

## What is energy engineering?

Slide	Script
1	<p>This is one of a series of presentations from the Energy Institute that look at energy and energy engineering.</p> <p>In this presentation we look at what is meant by energy engineering and also explore some of the issues around maintaining a supply of electricity in the future.</p> <p>There are some activities associated with the presentation. Please take some time to do them.</p> <p>To start the presentation, please click the mouse button.</p>
2	<p>In this activity, we would like you to spend a few minutes thinking about what you already understand about energy engineering.</p> <p>Write three words or phrases that explain what you think of when you hear these terms.</p> <p>Then click onto the next slide.</p>
3	<p>The Engineering and technology board did a similar activity with school teachers and students. They found that there were a wide range of ideas that were associated with the term engineering. Some of them are listed on the slide.</p> <p>This shows the range of activities that an engineer, and equally an energy engineer, may be involved. It also shows that when communicating ideas about energy engineering, there may be a wide range of views and also a wide range of misconceptions.</p> <p>Energy engineers may be involved in all aspects of the supply, distribution and use of energy. This includes the fossil fuel sectors, oil, gas and coal, as well as the increasing demand for engineers with expertise in renewable energy technologies. Opportunities will lie at all levels.</p>
4	<p>An important part of energy engineering is making sure that sufficient energy is available for a modern society. In 2007, the UK government launched a consultation to see the direction that the country should take to ensure energy supplies.</p> <p>This also had to be against a background of reducing carbon dioxide emissions.</p>
5	<p>Take a few minutes to try this activity.</p> <p>Imagine you are a policy-maker and your task is to ensure that the UK has enough energy to meet its needs over the next twenty years. What are the kind of factors and issues that you would need to take into account? Draw up a list of the most important things to consider.</p> <p>When you have done this, click to move onto the next slide and see some of the things from the governments white paper.</p>

Slide	Script
6	<p>Here are some of the things that the government's white paper included as issues facing the energy supply in the future.</p> <p>Security of supply is very important. The UK is now a net importer of energy and is reliant on supplies of gas and oil from areas such as Russia, Norway and the Middle East. These supplies have to be bought on the global energy market. Ensuring reliable and affordable supplies of energy is very important. Recently, we have seen great rises in the price of fossil fuels, followed by falling prices as the world's economy has turned down. High fuel prices hit domestic customers as well as having a major impact on industrial users.</p> <p>Climate change is a major challenge. Traditional fuels used to generate electricity and also for heating are coal, oil and gas. Clearly these produce large amounts of the greenhouse gas carbon dioxide. Reducing our dependence on fossil fuels is seen as vital in tackling climate change.</p> <p>There are new reserves of oil and gas being found. However, many of these are in environmentally-sensitive areas such as the wilderness of Alaska. Getting to these fuels is difficult, costly and has a great environmental impact. They are also 'dirty' fuels to burn and of course add to carbon dioxide emissions. Large coal reserves also exist in places such as North America, Russia and China. However, they are a finite resource and their use will also add to climate change.</p> <p>Finally, energy is a very political issue. A modern society will not function without plentiful and affordable energy. Decisions on how supplies are maintained will have impacts both politically and socially.</p>
7	<p>This next activity asks you to think about the different ways of generating electricity.</p> <p>Have a look at the different methods of generating electricity and rank them into your order of preference. Will you prefer renewables or continue with the use of fossil fuels? How will nuclear power rank in your list? Make sure that you can justify your choices.</p> <p>Additional information can be found using the link.</p>
8	<p>Did you prefer renewables or fossil fuels? What was the debate over nuclear?</p> <p>In reality, no single source of energy will ever be sufficient. There needs to be a mix of sources.</p> <p>The link takes you to an energy calculator on the BBC's web site. It allows you to model different energy sources to try and meet the country's needs. It is a few years old now and the prices are a little out of date. However, the principles behind the simulation remain sound.</p> <p>Have a go and see if you can supply the country with affordable energy.</p> <p>Once you have done the exercise, please remember to return to the energy institute web site to see the other presentations.</p>
9	<p>We hope that this presentation has been useful and informative. Please have a look at the other presentations on the web site that deal with energy and energy engineering.</p>

