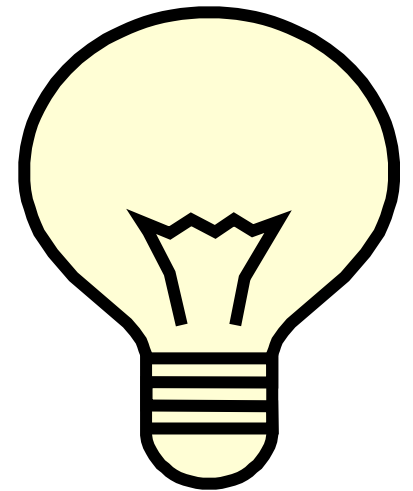


# Measuring Your Electricity Consumption



# 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 CO<sub>2</sub> 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 CO<sub>2</sub> emissions? Do you spend more money on electricity or gasoline?

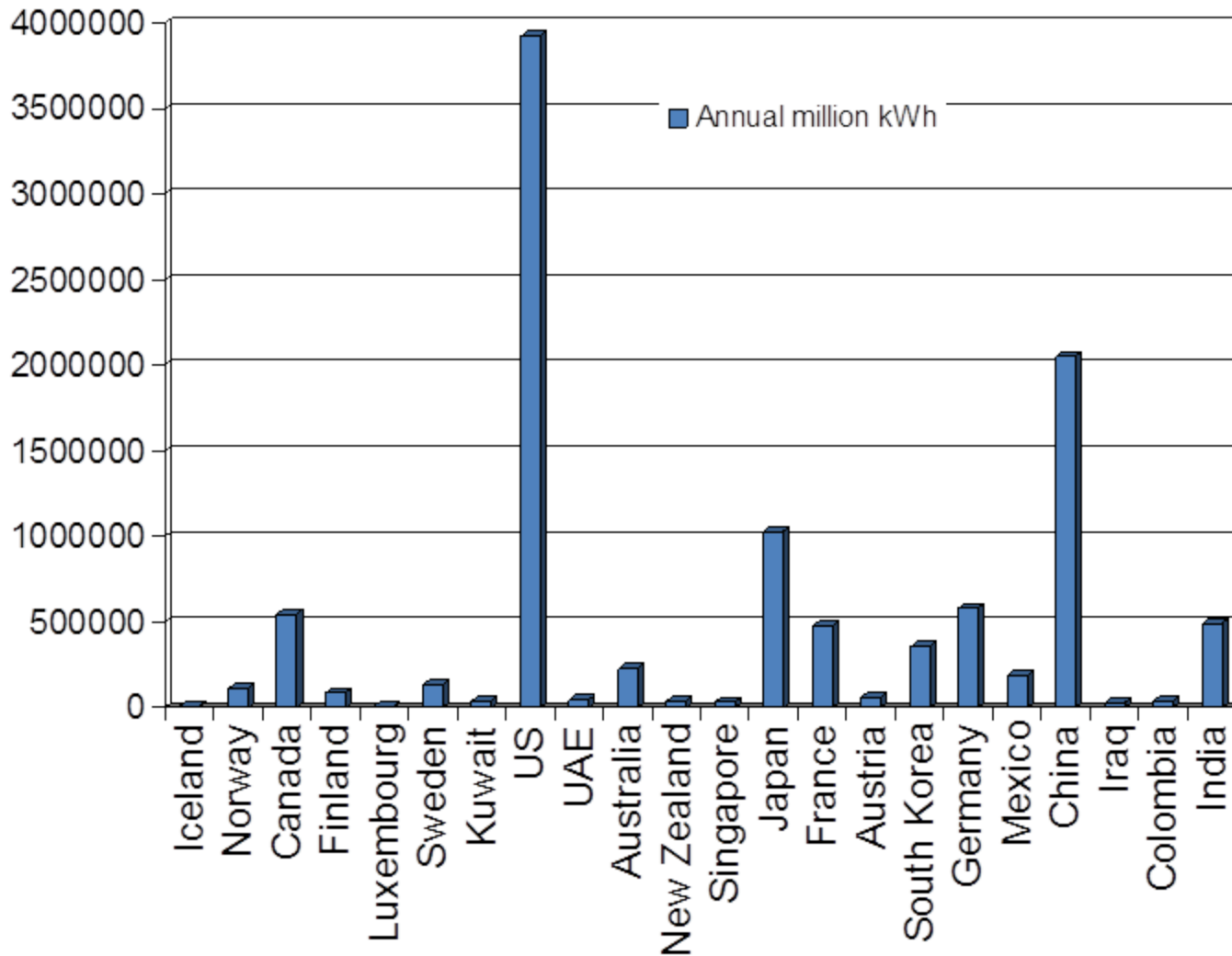
# Question 3

- 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)

