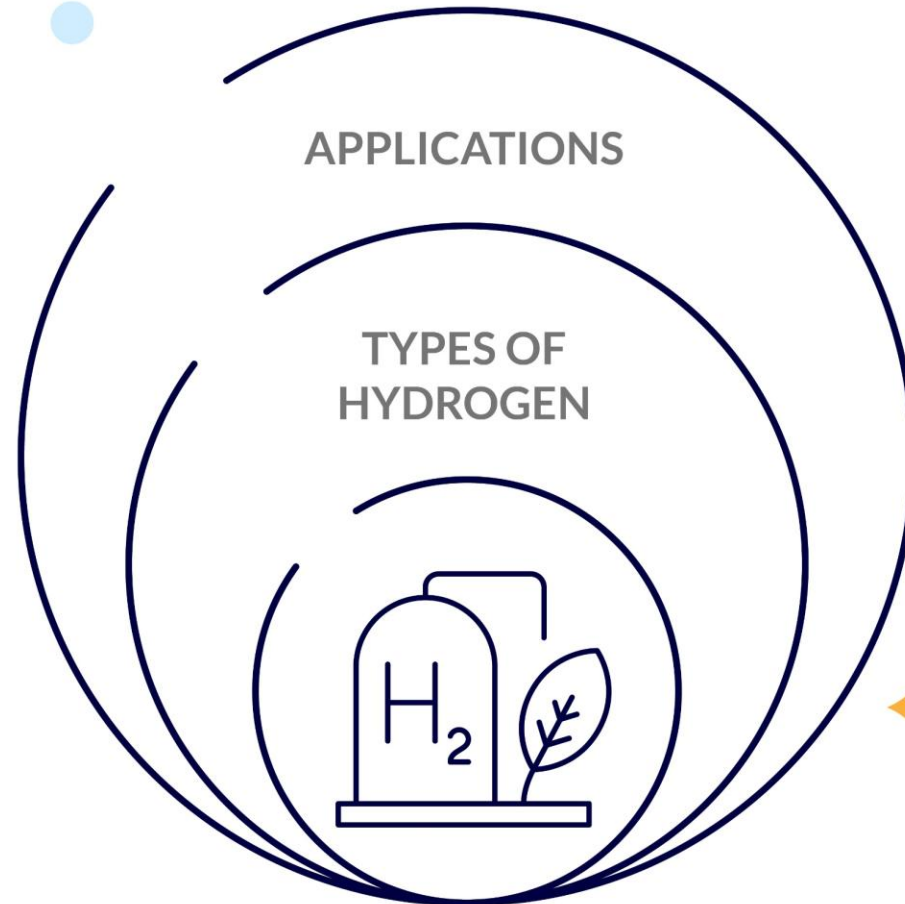




THE ROLE OF HYDROGEN IN THE ENERGY TRANSITION



ENERGY TRANSITION

The Energy Transition in Europe is the shift from fossil fuels to cleaner, renewable energy sources like wind, solar, **hydrogen**, and biomass, driven by the need to reduce emissions, fight climate change, and ensure energy security.

HYDROGEN Central to Energy Transition

Hydrogen is a clean energy that, when consumed in a specific device, produces only water vapor.
Green hydrogen, made with renewable electricity, is gaining attention for decarbonizing industries like steel, chemicals, and heavy transport.



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TYPES OF HYDROGEN

There are many 'colours' of hydrogen referring to the method of production. Among them, the **Green Hydrogen** is the only type produced in a climate-neutral manner, meaning it play a vital role in the decarbonisation goal.

GREY HYDROGEN

Grey Hydrogen is created from natural gas, or methane, using steam methane reformation but without capturing the greenhouse gases made in the process.



GREEN HYDROGEN

Green Hydrogen is produced through electrolysis powered by renewable energy sources like solar and wind power. This method is completely carbon-neutral.

BLUE HYDROGEN

Blue Hydrogen is created from natural gas with carbon capture and storage (CCS) technology and can be used to minimise emissions.



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APPLICATIONS



TRANSPORTATION

Heavy-duty transport (trucks, buses, ships, and trains) can use hydrogen fuel cells which are considered more viable for heavy-duty vehicles due to their longer range and faster refueling times than electric vehicles.



ENERGY SECURITY

Hydrogen can contribute to Europe's energy security by reducing dependency on imported fossil fuels.



ENERGY STORAGE AND GRID FLEXIBILITY



Energy storage is a challenge for renewables due to the intermittency of solar and wind. Hydrogen can store energy long-term and be converted to electricity when needed, helping to balance the grid and ensure a stable power supply.

SUPPORTING DECARBONIZATION BY:



Natural Gas Networks:

Blending hydrogen with natural gas to reduce emissions in heating and electricity.

Industries:

Using green hydrogen as a clean alternative to fossil fuels in steel, cement, chemicals, and refining.

Aviation & Shipping:

Powering hydrogen-fueled aircraft or synthetic fuels for sustainable transport.