

## Clean, renewable energy



### Introduction

Renewable energy comes from energy resources like the sun and wind and will not run out. However, fossil fuels, or non-renewable energy resources, like coal, oil and gas, will not last forever and will become more expensive to extract from the Earth. When we burn fossil fuels like petrol in a car or coal in a power station carbon dioxide is released and this is causing climate change. Our national target is for Ireland to source 16% of all the energy we use from renewable sources by 2020.

Why not use your One Good Idea campaign to encourage people to consider using renewable when they can?

### Facts & tips

#### ***Did you know?***

*In 2015 renewable energy sources provided about 9% of Ireland's energy, with a target of 16% by 2020.*

*In Ireland we get enough sun to use solar panels to provide about 50 - 60% of the hot water needed in a typical Irish homes.*

*In Irish conditions a single, large wind turbine (2.5MW) could provide enough electricity for around 1,200 homes.*

#### **What types of renewable energy are available in Ireland?**

Renewable energy resources are abundantly available in Ireland but we are only using a small amount. The main sources are:

- the sun (solar energy)
- the wind
- water (hydropower, wave and tidal energy)
- heat below the surface of the earth (geothermal energy)
- biomass (wood, waste, energy crops)

#### **What are the benefits of using renewable energy?**

- lower CO<sub>2</sub> emissions (this will help to tackle climate change)
- a secure energy supply, that will not run out
- less dependence on fossil fuels
- jobs in renewable energy projects

#### **How can I influence people to use renewable energy?**

Heating and hot water can account for over 80% of the energy a household uses - Did you know that we can use renewable energy in our homes for some of our heating and hot water needs? Why not use your campaign to tell people how they can reduce their energy bills and tackle climate change by using solar energy?



## Passive solar design

Passive solar design uses the energy from the sun to provide heat and light in buildings. Just by designing a house so it faces south, capturing as much sunlight as possible, energy bills can be reduced by >10%.

## Solar Panels

In Ireland, a well designed solar hot water system can provide around 50 -60% of the annual hot water requirements for homes and buildings. In fact, one square meter of solar panel receives the equivalent of more than 100 litres of oil in free solar energy per year! It works even when the sky is overcast or cloudy.

## Wood Fuel

Using wood fuel instead of fossil fuels like peat, coal or gas in a modern, efficient stove or boiler is better for the environment. Wood is 'CO<sub>2</sub> neutral'. That means that the amount of CO<sub>2</sub> given off when we burn wood equals the amount taken in when the wood is growing.

## Heat Pumps

Heat pumps collect heat from the environment (e.g. air/ground/water) and are ideal for the Irish climate. They are an excellent energy source for under floor heating in particular.

## Useful websites

- The Irish Wind Energy Association is the national association for the wind industry in Ireland [www.iwea.com](http://www.iwea.com)
- The Environmental Protection Agency developed the 2020 Vision website to assist second level students and teachers in exploring environmental issues, including climate change and renewable energy, through a range of film clips from the popular EcoEye series and resource materials <http://www.epa.ie/researchandeducation/education/educ/>

## Videos

- The Student Energy website has a range of videos about renewable and non-renewable energy sources [www.studentenergy.org](http://www.studentenergy.org)
- Green Mountain Energy have developed a series of videos explaining different type of renewable energy <https://www.youtube.com/playlist?list=PLFidi9STI26NseXKKYB7228HojuWPp7TC>

## Teacher Lesson Plans

Use the [Energy in Action](#) resources to do the following actives with your class:

- A2 Activity 3: The Power of the Wind - Making your own generator
- A2 Activity 3 Worksheet C: The Power of the Wind - What do you think?
- A2 Activity 4: Exploring the Wind Turbine
- D5 Activity 1: Solar Energy and D5.1 Discussion Points
- A4 Exploring Ocean and Tidal Energies - Overview

