

## Electrical Energy

Energy is the ability to do work!

Work occurs when 1 kind of energy is converted into another kind of energy.

So..electrical energy converts into....

- Heat energy (in a hair dryer)
- Sound energy (in your stereo)
- Moving energy

## Where does electrical energy come from?

- ⊙ 2 sources
  - **Batteries** (small amounts of energy)
  - **Electric generating stations** (large amounts of energy)

## Batteries

Portable devices need portable energy sources (batteries) . Electric cell = battery

- ⊙ 2 kinds
  - Primary cells – cannot be recharged (use once)
  - Secondary cells – can be recharged
- ⊙ Some bad news – all electric cells are toxic and should be disposed of properly!

## Fuel Cell?

- ⊙ A fuel cell is a special kind of electric cell. The chemicals needed are constantly pumped into the cell
- ⊙ Hydrogen fuel cells are of interest.
- ⊙ Hydrogen + oxygen → water!

This reaction gives off energy.

- ⊙ Although there is interest in hydrogen fuel cell cars as 'greener' cars (the waste product is water!) there are some problems.
  - problem – purifying hydrogen requires the burning of fossil fuels (not green!!)