Low Carbon and Renewable Energy

The Low Carbon and renewable energy sector has seen significant growth in the 21st Century. In the quest to find alternatives to traditional power sources, combined with cost savings and lower impact on the environment, the number of jobs available in this sector is set to rise over the coming years. Currently 87,000 people are employed in the industry, but there are concerns that over the next 10 years there will be a shortage of employees due to an ageing workforce.

Renewable energy, as a relatively new concept, needs government investment to meet demand and to look at new technologies. Governments around the world, including Britain, have targets to meet, to help reduce climate change and look at alternatives when it comes to 'Green Energy'. Renewable energy is a major focus and with this comes the need for a highly skilled and diverse workforce, such as engineers, technicians, project managers and marketing. In the next 3 to 4 years Britain has to build 7,500 offshore turbines to meet with EU targets and is hoping that renewable energy will provide 15% of Britain's power by the year 2020. Worldwide over 8 million people are now working in the renewable energy sector.

An ageing workforce, combined with new technologies and techniques needed in the low carbon sector, means an ever-widening skills shortage, especially as there are more calls for Governments to produce effective low carbon power solutions for their economies.

The energy sector itself covers a range of areas, some of these are:

- Electricity and gas
- Nuclear
- Renewable energy
- Waste management
- Water

A good website to visit to find out more about careers in the Renewable Energy Sector and to find more information is 'RenewableUK', the website gives you information about companies across Britain and Ireland actively looking into renewable energy alternatives for the future.

The website also has statistical information on renewable energy and a 'Careers' section for people interested in job opportunities associated with this sector. This site is definitely worth a look for any students interested in this sector or for any classes you might deliver about looking into future areas of growth.

- **Locally, the Leicester and Leicestershire Low carbon sector is estimated to have a market value of around £2 billion and contains some 730 companies, employing over 8,000 people. Higher levels skills are very important.**
    - **The area is home too much of the National Forest, and also has some specialisms in 'smart grid' development (local power networks that respond to peaks in power usage, saving electricity).**
    - **The universities of De Montfort, Leicester, and Loughborough are home to some excellent low carbon research centres, with strengths in energy, building technologies**

and low emission vehicles. The independent Energy Technology Institute (ETI) has also helped to position the area as a centre for renewable energy and energy research expertise.

- **A range of skills are needed at all occupational levels, but especially for mechanical / electrical engineers, green technologists, research and graduates in physics and chemistry.**

Some interesting facts relating to renewable energy:

- 'Green' power provides 44% of electricity for the total of EU capacity.
- Companies across the world are looking at their energy footprint and taking steps to use renewable energy rather than traditional methods.
- Onshore wind farms are making a massive impact on Britain and currently produce around 60% of its power output.
- With most sectors, growth is also dependent on skilled workers. Wind and marine energy is vastly growing with a 74% increase in people working in these industries since 2010.
- The UK economy could create another 70,000 jobs by 2023 in the renewable energy industry, evidence of how much the sector is growing.

Skilled people are in high demand for renewable technology industries and companies are looking for people qualified up to Level 4 and above. Jobs for renewable energy aren't just with big companies, you can also find opportunities with local authorities in areas such as the Environmental Agency and with small and medium-sized enterprises (SME's).

The working environment for the low carbon sector varies depending on the area of qualification and could be outdoors, on land or sea or even in an office. Different roles could also include travel to unique places of work as well as working irregular hours. Working in the sector can involve project management which requires many different specialists from the following fields:

- Software developers
- Environmental analysts
- Ecologists
- Technical experts
- Scientists
- Mechanical and Electrical Engineers
- Technical Designers
- Geophysicists
- Marine Experts
- Project Managers
- Cabling
- Civil Engineers
- Construction
- Communications and Public Relations
- Human Resources (HR)
- Finance
- Administration

One of the first apprenticeships for the renewable energy sector was a 'Wind and Turbine Technician' Apprenticeship, and you can now also gain an Advanced Level Apprenticeship in Wind Turbine Operations and Maintenance. Apprenticeships for this sector are developing all the time so it is worth keeping a look out for apprenticeships that may help students get their 'foot in the door' of this industry.

Qualifications and routes:

Students interested in this sector need to have interests in STEM (Science, Technology, Engineering and Maths). One route into the industry is to study an apprenticeship which will allow students to progress in their chosen field, gain 'hands on' experience, a qualification and earn money at the same time. Alternatives to an apprenticeship, could be to gain A-Levels in a STEM subject which would be advantageous for this area, progressing onto graduate and then postgraduate courses.

Some attributes that will help students in this area of work are: willingness to work in different environments, such as offshore or outdoors; knowledge in their area of work; technical skills; a keen interest in problem solving, and the ability to work as part of a team.

Renewable energy is an exciting area of growth, with advancements in technology and new ways of working developing all the time: a plane has recently been successfully flown around the world using no fuel at all; instead, Solar Impulse covered more than 30,000km using energy from the sun. Solar planes aren't going to be on the runway yet, but with more time research, one day we might see fuel-less planes in the sky, eliminating plane pollution and noise. Watch this space for more exciting developments. Please click here to read the article from BBC News.

With predicted growth over the coming years, comes the need for more young people to consider careers in the sector. Companies are also experimenting with new ways of addressing the need for fossil fuels and looking at alternatives to help with their carbon footprint and the environment, another exciting field to work in and one that many young people may not have heard or thought about.

Useful Websites:

- Renewable Energy Association
- bConstructive
- Future Morph
- Energy and Utility Skills
- Science Career Pathways
- The Renewable Energy Centre
- Energy UK
- The Carbon Trust
- National Careers Service - Green Economy
- RenewableUK