

## 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.

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

### Did you know?

- In Ireland, we get enough sun to use solar panels to provide about 50 - 60% of the hot water need in a typical home.
- A large wind turbine could provide enough electricity for around 1,200 homes.

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

We have a lot of renewable energy resources available in Ireland but we are only using a small amount.

The main renewable energy resources 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 stable energy supply, that will not run out
- less dependence on fossil fuels
- jobs in renewable energy projects



## What can we do?

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?

Here's how we can use renewable energy in our homes for some of our heating and hot water needs:

- **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, solar panels can provide around half of the annual hot water for homes. It works even when the sky is 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.
- **Heat Pumps:** Heat pumps collect heat from the environment (e.g. air/ground/water) and are ideal for the Irish climate. They can be used for under floor heating in particular.

## Resources for Teachers

### Websites

- <http://www.kidwind.org/> This website includes downloadable lesson plans about wind energy for teachers, as well as wind activity ideas for pupils.
- You can find lots of information about various renewable energy resources here at [https://www.eia.gov/kids/energy.cfm?page=renewable\\_home-basics](https://www.eia.gov/kids/energy.cfm?page=renewable_home-basics)

### Videos

- Check out this educational wind energy video at <http://www.sciencekids.co.nz/videos/physics/windenergy.html>
- Watch a video on wind energy and solar energy [https://www.youtube.com/watch?v=Quy-b\\_ZOxBA](https://www.youtube.com/watch?v=Quy-b_ZOxBA)
- You can find out how solar panels work at <https://www.youtube.com/watch?v=bhcIJRdyrQg&feature=youtu.be>



### **Resources for Teachers only**

#### **Classroom activity - Lesson plans**

- Use the lesson plans in [Exploring our Energy](#) for 5<sup>th</sup> and 6<sup>th</sup> class. Chapter 1: The Energy we all use explores the advantages and disadvantages of renewable energy. Chapter 2: Energy in our Lives looks at wind energy and had an activity for making your own wind turbine.
- Check out the Design and Make activities on using renewable energy in the [Energy File](#) like the pizza box solar oven or the water wheel.

