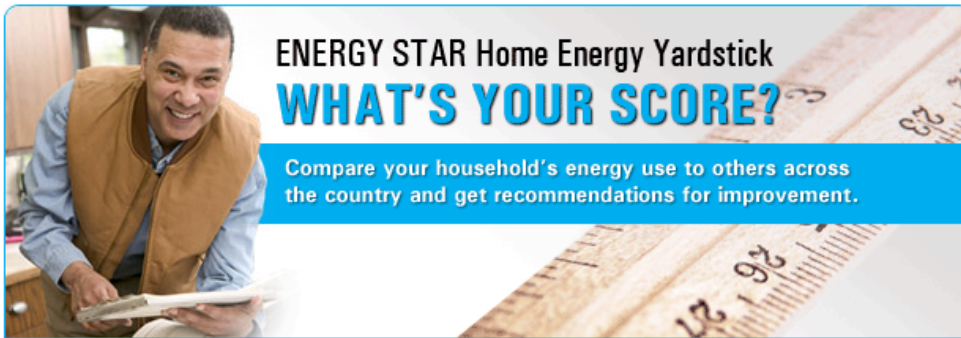


ENERGY STAR - Microsoft Internet Explorer

File Edit View Favorites Tools Help

- Common Home Problems
- Home Energy Yardstick
- Home Energy Audits
- Air Seal & Insulate
- Heat & Cool Efficiently
- Home Performance with ENERGY STAR
- Home Improvement FAQs
- For Contractors
- For Insulation Manufacturers

[Join ENERGY STAR](#)



What you need to know to get started

- **Your energy use and costs for the last year:** You'll need your last 12 months of utility bills OR a 12-month summary statement from your utility company.
- **Energy sources for your home:** natural gas, electricity, fuel oil, propane and wood.
- **The square footage of your home.**

Your Home

What is your zip code?

How many people live in your home?

What is the square footage of your home, including the basement?

[More information](#)

Your Fuel Types

In addition to electricity, what other fuels do you use for home use? Select all that apply.

Natural Gas

Fuel Oil

Your Energy Use

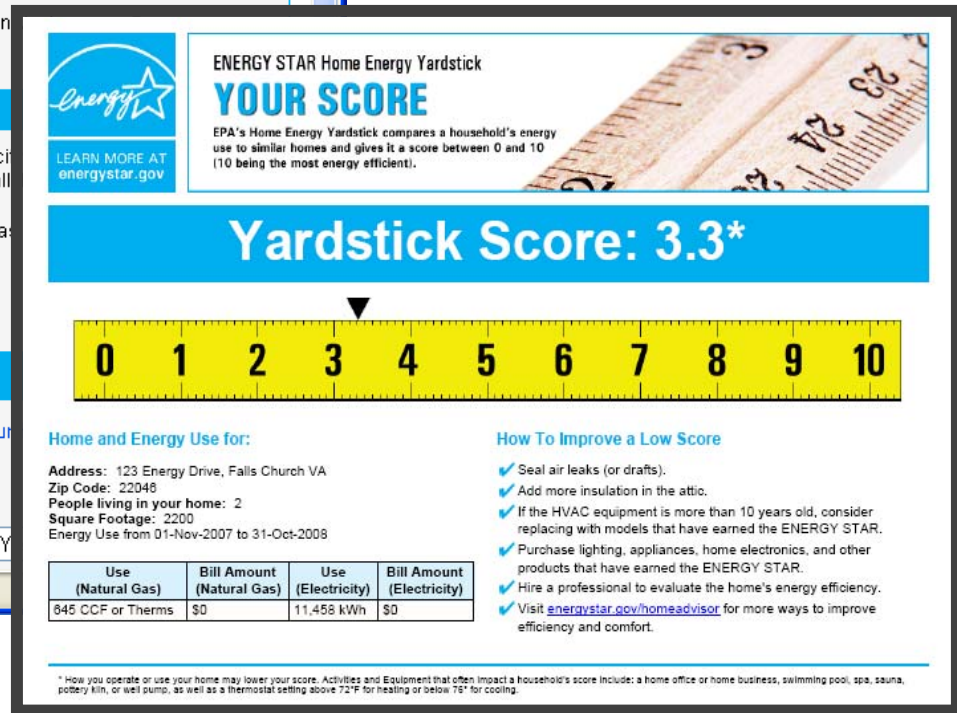
Would you like to use **annual** or **monthly** billing information to enter your energy use?

Annual

Monthly

Select the Start Date for the year covered:

Certificate



ENERGY STAR Home Energy Yardstick

YOUR SCORE

EPA's Home Energy Yardstick compares a household's energy use to similar homes and gives it a score between 0 and 10 (10 being the most energy efficient).

