

Edexcel GCSE Physics

Topic 3.13-3.14 - Using Energy

Flashcards

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What is a renewable energy resource?



What is a renewable energy resource?

An energy source which can be replenished as it is being used up.



Give **four** examples of renewable energy resources.



Give **four** examples of renewable energy resources.

1. Wind Energy
2. Hydro-Electricity
3. Tidal Energy
4. Solar Energy



Give an example of a non-renewable energy resource.



Give an example of a non-renewable energy resource.

Fossil fuels (for example coal, oil and gas).



What are the advantages of generating power using gas rather than coal?



What are the advantages of generating power using gas rather than coal?

- Flexible Generation: Gas power stations have short start-up times so can be switched on/off more readily
- Lower emissions of carbon dioxide



State **two** disadvantages of using renewable energy resources to generate power.



State **two** disadvantages of using renewable energy resources to generate power.

- Output often determined by external factors (like wind speed), so supply is uncertain
- Renewable fuels often produce less energy per kg (so are less economical).



Explain the environmental impacts of burning fossil fuels.



Explain the environmental impacts of burning fossil fuels.

- Carbon Dioxide contributes to the greenhouse effect, and causes global warming
- Sulphur Dioxide leads to acid rain, which can damage buildings and crops



State **three** advantages of fossil fuels as an energy resource.



State **three** advantages of fossil fuels as an energy resource.

1. Reliable: Not dependent on external factors so can generate power anytime
2. Produce large amounts of energy per kg
3. Still relatively abundant, so cost-effective



State **three** advantages of nuclear power.



State **three** advantages of nuclear power.

1. Very large amounts of energy per kg of fuel
2. No greenhouse gases released, so doesn't contribute to climate change
3. Low fuel costs



State **three** disadvantages of nuclear power.



State **three** disadvantages of nuclear power.

1. Produces **nuclear waste** which is harmful to humans & must be safely stored for centuries.
2. **Non-Renewable** energy source
3. Risk of nuclear accidents, which have fatal consequences on humans and the environment



Give examples of social factors to consider in energy production.



Give examples of social factors to consider in energy production.

- Visual Pollution
- Sound Pollution

(both of these are disadvantages of wind farms)



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



What are some disadvantages of using biofuels?



What are some disadvantages of using biofuels?

- When plants are burned/decay they release CO_2
- In order to grow biofuels, you need to destroy land:
 - Habitat destruction
 - CO_2 released when plants are cleared (for example, if they are burned)
- Growing biofuels reduces the land available for food crops



What are the advantages of tidal energy sources?



What are the advantages of tidal energy sources?

- No greenhouse gases
- Fairly reliable - tides occur twice a day
- Cheap to run as tides are natural, so
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



What are some advantages of solar panels?



What are some advantages of solar panels?

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

