

Oxford Revise | Geography | Answers

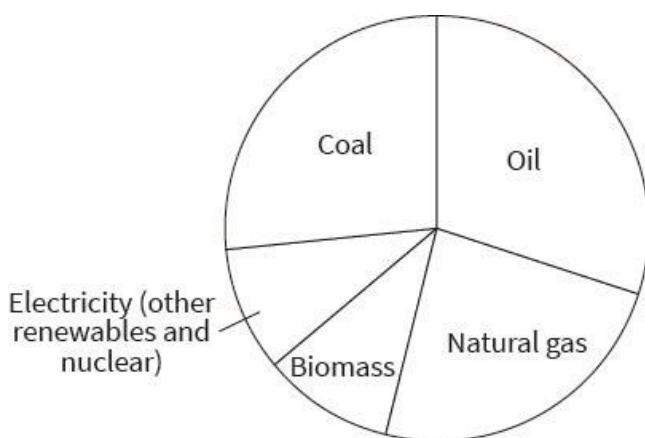
Chapter 38

All exemplar answers given are worth full marks.

1.1 A

1.2 Energy consumption per person is highest in North America and parts of the Middle East. It is above 1001 kg of oil equivalent across most of Europe. Much of central and sub-Saharan Africa has the lowest energy consumption per person.

1.3 The pie chart should be completed as below:



1.4 Globally the biggest source of energy is oil (30%) followed by coal and natural gas. This means that globally 80% of energy consumed is a non-renewable, fossil fuel energy. Nuclear and renewable supplies of energy, such as solar and wind power, only make up 10% of global energy. Biomass makes up the final 10%. This is another renewable source of energy made out of living products, such as plant and animal waste.

1.5 One advantage of using wind turbines to create energy is that wind power is a renewable source of energy that will not run out. A disadvantage is that the wind may not be reliable and, if it is not windy, less energy will be produced.

1.6 This question is level-marked:

Level	Marks	Description
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound, organised, and relevant throughout, using supporting evidence and examples • Communicates good knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives) • Uses geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Explanations are partial • Little or no use of geographical terms and vocabulary

Level	Marks	Description
	0	No relevant content

Example answer: *Physical factors can affect energy supply because they influence what energy can be produced. The geology of an area will determine whether fossil fuels can be accessed and removed. Areas that are close to tectonic plates, such as Iceland, will be able to generate geothermal energy.*

Political factors can also influence energy supply because conflicts can seriously affect energy pathways. The Ukrainian conflict with Russia is an example of this. If a country develops nuclear power, other countries may fear that they are doing this for non-peaceful reasons. Political relations can then become strained, which can affect energy supplies.

1.7 This question is level-marked:

Level	Marks	Description
3 (detailed)	5–6	<ul style="list-style-type: none"> ● Thorough, detailed, organised, and relevant throughout with supporting evidence and examples ● Communicates detailed, clear knowledge and understanding ● Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) ● Good use of geographical terms and vocabulary
2 (clear)	3–4	<ul style="list-style-type: none"> ● Sound throughout with some supporting evidence and examples ● Communicates some knowledge and understanding ● Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) ● Some use of geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> ● Basic throughout with limited supporting evidence and/or examples ● Communicates limited knowledge and understanding ● Communicates using simple statements that are not developed ● Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: *Energy insecurity is when a country does not have access to a safe, reliable, and affordable energy supply. This has a number of implications. Environmentally, energy insecurity can lead to countries exploiting energy resources in more and more environmentally fragile areas that have recently been protected, such as the Arctic. Energy insecurity will also have an economic impact because access to affordable energy is vital for developing industry and maintaining production in factories. Without energy supplies, it is difficult to maintain economic growth. An example of this would be in Pakistan, where regular and long power cuts are estimated to cost the country 4% of its GDP. Not having access to energy also influences food production because people, often women, spend their time collecting firewood rather than working on farms and producing food. This means that areas without energy may also suffer from food insecurity. Finally, rising energy insecurity can increase the likelihood of war and conflict as countries fear their energy supply will be limited or energy prices will increase too much. The Middle East produces 56% of the world's oil. This contributed to the Iraq war in 2000s as western countries feared their lack of control over these energy resources.*

1.8 This question is level-marked:

Level	Marks	Description
3 (detailed)	7–9	<ul style="list-style-type: none"> • Thorough, detailed, organised, and relevant throughout with supporting evidence and examples • Communicates detailed, clear knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) • Good use of geographical terms and vocabulary
2 (clear)	4–6	<ul style="list-style-type: none"> • Sound throughout with some supporting evidence and examples • Communicates some knowledge and understanding • Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) • Some use of geographical terms and vocabulary
1 (basic)	1–3	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Communicates using simple statements that are not developed • Little or no use of geographical terms and vocabulary
	0	No relevant content

