# AGE Hydrogen Fuel Cell Technology

*Alpheius Global Enterprises is keen to promote the use of clean energy sources and sees the hydrogen as a great alternative for powering vehicles in the future. As part of their* ***Community******Development Program*** *here they provide an explanation of how hydrogen can save us money in the future and how hydrogen fuel cells work.*

## The Benefits of Hydrogen

Hydrogen is cleaner and up to twice as efficient as traditional petrochemicals, resulting in up to a 50% fuel saving. The only by-products of hydrogen technology are water and heat. Hydrogen cells, the source of the power, can be used anywhere that traditional batteries have been used. They are very reliable and quiet in operation.

## How Hydrogen Fuel Cells Work

Typically, hydrogen fuel cells that are large enough to power homes or computers are made up of a large number of smaller individual cells. Each cell produces only about 1 volt – which is why you need lots of them!

There are several types of hydrogen fuel cells. In a PEM fuel cell (Polymer Electrolyte Membrane or Proton Exchange Membrane), hydrogen is pumped into an electrolyte held between an anode and a cathode. These, in turn, are held between bipolar plates. A catalyst separates the hydrogen gas into protons and electrons. The protons pass through the membrane, but the electrons flow from the anode to the cathode creating electricity. Once the electrons have reached the cathode, they are mixed with oxygen and the protons to form water and produce heat.

*The only emissions from hydrogen fuel cells are water and heat*