

Introduction

By measuring and recording our energy consumption at home, we can tell exactly how much energy we are using and how much it costs. Knowing this, allows us to monitor trends in our energy consumption over time and empower us to take a more active role in controlling our energy habits! In this activity you will monitor your monthly energy use at home.

How is energy consumption monitored?

There are various ways to monitor energy use in the home: **Energy Bills** - Reviewing your energy bills e.g. electricity, natural gas, liquid petroleum gas (LPG), heating oil or wood pellets, is the quickest and easiest way of determining your annual energy use.

You can also use readings from **electricity, oil and gas meters** to look at usage on a daily, weekly or monthly basis. Some homes may also have installed **display energy monitors** that can be used to give you a reading of how much electricity you are using at a given time.

For the purpose of this exercise utility bills are sufficient.

The figure on the right shows what a typical utility bill looks like. Home energy bills can be read using the accompanying key given.

How is energy consumption measured?

Energy consumption can be measured relative to the equivalent unit volume of the fuel used. For oil this is (litres) and for natural gas (m³). However, the majority of energy bills generally convert these quantities into kWh.

A **kilowatt hour (kWh)** is the standard unit of measuring how much energy you're using. If your home also uses other types of fuels and energy resources for the purpose of heating or electricity generation, the following approximate conversions can be made: 1 m³ of Natural Gas = 11.06 kWh, 1 litre of oil = 10.78 kWh and 1 litre of LPG = 6.6 kWh.

For example: If a house consumes 400 litres of oil in a year, $400 \times 10.78 = 4312$ kWh/year

For more information on how to read utility bills and for the various kWh conversions for other types of fuels including solid fuels, please visit the Sustainable Energy Authority for Ireland initiative Energy in Education, available at: <http://www.energyineducation.ie/>

Sample Energy Bill

Account Details

Account Number XXXXXXXXXXXX
Date of Issue XX/XX/XXXX
Invoice no. XXXXXX
Other Details XXXXXXXX

① Billing period XX/XX/XX to XX/XX/XX (61 days)

Name of bill payer
Address here

Your MPRN number ②

12 345 678
DG MC PROFILE
GD12 MCC12 5

Your electricity bill

Meter Readings:		QTY	Price	Description	Amount
Present	Previous				
28047	27047	1000	0.1672	TARIFF Standard electricity	167.20
STANDING CHARGE 61 DAYS@0.3882 /DAY					23.68
PSO levy					6.96
VAT @13.5% on 197.84					26.71

Your energy consumption on this bill amounts to XX kg of CO₂: ⑧

Total Cost: 224.55
Payment due on: XX/XX/XXXX

key

① Billing Period	⑤ price per unit (kWh)
② MPRN number	⑥ total price
③ meter reading	⑦ VAT and other charges
④ QTY of units (kWh)	⑧ Energy consumption per kg CO ₂

Step 1. About your home





ENERGY USE AT HOME

What best describes your house type?	
What best describes your main heating sources?	
What is your home's energy rating (if known):	
What energy efficiency solutions are in your house: e.g. solar panels, air-water pumps, geo-thermal heating	
Number of occupants in your house:	

Step 2: Record your Energy Usage

Date	Electricity		Heating		Other (optional)	
	Quantity billed (kWh)	Cost (€/£)	Quantity billed (kWh)	Cost (€/£)	Quantity billed (kWh)	Cost (€/£)
Jan-19						
Feb-19						
Mar-19						
Apr-19						
May-19						
Jun-19						
Jul-19						
Aug-19						
Sep-19						
Oct-19						
Nov-19						
Dec-19						
Jan-20						
Feb-20						
Mar-20						
Apr-20						





ENERGY USE AT HOME

Step 3: Calculate your energy use at home

Average daily energy use per billing period? You will need to find the total energy usage and divide by number of billing days.	
Average daily energy use for a year? You will need to find the total energy usage for the year and divide by number of billing days.	
What is the daily use of energy per person in your home? You will need to find the average daily energy usage and divide by number of occupants.	
What is the daily cost of energy per person in your home? You will need to find the average daily energy usage and divide by average daily cost.	

Step 4 Take Action!

Select three energy efficiency solutions you are aware of. e.g. insulation, triple glazing, solar panels, air-water pumps, geothermal heating, wind turbines	
What energy efficiency solutions would you like to see in your house? (open question)	

An excel workbook version of this activity is available. Please email suzanmarie.gunbay@dcu.ie or ailish.mcloughlin@dcu.ie to request a copy.

