

Edexcel IGCSE Physics

4 - Energy Resources and Electricity Generation (Physics Only)

Flashcards

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Describe the energy changes in a power station.



Describe the energy changes in a power station.

- Heat energy released in the reaction(chemical,nuclear) is used to make steam
- Converted to kinetic energy as the steam moves the turbine
- More kinetic energy as the turbine movement moves the generator
- Electrical energy as the generator generates electricity



What are the main energy sources that are available on earth?



What are the main energy sources that are available on earth?

-Fossil fuels

-The Sun

-Nuclear fuel

-Geothermal Resources

-Hydroelectricity

-The tides



What is meant by a non-renewable fuel?



What is meant by a non-renewable fuel?

- A fuel that has limited supply and will eventually run out



What is meant by a renewable energy source?



What is meant by a renewable energy source?

Sources that replenish themselves naturally and will not run out.



Is nuclear fuel a renewable or non-renewable resource?



Is nuclear fuel a renewable or non-renewable resource?

A non-renewable resource



Give some examples of renewable energy sources?



Give some examples of renewable energy sources?

- Solar
- Tidal
- Waves
- Wind
- Geothermal
- Biomass
- Hydroelectric



What are the benefits of using fossil fuels as an energy source?



What are the benefits of using fossil fuels as an energy source?

- It doesn't cost a lot to obtain the fuel
- It provides a lot of energy
- If there is a quick change in demand, fossil fuels can respond to that change quickly



How is wind used as an energy source?



How is wind used as an energy source?

- The wind turns wind turbine blades.
- The turbine turns the generator, which causes electricity to be produced
- Initial store is kinetic energy of wind



How does hydroelectric power produce energy?



How does hydroelectric power produce energy?

- Rainwater collects behind a dam
- When this water is released, it is used to turn a turbine
- This turbine turns a generator which produces electricity
- Initial store is GPE of water up in the dam.



What energy source uses light energy to create an electric current?



What energy source uses light energy to create an electric current?

Solar cells / Photovoltaic Cells



What is the advantages of tidal energy sources?



What are the advantages of tidal energy sources?

- They do not produce greenhouse gases or harmful gases
- They are quite reliable, as tides happen twice a day
- It is very cheap to run as tides are natural, and so are free



What are the disadvantages of hydroelectric power?



What are the disadvantages of hydroelectric power?

- The dam may cause flooding
- It can cost a lot to install the required infrastructure
- Can not be used everywhere.



Why might people have problems with wind turbines?



Why might people have problems with wind turbines?

- They lead to noise/visual pollution.
- They can cause harm to bird flocks.
- They take up large areas.



What are some advantages of solar panels?



What are some advantages of solar panels?

- They don't cause damage to the environment
- They are a renewable resource
- They can be used in remote areas where other types of energy are less accessible



What are advantages of using nuclear energy for electricity production?



What are advantages of using nuclear energy for electricity production?

- Cheapest energy production per kWh.
- Does not produce any greenhouse gas.
- It is not location specific. Can be used in most countries.
- Not weather dependent therefore its reliable.



What are disadvantages of using nuclear energy for electricity production?



What are disadvantages of using nuclear energy for electricity production?

- Produced nuclear waste which is radioactive and has a long half-life
- High commission fees for stations because they become radioactive
- Can be targets of terror attacks.
- Risk of nuclear accidents

