

# Emerging technologies by hydrogen: A review

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## ABSTRACT

The majority of energy being used is obtained from fossil fuels, which are not renewable resources and require a longer time to recharge or return to its original capacity. Energy from fossil fuels is cheaper but it faces some challenges compared to renewable energy resources. Thus, one of the most potential candidates to fulfil the energy requirements are renewable resources and the most environmentally friendly fuel is Hydrogen. Hydrogen is a clean and efficient energy carrier and a hydrogen-based economy is now widely regarded as a potential solution for the future of energy security and sustainability. Hydrogen energy became the most significant energy as the current demand gradually starts to increase. It is an important key solution to tackle the global temperature rise. The key important factor of hydrogen production is the hydrogen economy. Hydrogen production technologies are commercially available, while some of these technologies are still under development. Therefore, the global interest in minimising the effects of greenhouse gases as well as other pollutant gases also increases. In order to investigate hydrogen implementation as a fuel or energy carrier, easily obtained broad-spectrum knowledge on a variety of processes is involved as well as their advantages, disadvantages, and potential adjustments in making a process that is fit for future development. Aside from directly using the hydrogen produced from these processes in fuel cells, streams rich with hydrogen can also be utilised in producing ethanol, methanol, gasoline as well as various chemicals of high value. This paper provided a brief summary on the current and developing technologies of hydrogen that are noteworthy.

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**KEYWORDS:** Hydrogen sustainability; Environmental impact; Renewable technologies; Green energy; hydrogen applications

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