

Oxford Revise | Geography | Answers

Chapter 42 Global reliance on fossil fuels

All exemplar answers given are worth full marks.

1. a)

- i) 1. Increased revenue
2. Large multiplier effects on regional and national economies by the development of other industries supplying the oil and gas companies
- ii) Existing and emerging technologies allow otherwise inaccessible oil and gas to be increasingly drilled. New reserves of oil and gas can be detected using seismic imaging. This is important for reducing costs and preventing unnecessary drilling in isolated and sensitive areas. New technologies, such as liquefaction of natural gas, allow easier and safer transportation and so transportation from further and more isolated locations is possible. New technologies also reduce the possibility of spillages which have a negative effect on the environment.

b)

- i) Tar sand extraction increases a country's energy security because it allows for less reliance on imported fossil fuels. It provides an alternative source of bitumen at a time when other reserves of oil and gas are declining.
- ii) 1. Destruction of habitats and a loss of local ecosystems
2. Increased risk of flooding

2. a)

- i) There are largely untapped reserves in the Arctic when other reserves are becoming exhausted. The region has an estimated 13% of the world's undiscovered oil resources and 30% of its unexploited natural gas, so there are huge potential revenues.
- ii) This question is level-marked:

Level	Marks	Description
3	6–8	<ul style="list-style-type: none"> • Accurate understanding of concepts and the interrelationship of places, environments and processes. • Applies understanding to deconstruct information and make logical connections throughout. • A balanced, well-developed argument. Judgements are supported with evidence throughout. • Uses geographical skills to obtain accurate information that supports arguments.

Level	Marks	Description
2	3–5	<ul style="list-style-type: none"> • Some understanding of concepts and the interrelationship of places, environments and processes. • Applies understanding to deconstruct information and make some logical connections. • Imbalanced argument with mostly relevant information. Judgements are occasionally supported with evidence. • Uses geographical skills to obtain accurate information that occasionally supports arguments.
1	1–2	<ul style="list-style-type: none"> • Isolated elements of understanding of concepts and the interrelationship of places, environments and processes. • Attempts to apply understanding to deconstruct information but this is flawed. • Unbalanced or incomplete argument with limited understanding. Judgements are supported with limited evidence. • Uses some geographical skills to obtain information with limited relevance and accuracy.
	0	No acceptable response

Example answer: *There are major economic benefits because demand for oil is expected to continue to rise. There are huge and largely untapped reserves that have been claimed by several countries. New technologies, such as directional drilling, allow drilling of previously economically inaccessible resources. This is possible because despite the high costs there are even higher revenues from the sales of oil and gas.*

Environmental costs can be highly damaging, particularly when accidents occur. Accidents are infrequent yet, when they do occur, they can have a devastating impact on the environment, as seen in Alaska. The Arctic is one of the last few great unspoilt wildernesses and is rich in flora and fauna, and unique habitats. Long-term, even irreparable, damage occurs when oil spills take place. Energy exploitation itself can be intrusive because of movement of heavy machinery across fragile soils or the construction of large villages to house workers. There are costs and benefits associated with the exploitation of energy resources in sensitive areas. The development of renewable energy may reduce the need for extracting fossil fuels in places like the Arctic but, although these energy sources can be considered sustainable, some, like HEP, can also badly affect the environment.

- 3.
- a) Oil requires a specific combination of geological processes to form. These have only occurred in a minority of locations. Oil production takes place close to or on the site of oil reserves. Significant investment in infrastructure is needed to produce and refine oil. This may be a barrier to developing countries, unless there are huge investments made by TNCs.

- b) An advantage for relying on oil as an energy source is that it has a wide range of uses. As well as being used for transport fuel it is the basic ingredient of petrochemicals. The main disadvantage is that it will eventually run out.