What's the Cheapest Watt?

You need to obtain a number in this unit label:

$$\frac{\text{KWH}}{\text{year}}$$

Your appliance is plugged in all of the time. It cycles regularly between "on" and "completely off."

You take a KWH reading for 3 representative days:

$$\frac{1.7\ \text{KWH}}{3\ \text{days}} = \frac{0.57\ \text{KWH}}{\text{day}} \qquad \frac{0.57\ \text{KWH}}{\cancel{\text{day}}} \times \frac{365\ \cancel{\text{days}}}{\text{year}} = \frac{208\ \text{KWH}}{\text{year}}$$

Your appliance is plugged in all of the time. It cycles regularly between "on" and "phantom load".

You take a Watts readings during "on" and "phantom load" periods. You estimate that the appliance is "on" for an average of 4 hours/day:

Cycled on:

$$240\ \cancel{\text{Watts}} \times \frac{1.0\ \text{KW}}{1000\ \cancel{\text{Watts}}} \times \frac{4\ \text{Hours}}{\cancel{\text{day}}} \times \frac{365\ \cancel{\text{days}}}{\text{year}} = \frac{350\ \text{KWH}}{\text{year}}$$

Cycled to phantom load:

$$1.5\ \cancel{\text{Watts}} \times \frac{1.0\ \text{KW}}{1000\ \cancel{\text{Watts}}} \times \frac{20\ \text{Hours}}{\cancel{\text{day}}} \times \frac{365\ \cancel{\text{days}}}{\text{year}} = \frac{11\ \text{KWH}}{\text{year}}$$

$$350 + 11 = \frac{361\ \text{KWH}}{\text{Year}}$$

Your appliance is plugged in all of the time or plugged in only when it is being used. The appliance is only "on" (draws an electrical load) when it is turned on.

You take a Watts reading while the appliance is turned on. You estimate that the appliance is used an average of 2 hours/day:

$$75\ \cancel{\text{Watts}} \times \frac{1.0\ \text{KW}}{1000\ \cancel{\text{Watts}}} \times \frac{2\ \text{Hours}}{\cancel{\text{day}}} \times \frac{365\ \cancel{\text{days}}}{\text{year}} = \frac{55\ \text{KWH}}{\text{year}}$$