

2021 INTERNATIONAL ENERGY STORAGE AND HYDROGEN ENERGY



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What is the IEA global hydrogen review 2021? To inform decision-making, the IEA Global Hydrogen Review 2021 presents a series of key milestones that must be reached by 2030 to unlock hydrogen's contribution to a zero-emission economy. These milestones encompass the whole hydrogen value chain, including its production, infrastructure requirements, transformation into other fuels and end uses.



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Can large-scale hydrogen storage in porous media enable a global hydrogen economy? Sci., 2021, Expectations for energy storage are high but large-scale underground hydrogen storage in porous media (UHSP) remains largely untested. This article identifies and discusses the scientific challenges of hydrogen storage in porous media for safe and efficient large-scale energy storage to enable a global hydrogen economy.



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How much hydrogen will a global electrolyser supply reach by 2030? Around 350 projects currently under development could bring global capacity up to 54 GW by 2030. Another 40 projects accounting for more than 35 GW of capacity are in early stages of development. If all those projects are realised, global hydrogen supply from electrolyzers could reach more than 8 Mt by 2030.



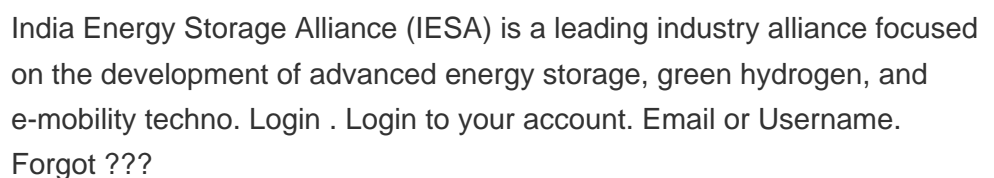
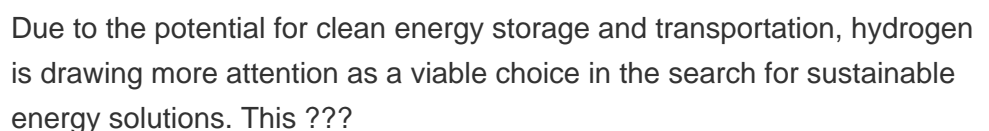
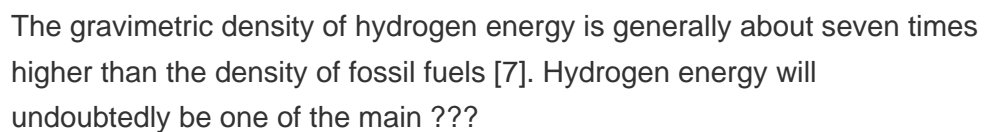
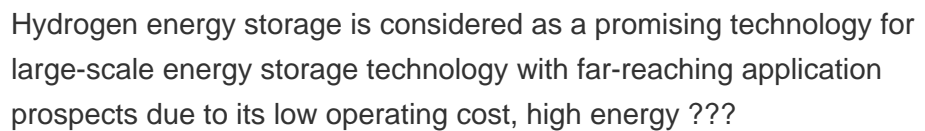
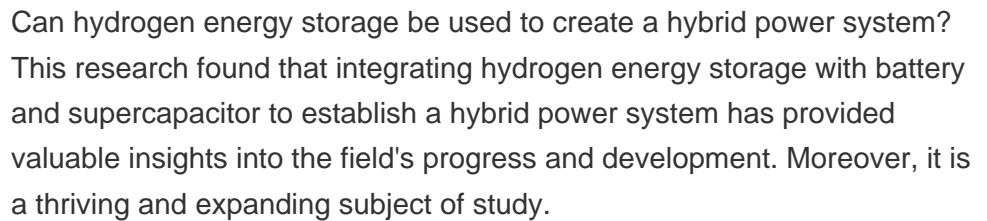
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What is hydrogen energy storage? Hydrogen energy storage utilizes electrolytic cells and fuel cells for the conversion between electricity and hydrogen energy. For hydrogen production, the proton exchange membrane electrolysis cell (PEMEC) is renowned for its high electrolysis efficiency (58 % to 70 %) and economic advantages.



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What is the global hydrogen review? The Global Hydrogen Review is a new annual publication by the International Energy Agency to track progress in hydrogen production and demand, as well as in other critical areas such as policy, regulation, investments, innovation and infrastructure development.



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The development of new storage systems, superior infrastructure designs, and seamless integration technologies is vital to achieving the full potential of hydrogen energy. ???



Carnot battery serves as the base load for stable, large-scale energy storage, while hydrogen energy storage (PEMEC and SOFC) serves as the regulated load to flexibly absorbs excess ???