3-marks: SPaG (spelling, punctuation, grammar, and specialist terminology)

Marks	Description
3	<ul style="list-style-type: none"> • Accurate spelling and punctuation • Rules of grammar followed • Effective control of meaning • Uses wide range of specialist terms
2	<ul style="list-style-type: none"> • Generally accurate spelling and punctuation • Most rules of grammar followed • General control of meaning • Uses good range of specialist terms
1	<ul style="list-style-type: none"> • Reasonably accurate spelling and punctuation • Some rules of grammar followed – errors do not hinder meaning • Some control of meaning • Limited use of specialist terms
0	<ul style="list-style-type: none"> • Writes nothing • Does not relate to question • Basic grasp of spelling, punctuation, and grammar prevents clear meaning

Example answer: *The issues affecting global energy supply differ over time and impact countries to varying degrees. Firstly, physical factors influence global energy security. These factors tend to be quite consistent and do not change over time. Mountainous areas are able to develop hydroelectricity because they tend to have faster flowing rivers and areas that are close to tectonic plates will be able to produce geothermal energy. Fossil fuels, such as oil and natural gas, are found in layers of particular rocks so geology will determine which countries have a supply of fossil fuels and which don't. In addition, climate will determine which areas can develop solar or wind power.*

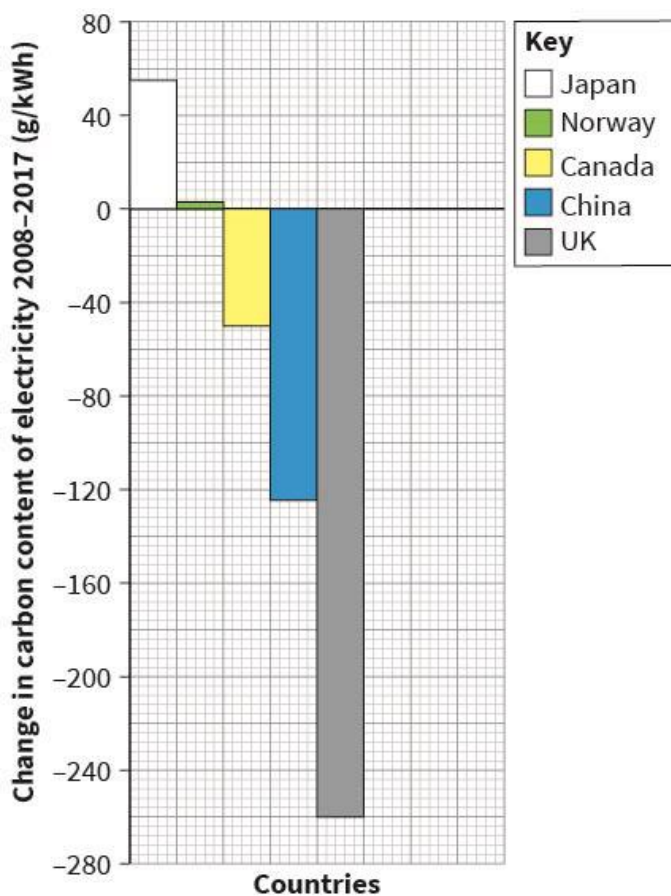
Political factors are also important in influencing global energy supplies. Political and public opinion often dictates whether a country develops nuclear power. Germany has started to shut down its three nuclear power stations in a long-term shift to renewable sources. Some countries, such as the USA, have invested large amounts in shale gas fracking but the UK has taken a more cautious approach. Political conflict, especially conflict around access to oil and gas supplies in the Middle East, is also increasingly affecting global energy supplies. As tensions grow, western countries are looking for alternative sources of energy that will be more reliable in the long term.

Access to technology also plays a part in what energy can be accessed and where. HIC countries can afford the latest technology so can exploit resources in more difficult environments. An example of this is shale gas fracking. Finally, the fluctuating cost of energy on a global scale heavily influences which countries can access supplies.

In conclusion, it is clear that there are a wide range of factors that influence access to energy. Some of these factors are constant, such as the geology and climate of different areas. Others are more changeable, such as political tensions and the cost of energy.

2.1 The range is 315.

2.2 The graph should be completed as below. Shading should be used to clearly delineate the two bars and the countries they represent.



