

Lutron Energy Website Data and Sources

<http://www.lutron.com/energy>

12/23/2008

Compared to standard light switches, Lutron light controls save energy¹ and create inviting, comfortable spaces at home or work – making light greener and better.

Did You Know Data and Sources:

1. Installing one dimmer in every US home in place of a standard light switch

(Note Lutron dimmers save energy over standard on/off toggle switches using the same lights over the same time period) **would:**

Save \$230 million in electricity per year (Based on 111 million US households in 2003 (US Census data <http://www.census.gov/prod/2004pubs/p20-553.pdf>) and average residential electricity cost of \$0.10 per kWh (US Energy Information Administration http://www.eia.doe.gov/cneaf/electricity/epm/table5_3.html) and US Department of Energy (US DOE) data http://www.netl.doe.gov/ssl/PDFs/lmc_vol1_final.pdf on the amount of lighting electricity is used by residences (1,946 kWh/year according to Table 7-1 page 56) and California Energy Commission data <http://www.energy.ca.gov/efficiency/lighting/VOLUME01.PDF> on the average energy savings from one dimmer (20% according to Energy Correction Factor table on page 83).

Reduce CO₂ by 4.3 billion pounds per year (US DOE data on CO₂ per kWh generated from burning fossil fuel (weighted average of 1.9 pounds per kWh)

http://www.eia.doe.gov/cneaf/electricity/page/co2_report/co2emiss.pdf

Be equivalent to taking 370,000 cars off the road (Based on typical amount of CO₂ emitted from driving passenger a U.S. average of 12,500 miles per year and 0.916 pounds CO₂ per mile (Source: US Environmental Protection Agency (US EPA <http://www.epa.gov/otaq/consumer/f00013.pdf>))

2. A 1500-hour incandescent bulb will last nearly ten years when dimmed 33%

and used 3 hours per day. (Based on the Illuminating Engineering Society of North America (IESNA) Lighting Handbook, 9th Edition on lamp life extension from dimming page 6-13 figure 6-19). **That's longer than the average American keeps a home** (average home is kept for 6 years according to Realtor Magazine (March 2007, page 4 item #4 under 5 facts about today's sellers <http://www.realtor.org/archives/listbuzzmarch07#6>))

3. Lighting accounts for about 20% of an average home's electricity bill.

(Source: US DOE data on lighting electricity used by residences (1,946 kWh/year, http://www.netl.doe.gov/ssl/PDFs/lmc_vol1_final.pdf Table 7-1 page 56) and average electricity consumption (10,660 kWh/year, <http://www.epa.gov/climatechange/emissions/downloads/emissionsfactorsbrochure2004.pdf> page 6) for an average household. 1,946 divided by 10,660 is 18%, rounded up to 20%.

4. Lighting accounts for 44% of electricity used office buildings. (Source: US Energy Information Administration 1995 Commercial Buildings Energy Consumption Survey, released Sept 2000 http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbaweb/office/office_howuseelec.htm)

5. Lighting accounts for 56% of annual electricity use in education buildings.

(Source: US Energy Information Administration 1995 Commercial Buildings Energy Consumption Survey released Aug 2000 http://www.eia.doe.gov/emeu/consumptionbriefs/cbecs/pbaweb/education/educ_howuseelec.htm)

¹ Based on using the same lights over the same time period, Lutron dimmers save energy over standard on/off toggle switches.

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6. Dimming your lights 25% (Refers to a 25% reduction in perceived light level) **saves 20% in energy.** (Source: IESNA 9th Edition Lighting Handbook page 6-13 figure 6-19).

7. Incandescent bulbs last 20 times longer if dimmed by 50% (Refers to a 50% reduction in perceived light level). (Source: IESNA 9th Edition Lighting Handbook page 6-13 figure 6-19 and Lutron experiments).

8. Replacing a standard light switch with a Lutron dimmer can save up to \$30 per year.

Actual savings may vary depending on use and application. Stated savings is based on dimming (4) 75 W incandescent reflector lamps (rated at 1500 hours each, costing \$1.75 per lamp) by 50% (perceived light level corresponding to a 40% reduction in power level) for 5 hours per day with electricity cost of \$0.104/kWh. To calculate your own savings visit www.lutron.com/energy then select 'At Home' or 'At Work'.

9. If 25% of the homes in Columbus, Ohio replaced a standard light switch with a Lutron dimmer, they could save more than \$2.4 million in electricity costs each year. (Based on US census data http://www.census.gov/prod/2002pubs/00ccdb/cc00_tabC4.pdf that shows 327,125 homes in Columbus City, OH. Using the \$30 saving per year from #8 above, 325,125 homes X \$30 X 25% = \$2,453,437.50.

10. The New York Times Building saves 70% in lighting energy using Quantum total light management. (Source: measurements taken by Glen Hughes Directors of Construction for the New Times Company during construction of the New York Times Building) **That's equivalent to:**

Saving more than \$300,000 each year in electricity costs (based on saving of over 1.9 million kWh per year at New York City electricity rate of \$0.16/kWh see chart below).

Preventing over 1,250 metric tons of CO₂ from entering the atmosphere each year (see chart below). See www.lutron.com/nyt for more details.

Estimated NY Times Lighting Energy Calculation	Numbers	Units
Number of ballasts	15,000	ballasts/fixtures
Wattage of lamps	14	W
Lamps per fixture	2	Lamps
Watts per fixture at full-on (includes 2 Watts for ballast power)	37	W
Est operating hours per day	14	hrs
Daily lighting energy	7,770	kWh
Est. EcoSys lighting energy savings from dimming, occ sensing, daylighting	70	% (Per Glen Hughes' 1-month measurement)
Energy used per day with ecosys	2,331	kWh
Energy lighting Saved per day with ecosys	5,439	kWh
Est number of days per year operating	365	days
Annual lighting energy without EcoSys	2,836,050	kWh
Annual lighting energy with EcoSys	850,815	kWh
Annual lighting energy savings	1,985,235	kWh
Dollars saved per year (@ 16 cents per kWh for NYC)	317,638	\$
Equivalent CO2 emission reduction	3,771,947	Pounds - 1.9lbs per kWh according to US EIA
Metric tons of CO2 emissions	1,711	T (metric tons, 2205lbs per metric ton)