Working in the energy sector

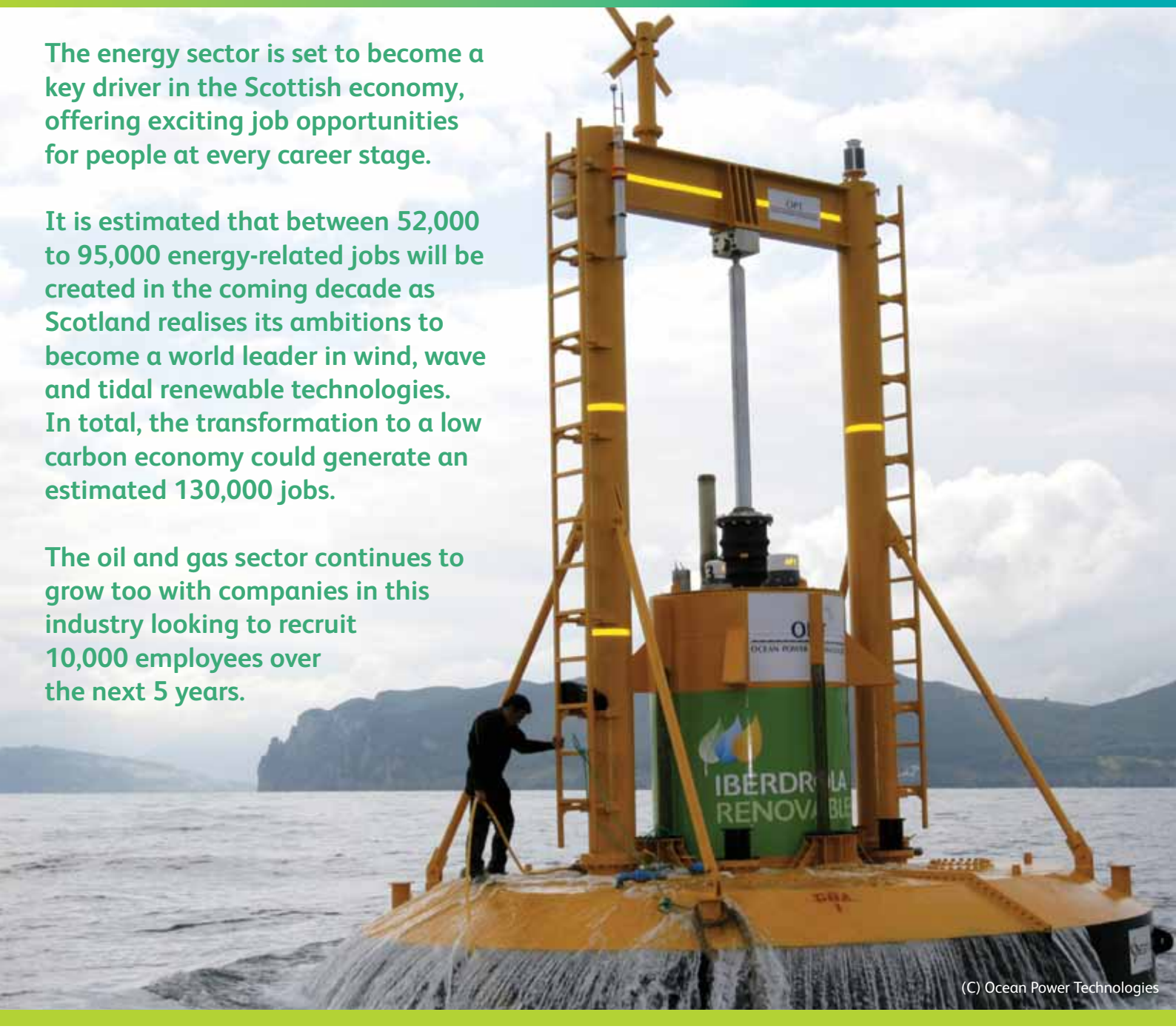
A guide for teachers and those who provide careers advice

www.educationscotland.gov.uk/globalcitizenship

The energy sector is set to become a key driver in the Scottish economy, offering exciting job opportunities for people at every career stage.

It is estimated that between 52,000 to 95,000 energy-related jobs will be created in the coming decade as Scotland realises its ambitions to become a world leader in wind, wave and tidal renewable technologies. In total, the transformation to a low carbon economy could generate an estimated 130,000 jobs.

The oil and gas sector continues to grow too with companies in this industry looking to recruit 10,000 employees over the next 5 years.



(C) Ocean Power Technologies

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What skills will be in demand?

The energy sector offers excellent career opportunities across a diverse range of roles. Skills in science, technology, engineering, maths (STEM subjects) and business disciplines will be in greatest demand including:

- Civil, marine, structural, mechanical and electrical engineering
- Leadership and management including project management
- Geologists and geoscientists
- Turbine technicians, welders and divers.

There will also be a need for installers, insulators, electricians, joiners, plumbers and fabricators to support energy-related construction work in domestic and commercial settings.

