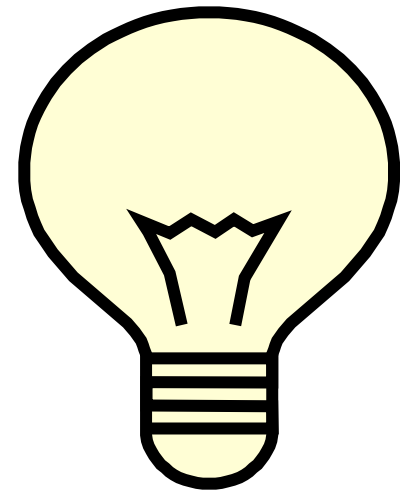


Measuring Your Electricity Consumption



Energy Inventory Questions:

1. Is the little stuff a bigger deal than the big stuff?
2. Annually, is your car or your home electricity use responsible for more CO₂ emissions? Do you spend more money on electricity or gasoline?
3. Classify devices based on high/low power and high/low energy. Are there any surprises?
4. What are possible sources of “parasitic losses”? Are these a big deal?

Procedure

- Using a power meter, record the KW used by the equipment 6 times, once every 10 seconds.
- Obtain the average of these readings.
- Multiply the average by the number of hours you use the equipment every day to get kWh.

Example: My Nightstand Lamp

Readings:

10 sec: 37.5 W

20 sec: 37.1 W

30 sec: 37.3 W

40 sec: 37.1 W

50 sec: 37.3 W

60 sec: 37.1 W

Average (ignore the highest and the lowest values to eliminate extremes): $(37.1 + 37.3 + 37.1 + 37.3) / 4 = 37.2 \text{ W}$

Usage: 4 hours/day

Electricity: $37.2 * 4 / 1000 = 0.149 \text{ kWh/day}$



Figure from
A-V Designs

Your turn



Other Equipment You May Have

- Electric Space Heater:
 - Off = 0 W
 - Low Setting = 631.5 W
 - Medium Setting = 915.5 W
 - High Setting = 1500 W
- Air Conditioner:
 - Off = 0 W
 - On = 600 W
- Cable Box:
 - Off = 20.65 W
 - On = 20.78 W
- Mini Fridge:
 - Off = 0 W
 - On = 90 W
- X-Box 360:
 - Off = 0 W
 - On = 100 W
- PS II
 - Off = 0 W
 - On = 45 W
- TV :
 - Off = 4.5 W ←Parasitic Loss
 - On = 55.75 W
- DVD:
 - Off = 0 W
 - On = 11.6

So, how much electricity do
you use in your room?

Question 1

- Is the little stuff a bigger deal than the big stuff?

Question 2

- Annually, is your car or your home electricity use responsible for more CO₂ emissions? Do you spend more money on electricity or gasoline?

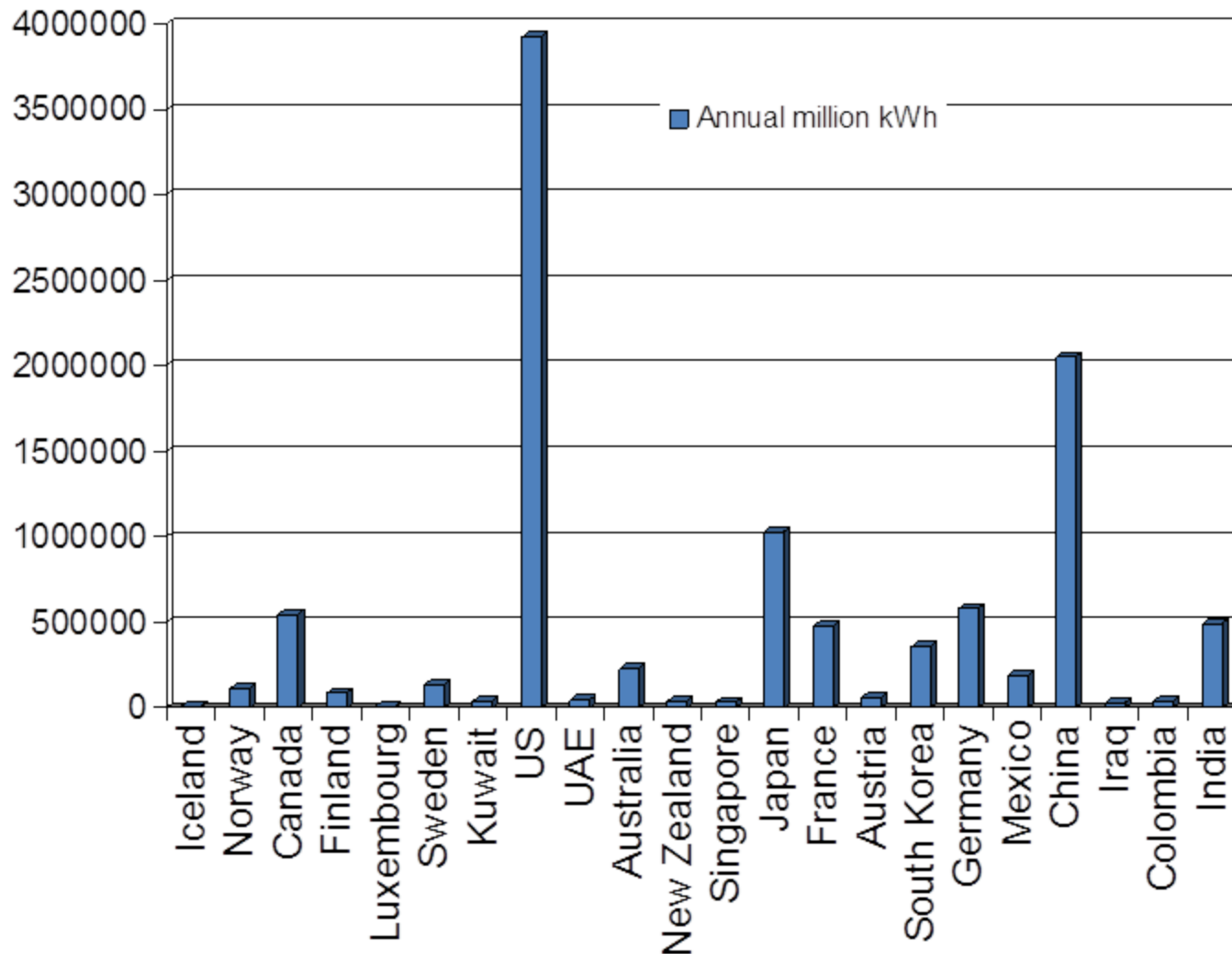
Question 3

- Classify devices based on high/low power and high/low energy. Are there any surprises?

Question 4

- What are possible sources of “parasitic losses”? Are these a big deal?

World Electricity Consumption Totals (2004)



World Electricity Consumption Per Capita (2004)

