



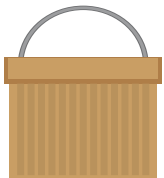
# the green energy uk guide to energy production: research and debate!

## scenario

You are now well into your project work and have hopefully made a saving on the amount of energy used by your school. Using all that you have learnt so far, you are going to investigate how energy is made around the world.

## your task

Your task is to evaluate the different sources of electricity that we use today. You will look at how electricity is produced and what effect this has on our environment. You will then split into teams to debate the positive and negative aspects of different methods of electricity production.



## resources you will need

- Access to the school library and the Internet
- A flip chart or board to present at the debate

## the mission

### 1) Research

- Research energy production in the world today using the Internet and library. List the ways that energy can be produced.
- Research and record the effects from the production of 'green' and 'brown' energy.

### 2) Preparation

- Your group will be split into two teams for the debate. These are the 'brown' energy and the 'green' energy teams.
- Choose a title for the debate. It could be "The House believes that increasing the use of renewable energy is essential for the future of our planet."
- Each team should prepare to debate the argument for their type of power.
  - Prepare a 2-4 minute opening statement about your power type; explain what it is, how it is made and why it is the best type of power to choose.
  - Prepare the arguments against your opposing team's power type.
  - Decide who will be your spokesperson to give your opening statement.

### Debate

- Follow professional debating guidelines:
  - Appoint a chairperson for the debate, who 'controls' the discussion - it may be your teacher.
  - Only one person may speak at any one time.
  - The spokesperson from each team should now present their opening statements
  - When the opening statements are finished, the debate may begin with one question at a time.
- At the end of the debate, all students should vote on whether they support the title of the debate.

### Review

When the debate is finished you will have a fuller understanding of energy production and a view on the use of renewable energy in the future.

## Global energy

We all need energy to power our schools and homes. Without it our light, TVs, Playstations and Wiis would not work. Energy is a fundamental resource but it comes at a cost. The amount of energy the world uses every day has trebled over the last century. To keep up with growing demand for energy to heat and light our homes and power our industries, power stations are burning more and more fossil fuels. Burning fossil fuels causes greenhouse gases, which in turn are thought to be causing the greenhouse effect. The greenhouse effect is increasing global warming and creating more problems for us.

It is up to us to now look at ways in which we can reduce pollution.

We could all take two simple steps to help with this problem:

- 1) Reduce our use of 'brown' energy and increase our use of 'green' energy at home, school and in business.
- 2) Reduce the amount of energy we waste, through a range of energy-saving and energy efficiency ideas.

## What is brown and green energy?

Brown energy is how we have traditionally created electricity. It is known as 'brown' because during its production it creates pollutants. These are called greenhouse gases and include carbon dioxide (CO<sub>2</sub>), nitrogen oxide (NO<sub>2</sub>) and sulphur dioxide (SO<sub>2</sub>). These pollutants are created when we burn 'fossil fuels'

- oil, coal and wood. Burning fossil fuels creates these gases, which rise up into the atmosphere and create the 'greenhouse' effect. It is understood that the greenhouse effect in turn increases global warming, which is why climates are changing and sea levels may rise to dangerous levels. The current thinking is that if we switch to green energy production, we can reduce or limit the effects of greenhouse gases.



Green energy is the alternative way for creating power for our homes, schools and businesses. It is called 'green' as it is made from cleaner resources which do not pollute the environment. It is broken down into renewable and green sources. Renewable includes electricity from the sun (solar), wind and water (hydro and wave). It's called renewable because nothing is taken away in order to create the electricity. In the past, creating power from renewable resources has always been seen as being very expensive, but as more and more people use it, the price is quickly coming down. Green energy can include energy from waste products such as vegetable oil and even gas captured from landfill sites! There's also green combined heat and power, where one fuel source is producing heating, hot water and electricity. Visit [www.greenenergyuk.com/ourgenerators](http://www.greenenergyuk.com/ourgenerators) for examples of green energy.



We even make energy from growing tomatoes!  
Visit [www.greenenergyuk.com](http://www.greenenergyuk.com) to find out more.

## Is there a difference for homes, schools and businesses?

These days, both green and brown energy are converted into electricity and supplied to homes and schools via the national grid. There is no difference to the end user if they use electricity from brown or green sources (unless you are building your own solar panels, of course). The electricity you receive is supplied in the same way, down the same cables and through the same meter to your home. The difference is at the other end, where electricity is made and then fed into the national grid. It is here that the power is made from either a brown or green source. When people choose an electricity supplier, choosing a green tariff is how you can make a difference.



## recording sheet: energy production research and debate

List below eight ways electricity can be made around the world, and mark which are 'brown' and which are 'green'.

List the positive and negative effects of using 'brown' energy.

List the positive and negative effects of using 'green' energy.