The energy sector offers both graduate and technician-level (SVQ Level 3) opportunities – some of these could be supported through modern apprenticeships and others will require a university degree. Recruiting sufficient numbers of skilled people to fill these posts will be a challenge for the industry.

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What is the energy sector?

The energy sector comprises a number of different areas including:

- Oil and gas
- Coal
- Nuclear
- Biofuels and biomass
- Electricity transmission and distribution
- Carbon capture and storage technologies
- Wind, wave, tidal, solar
- Electrical energy storage
- Energy policy
- Fuel cells
- Geothermal energy
- Hydropower
- Energy efficiency and carbon auditing
- Construction – insulators, installers, plumbers, joiners, electricians
- Combined heat and power plants
- Hydrogen production
- Waste to energy
- Microgeneration
- Energy companies and providers
- Supply chains to all of the above.


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Not just your average job

The many diverse roles in the energy sector include:

- Underwater welders to fit marine renewable devices to the sea floor
- Ecologists to determine the impact of a wind farm on local biodiversity
- Meteorologists to determine the most suitable locations for a wind farm
- Forestry professionals to manage woodland environments used for biomass production
- Geologists to assess the best areas to drill for oil
- Helicopter pilots to fly staff out to oil platforms
- Corporate roles in human resources, media, admin and finance etc.

Facts – energy sector in Scotland

- Up to £30bn will be invested in offshore wind and £60bn in oil and gas in the next 10 years and there is potential for a €100 billion supergrid investment
- Jobs could rise from 70,000 to 130,000 by 2020 – representing over 5% of the Scottish workforce
- There will be an estimated 5,200 to 9,500 job opportunities each year to 2020 – most of these will be filled by those already in the labour market
- Currently there are 3,000 apprenticeship starts each year in engineering and energy-related subjects
- The college sector currently supports 25,000 – 30,000 students in energy-related subjects and in universities there are 8,000 undergraduate entrants in related subjects with around 3,000 postgraduates

Projected number of jobs in the energy sector by 2020	
Oil and gas (replacement and additional jobs)	30,000 – 40,000
Conventional power generation, transmission and distribution	Up to 2,000
Carbon capture and storage	13,000
Offshore wind	Up to 28,000
Marine renewables	Up to 5,300
Commercial onshore wind	1,650+
Renewable heat	1,350
Hydro power	Up to 1,400
Microgeneration	~2,000
Total opportunities to 2020	**52,000 – 95,000**

Information and resources

Websites

STEM Central - www.educationscotland.gov.uk/stemcentral/
Weather and climate change - www.educationscotland.gov.uk/weatherandclimatechange/
Exploring climate change - www.educationscotland.gov.uk/exploringclimatechange/
Schools global footprint - www.educationscotland.gov.uk/schoolsglobalfootprint/
National SDE Glow group - http://glo.li/nWkF9m
STEMNET - www.stemnet.org.uk
Skills Investment Plan for the Energy Sector - www.skillsdevelopmentscotland.co.uk/media/331209/sds_energysip_final.pdf
Scottish Government energy pages - www.scotland.gov.uk/Topics/Business-Industry/Energy
Opito – oil and gas workforce development - www.opito.com
Scottish Renewables - The forum for Scotland's renewable energy industry - www.scottishrenewables.com

Support

STEM Ambassadors - volunteers from industry who visit schools
http://stemnet.org.uk/list/scotland-local-contacts
Eco-Schools Scotland - whole school approach to the environment and sustainability
www.ecoschoolsscotland.org
SCDI - Young Engineers and Science Clubs
www.yecscotland.co.uk
OPITO Petrochallenge & Energise Your Future Events
www.opito.com/uk/about-us/events.html
SSERC - The Scottish Schools Education Research Centre
www.sserc.org.uk and www.science3-18.org

Further support may be available locally from:

- Local authority coordinators – 16+ Learning Choices; More Choices, More Chances; STEM & Sustainability Officers
- Skills Development Scotland (SDS)
- Local businesses and companies
- Colleges and universities.

Places to visit:

- Your local wind farm or power station
- Science centres - Glasgow Science Centre, Our Dynamic Earth (Edinburgh), Dundee Science Centre, Satrosphere (Aberdeen) and also Generation Science
- Renewable energy demonstration projects:
  Glasgow House, email: marketing@citybuildingglasgow.co.uk
  Dundee Sun City House, email: admin@solarcitiesscotland.org.uk
  Aurora House (East Kilbride), email: james.jamieson@slc.ac.uk
  Hydrogen Office (Methil), email: info@thehydrogenoffice.com

What can I do?

- Raise awareness about the exciting job opportunities that exist
- Provide appropriate advice and guidance on career paths and suitable qualifications
- Create exciting and challenging learning experiences within the curriculum to develop relevant skills and promote the energy sector as an attractive option
- Recognise the achievements of learners in related areas, e.g. involvement in engineering clubs.

To request printed copies of this leaflet please email:
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or Tel. **0141 282 5000**.

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