

Energy Math

DO YOU LIKE TO WORK WITH NUMBERS?

As in all businesses, energy company employees use mathematics to analyze problems and choose the best solutions.

Here are three situations where math affects an energy company. Can you find the answers?

How much electricity do you use?

One of the responsibilities of Xcel Energy engineers is to determine how much energy we need to generate for all the businesses and households in the area we serve. Our engineers can calculate this by looking at the energy that has been used in past years and forecasting for future changes. We know that the average household uses 750 kilowatt-hours (kWh) of electricity per month. The charge for a kilowatt-hour is \$.08.

How much does an average house pay for electricity each month?

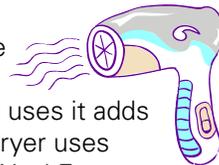
Ask your parents to look at your bill and see how your family compares to the average. How many kilowatt-hours did you use last month? What was the cost?

How much electricity is used for a million average houses?

How much does that cost?

How can you reduce your electricity use?

Here is one example of how to save energy. Megan uses a hair dryer to dry her hair every day. The time she uses it adds up to 2 hours each week. The hair dryer uses 1200 watts of electricity each hour. Xcel Energy charges \$.08 per kilowatt hour.



How much will Megan save on her bill each year if she stops using her hair dryer and air-dries her hair instead?

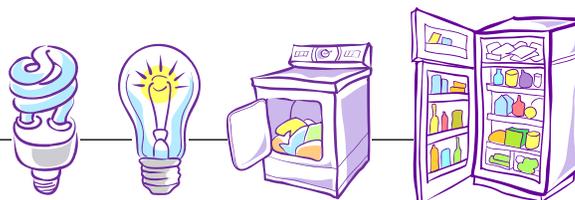
(Hint: Divide watts by 1000 to get kilowatts.)

Look at the electricity that other things in your house use. Calculate how much it costs to pay for the electricity each thing uses each year.

Will different light bulbs save electricity?

Xcel Energy encourages customers to save energy because it helps to preserve the environment. Using energy efficient light bulbs is one way to save energy and also save money. Our engineers calculate that cost. See how much money you can save if you switch to using an energy efficient light bulb.

Eric uses his bedroom light 4 hours a night. It uses a regular 60 watt light bulb, which means it uses 60 watts of electricity each hour. Eric wants to save energy, so he decides to change to a compact fluorescent bulb that gives the same amount of light, but uses only 15 watts of electricity each hour. If electricity costs \$.08 per kilowatt-hour, how much money will Eric save in electricity costs for one year?



(Hint: Divide watts by 1000 to get kilowatts.)

Cost of using a regular 60-watt light bulb for 1 year

Cost of using an energy efficient 15-watt light bulb for 1 year

Cost comparison for 1 year