

Cost of Electricity and Energy Values

Calculating Energy Transfer

ELECTRICAL APPLIANCE — anything that needs electricity to work.



Appliances transfer energy electrically to other stores.



POWER RATING — amount of energy an appliance transfers per second when working at its recommended maximum power.

energy transferred



Power — how fast energy is transferred.

Equation	$E = P \times t$		
Units	joules, J kilowatt-hours, kWh	watts, W kilowatts, kW	seconds, s hours, h

time

You could use either of these sets of units in the equation.

Electricity at Home

Electricity meters record amount of energy transferred in kWh.

4 4 2 8 1 . 2 5 kWh

energy transferred in a time period =
meter reading at end – meter reading at start



This is then used to calculate fuel bills.

$$\text{cost} = E \times \text{price}$$

energy transferred in kWh

per kWh

Appliances with higher power ratings cost more to run — they transfer more energy in a set time period.

Energy in Food



All food contains energy — we need to take in the right amount of energy each day.



Food labels tell you how much energy is in the food, measured in kJ.

You might also see food labels that give energy in kcals — that's just a different unit.

You can use this information to compare different foods.