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# GCSE GEOGRAPHY

## Resources for Paper 3 Geographical Applications

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To be issued to students 12 weeks before the date of the exam.

### Specimen

This booklet contains three resources as follows:

- Figure 1 – Energy in the United Kingdom: pages 2–3
- Figure 2 – New surface coal mine planned for Druridge Bay: pages 4–5
- Figure 3 – Views about the development of Druridge Bay: pages 6–8

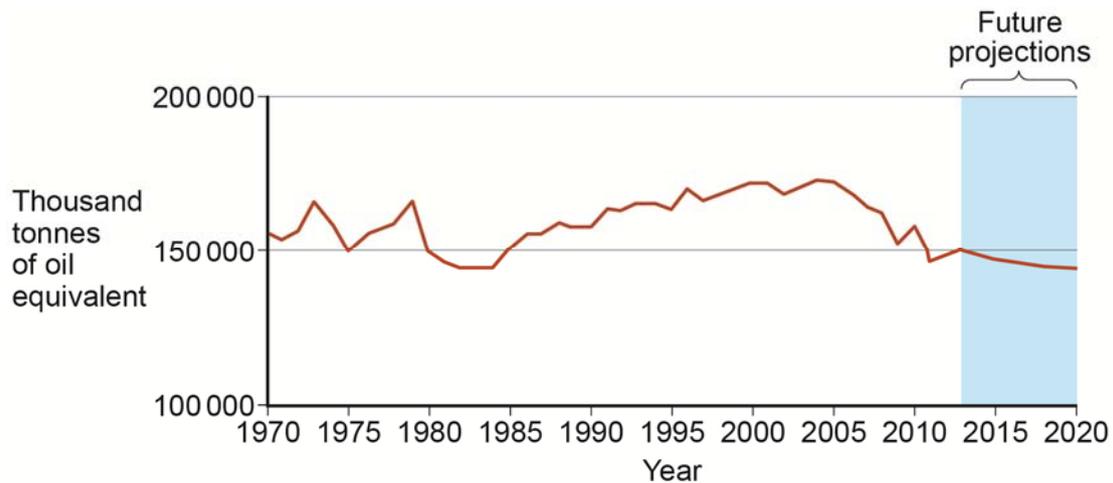
Figure 1

## Energy in the United Kingdom

### Energy consumption in the United Kingdom

The energy we use is fundamental to just about everything we do. Without it there would be no heating or lighting in our homes, no transportation or communication systems and very little industry. Over the last 40 years the total energy consumption in the United Kingdom has fluctuated between approximately 140 000 and 170 000 tonnes of oil equivalent a year.

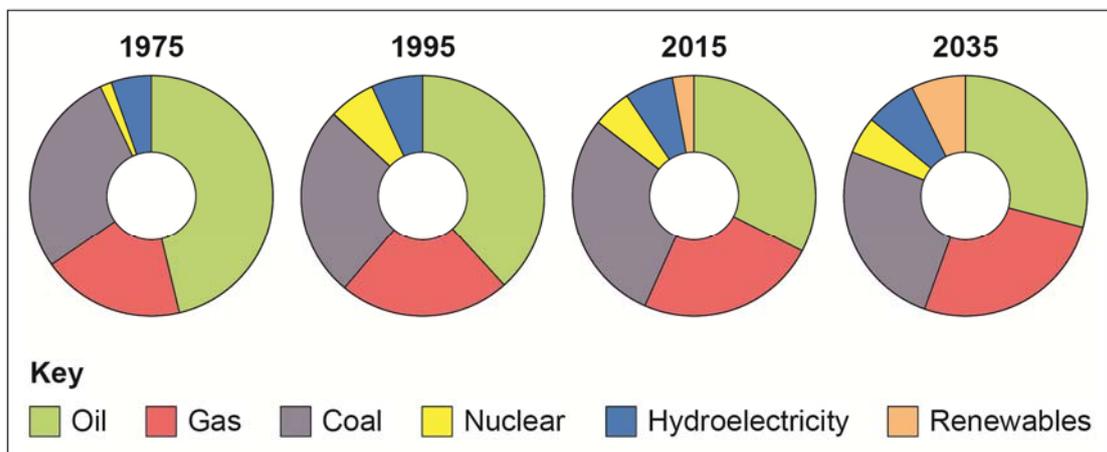
### Total energy consumption (1970–2020)



