

Traditional: 05-03

Themed: 11-03

Cost of energy

Cost of energy

- Power is defined as the rate at which work is done, $P = W/t$
- Does the power company charge you for the power you consume or not?
- Lets take a look at a local bill from the power company (ComEd) and see if they do!

Look at a power bill – Fall 2013

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Account Number
Name
Service Location
Phone Number

Bill Summary	
Previous Balance	\$136.17
Total Payments - Thank You	\$136.17
Amount Due on October 25, 2013	\$85.25

Issue Date October 3, 2013

Late payment charges will continue until bill is paid.

Meter Information

Read Date	Meter Number	Load Type	Reading Type	Meter Reading		Difference	Multiplier X	Usage
				Previous	Present			
10/1	093666741	General Service	Total kWh	94611 Actual	95316 Estimate	705	1	705

Service from 9/5/2013 to 10/1/2013 - 26 Days

Retail Delivery Service - Res Single

Electricity Supply Services - ResCom \$49.28

RES CHARGES 705 kWh X 0.06990 49.28

ResCom 1-855-572-8374
Please refer to your supplier contract for details.

Delivery Services - ComEd \$30.16

Customer Charge				12.79
Standard Metering Charge				2.86
Distribution Facilities Charge	705 kWh	X	0.01937	13.66
IL Electricity Distribution Charge	705 kWh	X	0.00120	0.85

Taxes and Other \$5.81

Environmental Cost Recovery Adj	705 kWh	X	0.00039	0.27
Energy Efficiency Programs	705 kWh	X	0.00186	1.31
Franchise Cost	\$29.59	X	3.71200%	1.10
State Tax				2.33
Municipal Tax				0.80

Total Current Charges \$85.25

- ComEd charges for kW-hr, NOT kW!
- You don't get charged for power, you get charged for energy: Prove it by solve $P = W/t$ for kW-hr
- Rate is \$85.25/705 kW-hr = 12¢ per kW-hr, you need to **MEMORIZE** this value!

Cost of energy - example

- How much does it cost to do your physics HW for an entire year!
 - Assume 180 days of HW
 - Assume 30 min of HW per day
 - Tell me how many watts your light bulb is
 - Find the hrs,
 - find the watts,
 - convert to kW,
 - multiply kW x hrs to find kW-hrs
 - \$0.11 per kW-hr
- It practically solves itself!

Cost of energy – example, part deux

- How much does it cost to play two hours of indoor tennis? (assume six 1,000 W lights & their commercial rates are $\frac{1}{2}$ of your residential rate)