



## What is hydrogen?

**Hydrogen is the most abundant element in the universe, but on Earth, it rarely exists on its own. Instead, it bonds with other atoms such as oxygen to form water or carbon to create hydrocarbons.**

Hydrogen can be used as a clean fuel, as when it is consumed in a fuel cell or combusted, the main by-product is water with zero carbon emissions. The challenge lies in separating hydrogen from water or hydrocarbons.

One way of doing this is through electrolysis, where electricity is passed through water to separate it into hydrogen and oxygen. If the electricity comes from renewable sources, the hydrogen is referred to as green.

### Are there other types of hydrogen production?

Yes, there are multiple methods of hydrogen production, categorised by colours based on how they are produced. Blue hydrogen is produced by splitting methane, with the carbon emissions captured and stored. Grey hydrogen is produced by splitting fossil fuels, but the carbon emissions are not captured.

Grangemouth Green Hydrogen will only produce green hydrogen, meaning there are zero carbon emissions.

### Why is hydrogen the future?

Green hydrogen can be used as a fuel to help reduce carbon emissions that contribute to climate change.

For applications where direct use of green electricity (e.g. solar and wind) is impractical, such as industrial processes requiring extremely high temperatures, alternative solutions like hydrogen are essential and could serve as an alternative to fossil fuels.



Find out more