### The changing energy mix in the United Kingdom

The energy mix is the range of energy sources used. The resources available to a country and decision about which sources to use will determine a country's energy mix. In the United Kingdom fossil fuels have always been an important part of the energy mix because they are used in transport as well as in power stations to generate electricity.

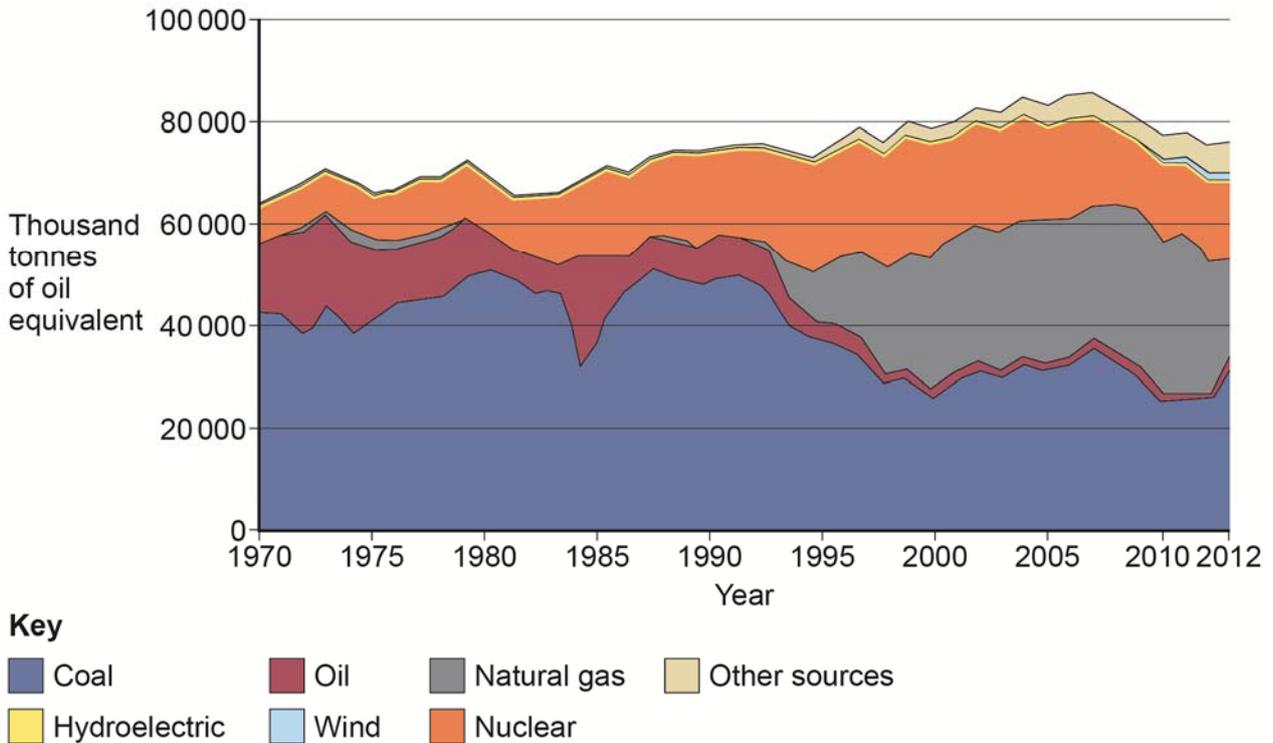
### United Kingdom energy mix



### The electricity energy mix in the United Kingdom

In 1970 coal accounted for about two-thirds of all electricity generation. By 2012 this figure had fallen to under a half. The fall in the use of coal was partly the result of a massive increase in the use of gas (the so-called 'dash for gas') in the 1990s when gas from the North Sea was cheaper than coal. Recent years have seen a gradual increase in the use of renewables. Renewable energy is seen as more environmentally sustainable and efficient – converting