Yardstick Score: 3.3*

0 1 2 3 4 5 6 7 8 9 10

Home and Energy Use for:

Address: 123 Energy Drive, Falls Church VA
 Zip Code: 22048
 People living in your home: 2
 Square Footage: 2200
 Energy Use from 01-Nov-2007 to 31-Oct-2008

Use (Natural Gas)	Bill Amount (Natural Gas)	Use (Electricity)	Bill Amount (Electricity)
845 CCF or Therms	\$0	11,458 kWh	\$0

How To Improve a Low Score

- ✓ Seal air leaks (or drafts).
- ✓ Add more insulation in the attic.
- ✓ If the HVAC equipment is more than 10 years old, consider replacing with models that have earned the ENERGY STAR.
- ✓ Purchase lighting, appliances, home electronics, and other products that have earned the ENERGY STAR.
- ✓ Hire a professional to evaluate the home's energy efficiency.
- ✓ Visit energystar.gov/homeadvisor for more ways to improve efficiency and comfort.

* How you operate or use your home may lower your score. Activities and Equipment that often impact a household's score include: a home office or home business, swimming pool, spa, sauna, pottery kiln, or well pump, as well as a thermostat setting above 72°F for heating or below 78° for cooling.

ENERGY STAR Publications



Residential Resources

A Guide to Energy-Efficient Heating and Cooling

Help us change the world, one ENERGY STAR® light at a time.

ENERGY STAR

The cover features a large photo of a smiling family (mother, father, and child) on the left. On the right, there are smaller images: a child holding a light bulb, a light bulb with the Energy Star logo, a child's face, and a family walking. The Energy Star logo is at the bottom right.

A DO-IT-YOURSELF GUIDE TO SEALING AND INSULATING WITH ENERGY STAR®

SEALING AIR LEAKS AND ADDING ATTIC INSULATION

ENERGY STAR

The cover shows a family of four (father, mother, and two children) sitting on the steps of a house. The Energy Star logo is in the bottom right corner.

Educational Resources

YOU CAN BE AN ENERGY STAR!

A Who's Guide To Saving Our Planet For Who's Of All Shapes and Sizes!

JOHN HORTON and THE MAPLE BITHE FIGHT AGAINST GLOBAL WARMING. YOU TOO CAN HELP SAVING OUR PLANET AND FIGHTING GLOBAL WARMING. YOU CAN BE AN ENERGY STAR BY SEALING AIR LEAKS IN YOUR HOME, OFFICE, AND SCHOOL. LEARN MORE AT www.energystar.gov

ENERGY STAR

The cover features a large cartoon elephant and a small cartoon character. The text is in white and yellow on an orange background. The Energy Star logo is in the bottom right corner.

Overcome Availability Barrier



- Sponsor events (e.g. refrigerator or room ac recycling)
- Nurture/Develop a HERS Infrastructure
- Motivate builders and contractors to deliver energy efficiency
 - Offer Free/Subsidized Technical Training for Builders, Remodelers and Trades
 - Discount or Delay Permit Fees
 - Offer Priority Code Processing
 - Increase Density Allowances
 - Expedited Plan Approvals
 - Priority Field Inspections
 - Provide Recognition
 - Feature on Community Web Site
 - Sponsor Parade of ENERGY STAR Qualified Homes
- Consider Sponsoring a Home Performance with ENERGY STAR Program

Overcome Affordability Barrier




- Facilitate Incentives for ENERGY STAR Qualified Homes
 - Discounted Utility Hook-up Fees for ENERGY STAR Qualified Homes
 - Discounted Bills (e.g., 10% discount) with local utility
- Encourage Financing for Energy Efficiency
 - Discounted Mortgage Interest Rates with local banks
 - EIMs and EEMs
 - ENERGY STAR Mortgage (<http://energyprograms.org/energystar/>)
 - Allow payment of improvement loan on property tax, or water bill
- Offer incentives for ENERGY STAR Qualified Products (e.g. fixtures)
 - Advanced Lighting Package for new homes
 - Refrigerator and Room AC recycling

RDEE Toolkit



http://www.epa.gov/cleanenergy/energy-resources/ee_toolkit.html



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Rapid Deployment Energy Efficiency Toolkit

Overview

The Rapid Deployment Energy Efficiency (RDEE) Toolkit provides detailed program design and implementation guides for 10 broadly applicable energy efficiency programs. The RDEE Toolkit helps all entities choose successful programs as they advance energy efficiency program funding opportunities through the American Recovery and Reinvestment Act (ARRA) of 2009. The Toolkit focuses on programs that have extensive, proven field experience, with documentation on program design, program cost, and results. If implemented as directed, these programs should produce clear, measurable, and predictable energy savings and jobs. The Toolkit is being developed through a joint effort of the U.S. Environmental Protection Agency and the U.S. Department of Energy (DOE), building upon technical information provided by the Leadership Group of the [National Action Plan on Energy Efficiency](#).

Availability

The RDEE Toolkit will be made available in two parts.

- [RDEE Planning Guide \(PDF\)](#) (64 pp., 430K, [About PDF](#)) – Key considerations in program selection and budgeting, along with program snapshots, including reasonable costs, energy savings, and jobs to expect from each program. (Updated May 1, 2009)
- **Complete RDEE Toolkit** – Templates and supplemental materials for each RDEE program area, including example contract language, evaluation criteria, training modules, timelines, and other resources. (Early May 2009)

RDEE Toolkit Help Line

866-602-7333
or
RDEE@icfi.com

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