



## Energy and Climate Change

### Introduction

Whether it is in the home or in the school, when we talk about energy we are mostly talking about heating, lighting, and electrical appliances. In Ireland over 95% of our energy comes from the non-renewable sources of energy such as coal, gas, oil and peat.

### Fossil Fuels and Climate Change



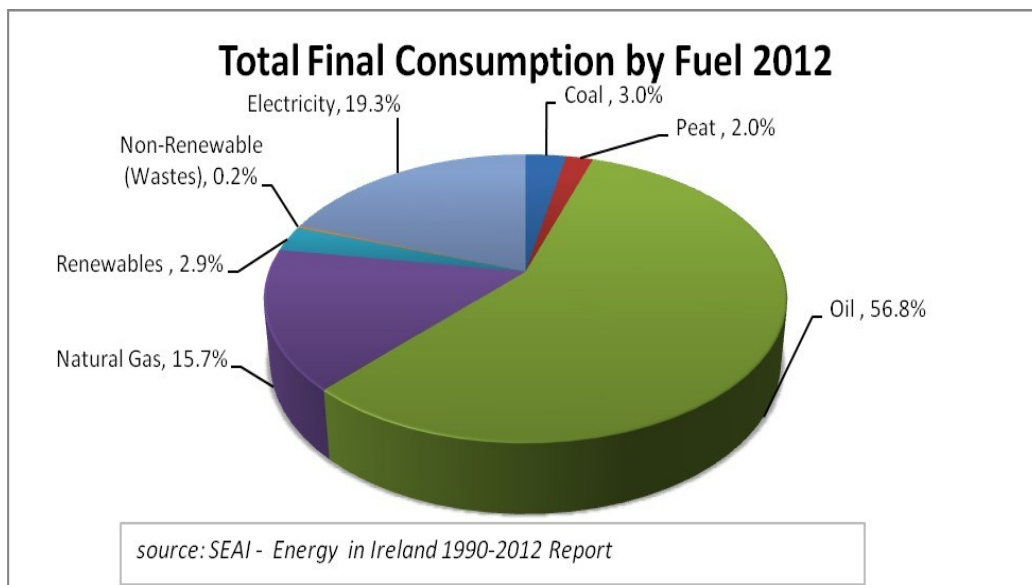
**The energy produced when we burn fossil fuels such as coal, natural gas and oil comes from carbon and hydrogen.** When we burn these fossil fuels we release carbon (in the form of  $\text{CO}_2$ ) drawn from the atmosphere by plants millions of years ago. About two thirds of Ireland's  $\text{CO}_2$  emissions currently arise from the consumption of fossil fuels. Fossil fuels such as coal, natural gas and oil are composed almost entirely of hydrogen and carbon. When we burn fossil fuels we produce energy and release the carbon they contain.

Black coal is almost entirely carbon, a ton of coal when burned produces 3.7 tonnes of  $\text{CO}_2$ . Oil is less carbon rich than coal, containing two hydrogen atoms for every atom of carbon, and so produces less  $\text{CO}_2$  and more heat when burned. Natural Gas is the least carbon-rich of the fossil fuels containing just one atom of carbon for every four hydrogen atoms.

### Renewable Energy

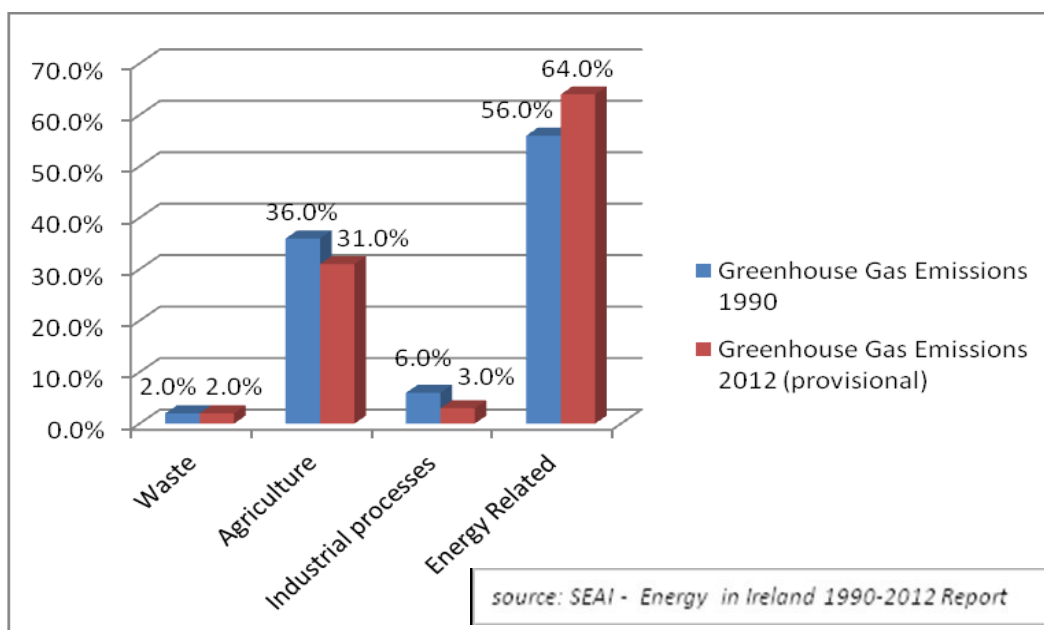
Energy generated from renewable sources such as wind, solar, hydro, and geothermal power produces minute amounts of  $\text{CO}_2$  when compared to energy generated from fossil fuels. Generating energy from renewable sources is the most effective way of reducing Ireland's energy-related  $\text{CO}_2$  emissions.

## Breakdown of Ireland's energy consumption in 2012



## Electricity Generation in Ireland

The total share of electricity generated from renewables in Ireland increased from 1.9% in 1990 to 4.5% in 2006 and to 11.4% in 2012. As part of The National Climate Change Strategy the Government has set an ambitious target of generating 15% of Ireland's electricity from renewable sources by 2010. Whilst the amount of electricity generated from renewable resources is a bit lower than this target yet we are moving in the right direction.





## What you can do

As we have seen in the energy theme of the Green-Schools programme, small changes can make a big difference. We can reduce our energy-related CO<sub>2</sub> emissions through energy saving measures both at school and at home, such as:

1. Turn off lights and appliances (fully!) when they are not needed
2. Use energy efficient light bulbs and appliances; over its lifetime just one CFL bulb can reduce your lighting costs by up to €60 and avoid 400kg of CO<sub>2</sub> emissions.
3. Turning down the thermostat by even 1°C can reduce your heating bill by up to 10% and results in massive CO<sub>2</sub> savings.
4. Buying renewable energy from your supplier may also be an option available to you. Much of Ireland's electricity is now generated from renewable sources; purchasing electricity generated from renewables reduces CO<sub>2</sub> emissions and provides funds for further investment in renewable energy generation.

Each of these small steps can help you not only reduce your CO<sub>2</sub> emissions, but can also be very effective in saving you money! Other methods of saving energy may require a greater initial investment, but should save money over the long term. This could include the use of solar panels, geothermal heating, double glazing and improved insulation, and wood-chip boilers to name a few.

**Calculate your energy-related CO<sub>2</sub> emissions** Use the Green-Schools Carbon Calculator to estimate your school's energy-related carbon emissions. You can download the Green-Schools Carbon Calculator from the Green-Schools website [www.greenschoolsireland.org](http://www.greenschoolsireland.org)