



Refrigerators

How long should they be metered?

- 1-hour tests accurate within $\pm 10\%$ only 18 times out of 100
- 3-hour tests increase $\pm 10\%$ accuracy to 90 times out of 100
- Recommendation is at least 2 hours

If an existing refrigerator is metered, kWh/yr =

$$\frac{\text{Metered usage (kWh)}}{\text{Metering duration (minutes)}} \times 60 \frac{\text{minutes}}{\text{hour}} \times 8760 \frac{\text{hours}}{\text{year}}$$

Practice:

OLD: A refrigerator uses 350 watts in a two-hour test. How many kWh/yr will the refrigerator use and how much will it cost at 10 cents per KWH?

kWh/yr: _____ (.350/120 x 60 x 8760 = **1,533**) Cost: \$_____ (1,533 x .10 = **\$153.30**)

NEW: The new refrigerator uses 125 watts in a two-hour test. What is the kWh/yr consumption of the new refrigerator and what does it cost per year to operate at 10 cents per kWh?

kWh/yr: _____ (.125/120 x 60 x 8760 = **547.5**) Cost: \$_____ (547.5 x .10 = **\$54.75**)

Savings per year: \$_____ (Old cost minus new: \$153.30 - \$54.75 = **\$98.55**)

Alternate savings calculation: (Difference in wattage) (.225/120 x 60 x 8760 x .10 = **\$98.55**)

The new refrigerator cost \$950.00. What is the simple payback time measured in years?

Simple payback in years: _____ (Replacement cost ÷ savings: \$950.00 / 98.55 = **9.6** years)

*NOTE: This is a base consumption calculation. Actual consumption would also include defrost cycles, occupant usage (door opening) and variations in ambient air temp around the unit. Weatherization Assistant considers these adjustments in calculation of SIR for refrigerator replacements.