



Car 51 is a solar car that competed in the 1993 World Solar Challenge. The car is now being refitted by Year 12 students for their engineering studies.

Energy: Solar Electric



One of Sydney Harbour's light houses. Once lit by fossil fuels, today most function using electricity from either the grid or adjacent solar arrays.

Energy: Light



Paragliding is a sport that relies on the motion of a boat or vehicle and favourable winds. Staying aloft depends on manipulating cords.

Energy: Kinetic



Wave motion is used today to create electricity and also desalinate sea water to drinkable water. Here two youths challenge the waves at a bay near Bondi.

Energy: Kinetic



Gears have allowed us to increase or decrease the amount of work we do without additional energy from us. Here the gears of a bike are shown.

Energy: Kinetic when moving - Chemical from rider's muscles



Vehicle being refueled with hydrogen
Energy: Motor - Chemical & Thermal during combustion. Motion of the vehicle
Kinetic + some Thermal (friction between road, tyres & moving parts)



HPV - Pedal Prix A three wheeled vehicle that relies entirely on human power.
Energy: Chemical gained from the food the rider has eaten. Motion is Kinetic



Archery relies on flexible materials. Pulling an arrow back and placing the bow under tension stores energy until it is released.
Energy: Elastic Potential



Formula SAE vehicles are down sized racing cars built and raced by tertiary students. Many of the cars have been adapted to run on bio fuels.

Energy: Motor - Chemical Motion - Kinetic



Cranes lift objects. The higher the object the greater the potential energy. When lowering an object the potential becomes less and kinetic increases.
Energy: Potential & Kinetic



Electrolysis is a chemical reaction where water, a compound is separated into the elements Hydrogen & Oxygen by electrical means.
Energy: Chemical & Electrical



Engineering university students have to complete a research project. Here a large two wheeled vehicle that is propelled by an electric motor can carry one person.
Energy: Electrical & Kinetic



Solar Car Kelly runs entirely on electricity gained from its solar arrays over its top surface. Additional power is gained by regenerative braking.

Energy: Motor - Electrical Motion - Kinetic



The rotation of a wind turbine enables two like magnetic poles to push themselves apart. The resultant rotation gives rise to an electrical charge.
Energy: Motion - Kinetic - Electrical



HPV - Pedal Prix Cornering has to overcome the force that wants to continue in a straight line. Friction helps overcome this force.
Energy: Motion - Kinetic Friction - Thermal



Batteries in series from a solar car. The batteries store electrical energy until needed.
Energy: Electrical



The Nissan Leaf runs on electricity. Recharging is shown here using a special connection found in the car's boot area.

Energy: Motor - Electrical Motion is Kinetic



A small solar panel runs this toy car. Electricity from the panel goes directly to the motor to produce motion.
Energy: Motor - Electrical Motion is Kinetic



Mitsubishi i-Miev was introduced to Australia in 2010. The car runs on batteries that need to be recharged from the grid. Power from the grid can vary.
Energy: Motor - Electrical Motion - Kinetic



Planes use aviation fuel to create a force called Thrust. The process of refining the fuel is a chemical reaction.
Energy: Engine - Chemical Motion - Kinetic Bi-product - Thermal



Plants need moisture via their roots and carbon dioxide through their leaves in the presence of sunlight before photosynthesis can take place. Only then can a plant release oxygen.
Energy: Chemical



Tele communication can rely on radio waves to send messages across a nation. Here a repeater tower boosts the radio signal.
Energy: Sound



HPV - Space stations once in orbit rely on power from the sun. Here solar panels assist in producing electricity for use on board.
Energy: Electrical



Hydro-electricity Running water moving past a turbine's blades causes the generation of electricity
Energy: Motion - Kinetic Generation - Electrical



A fire needs 3 conditions to exist. Fuel, oxygen & ignition temperature. What follows is a chemical reaction where heat is produced.
Energy: Fire - Chemical Heat - Thermal



Plants gain energy from the act of photosynthesis. Animals benefit from this energy when they eat plants.
Energy: Chemical



The earth's crust can display extreme weather conditions. Here plants grow in a desert while mountains in the background are covered by snow and ice. Extreme conditions can give rise to change without warning.
Energy: Potential



Nuclear power can be fusion or fission. The resultant is the production of enormous heat which can turn water into steam that is used to rotate a turbine to make electricity.
Energy: Thermal Motion - Kinetic



The Jatropha plant is poisonous to animals but the nuts produce oil that when refined becomes a bio-fuel.
Energy: Chemical



Sailing relies on favourable winds. Winds push sails forward to create motion.
Energy: Kinetic



Cities are turning to solar power to serve their needs. Here a panel powers a parking meter
Energy: Electrical



Tesla found that bringing a fluoro globe near an electrical charge the globe would light up even though it was not wired to an electrical source.
Energy: Electrical