

Resources for Energy System Diagram Activity

Labels for Anaerobic digestion poster – cut apart and distribute to students

Manure

The input to the system, this is produced as waste once animals have consumed plant products.

Anaerobic Digester

A chamber containing chemicals that can break down plant and animal waste into various gasses such as methane.

Methane

The useful output from the anaerobic digestion process, this is a flammable gas.

Burner

This burns methane to create heat, which can be used directly or to make steam that can turn a steam turbine and generator to get electricity.

Carbon Dioxide

This gas that plants use as an input is a byproduct of the burning of methane.

Labels for Biomass burning poster – cut apart and distribute to students

Biomass

Wood residue, grasses, corn stalks, etc. that can be burned. This is the input to the system.

Stack

A tower that emits exhaust from the combustion process.

Boiler

This device heats water to produce steam.

Steam

Produced when water is boiled. It is the vapor phase of water.

Turbine

Spinning blades in this device are turned by steam and spins the generator.

Generator

This part is turned by the turbine, generating electromagnetic energy.

Electricity

This is the final output of the system. It can also be described as electrons in motion.

Labels for coal power plant poster – cut apart and distribute to students

Coal

Carbon based substance formed over time from fossilized plants. This is the input to the system.

Stack

A tower that emits exhaust from the combustion process.

Boiler

This device heats water to produce steam.

Steam

Produced when water is boiled. It is the vapor phase of water.

Turbine

Spinning blades in this device are turned by steam and spins the generator

Generator

This part is turned by the turbine, generating electromagnetic energy.

Electricity

This is the final output of the system. It can also be described as electrons in motion.

Labels for Geothermal system poster – cut apart and distribute to students

Geothermal Energy

Energy due to the internal heat of the earth. This can include hot rocks, magma, or hot springs.

Heat Pump

This transfers the heat from the earth to heat water and produce steam.

Steam

Produced when water is boiled. It is the vapor phase of water.

Turbine

Spinning blades in this device are turned by steam and spins the generator

Cooling System

A set of parts designed to reduce the heat in the geothermal system

Generator

This part is turned by the turbine, generating electromagnetic energy.

Electricity

This is the final output of the system. It can also be described as electrons in motion.

Labels for Hydro system poster – cut apart and distribute to students

Reservoir

This is where the input of the energy system (water) is stored.

Dam

This makes sure water in a river or lake is held in a reservoir.

Control Gate

This controls the amount of water (flow rate) that reaches the turbine.

Penstock (Pipeline)

This allows water to flow through a dam and past a turbine.

Turbine

This has blades on it that spin a rotor when water passes over them.

Generator

Connected to the rotor, part of it spins to create electricity.

Electricity

This is the final output of the system. It can also be described as electrons in motion.

Labels for Nuclear energy system poster – cut apart and distribute to students

Reactor

This is where the fission nuclear reaction of Uranium being split occurs.

Control Rods

These pieces of metal are inserted into the reactor to control how fast the nuclear reaction takes place.

Steam Generator

It is here that heat from the nuclear reaction boils water.

Turbine

This has blades on it that spin a rotor when steam passes over them.

Generator

Connected to the rotor, part of it spins to create electricity.

Electricity

This is the final output of the system. It can also be described as electrons in motion.

Labels for solar energy system poster – cut apart and distribute to students

Sun

The star that provides light energy as a source for the solar energy conversion system, this is the input to the system.

Photons

Electromagnetic particles that strike the solar panel surface exciting the silicon atoms in the panel.

Electrons

Atomic particles with a negative charge that are released from the solar panel.

Silicon Solar Cell

Primarily made from silicon, this converts the sun's energy into useable electromagnetic energy.

Electricity

This is the final output of the system. It can also be described as electrons in motion.

Labels for wind energy system poster – cut apart and distribute to students

Wind

This flows over the blades causing a lifting force. It is caused by the sun's uneven heating of the earth. It is the input to the system.

Blades

Usually there are 2 or 3 that rotate and turn a shaft. They are designed to “cut” through the air.

Rotor

Includes the blades and a central hub. It rotates and turns a shaft.

Gear-Box

This part increases the rotational speed of the turbine. It includes at least two parts that work together as a “package”.

Generator

Consisting of a magnetic field that rotates with the shaft and rotor, it makes electricity.

Electricity

This is the final output of the system. It can also be described as electrons in motion.