Lighting

Lighting accounts for up to 10% of total home energy use.

- LED retrofits can cut that by 75%
- Translates to an overall energy reduction of 7.5% for the home

To calculate the energy saved through lighting retrofits we need:

- Number of bulbs being replaced
- Wattage of existing bulbs
- Wattage of replacement bulbs
- Usage (hrs/day)

Use this formula to calculate electrical consumption:
kwh/yr = kw x hours x 365

Kwh/yr = *yearly annual consumption in kilowatt hours (kwh)*
Kw = *wattage of the old/new bulbs or the difference between them divided by 1000*
Hours = *hours per day the bulbs are energized*
365 = *number of days in a year*

A kitchen has 6 – 75-watt incandescent floods. They are replaced with 6 – 12-watt LED bulbs. The lights are operated for about 5 hours per day. The new bulbs cost $19.95 each. The electric rate is $0.11/kWh.

What was the consumption and cost of operation per year for the old bulbs?

kWh/yr: _____ (.450 x 5 x 365 = **821.25**) Cost of operation: $_____ (821.25 x .11 = **90.34**)

What will be the consumption and cost of operation for the new bulbs?

kWh/yr: _____ (.072 x 5 x 365 = **131.4**) Cost of operation: $_____ (131.4 x .11 = **14.45**)

Calculating simple payback:

Savings/yr: $_____ (90.34 – 14.45 = **75.89**) Simple payback: _____ (Cost of the bulbs divided by savings per year: $119.70 / $75.89 = **1.577 years**)

An easier way to calculate just savings: (use watts saved in the formula instead of old/new bulb wattages)

Kwh/yr saved: _____ (.378 x 5 x 365 = **689.85**) Savings/yr: $_____ (689.85 x .11 = **75.89**)