|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Energy resource | ***How it works*** | Uses | Positive | Negative |
| Fossil Fuels  (coal, oil and gas) | ***Burnt to release thermal energy used to turn water into steam to turn turbines*** | Generating electricity, heating and transport | Provides most of the UK energy. Large reserves. Cheap to extract. Used in transport, heating and making electricity. Easy to transport. | Non-renewable. Burning coal and oil releases sulfur dioxide. When mixed with rain makes acid rain. Acid rain damages building and kills plants. Burning fossil fuels releases carbon dioxide which contributes to global warming. Serious environmental damage if oil spilt. |
| Nuclear | ***Nuclear fission process*** | Generating electricity | No greenhouse gases produced. Lots of energy produced from small amounts of fuel. | Non-renewable. Dangers of radioactive materials being released into air or water. Nuclear sites need high levels of security. Start up costs and decommission costs very expensive. Toxic waste needs careful storing. |
| Biofuel | ***Plant matter burnt to release thermal energy*** | Transport and generating electricity | Renewable. As plants grow, they remove carbon dioxide. They are ‘carbon neutral’. | Large areas of land needed to grow fuel crops. Habitats destroyed and food not grown. Emits carbon dioxide when burnt thus adding to greenhouse gases and global warming. |
| Tides | ***Every day tides rise and fall, so generation of electricity can be predicted*** | Generating electricity | Renewable. Predictable due to consistency of tides. No greenhouse gases produced. | Expensive to set up. A dam like structure is built across an estuary, altering habitats and causing problems for ships and boats. |
| Waves | ***Up and down motion turns turbines*** | Generating electricity | Renewable. No waste products. | Can be unreliable depends on wave output as large waves can stop the pistons working. |
| Hydroelectric | ***Falling water spins a turbine*** | Generating electricity | Renewable. No waste products. | Habitats destroyed when dam is built. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Energy resource | ***How it works*** | Uses | Positive | Negative |
| Wind | ***Movement causes turbine to spin which turns a generator*** | Generating electricity | Renewable. No waste products. | Unreliable – wind varies. Visual and noise pollution. Dangerous to migrating birds. |
| Solar | ***Directly heats objects in solar panels or sunlight captured in photovoltaic cells*** | Generating electricity  and some heating | Renewable. No waste products. | Making and installing solar panels expensive. Unreliable due to light intensity. |
| Geothermal | ***Hot rocks under the ground heats water to produce steam to turn turbine*** | Generating electricity and heating | Renewable. Clean. No greenhouse gases produced. | Limited to a small number of countries. Geothermal power stations can cause earthquake tremors. |

Remember to:

* Chunk it … do you need to know ALL of this? Do you need to know 2 or 3 Non-renewable and 2 or 3 renewable energy types …
* Make it visual
* Add colour
* Add pictures
* Talk it through … use your hands to add a physical memory
* Teach your partner …