

FACTORS AFFECTING THE SITING OF A NUCLEAR POWER STATION

WATER Large amounts of cooling water are needed at a nuclear power station. Although coal fired power stations are built next to rivers, nuclear power stations need at least twice as much water and should be sited on the coast or by an estuary.

SUPERGRID The supergrid of major electricity transmission lines, which are used to transport electricity around the country, is very expensive to build. A nuclear power station should be built as close as possible to the existing supergrid.

POPULATION Leaks of radioactive materials and explosions like the one at Chernobyl in the U.S.S.R. are very dangerous and can have devastating effects over wide area. A nuclear power station should not be built too close to urban areas, especially major population centres like cities.

NATIONAL PARKS National parks and other areas of outstanding natural beauty should be preserved if possible. A nuclear power station should not be built in an area where it is likely to spoil the scenery.

Study the map showing the 5 possible sites for a nuclear power station

a. Which at first sight seems to be the best place for a nuclear power station ?.....

Now read the 'factors affecting the siting of a nuclear power station'.

b. i. Complete the grid below by scoring each site on a scale of 10 for an excellent site down to 1 for a very poor site for each factor. It is best to do the scoring factor by factor rather than site by site.

SITE	Factors affecting location				TOTAL
	Water	Supergrid	Population	National Park	
A					
B					
C					
D					
E					

ii. Which site is best ?.....

c. Explain why your chosen site is best.....

d. Explain why your worst site was not suitable.....

e. In this exercise all the factors were considered to be of equal importance. This may not be the case in the real world. Repeat the exercise but first rank the factors from most down to least important and use a weighting factor of $4 \times 3 \times 2 \times 1$ in descending order. Is the same site still the best ?

SITING A NUCLEAR POWER STATION : RE-BRIEF

a. Complete the following section by choosing the correct words from the list below :

A nuclear power station is usually sited on the coast or alongside an since it needs at least twice as much cooling water as a conventional coal-fired power station. The is the system of major electricity transmission line. It is very to build new transmission line and a nuclear power station should be placed as to the existing network as possible.

Leaks of materials and the possibility of explosions mean that a nuclear power station should not be located near a or any other major area. The waste materials are also difficult to deal with since they must be stored for a period of time. If possible the nuclear power stations should not be built in a park since they are areas of special

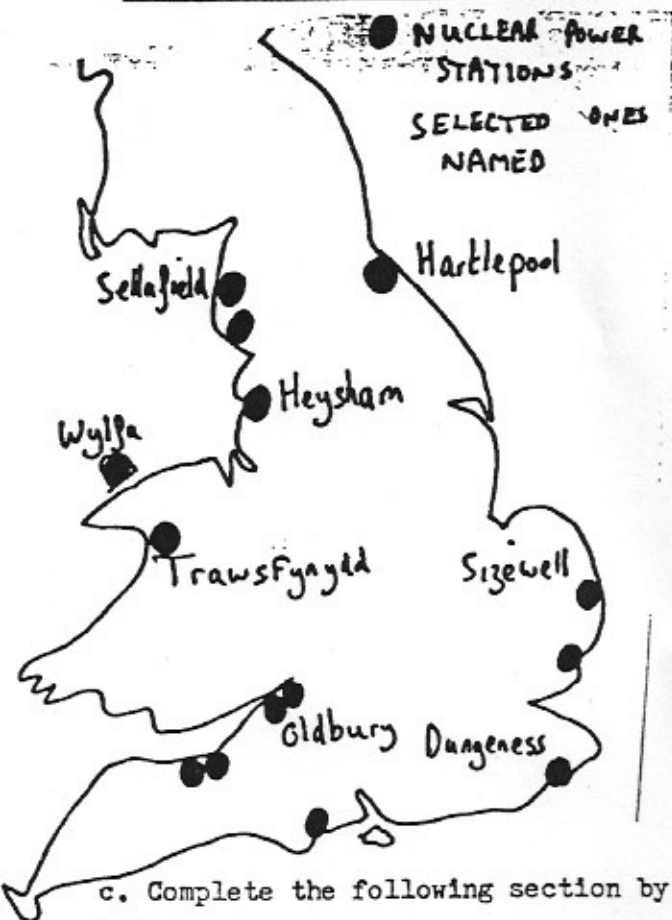
EXPENSIVE CHEAP URBAN RURAL CITY ESTUARY RADIOACTIVE
BEAUTY CLOSE FAR NATIONAL SUPERGRID SHORT LONG

b. Britain is likely to expand the nuclear energy industry over the next few years, but is this the best policy? Which of the following statements are FOR and which are AGAINST nuclear power?

FOR/AGAINST

- 1. One tonne of uranium produces as much energy as 25000 tonnes of coal.
- 2. The accident at Chernobyl caused widespread environmental damage.
- 3. Energy demand is rising.
- 4. Uranium must be imported whilst Britain has a great deal of coal.
- 5. Coal and oil will eventually run out.
- 6. Coal fired power stations lead to acid rain.
- 7. Conservation in homes and industry may decrease energy needs.
- 8. We must concentrate on renewable resources such as water and wind in the future.
- 9. Burning of fossil fuels may increase the Greenhouse Effect and lead to global warming.
- 10. Electricity produced at nuclear power stations is a little cheaper than that produced at conventional power stations.

NUCLEAR POWER STATIONS IN ENGLAND AND WALES : DE-BRIEF



a. Briefly describe the distribution of nuclear power stations shown on the map.

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.....
.....

b. Give one argument in favour of building nuclear power stations and one against.

FOR.....
.....
.....
AGAINST.....
.....

c. Complete the following section by choosing the correct word from the list below....

Traditionally nuclear power stations have been built in coal areas; these are areas that are not very well endowed with coal. Most of the of Britain does not have much coal and many nuclear power stations are found there. It is also best, where possible, to locate a nuclear power station as far as possible away from major areas. There may be a danger of leaks of materials or disasters such as the one at in the former U.S.S.R. affecting areas near nuclear power stations.

The of major electricity transmission line is very to build. The grid is necessary to link areas of excess production with these areas in deficit since electricity cannot be stored. A nuclear power station is best located away from parks or areas of natural beauty. These regulations have been relaxed recently and a nuclear power stations may be built in areas of beautiful scenery as in Snowdonia in Wales.

- NORTH
- SOUTH
- NATIONAL
- DEFICIT
- RADIOACTIVE
- CHEAP
- EXPENSIVE
- CHERNOBYL
- MOSCOW
- SUPERGRID
- URBAN
- RURAL