fossil fuels into electricity wastes approximately 50% of the energy stored in primary fuel. It is expected that coal-fired power stations fitted with carbon capture and storage will start producing electricity by 2020, but the increasing development of renewables will see them producing 40% of the UK electricity needs by 2030.

Sources of electricity (1970–2012)



### UK energy statistics 2013 (Department of Energy and Climate Change)

- In 2013 coal accounted for 36.3% of electricity generation
- Renewable electricity generation increased to a record 15% of all electricity needs
- Production of all fossil fuels was lower than in 2012
- Energy consumption in the domestic and service sectors increased, while there were falls in the transport and industry sections
- Imports of energy resources reached a record high, with net import dependency reaching 47%

### Net energy import dependency

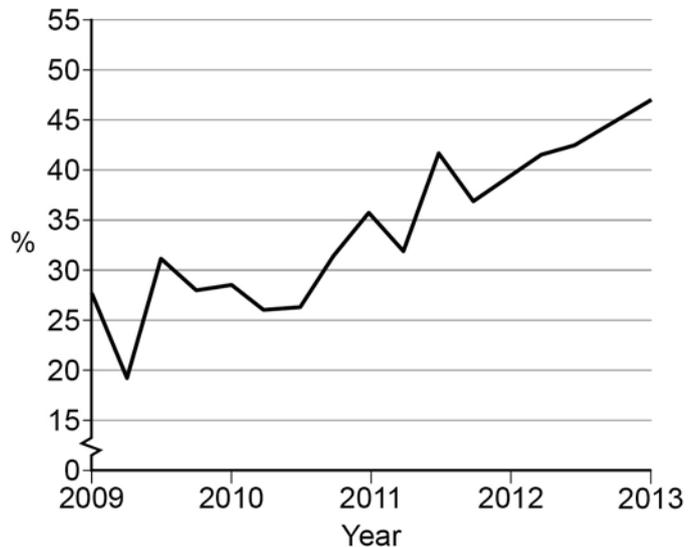
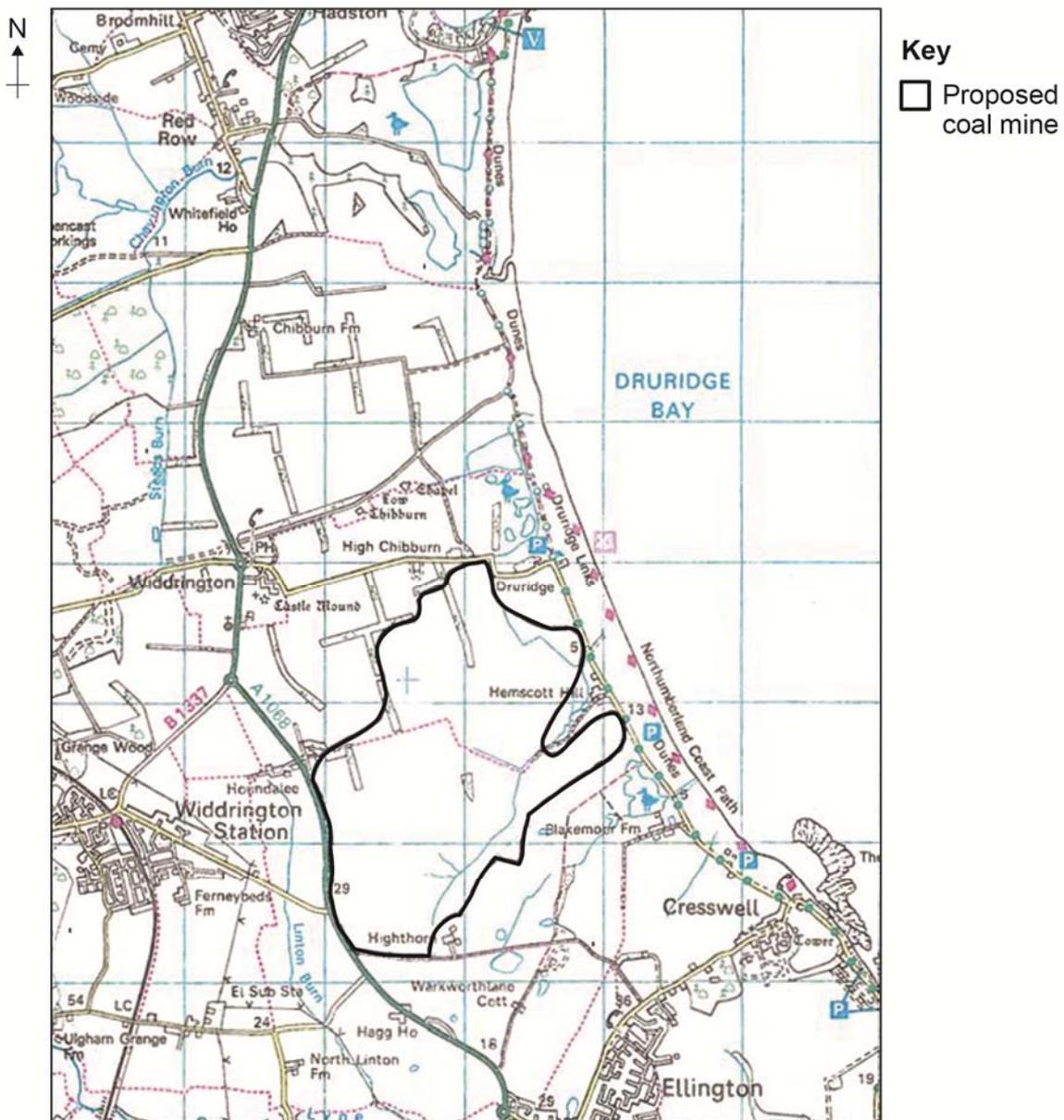


