

ENERGY STAR Change the World, Start with ENERGY STAR 2011 Campaign General Assumptions Sheet

Direct questions to: Lauren Dart, The Cadmus Group, contractor to EPA, at changetheworld@cadmusgroup.com

All facts used for the Campaign are based on the following numbers:

General Assumptions:

Number of households (US): **116.22 million**

Source: Energy Information Administration, Annual Energy Outlook 2011 (Early Release) edition. Table A-4 Residential Sector Key Indicators and Consumption.

Number of households (state): **www.factfinder.census.gov**

Source: 2010 American Community Survey estimates as reported on US Census Bureau

Electric Rate (US residential): **\$0.1089 / kWh (can round to \$0.109 / kWh)**

Sources: 2011 U.S. electric rate: Energy Information Administration, Annual Energy Outlook 2011 (Early Release) edition. (converted from 2009 to 2010 dollars).

Electric Rate (US commercial): **\$0.0953 / kWh (can round to \$0.095 / kWh)**

Sources: 2011 U.S. electric: Energy Information Administration, Annual Energy Outlook 2011 (Early Release) edition. (converted from 2009 to 2010 dollars).

Electric Rate (state): Average Residential Electricity Price by State, 2010 (cents per kilowatt hour)

Source: Energy Information Administration (EIA), Electric Power Monthly (December 2010 Edition), with data through September 2010.

State	2010	State	2010
Alabama	10.79	Montana	9.11
Alaska	16.42	Nebraska	9.03
Arizona	11.12	Nevada	12.43
Arkansas	8.82	New Hampshire	16.19
California	15.31	New Jersey	16.66
Colorado	11.25	New Mexico	10.69
Connecticut	19.29	New York	18.74
Delaware	13.73	North Carolina	10.25
District of Columbia	13.78	North Dakota	8.1
Florida	11.44	Ohio	11.33
Georgia	10.3	Oklahoma	9.11
Hawaii	27.85	Oregon	8.83
Idaho	8	Pennsylvania	12.83
Illinois	11.53	Rhode Island	15.96
Indiana	9.45	South Carolina	10.47
Iowa	10.42	South Dakota	8.86
Kansas	9.97	Tennessee	9.13
Kentucky	8.47	Texas	11.63
Louisiana	8.93	Utah	8.85
Maine	15.7	Vermont	15.48
Maryland	14.7	Virginia	10.56
Massachusetts	15.23	Washington	7.93
Michigan	12.52	West Virginia	8.69
Minnesota	10.4	Wisconsin	12.53
Mississippi	9.93	Wyoming	8.73
Missouri	9.22		

Annual household lighting use: **1,950 kWh / household**
Source: Navigant 2002 (DOE EERE Office of Building Technology), "U.S. Lighting Market Characterization, Volume I: National Lighting Inventory and Energy Consumption Estimate." Cited number is in table ES-1, Pg 10.

Emissions factor: **1.54 pounds CO₂ / kWh**
Source: EPA's Climate Change Action Plan (CCAP) number for 2010.

Coal Emissions factor: **2.06 pounds CO₂/kWh**
2.14 pounds CO₂/ pound coal
Source: Unit Conversions, Emissions Factors, and Other Reference Data (Nov 2004).

Car Emissions: **11,244 pounds CO₂/car/yr**
Sources: U.S. EPA (2009). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007. Chapter 3 (Energy), Tables 3-12, 3-13, and 3-14. Washington, DC. U.S. EPA #430-R-09-004 (PDF)
U.S. EPA (2010). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. Annex 2 (Methodology for estimating CO₂ emissions from fossil fuel combustion), Table A-33 and P. A-61. Washington, DC. U.S. EPA #430-R-10-006
FHWA (2008). Highway Statistics 2007. Office of Highway Policy Information, Federal Highway Administration. Table VM-1.
Note: This information is also located on EPA's Greenhouse Gas Equivalencies Calculator.

Annual household electricity use: **12,773 kWh**
Note: This figure is based on the annual electricity consumed by an average household.
Source: EIA (2008). 2005 Residential Energy Consumption Survey. Table US-3, Total Consumption by Fuels Used, 2005, Physical Units (PDF).
EPA (2009). eGRID2007 Version 1.1. U.S. Environmental Protection Agency, Washington, DC.
Note: This information is also located on EPA's Greenhouse Gas Equivalencies Calculator.

Annual household emissions: **25,948 pounds CO₂/yr**
Sources:

- EIA (2008). 2005 Residential Energy Consumption Survey. Table US-3, Total Consumption by Fuels Used, 2005, Physical Units (PDF). Per-home averages were obtained by dividing the physical units of total consumption for each fuel used by the total number of single-family homes.
- EPA (2010a). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. Annex 2, (Methodology for estimating CO₂ emissions from fossil fuel combustion), P A-75, U.S. Environmental Protection Agency, Washington, DC. U.S. EPA #430-R-10-0006.
- EPA (2010b). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008. Annex 2, (Methodology for estimating CO₂ emissions from fossil fuel combustion), P A-58, U.S. Environmental Protection Agency, Washington, DC. U.S. EPA #430-R-10-0006.
- EPA (2008). Inventory of U.S. Greenhouse Gas Emissions and Sinks: Fast Facts 1990-2006. Conversion Factors of Energy Units (Heat Equivalents) Heat Contents and Carbon Content Coefficients of Various Fuel Types. U.S. Environmental Protection Agency, Washington, D.C. U.S.EPA #430-F-08-0005.
- IPCC (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Intergovernmental Panel on Climate Change, Geneva, Switzerland.

Note: This information is also located on EPA's Greenhouse Gas Equivalencies Calculator.

Lighting Assumptions:

CFL bulb wattage replacement: **13W CFL for 60 W Incandescent bulb**
Source: DOE market data

Average daily usage (interior): **3 hours**
Source: Daily hours of use is based on the U.S. Federal Trade Commission Appliance Labeling Rule.
<http://www.ftc.gov/os/2010/06/100719appliancelabelingrule.pdf>

Average daily usage (exterior): **5 hours**
Source: "An Evaluation of Residential CFL Hours-of-Use Methodologies and Estimates," Edward Vine, Lawrence Berkeley National Laboratory, Berkeley, CA and Diane Fielding, BC Hydro, Vancouver, Canada; August 2005.

Lifetime – Compact Fluorescent Bulbs: **8,000 hours**

Note: Hours of use reflect the lifetime of a standard CFL bulb and not the lifetime of a 3-way or dimmable CFL. Source: Current ENERGY STAR CFL specification's minimum lifetime for bare medium screw base compact fluorescent lamps. http://www.energystar.gov/ia/partners/product_specs/program_reqs/cfls_prog_req.pdf

Lifetime – Bulbs in Qualified Fixtures:

10,000 hours

Source: Current ENERGY STAR fixture specification minimum.

http://www.energystar.gov/ia/partners/product_specs/program_reqs/fixtures_prog_req.pdf

Lifetime – LED Light Bulbs: Decorative; Non-Decorative

15,000 hours; 25,000 hours

Source: Current ENERGY STAR Integral Led Lamp specification's minimum lifetime for LED lamps.

http://www.energystar.gov/ia/partners/manuf_res/downloads/IntegralLampsFINAL.pdf