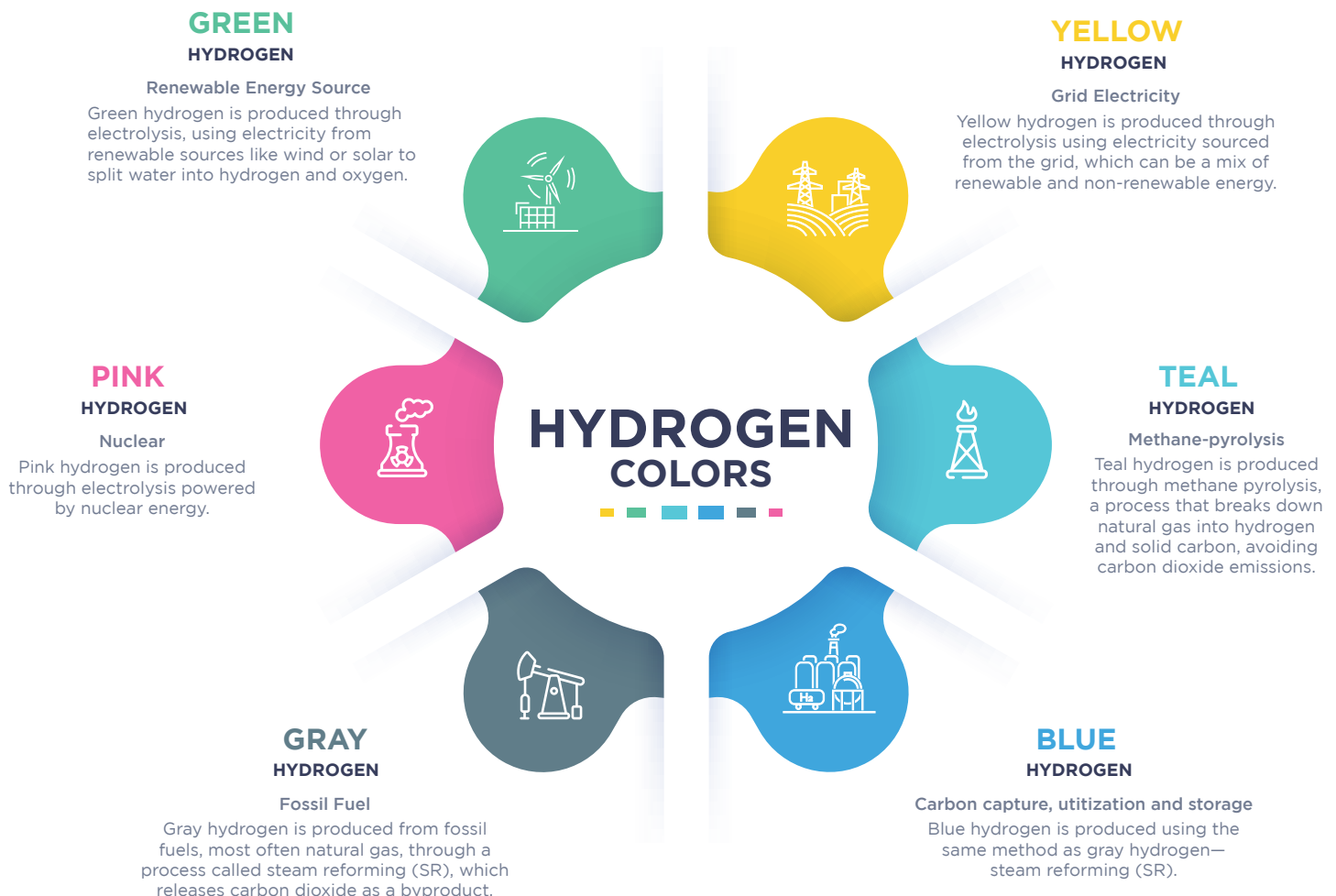


THE COLOR OF HYDROGEN

Unlocking the future of Clean Energy

Hydrogen is a versatile energy carrier with the potential to play a significant role in the global shift toward cleaner energy. To better understand and categorize the different methods of hydrogen production, various "colors" are used to represent the primary energy sources involved. These colors—such as gray, blue, and green—highlight the environmental impact and sustainability of each production method.

As the world seeks to reduce carbon emissions and transition to renewable energy, hydrogen, particularly green hydrogen produced from renewable sources, is becoming increasingly crucial in achieving these goals. This guide will walk you through the different colors of hydrogen and their importance in the evolving energy landscape.



GREEN HYDROGEN

Green hydrogen is produced through electrolysis, using electricity from renewable sources like wind or solar to split water into hydrogen and oxygen. This process results in zero carbon emissions, making green hydrogen a clean and sustainable energy option.

YELLOW HYDROGEN

Yellow hydrogen is produced through electrolysis using electricity sourced from the grid, which can be a mix of renewable and non-renewable energy. Its carbon footprint depends on the energy mix used in the grid, making it less consistently green than hydrogen produced exclusively from renewables.

PINK HYDROGEN

Pink hydrogen is produced through electrolysis powered by nuclear energy. This method is carbon-free, as nuclear power generates no direct carbon emissions, making pink hydrogen a clean and reliable energy option.

TEAL HYDROGEN

Teal hydrogen is produced through methane pyrolysis, a process that breaks down natural gas into hydrogen and solid carbon, avoiding carbon dioxide emissions. This method offers a low-carbon alternative to traditional hydrogen production, with the added benefit of producing solid carbon that can be stored or used in various industries.

GREY HYDROGEN

Gray hydrogen is produced from fossil fuels, most often natural gas, through a process called steam reforming (SR), which releases carbon dioxide as a byproduct. This is presently the most common and least expensive method of hydrogen production, but it has a significant carbon footprint due to the associated CO2 emissions.

BLUE HYDROGEN

Blue hydrogen is produced using the same method as gray hydrogen—steam reforming (SR)—but with a key difference: the carbon dioxide emissions are captured and stored through carbon capture and storage (CCS) technology. This reduces the overall carbon footprint, making blue hydrogen a lower-emission alternative to gray hydrogen.