Figure 2

### New surface coal mine planned for Druridge Bay

Plans for an opencast coal mine near a Northumberland beauty spot that would create or sustain more than 100 jobs have been announced. The initial proposal covered an area to the east of the A1068 from Chibburn Farm in the north to Highthorn in the south. The most recent proposal has been scaled down to the area highlighted on the Ordnance Survey extract.

It is estimated that the proposed mine will extract around 7 million tonnes of coal over a 12-year period. The development will include an area of extraction and a storage facility. Supporters of the plan say that “at present, about 70% of the coal used to generate electricity in the UK is imported and reliance on imported coal makes the UK vulnerable to supply and price variations. Coal is a vital part of the UK energy mix and is an energy source that can be stored safely and used flexibly in order to increase electricity supply at critical times of the year”. The proposed area for development lies within the Northumberland coastal plain and is a largely flat area with wide sweeping sandy beaches, which are increasingly popular for recreation and tourism.



Scale 1:50 000

## Druridge Bay



### Massive opencast mine planned near Druridge Bay

Proposals have been unveiled by Banks Mining for a massive new opencast coal mine near Druridge Bay in Northumberland.

Tourism and wildlife organisations are being consulted over plans for a massive new opencast mine close to one of the region's leading coastal beauty spots. The site, known as Highthorn, lies between the villages of Ellington and Widdrington. Banks Mining says the development will create or sustain more than 150 jobs over the next decade and beyond, and make a big contribution to the economy of the area. It would be the biggest surface mining operation in Northumberland since the 14 million tonne Stobsworth site was worked by UK Coal in the 1990s.

