

DEBATE : ADVANTAGES AND DISADVANTAGES OF ENERGY RESOURCES

Background Information

Due to increased residential and industrial demand for energy, the state government is considering a proposal for a new coal-powered power station to be built. The proposal is the building of a power station at Brownfield, an arid country town which is close to coal mines and has both a well-maintained highway for truck transport and a nearby deepwater port for coal export.

The Topic of the Debate

Should the development of the power station go ahead?

The 3 Parties in Favour of the Coal-Powered Power Station

- ◆ *Local Member of Parliament in the Brownfield Electorate* – She is pleased that there is an opportunity to bring employment and prosperity to a small country town.
- ◆ *Chief Executive Officer of the NRG Coal Mining Company* – His company provides coal for electricity production that is used by a large range of local and international manufacturing businesses.
- ◆ *State Director of Energex* – Demand for electricity has been increasing in recent years because of the increase in global warming and the need for cooling devices such as air conditioners. He believes that a new power station will supply the needs of the growing population and associated industry.

The 3 Parties Against the Coal-Powered Power Station

- ◆ *Local Mayor of Brownfield* – Her concerns are for the increased demand on the infra-structure (i.e. bus transport, schools, medical facilities, electricity and water supply, sewerage etc) and for the increase in noise and pollution with mining and building and the greater number of residents.
- ◆ *Greenpeace Conservationist and Local Doctor* – His concerns are that the emission gases are unhealthy and will put stress on the state health system.
- ◆ *Representative from the World Alternative Energy Commission (WAEC)* – Her concerns are that insufficient money is being spent on renewable energy research and development and that the millions of dollars for a new power station would be better spent in scientific research for solar energy and the like.

More Information

POWER SOURCE	ADVANTAGES	DISADVANTAGES
Coal	<ul style="list-style-type: none"> ◆ Cost effective ◆ Appropriate for large scale use ◆ High employment ◆ Readily available and transportable in some countries 	<ul style="list-style-type: none"> ◆ Non-renewable ◆ Limited resource ◆ Waste emissions of CO₂, SO₂, NO_x ◆ Large scale chronic health risk ◆ Land degraded by mining ◆ Solid waste disposal of ash
Natural Gas	<ul style="list-style-type: none"> ◆ Appropriate for large scale use ◆ Valuable as raw material in industry, residential and commercial heating 	<ul style="list-style-type: none"> ◆ Non-renewable ◆ Limited resource ◆ Waste emissions of CO₂, SO₂, NO_x
Oil	<ul style="list-style-type: none"> ◆ Appropriate for large scale use ◆ Readily available in some countries 	<ul style="list-style-type: none"> ◆ Non-renewable ◆ Limited resource ◆ Waste emissions of CO₂, SO₂, NO_x ◆ Large scale chronic health risk ◆ Expensive ◆ Used in production of plastics, pharmaceuticals, transportation, and commercial and residential heating ◆ Mostly available from politically volatile countries
Nuclear	<ul style="list-style-type: none"> ◆ Cost effective in large scale use ◆ Almost unlimited resources using reprocessing methods ◆ No greenhouse emissions 	<ul style="list-style-type: none"> ◆ Non-renewable ◆ Accident risk ◆ Radioactive waste disposal can be a problem ◆ High initial building costs
Solar	<ul style="list-style-type: none"> ◆ Renewable ◆ Pollution-free ◆ Good for small scale developing technology 	<ul style="list-style-type: none"> ◆ Not cost effective at present ◆ Occupies large expanses of land ◆ Limited heating hours ◆ Need to store energy
Hydro-Electricity	<ul style="list-style-type: none"> ◆ Renewable ◆ Pollution-free ◆ Reliable, continuous resource 	<ul style="list-style-type: none"> ◆ Limited sites available ◆ Large scale accident risk ◆ Large scale environmental damage ◆ High initial building costs
Wind	<ul style="list-style-type: none"> ◆ Renewable ◆ Pollution-free ◆ Low cost ◆ Good for small scale 'wind 	<ul style="list-style-type: none"> ◆ Limited areas suitable ◆ Winds must be greater than 21km/h ◆ Backup provisions necessary

	farms'	<ul style="list-style-type: none"> ◆ Visibly disturbing on a large scale ◆ Interference to TV and microwave transmission
Tidal	<ul style="list-style-type: none"> ◆ Renewable ◆ Pollution-free 	<ul style="list-style-type: none"> ◆ Not cost effective at present ◆ Only available on certain coastlines
Geothermal	<ul style="list-style-type: none"> ◆ Renewable in the long term ◆ Cost effective ◆ Reliable constant resource 	<ul style="list-style-type: none"> ◆ Local use only ◆ Bad smelling gases ◆ Contains corrosive harmful gases such as H₂S, NH₃ and radon