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Heaters everywhere!

Friday Quiz:

in the radio article, how much carbon did they say was stored in the permafrost?

What organism was described as digesting the permafrost?

What would it produce?

If there are 100 million home water heaters, each using 4500 Watts for 4 hours per day, how many kWh is this per day?

At \$0.15/kWh, how much money is this per day?

How much per year?

If you invented a conservation method that saved only 30% of this, how much money would your company save the country?

How many kWh is this?

If each kWh produces 1.4 pounds (about 0.6 kg) of CO₂, how many pounds and kg of CO₂ would your new invention save the country?

Thursday/Friday Class:

The Cobb family of Fremont is looking at ways to decrease their home water and energy usage. Their current

electric hot-water heater raises the water temperature to 140°F, which requires 0.20 kWh/gallon at a cost of

\$0.10/kWh. Each person in the family of four showers once a day for an average of 10 minutes per shower.

The shower has a flow rate of 5.0 gallons per minute.

(a) Calculate the following. Be sure to show all your work and include units with your answers.

(i) The total amount of water that the family uses per year for taking showers

(ii) The annual cost of the electricity for the family showers, assuming that 2.5 gallons per minute of the water used is from the hot-water heater

(b) The family is considering replacing their current hot-water heater with a new energy-efficient hot-water heater that costs \$1,000 and uses half the energy that their current hot-water heater uses. How many days would it take for the new hot-water heater to recover the \$1,000 initial cost?

(c) Describe 1WO practical measures that the family could take that would reduce their overall water use at home.

(d) Describe 1WO conservation measures (other than reducing hot water use) that the family could take to reduce the total amount of energy that they use at home.