

RENEWABLE VS NON-RENEWABLE ENERGY SOURCES



Have you ever stopped to think where the energy that is powering your home and electronic devices comes from? Every day we use a large number of products and services that need energy to run. But, is energy always going to be around? Could it simply run out one day and we are no longer able to live our lives in the same way?

To meet the high energy requirements for everyone around the world, we must produce energy from many sources. These sources are either renewable or non-renewable.

Renewable energy comes from sources which can be used over and over without them running out. Alternatively, non-renewable energy cannot be easily used again and will eventually run out.

NON-RENEWABLE ENERGY

Let's look at traditional sources of energy – non-renewable energy. Non-renewable energy comes from sources that will eventually run out or will not

be replenished for centuries. The four main types of non-renewable energy are oil, natural gas, coal, and nuclear energy.

Oil

Oil reservoirs can be found inland (onshore) or under the seabed (offshore). Wells are drilled into the reservoirs, and the pressure can force the oil to the surface naturally, or the oil may need to be pumped to the surface. The oil is then refined into petroleum products such as petrol, diesel and kerosene.

Natural Gas

Natural gas is found in rock reservoirs under the ground or deep under the ocean. It can be used to generate electricity in gas-fired power stations. The gas is combined with air, burned in a combustion chamber and compressed to produce combustion gas. This high-pressure gas expands through a turbine. An electrical generator converts the moving energy (kinetic energy) of the rotating turbine into electricity.



Coal

Coal is mined using open-cut or underground mining techniques. It is crushed into a fine powder and burned in a furnace to generate heat and produce high-pressure steam. The steam is used to turn a turbine and drive a generator that converts the kinetic energy into electricity.

Nuclear Energy

Nuclear energy is also considered non-renewable, as it requires uranium ore to be mined for fuel and produces highly hazardous radioactive waste.

RENEWABLE ENERGY

Renewable energy sources are often thought of as the good guys! They come from natural resources that are more readily replenished. In most cases, they also create a lot less pollution than non-renewable energy sources. The three major types of renewable energy are solar energy, wind energy and hydropower.

Solar Energy

Solar power is clean electricity created from sunlight or heat from the sun. Solar energy is primarily captured by

solar photovoltaic or solar thermal systems. Solar photovoltaic panels convert solar energy into electricity, while solar thermal systems can be used to heat water.

Wind Energy

Wind power involves converting wind energy into electricity by using wind turbines. The wind rotates the blades of the wind turbine, which are connected to an electrical generator. The electrical generator converts the motion (kinetic energy) of the spinning turbine into electricity.

Hydropower

Hydropower systems convert the flow of water into electrical energy. Like wind turbines, hydropower systems rely on submerged turbines that are rotated by the flow of water. An electrical generator converts the motion (kinetic energy) of the spinning turbine into electricity.



As a consumer of energy, you can decide where your electricity is sourced from. A large number of energy providers allow customers to choose if they would like a certain percentage or all of their energy to come from renewable sources. This is a great step towards moving the world's energy needs to a cleaner, more sustainable future.

Name: _____

Date: _____

Renewable vs Non-Renewable Energy Source

1. What is the difference between renewable and non-renewable energy sources?

2. Why is nuclear energy also considered a non-renewable energy source

3. In your own words, explain why non-renewable energy sources are generally considered bad for the environment.

4. What natural source creates:

a) solar energy? _____

b) wind energy? _____

c) hydropower? _____

Name: _____

Date: _____

5. Solar and wind energy are two examples of renewable energy sources. What could be a drawback to using these energy sources?

6. Do you think it is important for people to use renewable energy sources. Give reasons for your answer.

Renewable vs Non-Renewable Energy Source

1. What is the difference between renewable and non-renewable energy sources?

Renewable energy comes from sources which can be used over and over without them running out while non-renewable energy cannot be easily used again and will eventually run out.

2. Why is nuclear energy also considered a non-renewable energy source?

Nuclear energy is also considered non-renewable as it requires uranium ore to be mined for fuel and produces highly hazardous radioactive waste.

3. In your own words, explain why non-renewable energy sources are generally considered bad for the environment.

Pollution; removing from natural resources; they will run out; oil spills; health risks; climate change.

4. What natural source creates:

- a) solar energy? **Sun**
- b) wind energy? **Wind**
- c) hydropower? **Water**

5. Solar and wind energy are two examples of renewable energy sources. What could be a drawback to using these energy sources?

If it is not a sunny or windy day, the amount of energy produced can be smaller.

6. Do you think it is important for people to use renewable energy sources. Give reasons for your answer.

Answers will vary.