Banks Mining is working closely with Northumberland Tourism and the Northumberland Wildlife Trust to discuss a range of tourism and nature conservation benefits from the restoration phase of the project.

The company also plans to consult widely with local residents in an area that has been affected by opencast mining for decades.

The Highthorn site is said to be one of the biggest and best remaining coal resources in England.

The development manager from Northumberland Tourism said "We are not actively supporting this opencast scheme but if planning permission is given, we would hope there will be significant tourism benefits from it".

The chair of Widdrington Parish Council, added: "When the Steadsburn site was approved a few years ago, we were told there would be no more opencast mining in this parish. I'm not really sure how people will take this one, because at 10 years it is a lengthy scheme. Druridge Bay is becoming increasingly popular for tourism. While this site would be quite well back from the beach, I'm not sure how much effect the noise will have on visitors and locals".

The company's communications manager said "We know this area extremely well and, with its proximity to the popular beach and wildlife attractions at Druridge Bay, we understand that the Highthorn proposal is a unique and sensitive location. Our planned investment has the potential to offer so much to both local people and visitors to the area".

Figure 3

## Views about the development of Druridge Bay

### Highthorn surface mine – Druridge Bay

The Highthorn surface mine project has the potential to attract new investment to the area. Banks Mining has said that the development will create new jobs and deliver substantial investment into local businesses, the supply chain and the tourism economy'. Banks Mining is proposing to set up the 'Discover Druridge' project which will aim to boost tourism in the area and create new wildlife habitats.

Some of the benefits of the mining development are:

#### Wildlife and open spaces

- Over 100 hectares of new wetlands and wet grassland habitats will be created in and around Druridge Bay
- 7.9 km of footpaths, bridleways and cycle paths will be created
- Building of wildlife hides

#### Employment and training

The development will:

- create 50 new jobs
- sustain a further 50 jobs
- fund new and improved community facilities
- support local people with training, skills and apprenticeships.



Recently restored mining area

#### The local community

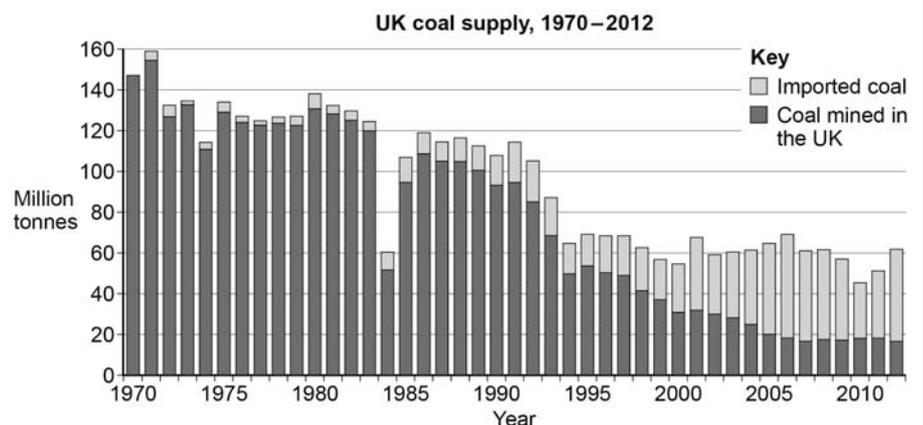
The development will create:

- a £450 000 Highthorn Community fund from a 15p per tonne contribution
- a £225 000 Skills Fund providing help with funding for protective clothing, transport to work or helping small businesses to take on apprentices
- footpaths, bridleways and cycle paths to encourage healthy lifestyles.

A spokesperson for the Parish Council said "The Discover Druridge initiative would help to give the local community what it needs and bring in more visitors. This is an area with a strong industrial history and the proposed site is well back from the beach and hidden by the undulating coastline so visitors will not be put off. Also, when the mining is completed the landscape will be fully restored".