2.3 A possible reason for the UK recording the highest decrease in the carbon content of electricity is that other countries, such as Canada and Norway, shifted towards renewable energy before the timeframe of

the graph in Figure 4, while the UK was still very reliant on carbon-producing energy. The UK started to make changes after 2008 so the large drop reflects these later changes.

2.4 Energy security means having a safe, reliable, and affordable supply of energy.

2.5 Energy consumption is increasing mainly because of population growth. A greater number of people will require a greater amount of energy. Improving levels of economic development also increases energy use because, as people become wealthier, they use more technology, such as computers, which requires electricity. Economic growth also leads to more factories being built. These factories will need energy to operate.

2.6 This question is level-marked:

Level	Marks	Description
3 (detailed)	5–6	<ul style="list-style-type: none"> ● Thorough, detailed, organised, and relevant throughout with supporting evidence and examples ● Communicates detailed, clear knowledge and understanding ● Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) ● Good use of geographical terms and vocabulary
2 (clear)	3–4	<ul style="list-style-type: none"> ● Sound throughout with some supporting evidence and examples ● Communicates some knowledge and understanding ● Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) ● Some use of geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> ● Basic throughout with limited supporting evidence and/or examples ● Communicates limited knowledge and understanding ● Communicates using simple statements that are not developed ● Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: Natural gas is a fossil fuel that is vital for energy supply globally and that has grown in relative significance in the last decade. Global supplies of natural gas are expected to last around 50 years and so there are many advantages of extracting it as a key global energy source.

It is an advantage that there are still quite large supplies left because it means it is not too problematic if countries rely on it. Natural gas is also easier to transport than other fossil fuels, such as coal, and is more convenient as power stations using gas can be turned on an off easily. In addition, it is less environmentally damaging than other fossil fuels, producing 45% less carbon dioxide and less sulphur and nitrous oxide.

There are, however, some disadvantages of extracting natural gas. Firstly, 60% of natural gas supplies are found in Russia and other countries that are considered unstable. It is feared that these countries may use their gas supplies as a political weapon. Despite it being slightly less harmful to the environment than other fossil fuels, natural gas still contributes to global warming by producing carbon dioxide. A final disadvantage is that the process of fracking to extract natural gas is controversial. In some countries, the public are against the extraction of shale gas in this way.

2.7 One advantage of using solar photovoltaic panels is that this method of energy production does not release carbon emissions so does not contribute to the greenhouse effect. A disadvantage is that the energy produced is often seasonal because solar panels rely on sunlight.

2.8 This question is level-marked:

Level	Marks	Description
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2 (clear)	4–6	<ul style="list-style-type: none"> ● Sound throughout with some supporting evidence and examples ● Communicates some knowledge and understanding ● Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) ● Some use of geographical terms and vocabulary
1 (basic)	1–3	<ul style="list-style-type: none"> ● Basic throughout with limited supporting evidence and/or examples ● Communicates limited knowledge and understanding ● Communicates using simple statements that are not developed ● Little or no use of geographical terms and vocabulary
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0	<ul style="list-style-type: none"> ● Writes nothing ● Does not relate to question ● Basic grasp of spelling, punctuation, and grammar prevents clear meaning

Example answer: *A sustainable energy supply is a supply that can be used into the future without harming the environment or supplies for future generations. To reach a fully sustainable energy supply, we need to make changes to where we get our energy from but also work to reduce energy demand, waste, and inefficiency.*

Demand can be reduced by increasing energy conservation. This is an inexpensive change. Education, such as 'turning to 30' adverts, can raise awareness amongst the public about wasting energy. Adverts may also encourage people to improve insulation in their homes to reduce energy wastage. Government subsidies and financial incentives can also encourage people to be more energy efficient.

Sustainable energy supplies are renewable sources such as solar, wind, geothermal, biomass and hydropower. The advantage of using these sources of energy is that doing so reduces our overall reliance on fossil fuels which, in turn, reduces carbon dioxide emissions. Renewable sources also do not run out. They are, however, not always suitable for all areas. Solar power requires quite intense sunlight and geothermal electricity can only be developed in countries that are tectonically active. Alongside using renewable energy sources, existing fossil fuels can be extracted more efficiently. This will mean that existing supplies will last longer.

A good example of where both energy supply and demand has been developed sustainably is Malmo in Sweden, where a large proportion of buildings use 100% renewable energy such as solar power. Public transport use is encouraged in order to reduce energy demand and buses run on a mixture of biogas and natural gas.

In conclusion, it is clear that there are a range of developments that can be introduced to balance energy supply and demand. It is important that both sides are considered equally if we are to improve our global energy security.