

Energy and the environment

Power Smart for Schools

Read the descriptions of the following energy sources. As a group, discuss and rank the energy sources from the one that has the least impact on the environment to the one that has the greatest impact on the environment. Cut the statements into strips. Rearrange to tell the story in the right order.



BIOMASS

Biomass energy comes from wood, grains or other plant materials. These materials are often dumped in landfills but can be burned instead to release their stored energy. Biomass can be a renewable source of energy.

COAL

Coal is a fossil fuel that comes from the Earth and took millions of years to form. Coal is burned to create thermal energy that heats water to produce steam. The steam is used in a turbine to create electricity. Burning coal releases greenhouse gases into the environment. Coal is a non-renewable source of energy.

GEOTHERMAL

Geothermal energy uses heat from near the earth's surface or deep underground. Earth energy heat pumps bring warmth from the ground to your home. Geothermal energy is renewable.

HYDRO

Moving water in rivers and streams has kinetic energy. This energy is transformed into electric energy when water moves through the turbines in a hydroelectric dam. Water is a renewable source of energy.

NATURAL GAS

Natural gas is a fossil fuel, like oil and coal, which is burned to create heat that powers a steam turbine. Natural gas burns more cleanly than oil and coal, producing fewer greenhouse gases. Natural gas is a non-renewable source of energy.



NUCLEAR

Nuclear energy is the energy released when atoms are split apart (fission) or combined (fusion). Uranium atoms can be split, releasing heat to produce steam, which spins a turbine to generate electricity. Nuclear waste can remain dangerous to soil, water and life on Earth for hundreds of thousands of years. Nuclear energy is a non-renewable source of energy.

OCEANS AND TIDES

The oceans are in constant motion. Tidal currents can move underwater propellers to create electricity. Wave movements can move large floats up and down to create electricity. The oceans are a renewable source of energy.

OIL

Oil is burned to create heat (or thermal) energy. This heat is used to produce steam, which spins a turbine. The turbine in a generator spins magnets through copper wire to generate electricity. Burning oil releases greenhouse gases into the environment. Oil is a non-renewable source of energy.

SOLAR

Solar energy uses the energy from the sun. Solar energy can be captured using photovoltaic cells to convert the sun's energy into electricity. Solar thermal panels collect the heat from the sun to heat water or buildings or to generate electricity. Solar energy is renewable.

WIND

Moving air has kinetic energy. This kinetic energy makes a wind turbine spin and is transformed into electric energy inside the turbine. Wind farms collect energy that is sent to nearby homes. Wind is a renewable source of energy.