### Coal authority backs Highthorn mine development

The Coal Authority, which is sponsored by The Department of Energy and Climate Change, has stated that it supports the way in which the mining company is looking to exploit the coal in 'socially and environmentally' acceptable ways and that coal mining in the UK is critical for the supply of coal for electricity generation, making the point that relying on imported coal is a risk to energy security.



## Druridge Bay – Picturesque part of Northumberland countryside at risk if mining proposals approved

A picturesque stretch of the Northumberland coast would be blighted if proposals to dig England's largest opencast coal mine are approved, locals have warned. The plans would see up to 7 million tonnes of coal excavated by 2023 on a site next to Druridge Bay, about 30 miles north of Newcastle.

Many locals are furious about the proposal, which comes less than two decades after they fought off attempts to build a nuclear power station in the same bay.



An opencast coal mine

Residents say the mine and associated HGV traffic would create huge levels of dust and noise pollution, as well as spoiling the area's unique views and damaging the tourism industry.

"I'm strongly opposed to coal anyway for environmental reasons – but if they are going to mine for coal, this is absolutely the wrong place" said the owner of a local café, nestling behind the sand dunes on Druridge Bay, about 800 metres from the proposed mine. She claims that around half of her customers said they would stop visiting the area if the coal mine goes ahead. A local crafter who makes mirror frames with driftwood from the beach, is also strongly opposed. "It's such a beautiful area. If it goes ahead I know it will affect the landscape for the rest of my life" she said.

The site is close to Cresswell Pond, designated as a protected Site of Special Scientific Interest (SSSI) and the National Trust owns a portion of the bay.

The area around the proposed mine is also home to five endangered bird species, including the Yellowhammer and the Lapwing. "An opencast coal mine at Druridge Bay would desecrate the local landscape, be a tragedy for the region's tourism and a disaster for the climate. Northumberland Council must reject this proposal" said a Friends of the Earth campaigner.

### Save Druridge Bay

A spokesman for Save Druridge Bay said “people here know from bitter experience that far from creating jobs, open casting destroys wealth and livelihoods”.

“The mine will be a gross intrusion in an unspoiled landscape that will threaten the Druridge hinterland with noise, dust and light pollution. The project will have an impact on all other economic activity in the area, especially the growing tourism industry and the economic development of surrounding villages and towns.”

The group claims the mine also poses a threat to the thousands of birds, animals and plants that thrive in the unique landscape at Druridge. It says that green energy and renewables are preferable to the coal Banks Mining proposes to mine and that coal is one of the biggest sources of UK carbon emissions.

### Walk Northumbria

The following extract is from ‘Walk Northumbria’.

During operations, the rights of way would have to be diverted but would be reinstated with (possible) additional links. The footpath running west from the dunes to the ruined chapel at Low Chibburn would be retained at all times. Bird sanctuaries would be untouched and would be enhanced once coal extraction was complete. Field boundaries would be returned to their original shape. Woodland would also be reinstated with native species in more natural plantings. Access to Druridge Bay would remain open.

The downside has to be the disruption, noise and dirt for the residents of Widdrington and the fact that the mining, if it goes ahead, is not due to be completed until 2026. The restoration work will not be finished until 2032.

### Nature concern Northumberland

Our experts are not convinced by Environmental Impact Assessment (EIA) assurances that this proposed development will be free of any negative environmental impacts. We believe that the wetland areas particularly Cresswell Pond SSI are vulnerable as the mine workings are likely to result in the lowering of the water table and possible contamination of the water supply.

The proposed development may also disturb existing bird breeding sites particularly those of the extremely vulnerable Marsh Harrier, which is a recent coloniser of the wetland areas. The impact of any possible waste and discharge from this proposed development is particularly worrying as the whole coastal area is being considered for Marine Conservation Zone status.

This area is growing in popularity as a nature tourism destination with large numbers of people enjoying the wildlife and countryside. The proposed development might affect this growth as well as having an impact on residents and the local economy.

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